TENDER DOCUMENTS

for

ERECTION of MAINTENANCE FACILITY
St MICHAELS RECREATION GROUND
ASHFORD ROAD
TENTERDEN

TENTERDEN TOWN COUNCIL

GPM2 DESIGN LTD
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

Tel: 01843 268010

Prepared July 2019

Table of Contents

A
JCT 2016 Minor Works Building Contract with Contractor's Design

A10
PROJECT PARTICULARS

A10 PROJECT PARTICULARS

110 THE PROJECT

- Name: Maintenance Shed
- Nature: Extension to public Conveniences to provide vehicle Maintenance facility and associated external works
- Location: St Michaels Recreation Ground ,St Michaels, Tenterden ,Kent.
- Length of contract: To be confirmed

120 EMPLOYER (CLIENT)

- Name: Tenterden Town Council
- Address:Town Hall, 24 High Street, Tenterden, Kent TN30 6AN
- Contact: Deputy Town Clerk
- Telephone: 01580 762271
- E-mail: dtc@tenterdentowncouncil.gov.uk

130 PRINCIPAL CONTRACTOR (CDM)

- Name: Main Contractor
- Address
- Contact: _.
- Telephone: .
- E-mail:

140 ARCHITECT/ CONTRACT ADMINISTRATOR

- Name: GPM2 Design Ltd.
- Address: Coach House Mews, Quex Park ,Birchington, Kent CT7 0BH.
- Contact: Chris Chambers
- Telephone: 01843 268010.
- E-mail: chrischambers@gpm2.co.uk.

150 PRINCIPAL DESIGNER

- Name: GPM2 Design Ltd.
- Address: Coach House Mews, Quex Park ,Birchington, Kent CT7 0BH.
- Contact: Chris Chambers
- Telephone: 01843 268010.
- E-mail: chrischambers@gpm2.co.uk.

160 QUANTITY SURVEYOR

- Name: GPM2 Design Ltd.
- Address: Coach House Mews, Quex Park ,Birchington, Kent CT7 0BH.
- Contact: Chris Chambers
- Telephone: 01843 268010.
- E-mail: chrischambers@gpm2.co.uk.

200 STRUCTURAL/ CIVIL ENGINEER

- Salluz Ltd
- Name:Eamon Stafford.
- Address: 3 Oakridge , Broadstairs, Kent, CT10 3QE.
- Telephone: 07392295136

A11
TENDER AND CONTRACT DOCUMENTS

A11 TENDER AND CONTRACT DOCUMENTS

110 TENDER DRAWINGS

- The tender drawings are: GPM2 Design 307- 101A, 102A, 103A, 104A
  Salluz Ltd 0294 – 01A, 02C, 03A,04B,05,06.

120 CONTRACT DRAWINGS

- The Contract Drawings: The same as the tender drawings.

160 PRECONSTRUCTION INFORMATION

The Preconstruction information is described in these preliminaries in Section A34.
It refers to information given elsewhere in the preliminaries and other tender documents.

A12
THE SITE/ EXISTING BUILDINGS

A12 THE SITE/ EXISTING BUILDINGS

110 THE SITE
- Description Recreation Ground laid to grass with associated play equipment

120 EXISTING BUILDINGS ON THE SITE
- Description: Existing Public Conveniences and access paths

140 EXISTING UTILITIES AND SERVICES
- Drawings: (Information shown is indicative only Southern water Services shown on drawings
- Other information: No other service information available contractor to make own enquiries.

160 SOILS AND GROUND WATER
- Information: Included in the tender documents.

170 SITE INVESTIGATION
- Report: Included in the tender documents.

200 ACCESS TO THE SITE
- Description: Off main A28
- Limitations: Contractor to make enquiries none known

210 PARKING
- Restrictions on parking of the Contractor's and employees' vehicles: TBA.

220 USE OF THE SITE
- General: Do not use the site for any purpose other than carrying out the Works.
-

230 SURROUNDING LAND/ BUILDING USES
- General: Adjacent or nearby uses or activities are as follows:
  -Recreation Ground Playground , Residential and Chapel.

240 HEALTH AND SAFETY HAZARDS
- General: The nature and condition of the site/ building cannot be fully and certainly ascertained before it is opened up. However the following hazards are or may be present:
  -Children in vicinity playing in playground and recreation ground.
- Information: The accuracy and sufficiency of this information is not guaranteed by the Employer or the Employer's representative. Ascertain if any additional information is required to ensure the safety of all persons and the Works.
- Site staff: Draw to the attention of all personnel working on the site the nature of any possible contamination and the need to take appropriate precautionary measures.

250 SITE VISIT
- Assessment: Ascertain the nature of the site, access thereto and all local conditions and restrictions likely to affect the execution of the Works.
- Arrangements for visit: Contact Deputy Town Clerk (ClientContact).

A13
DESCRIPTION OF THE WORK

A13 DESCRIPTION OF THE WORK

120 THE WORKS

- Description: Construction of attached Timber Frame and masonry construction to form a vehicle maintenance shed together with associated external works

A20
JCT MINOR WORKS BUILDING CONTRACT WITH CONTRACTOR'S DESIGN (MWD)

A20 JCT MINOR WORKS BUILDING CONTRACT WITH CONTRACTOR'S DESIGN (MWD)

JCT MINOR WORKS BUILDING CONTRACT WITH CONTRACTOR'S DESIGN

- The Contract: JCT Minor Works Building Contract with Contractor's Design 2016 Edition.
- Requirement: Allow for the obligations, liabilities and services described.

THE RECITALS

First - THE WORKS AND THE CONTRACT ADMINISTRATOR

- The work comprises The Construction of attached Timber Frame and masonry construction to form a vehicle maintenance shed together with associated external works
- Architect/ Contract Administrator: See clause A10/140.

Second - CONTRACTOR'S DESIGNED PORTION

- The Works include the design and construction of:
  -Timber Frame and Mechanical and Electrical Services.

Third - CONTRACT DOCUMENTS

- Contract drawings: As listed in clause A11/120.
  Contract documents: The following have been prepared which show and describe the work to be done Contract Drawings and Specifications

Fourth - PRICED DOCUMENTS

- Documents to be priced or provided by the Contractor: Form of Tender and Breakdown to be provided.

THE ARTICLES

3 - ARCHITECT/ CONTRACT ADMINISTRATOR

- Architect/ Contract Administrator: See clause A10/140.

4 and 5 - PRINCIPAL DESIGNER/ PRINCIPAL CONTRACTOR

- Principal Designer: See clause A10/150.
- Principal Contractor: See clause A10/130.

4 and 5 - PRINCIPAL DESIGNER/ PRINCIPAL CONTRACTOR

- Articles 4 and 5 will be deleted.

CONTRACT PARTICULARS

Fifth Recital and Schedule 2 - BASE DATE

- Base date: 01/10/2019.

Fifth Recital and clause 4.2 - CONSTRUCTION INDUSTRY SCHEME (CIS)

- Employer at base date is not a 'contractor' for the purposes of the CIS.

Sixth Recital - CDM REGULATIONS

- The project is notifiable.

Seventh Recital - FRAMEWORK AGREEMENT

- Framework agreement:Does not appy
-

Eighth Recital and Schedule 3 - SUPPLEMENTAL PROVISIONS

- Collaborative working: Supplemental Provision 1 Does not apply
- Health and safety: Supplemental Provision 2 Does not apply .
- Cost savings and value improvements: Supplemental Provision 3 Does not apply .
- Sustainable development and environmental considerations: Supplemental Provision 4 Does not apply

- Performance indicators and monitoring: Supplemental Provision 5 Does not apply
- Notification and negotiation of disputes: Supplemental Provision 6 applies.
  Where Supplemental Provision 6 applies, the respective nominees of the parties are:
  - Employer's nominee: NA
  - Contractor's nominee: NA

  Or such replacement as each party may notify to the other from time to time.

Article 7 - ARBITRATION

- Article 7 and Schedule 1 apply.

Clause 2.3 - COMMENCEMENT AND COMPLETION

- Works Commencement date: TBA.
- Date for Completion: 16 Weeks from date of commencement

Clause 2.9 - LIQUIDATED DAMAGES

- At the rate of 300 per calendar week or pro rata thereto.

Clause 2.11 - RECTIFICATION PERIOD

- Period: Six months from the date of practical completion.

Clause 4.3 - INTERIM PAYMENTS

- Interim Valuation Dates:
  - The first Interim Valuation Date is: two weeks from the date of commencement
  - Thereafter at intervals of: four weeks
- Payments due prior to practical completion:
  - Percentage of total value of the work etc.: 95%
- Payments becoming due on or after practical completion:
  - Percentage of the total amount to be paid: 97.5%.

Clause 4.3 and 4.8 - FLUCTUATIONS PROVISION

- The following fluctuations provision applies: No fluctuation provisions apply.
-

Clause 4.8.1 - SUPPLY OF DOCUMENTATION FOR COMPUTATION OF AMOUNT TO BE FINALLY CERTIFIED

- Period: Three Months from the date of practical completion.

Clause 5.3 - CONTRACTOR'S PUBLIC LIABILITY INSURANCE - INJURY TO PERSONS OR PROPERTY

- The required level of cover for any one occurrence or series of occurrences arising out of one event:
  Not less than:£5,000,000.

Clauses 5.4A, 5.4B and 5.4C - INSURANCE OF THE WORKS, ETC. - ALTERNATIVE PROVISIONS

- Clause 5.4C applies.
- Where clause 5.4.A or 5.4B applies. percentage to cover professional fees: NA.
- Where clause 5.4.C applies:
  - insurance arrangements - details of the required policy or policies: required joint names

Clause 7.2 - ADJUDICATION

- The Adjudicator is: TBA.
- Nominating body Royal Institution of Chartered Surveyors

Schedule 1 paragraph 2.1 - ARBITRATION

- Appointor of Arbitrator (and of any replacement): President or a Vice president of the Royal Institution of Chartered Surveyors

THE CONDITIONS

SECTION 1: DEFINITIONS AND INTERPRETATION

1.8 - APPLICABLE LAW

- Amendments None

SECTION 2: CARRYING OUT THE WORKS

SECTION 3: CONTROL OF THE WORKS

SECTION 4: PAYMENT

SECTION 5: INJURY, DAMAGE AND INSURANCE

SECTION 6: TERMINATION

SECTION 7: SETTLEMENT OF DISPUTES

JCT PUBLIC SECTOR SUPPLEMENT

- Document: The JCT Public Sector Supplement 2011 - Fair Payment, Transparency and Building Information Modelling.
- Fair Payment provisions apply.
- Transparency provisions apply.
- Building information modelling provisions; Do not apply
  -

EXECUTION

- The Contract: Will be executed under hand.

CONTRACT GUARANTEE BOND

- Contract Guarantee Bond: N/A.

A30
TENDERING/ SUBLETTING/ SUPPLY

A30 TENDERING/ SUBLETTING/ SUPPLY

MAIN CONTRACT TENDERING

110 SCOPE
- General: These conditions are supplementary to those stated in the Invitation to Tender and on the form of tender.

145 TENDERING PROCEDURE
- General: In accordance with the principles of: Single Stage.
- Arithmetical errors: Overall Price is dominant.

160 EXCLUSIONS
- Inability to tender: Immediately inform if any parts of the work as defined in the tender documents cannot be tendered.
- Relevant parts of the work: Define those parts, stating reasons for the inability to tender.

170 ACCEPTANCE OF TENDER
- Acceptance: No guarantee is offered that any tender will be recommended for acceptance or be accepted, or that reasons for non acceptance will be given.
- Costs: No liability is accepted for any cost incurred in the preparation of any tender.

190 PERIOD OF VALIDITY
- Period: After submission or lodgement, keep tender open for consideration (unless previously withdrawn) for not less than 12 weeks.
- Date for possession/ commencement: See section A20.

PRICING/ SUBMISSION OF DOCUMENTS

210 PRELIMINARIES IN THE SPECIFICATION
- The Preliminaries/ General conditions sections (A10-A56 inclusive) must not be relied on as complying with SMM7/ NRM2.

250 PRICED DOCUMENTS
- Alterations: Do not alter or qualify the priced documents without written consent. Tenders containing unauthorised alterations or qualifications may be rejected.
- Measurements: Where not stated, ascertain from the drawings.
- Deemed included: Costs relating to items, which are not priced, will be deemed to have been included elsewhere in the tender.
- Submit: Elemental Price breakdown with tender.

310 TENDER
- General: Tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.

510 ALTERNATIVE METHOD TENDERS

- General: In addition to and at the same time as tendering for the Works as defined in the tender documents, alternative methods of construction/ installation may be submitted for consideration. Alternatives, which would involve significant changes to other work, may not be considered.
- Alternative tenders: Such alternatives will be deemed to be alternative tenders and each must include a complete and precise statement of the effects on cost and programme.
- Safety method statement: Carry out a health and safety risk assessment for each alternative and where appropriate provide a safety method statement suitable for incorporation in the Health and Safety Plan.
- Full technical data: Submit for each alternative together with details of any consequential amendments to the design and/ or construction of other parts of the Works.
- Submit:with tender.

515 ALTERNATIVE TIME TENDERS

- General: In addition to and at the same time as tendering based upon the date or period specified in section A20, an alternative tender based upon a different date for completion or period may be submitted.
- Date for completion: If any such tender is accepted the date for completion inserted in the Contract will be the date stated in the alternative tender or determined from the period stated in the alternative tender.

530 SUBSTITUTE PRODUCTS

- Details: If products of different manufacture to those specified are proposed, submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered.
- Compliance: Substitutions accepted will be subject to the verification requirements of clause A31/200.

550 HEALTH AND SAFETY INFORMATION

- Content: Describe the organisation and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the Works may affect.
- Include:
  - A copy of the contractor's health and safety policy document, including risk assessment procedures.
  - Accident and sickness records for the past five years.
  - Records of previous Health and Safety Executive enforcement action.
  - Records of training and training policy.
  - The number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
- Submit: with tender.

570 OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Content: Submit the following information within one week of request:
  - Method statements on how risks from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed.
  - Details of the management structure and responsibilities.
  - Arrangements for issuing health and safety directions.
  - Procedures for informing other contractors and employees of health and safety hazards.
  - Selection procedures for ensuring competency of other contractors, the self-employed and designers.
  - Procedures for communications between the project team, other contractors and site operatives.
  - Arrangements for cooperation and coordination between contractors.
  - Procedures for carrying out risk assessment and for managing and controlling the risk.
  - Emergency procedures including those for fire prevention and escape.
  - Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.
  - Arrangements for welfare facilities.
  - Procedures for ensuring that all persons on site have received relevant health and safety information and training.
  - Arrangements for consulting with and taking the views of people on site.
  - Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.
  - Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.
  - Review procedures to obtain feedback.

590 SITE WASTE MANAGEMENT PLAN

- Person responsible for developing the Plan: The Contractor.
- Content: Include details of:
  - Principal Contractor for the purposes of the plan
  - Location of the site.
  - Description of the project.
  - Estimated project cost.
  - Types and quantities of waste that will be generated.
  - Resource management options for these wastes including proposals for minimization/ reuse/ recycling.
  - The use of appropriate and licensed waste management contractors.
  - Record keeping procedures.
  - Waste auditing protocols.
- Submit with tender.

595 ENVIRONMENTAL POLICY

- Employer's Environmental Policy:
  - Location: See A11/180.
  - Evidence of compliance: Submit: with tender.

599 FREEDOM OF INFORMATION

- Records: Retain, make available for inspection and supply on request information reasonably required to allow response to requests made under the provisions of the Freedom of Information Act.
- Determination: Submit requests received. Do not supply information to anyone other than the project participants without express written permission.
- Confidentiality: Maintain at all times.

SUBLETTING/ SUPPLY

645 'LISTED' DOMESTIC SUBCONTRACTORS

- General: Contract Documents provide that certain work must be carried out by a person of the Contractor's choice selected from a list of not less than three persons given therein.
- The selected person: Will become a subcontractor as provided for in the Contract Condition for Subletting.
- Additions to lists:
  - The Employer or Employer's representative may, but only with the consent of the Contractor which shall not be unreasonably withheld, add additional person(s) to the list at any time prior to the execution of a binding subcontract agreement.
  - The Contractor may, but only with consent, which will not be unreasonably withheld, add additional persons to the list and must, if requested, submit (in an approved form) evidence of the suitability of such additional person(s). Wherever possible, submissions for addition of person(s) must be made, and consent obtained, before return of the tender. When any submission for addition of person(s) is made with the tender the consequences, if any, to the tender price compared to the use of the listed persons are to be made clear or the tender will be treated as qualified.
- Shortage of names: If at any time prior to execution of a binding subcontract agreement less than three persons named in the list (including any persons added as provided above) are able and willing to carry out the relevant work, give notice without delay. The Employer will then forthwith add the names of other persons as provided above so that the list comprises not less than three such persons, or confirm that no names will be added. If the Employer fails to do either within one week of the Contractor's notification the Contractor, who may subcontract in accordance with the Contract, must carry out the work.
- Agreement: Before the start of work to which the list relates enter into a binding subcontract agreement and confirm that this has been done, giving the name of the selected subcontractor.

A31
PROVISION, CONTENT AND USE OF DOCUMENTS

A31 PROVISION, CONTENT AND USE OF DOCUMENTS

DEFINITIONS AND INTERPRETATIONS

110 DEFINITIONS
- Meaning: Terms, derived terms and synonyms used in the preliminaries/ general conditions and specification are as stated therein or in the appropriate British Standard or British Standard glossary.

120 COMMUNICATION
- Definition: Includes advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements.
- Format: In writing to the person named in clause A10/140 unless specified otherwise.
- Response: Do not proceed until response has been received.

130 PRODUCTS
- Definition: Materials, both manufactured and naturally occurring, and goods, including components, equipment and accessories, intended for the permanent incorporation in the Works.
- Includes: Goods, plant, materials, site materials and things for incorporation into the Works.

135 SITE EQUIPMENT
- Definition: All appliances or things of whatsoever nature required in or about the construction for completion of the Works but not materials or other things intended to form or forming part of the Permanent Works.
- Includes: Construction appliances, vehicles, consumables, tools, temporary works, scaffolding, cabins and other site facilities.

140 DRAWINGS
- Definitions: To BSRIA BG 6 A design framework for building services. Design activities and drawing definitions.
- CAD data: In accordance with BS 1192.

145 CONTRACTOR'S CHOICE
- Meaning: Selection delegated to the Contractor, but liability to remain with the specifier.

150 CONTRACTOR'S DESIGN
- Meaning: Design to be carried out or completed by the Contractor and supported by appropriate contractual arrangements, to correspond with specified requirements.

155 SUBMIT PROPOSALS
- Meaning: Submit information in response to specified requirements.

160 TERMS USED IN SPECIFICATION

- Remove: Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.
- Fix: Receive, unload, handle, store, protect, place and fasten in position and disposal of waste and surplus packaging including all labour, materials and site equipment for that purpose.
- Supply and fix: As above, but including supply of products to be fixed. All products to be supplied and fixed unless stated otherwise.
- Keep for reuse: Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Employer/ Purchaser or for use in the Works as instructed.
- Make good: Execute local remedial work to designated work. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Replace: Supply and fix new products matching those removed. Execute work to match original new state of that removed.
- Repair: Execute remedial work to designated products. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Refix: Fix removed products.
- Ease: Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
- Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
- System: Equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.

170 MANUFACTURER AND PRODUCT REFERENCE

- Definition: When used in this combination:
  - Manufacturer: The firm under whose name the particular product is marketed.
  - Product reference: The proprietary brand name and/ or reference by which the particular product is identified.
- Currency: References are to the particular product as specified in the manufacturer's technical literature current on the date of the invitation to tender.

200 SUBSTITUTION OF PRODUCTS

- Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
- Reasons: Submit reasons for the proposed substitution.
- Documentation: Submit relevant information, including:
  - manufacturer and product reference;
  - cost;
  - availability;
  - relevant standards;
  - performance;
  - function;
  - compatibility of accessories;
  - proposed revisions to drawings and specification;
  - compatibility with adjacent work;
  - appearance;
  - copy of warranty/ guarantee.
- Alterations to adjacent work: If needed, advise scope, nature and cost.
- Manufacturers' guarantees: If substitution is accepted, submit before ordering products.

210 CROSS REFERENCES

- Accuracy: Check remainder of the annotation or item description against the terminology used in the section or clause referred to.
- Related terminology: Where a numerical cross-reference is not given the relevant sections and clauses of the specification will apply.
- Relevant clauses: Clauses in the referred to specification section dealing with general matters, ancillary products and execution also apply.
- Discrepancy or ambiguity: Before proceeding, obtain clarification or instructions.

220 REFERENCED DOCUMENTS

- Conflicts: Specification prevails over referenced documents.

230 EQUIVALENT PRODUCTS

- Inadvertent omission: Wherever products are specified by proprietary name the phrase 'or equivalent' is to be deemed included.

240 SUBSTITUTION OF STANDARDS

- Specification to British Standard or European Standard: Substitution may be proposed complying with a grade or category within a national standard of another Member State of the European Community or an international standard recognised in the UK.
- Before ordering: Submit notification of all such substitutions.
- Documentary evidence: Submit for verification when requested as detailed in clause A31/200. Any submitted foreign language documents must be accompanied by certified translations into English.

250 CURRENCY OF DOCUMENTS AND INFORMATION

- Currency: References to published documents are to the editions, including amendments and revisions, current on the date of the Invitation to Tender.

260 SIZES

- General dimensions: Products are specified by their co-ordinating sizes.
- Timber: Cross section dimensions shown on drawings are:
  - Target sizes as defined in BS EN 336 for structural softwood and hardwood sections.
  - Finished sizes for non-structural softwood or hardwood sawn and further processed sections.

DOCUMENTS PROVIDED ON BEHALF OF THE EMPLOYER

410 ADDITIONAL COPIES OF DRAWINGS/ DOCUMENTS

- Additional copies: Issued free of charge.

410 ADDITIONAL COPIES OF DRAWINGS/ DOCUMENTS

- Additional copies: Issued on request and charged to the Contractor.

440 DIMENSIONS

- Scaled dimensions: Do not rely on.

450 MEASURED QUANTITIES

- Ordering products and constructing the Works: The accuracy and sufficiency of the measured quantities is not guaranteed.
- Precedence: The specification and drawings shall override the measured quantities.

460 THE SPECIFICATION

- Coordination: All sections must be read in conjunction with Main Contract Preliminaries/ General conditions.

DOCUMENTS PROVIDED BY CONTRACTOR/ SUBCONTRACTORS/ SUPPLIERS

600 CONTRACTOR'S DESIGN INFORMATION

- General: Complete the design and detailing of parts of the Works as specified.
- Provide:
  - Production information based on the drawings, specification and other information.
  - Liaison to ensure coordination of the work with related building elements and services.
- Master programme: Make reasonable allowance for completing design/ production information, submission (including information relevant to the CDM Regulations), comment, inspection, amendment, resubmission and reinspection.
- Information required: Design Drawings and specifications.
  - Format: pdf and dwg.
  - Number of copies: digital.
- Submit: Within one week of request.

620 AS BUILT DRAWINGS AND INFORMATION

- Contractor designed work: Provide drawings/ information:

- Submit: At least two weeks before date for completion.

630 TECHNICAL LITERATURE

- Information: Keep on site for reference by all supervisory personnel:
  - Manufacturers' current literature relating to all products to be used in the Works.
  - Relevant British, EN or ISO Standards.

640 MAINTENANCE INSTRUCTIONS AND GUARANTEES

- Components and equipment: Obtain or retain copies, register with manufacturer and hand over on or before completion of the Works.
- Information location: In Building Manual.
- Emergency call out services: Provide telephone numbers for use after completion.

A32
MANAGEMENT OF THE WORKS

A32 MANAGEMENT OF THE WORKS

GENERALLY

110 SUPERVISION

- General: Accept responsibility for coordination, supervision and administration of the Works, including subcontracts.
- Coordination: Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for coordination of the work.

120 INSURANCE

- Documentary evidence: Before starting work on site submit details, and/ or policies and receipts for the insurances required by the Conditions of Contract.

125 PROFESSIONAL INDEMNITY INSURANCE

- Provide and maintain insurance in respect of Contractor Designed Works:
  - Level of cover: Relates to claims or series of claims arising out of one event
  - Period of insurance for these purposes:12 months.
- Amount of indemnity required: £ 2.000,000
- Limit of cover for pollution/ contamination claims (If none is stated, the required level of cover shall be the full amount of the indemnity cover stated): £ .
- Expiry of required period of CDP Professional Indemnity insurance: six years
  (If no period is selected, the expiry date shall be 6 years from the date of practical completion of the Works).
- Documentary evidence: Submit details before starting work on site and/ or policies and receipts for the insurances required.
  Format: Digital.

130 INSURANCE CLAIMS

- Notice: If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, immediately give notice to the Employer, the person named in clause A10/140 and the Insurers.
- Failure to notify: Indemnify the Employer against any loss, which may be caused by failure to give such notice.

140 CLIMATIC CONDITIONS

- Information: Record accurately and retain:
  - Daily maximum and minimum air temperatures (including overnight).
  - Delays due to adverse weather, including description of the weather, types of work affected and number of hours lost.

150 OWNERSHIP

- Alteration/ clearance work: Materials arising become the property of the Contractor except where otherwise stated. Remove from site as work proceeds.

PROGRAMME/ PROGRESS

210 PROGRAMME

- Master programme: Immediately when requested and before starting work on site submit in an approved form a master programme for the Works, which must include details of:
  - Planning and mobilisation by the Contractor
  - Subcontractor's work.
  - Running in, adjustment, commissioning and testing of all engineering services and installations.
  - Work resulting from instructions issued in regard to the expenditure of provisional sums.
  - Work by others concurrent with the Contract.

245 START OF WORK ON SITE

- Notice: Before the proposed date for start of work on site give minimum notice of four weeks.

250 MONITORING

- Progress: Record on a copy of the programme kept on site.
- Avoiding delays: If any circumstances arise which may affect the progress of the Works submit proposals or take other action as appropriate to minimize any delay and to recover any lost time.

260 SITE MEETINGS

- General: Site meetings will be held to review progress and other matters arising from administration of the Contract.
- Frequency:TBC.
- Location: Site.
- Accommodation: Ensure availability at the time of such meetings.
- Attendees: Attend meetings and inform subcontractors and suppliers when their presence is required.
- Chairperson (who will also take and distribute minutes):CA.

280 PHOTOGRAPHS

- Other requirements :Pre Commencement Condition record

290 NOTICE OF COMPLETION

- Requirement: Give notice of the anticipated dates of completion of the whole or parts of the Works.
- Associated works: Ensure necessary access, services and facilities are complete.
- Period of notice (minimum):one Week.

310 EXTENSIONS OF TIME

- Notice: When a notice of the cause of any delay or likely delay in the progress of the works is given under the contract, written notice must also be given of all other causes which apply concurrently.
- Details: As soon as possible submit:
  - Relevant particulars of the expected effects, if appropriate, related to the concurrent causes.
  - An estimate of the extent, if any, of the expected delay in the completion of the Works beyond the date for completion.
  - All other relevant information required.

CONTROL OF COST

420 REMOVAL/ REPLACEMENT OF EXISTING WORK

- Extent and location: Agree before commencement.
- Execution: Carry out in ways that minimize the extent of work.

430 PROPOSED INSTRUCTIONS

- Estimates: If a proposed instruction requests an estimate of cost, submit without delay and in any case within seven days.

440 MEASUREMENT

- Covered work: Give notice before covering work required to be measured.

450 DAYWORK VOUCHERS

- Before commencing work: Give reasonable notice to person countersigning daywork vouchers.
- Content: Before delivery each voucher must be:
  - Referenced to the instruction under which the work is authorised.
  - Signed by the Contractor's person in charge as evidence that the operatives' names, the time daily spent by each and the equipment and products employed are correct.
- Submit: By the end of the week in which the work has been executed.

470 PRODUCTS NOT INCORPORATED INTO THE WORKS

- Ownership: At the time of each valuation, supply details of those products not incorporated into the Works which are subject to any reservation of title inconsistent with passing of property as required by the Conditions of Contract, together with their respective values.
- Evidence: When requested, provide evidence of freedom of reservation of title.

A33
QUALITY STANDARDS/ CONTROL

A33 QUALITY STANDARDS/ CONTROL

STANDARDS OF PRODUCTS AND EXECUTIONS

110 INCOMPLETE DOCUMENTATION

- General: Where and to the extent that products or work are not fully documented, they are to be:
  - Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
  - Suitable for the purposes stated or reasonably to be inferred from the project documents.

  Contract documents: Omissions or errors in description and/ or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.

120 WORKMANSHIP SKILLS

- Operatives: Appropriately skilled and experienced for the type and quality of work.
- Registration: With Construction Skills Certification Scheme.
- Evidence: Operatives must produce evidence of skills/ qualifications when requested.

130 QUALITY OF PRODUCTS

- Generally: New. (Proposals for recycled products may be considered).
- Supply of each product: From the same source or manufacturer.
- Whole quantity of each product required to complete the Works: Consistent kind, size, quality and overall appearance.
- Tolerances: Where critical, measure a sufficient quantity to determine compliance.
- Deterioration: Prevent. Order in suitable quantities to a programme and use in appropriate sequence.

135 QUALITY OF EXECUTION

- Generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.
- Colour batching: Do not use different colour batches where they can be seen together.
- Dimensions: Check on-site dimensions.
- Finished work: Without defects, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.
- Location and fixing of products: Adjust joints open to view so they are even and regular.

140 COMPLIANCE

- Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.
- Compliance with performance specifications: Submit evidence of compliance, including test reports indicating:
  - Properties tested.
  - Pass/ fail criteria.
  - Test methods and procedures.
  - Test results.
  - Identity of testing agency.
  - Test dates and times.
  - Identities of witnesses.

  Analysis of results.

150 INSPECTIONS

- Products and executions: Inspection or any other action must not be taken as approval unless confirmed in writing referring to:
  - Date of inspection.
  - Part of the work inspected.
  - Respects or characteristics which are approved.
  - Extent and purpose of the approval.
  - Any associated conditions.

160 RELATED WORK

- Details: Provide all trades with necessary details of related types of work. Before starting each new type or section of work ensure previous related work is:
  - Appropriately complete.
  - In accordance with the project documents.
  - To a suitable standard.
  - In a suitable condition to receive the new work.
- Preparatory work: Ensure all necessary preparatory work has been carried out.

170 MANUFACTURER'S RECOMMENDATIONS/ INSTRUCTIONS

- General: Comply with manufacturer's printed recommendations and instructions current on the date of the Invitation to tender.
- Changes to recommendations or instructions: Submit details.
- Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
- Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.

180 WATER FOR THE WORKS

- Mains supply: Clean and uncontaminated.
- Other: Do not use until:
  - Evidence of suitability is provided.
  - Tested to BS EN 1008 if instructed.

SAMPLES/ APPROVALS

210 SAMPLES

- Products or executions: Comply with all other specification requirements and in respect of the stated or implied characteristics either:
  - To an express approval.
  - To match a sample expressly approved as a standard for the purpose.

220 APPROVAL OF PRODUCTS

- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to a sample of the product and not to the product as used in the Works. Do not confirm orders or use the product until approval of the sample has been obtained.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

230 APPROVAL OF EXECUTION

- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required this is specified separately). Do not conceal, or proceed with affected work until compliance with requirements is confirmed.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

ACCURACY/ SETTING OUT GENERALLY

320 SETTING OUT

- General: Submit details of methods and equipment to be used in setting out the Works.
- Levels and dimensions: Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.
- Inform: When complete and before commencing construction.

330 APPEARANCE AND FIT

- Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:
  - Submit proposals; or
  - Arrange for inspection of appearance of relevant aspects of partially finished work.
- General tolerances (maximum): To BS 5606, tables 1 and 2.

340 CRITICAL DIMENSIONS

- Critical dimensions: Set out and construct the Works to ensure compliance with the tolerances stated.

350 LEVELS OF STRUCTURAL FLOORS

- Maximum tolerances for designed levels to be:
  - Floors to be self-finished, and floors to receive sheet or tile finishes directly bedded in adhesive: +/- 10 mm.
  - Floors to receive dry board/ panel construction with little or no tolerance on thickness: +/- 10 mm.
  - Floors to receive mastic asphalt flooring/ underlays directly: +/- 10 mm.
  - Floors to receive mastic asphalt flooring/ underlays laid on mastic asphalt levelling coat (s): +/- 15 mm.
  - Floors to receive fully bonded screeds/ toppings/ beds: +/- 15 mm.
  - Floors to receive unbonded or floating screeds/ beds: +/- 20 mm.

360 RECORD DRAWINGS

- Site setting out drawing: Record details of all grid lines, setting-out stations, benchmarks and profiles. Retain on site throughout the contract and hand over on completion.

SERVICES GENERALLY

410 SERVICES REGULATIONS

- New or existing services: Comply with the Byelaws or Regulations of the relevant Statutory Authority.

420 WATER REGULATIONS/ BYELAWS NOTIFICATION

- Requirements: Notify Water Undertaker of any work carried out to or which affects new or existing services and submit any required plans, diagrams and details.
- Consent: Allow adequate time to receive Undertaker's consent before starting work. Inform immediately if consent is withheld or is granted subject to significant conditions.

430 WATER REGULATIONS/ BYELAWS CONTRACTOR'S CERTIFICATE

- On completion of the work: Submit (copy where also required to the Water Undertaker) a certificate including:
  - The address of the premises.
  - A brief description of the new installation and/ or work carried out to an existing installation.
  - The Contractor's name and address.
  - A statement that the installation complies with the relevant Water Regulations or Byelaws.
  - The name and signature of the individual responsible for checking compliance. The date on which the installation was checked.

435 ELECTRICAL INSTALLATION CERTIFICATE

- Submit: When relevant electrical work is completed.
- Original certificate: To be lodged in the Building Manual.

445 SERVICE RUNS

- General: Provide adequate space and support for services, including unobstructed routes and fixings.
- Ducts, chases and holes: Form during construction rather than cut.
- Coordination with other works: Submit details of locations, types/ methods of fixing of services to fabric and identification of runs and fittings.

450 MECHANICAL AND ELECTRICAL SERVICES

- Final tests and commissioning: Carry out so that services are in full working order at completion of the Works.
- Building Regulations notice: Copy to be lodged in the Building Manual.

SUPERVISION/ INSPECTION/ DEFECTIVE WORK

525 ACCESS

- Extent: Provide at all reasonable times access to the Works and to other places of the Contractor or subcontractors where work is being prepared for the Contract.

540 DEFECTS IN EXISTING WORK

- Undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
- Documented remedial work: Do not execute work which may:
  - Hinder access to defective products or work; or
    Be rendered abortive by remedial work.

560 TESTS AND INSPECTIONS

- Timing: Agree and record dates and times of tests and inspections to enable all affected parties to be represented.
- Confirmation: One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.
- Records: Submit a copy of test certificates and retain copies on site.

610 DEFECTIVE PRODUCTS/ EXECUTIONS

- Proposals: Immediately any work or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.
- Acceptability: Such proposals may be unacceptable and contrary instructions may be issued.

WORK AT OR AFTER COMPLETION

710 WORK BEFORE COMPLETION

- General: Make good all damage consequent upon the Works.
  Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.
- Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.
- Cleaning materials and methods: As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.
- COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.
- Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.
- Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

720 SECURITY AT COMPLETION

- General: Leave the Works secure with, where appropriate, all accesses closed and locked.
- Keys: Account for and adequately label all keys and hand over to Employer with itemized schedule, retaining duplicate schedule signed by Employer as a receipt.

730 MAKING GOOD DEFECTS

- Remedial work: Arrange access with CA.
- Rectification: Give reasonable notice for access to the various parts of the Works.
- Completion: Notify when remedial works have been completed.

740 HIGHWAY/ SEWER ADOPTION

- Work to be adopted under the Highways Act, Section 38, or the Roads (Scotland) Act, Section 16 to 18, or the Water Industry Act, Section 104:
  Description: Diverted SWS surface water sewer.
- Work for adoption must be:
  - Completed by the Contractor to the satisfaction of the Highway/ Sewer Authorities before the certificate stating the Works are complete is issued.
  - Subject to a Defects Liability/ Rectification Period of 12 months (see Appendix to the Contract/ Contract Particulars).
  - Maintained during the Defects Liability/ Rectification Period, including making good of damage due to reasonable wear and tear occurring during the Period and cleaning at the end of the Period, all to the satisfaction of the Highway/ Sewer Authorities.

A34
SECURITY/ SAFETY/ PROTECTION

A34 SECURITY/ SAFETY/ PROTECTION

SECURITY, HEALTH AND SAFETY

120 EXECUTION HAZARDS

- Common hazards: Not listed. Control by good management and site practice.

130 PRODUCT HAZARDS

- Hazardous substances: Site personnel levels must not exceed occupational exposure standards and maximum exposure limits stated in the current version of HSE document EH40: Workplace Exposure Limits.
- Common hazards: Not listed. Control by good management and site practice.
-

140 CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Submission: Present to the Employer/ Client no later than two weeks prior to commencement.
- Confirmation: Do not start construction work until the Employer has confirmed in writing that the Construction Phase Health and Safety Plan includes the procedures and arrangements required by the CDM Regulations.
- Content: Develop the plan from and draw on the Outline Construction Phase Health and Safety Plan, clause A30/570, and the Pre-tender Health and Safety Plan/ Preconstruction information.

150 SECURITY

- Protection: Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.
- Access: Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.

160 STABILITY

- Responsibility: Maintain the stability and structural integrity of the Works and adjacent structures during the Contract.
- Design loads: Obtain details, support as necessary and prevent overloading.

170 OCCUPIED PREMISES

- Extent: Existing buildings will be used during the Contract

- Works: Carry out without undue inconvenience and nuisance and without danger to occupants and users.
- Overtime: If compliance with this clause requires certain operations to be carried out during overtime, and such overtime is not required for any other reason, the extra cost will be allowed, provided that such overtime is authorized in advance.

200 MOBILE TELEPHONES AND PORTABLE ELECTRONIC EQUIPMENT

- Restrictions on use:
  -

210 EMPLOYER'S REPRESENTATIVES SITE VISITS

- Safety: Submit details in advance, to the Employer or the person identified in clause A10/140, of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site.
- Protective clothing and/ or equipment: Provide and maintain on site for the Employer and the person stated in clause A10/140 and other visitors to the site.

PROTECT AGAINST THE FOLLOWING

330 NOISE AND VIBRATION

- Standard: Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.
-
- Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
- Restrictions: Do not use:
  - Percussion tools and other noisy appliances without consent during the hours of _____ __.
  - Radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.

340 POLLUTION

- Prevention: Protect the site, the Works and the general environment including the atmosphere, land, streams and waterways against pollution.
- Contamination: If pollution occurs inform immediately, including to the appropriate Authorities and provide relevant information.

350 PESTICIDES

- Use: Not permitted.

350 PESTICIDES

- Use: Only where specified or approved, and then only suitable products listed on www.pesticides.gov.uk.
- Restrictions: Work near water, drainage ditches or land drains must comply with the 'Guidelines for the use of herbicides on weeds in or near watercourses and lakes'.
- Containers: Comply with manufacturer's disposal recommendations. Remove from site immediately empty or no longer required.
- Competence: Operatives must hold a BASIS Certificate of Competence, or work under supervision of a Certificate holder.

360 NUISANCE

- Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes.
- Surface water: Prevent hazardous build-up on site, in excavations and to surrounding areas and roads.

370 ASBESTOS CONTAINING MATERIALS

- Duty: Report immediately any suspected materials discovered during execution of the Works.
  - Do not disturb.
  - Agree methods for safe removal or encapsulation.

371 DANGEROUS OR HAZARDOUS SUBSTANCES

- Duty: Report immediately suspected materials discovered during execution of the Works.
  - Do not disturb.
  - Agree methods for safe removal or remediation.

375 ANTIQUITIES

- Duty: Report immediately any fossils, antiquities and other objects of interest or value discovered during execution of the Works.
- Preservation: Keep objects in the exact position and condition in which they were found.

380 FIRE PREVENTION

- Duty: Prevent personal injury or death, and damage to the Works or other property from fire.
- Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by Construction Industry Publications and The Fire Protection Association (The 'Joint Fire Code').

390 SMOKING ON SITE

- Smoking on site: Not permitted.

400 BURNING ON SITE

- Burning on site: Not permitted.

410 MOISTURE

- Wetness or dampness: Prevent, where this may cause damage to the Works.
- Drying out: Control humidity and the application of heat to prevent:
  - Blistering and failure of adhesion.
  - Damage due to trapped moisture.

  Excessive movement.

420 INFECTED TIMBER/ CONTAMINATED MATERIALS

- Removal: Where instructed to remove material affected by fungal/ insect attack from the building, minimize the risk of infecting other parts of the building.
- Testing: carry out and keep records of appropriate tests to demonstrate that hazards presented by concentrations of airborne particles, toxins and other micro organisms are within acceptable levels.

430 WASTE

- Includes: Rubbish, debris, spoil, surplus material, containers and packaging.
- General: Minimize production. Prevent accumulations. Keep the site and Works clean and tidy.
- Handling: Collect and store in suitable containers. Remove frequently and dispose off site in a safe and competent manner:
  - Non-hazardous material: In a manner approved by the Waste Regulation Authority.
  - Hazardous material: As directed by the Waste Regulation Authority and in accordance with relevant regulations.
- Recyclable material: Sort and dispose at a Materials Recycling Facility approved by the Waste Regulation Authority.
- Voids and cavities in the construction: Remove rubbish, dirt and residues before closing in.
- Waste transfer documentation: Retain on site.

440 ELECTROMAGNETIC INTERFERENCE

- Duty: Prevent excessive electromagnetic disturbance to apparatus outside the site.

460 POWER ACTUATED FIXING SYSTEMS

- Use: Not permitted.

470 INVASIVE SPECIES

- General: Prevent the spread of species (e.g. plants or animals) that may adversely affect the site or Works economically, environmentally or ecologically.
-
- Duty: Report immediately any suspected invasive species discovered during execution of the Works.
  - Do not disturb.

  Agree methods for safe eradication or removal.

PROTECT THE FOLLOWING

510 EXISTING SERVICES

- Confirmation: Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations.
- Identification: Before starting work, check and mark positions of utilities/ services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.
- Work adjacent to services:
  - Comply with service authority's/ statutory undertaker's recommendations.
  - Adequately protect, and prevent damage to services: Do not interfere with their operation without consent of service authorities/ statutory undertakers or other owners.
- Identifying services:
  - Below ground: Use signboards, giving type and depth;
  - Overhead: Use headroom markers.
- Damage to services: If any results from execution of the Works:
  - Immediately give notice and notify appropriate service authority/ statutory undertaker.
  - Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate.
  - Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.
- Marker tapes or protective covers: Replace, if disturbed during site operations, to service authority's/ statutory undertakers recommendations.

520 ROADS AND FOOTPATHS

- Duty: Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.
- Damage caused by site traffic or otherwise consequent upon the Works: Make good to the satisfaction of the Employer, Local Authority or other owner.

530 EXISTING TOPSOIL/ SUBSOIL

- Duty: Prevent over compaction of existing topsoil and subsoil in those areas which may be damaged by construction traffic, parking of vehicles, temporary site accommodation or storage of materials and which will require reinstatement prior to completion of the Works.
- Protection: Before starting work submit proposals for protective measures.

540 RETAINED TREES/ SHRUBS/ GRASSED AREAS

- Protection: Preserve and prevent damage, except those not required.
- Replacement: Mature trees and shrubs if uprooted, destroyed, or damaged beyond reasonable chance of survival in their original shape, as a consequence of the Contractor's negligence, must be replaced with those of a similar type and age at the Contractor's expense.

550 RETAINED TREES

- Protected area: Unless agreed otherwise do not:
  - Dump spoil or rubbish, excavate or disturb topsoil, park vehicles or plant, store materials or place temporary accommodation within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk.
  - Sever roots exceeding 25 mm in diameter. If unintentionally severed give notice and seek advice.

  Change level of ground within an area 3 m beyond branch spread.

560 EXISTING FEATURES

- Protection: Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works.

570 EXISTING WORK

- Protection: Prevent damage to existing work, structures or other property during the course of the work.
- Removal: Minimum amount necessary.
- Replacement work: To match existing.

580 BUILDING INTERIORS

- Protection: Prevent damage from exposure to the environment, including weather, flora, fauna, and other causes of material degradation during the course of the work.

600 EXISTING FURNITURE, FITTINGS AND EQUIPMENT

- Protection: Prevent damage or move as necessary to enable the Works to be executed. Reinstate in original positions.

625 ADJOINING PROPERTY RESTRICTIONS

- Precautions:
  - Prevent trespass of workpeople and take precautions to prevent damage to adjoining property.
  - Pay all charges.
  - Remove and make good on completion or when directed.
- Damage: Bear cost of repairing damage arising from execution of the Works.

630 EXISTING STRUCTURES

- Duty: Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.
- Supports: During execution of the Works:
  - Provide and maintain all incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining, that may be endangered or affected by the Works.
  - Do not remove until new work is strong enough to support existing structure.
  - Prevent overstressing of completed work when removing supports.
- Adjacent structures: Monitor and immediately report excessive movement.
- Standard: Comply with BS 5975 and BS EN 12812.

640 MATERIALS FOR RECYCLING/ REUSE

- Duty: Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants.
- Storage: Stack neatly and protect until required by the Employer or for use in the Works as instructed.

A35
SPECIFIC LIMITATIONS ON METHOD/ SEQUENCE/ TIMING

A35 SPECIFIC LIMITATIONS ON METHOD/ SEQUENCE/ TIMING

130 METHOD/ SEQUENCE OF WORK

- Specific Limitations: Include the following in the programme:
  - Works to divert sewer.

170 WORKING HOURS

- Specific limitations: As per Planning Consent

A36
FACILITIES/ TEMPORARY WORK/ SERVICES

A36 FACILITIES/ TEMPORARY WORK/ SERVICES

GENERALLY

110 SPOIL HEAPS, TEMPORARY WORKS AND SERVICES
- Location: Give notice and details of intended siting.
- Maintenance: Alter, adapt and move as necessary. Remove when no longer required and make good.

ACCOMMODATION

210 ROOM FOR MEETINGS
- Facilities: Provide suitable temporary accommodation for site meetings, adequately heated and lit. The room may be part of the Contractor's own site offices.
- Furniture and Equipment: Provide table and chairs for six people.

230 TEMPORARY ACCOMMODATION
- Proposals for temporary accommodation and storage for the Works: Submit two weeks prior to starting on site.
- Details to be included: Type of accommodation and storage, its siting and the programme for site installation and removal.

230 TEMPORARY ACCOMMODATION
- Facilities: Sanitary accommodation will be provided for the duration of the Contract as follows:
  - Existing Public Conveniences by agreement.

TEMPORARY WORKS

320 TEMPORARY WORKS
- Employer's specific requirements: Provide: protection to existing playpark equipment

340 NAME BOARDS/ ADVERTISEMENTS
- General: Obtain approval, including statutory consents, and provide a temporary name board displaying:
  - Title of project: .
  - Name of Employer: .
  - Names of Consultants: .
  - Names of Contractor and Subcontractors:.

SERVICES AND FACILITIES

410 LIGHTING
- Finishing work and inspection: Provide temporary lighting, the intensity and direction of which closely resembles that delivered by the permanent installation.

420 LIGHTING AND POWER
- Supply: Electricity from the Employer's mains may be used for the Works as follows:
  - Metering:To be read and deducted from patyments to contractor pro rata
  - Point of supply: Existing Public Conveniences
  -
- Continuity: The Employer will not be responsible for the consequences of failure or restriction in supply.

430 WATER
- Supply: The Employer's mains may be used for the Works as follows:

- Metering: To be deducted from Contractor payments pro rata with use.
- Source: Existing Public Conveniences
-

- Continuity: The Employer will not be responsible for the consequences of failure or restriction in supply.

440 TELEPHONES

- Direct communication: As soon as practicable after the Date of Possession provide the Contractor's person in charge with a mobile telephone.

540 METER READINGS

- Charges for service supplies: Where to be apportioned ensure that:
  - Meter readings are taken by relevant authority at possession and/ or completion as appropriate.
  - Copies of readings are supplied to interested parties.

550 THERMOMETERS

- General: Provide on site and maintain in accurate condition a maximum and minimum thermometer for measuring atmospheric shade temperature, in an approved location.

570 PERSONAL PROTECTIVE EQUIPMENT

- General: Provide for the sole use of those acting on behalf of the Employer, in sizes to be specified:
  - Safety helmets to BS EN 397, neither damaged nor time expired. Number required: 4 ____.
  - High visibility waistcoats to BS EN ISO 20471 Class 2. Number required:4.
  -
  - Disposable respirators to BS EN 149.FFP1S.
  - Eye protection to BS EN 166.
  - Ear protection - muffs to BS EN 352-1, plugs to BS EN 352-2
  - Hand protection - to BS EN 388, 407, 420 or 511 as appropriate.

A37
OPERATION/ MAINTENANCE OF THE FINISHED WORKS

A37 OPERATION/ MAINTENANCE OF THE FINISHED WORKS

GENERALLY

110 THE BUILDING MANUAL

- Responsibility: PD
- Content: Obtain and provide comprehensive information for owners and users of the completed Works. Include an overview of the main design principles and describe key components and systems within the finished Works, so affording a complete understanding of the Works, including all buildings and their systems to enable efficient and safe operation and maintenance.
-

115 THE HEALTH AND SAFETY FILE

- Responsibility: PD.

155 CONTENT OF THE BUILDING MANUAL

- General: Details of the property, the parties, fire safety strategy, operational requirements and constraints of a general nature.
- Building fabric: Design criteria, maintenance details, product details, and environmental and trafficking conditions.
- Building services: Description and operation of systems, diagrammatic drawings, record drawings, identification of services, product details, equipment settings, maintenance schedules, consumable items, spares and emergency procedures.
- Documentation: Guarantees, warranties, maintenance agreements, test certificates and reports.

160 PRESENTATION OF BUILDING MANUAL

- Format: A4 size, plastics covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled.
- Selected drawings needed to illustrate or locate items mentioned in the Manual: Where larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.
- As-built drawings: The main sets may form annexes to the Manual.

A40
CONTRACTOR'S GENERAL COST ITEMS: MANAGEMENT AND STAFF

A40 CONTRACTOR'S GENERAL COST ITEMS: MANAGEMENT AND STAFF

110 MANAGEMENT AND STAFF

- Cost significant items: _____.

A41
CONTRACTOR'S GENERAL COST ITEMS: SITE ACCOMMODATION

A41 CONTRACTOR'S GENERAL COST ITEMS: SITE ACCOMMODATION

110 SITE ACCOMMODATION

- Details: Site accommodation required or made/ not made available by the Employer: See section A36.
- Cost significant items: _____.

A42
CONTRACTOR'S GENERAL COST ITEMS: SERVICES AND FACILITIES

A42 CONTRACTOR'S GENERAL COST ITEMS: SERVICES AND FACILITIES

110 SERVICES AND FACILITIES

- Details: Services or facilities required or made/ not made available by the Employer: See section A36.
- Cost significant items: _____.

A43
CONTRACTOR'S GENERAL COST ITEMS: MECHANICAL PLANT

A43 CONTRACTOR'S GENERAL COST ITEMS: MECHANICAL PLANT

110 MECHANICAL PLANT

- Cost significant items: _____.

A44
CONTRACTOR'S GENERAL COST ITEMS: TEMPORARY WORKS

A44 CONTRACTOR'S GENERAL COST ITEMS: TEMPORARY WORKS

110 TEMPORARY WORKS

- Details: Temporary works required or made/ not made available by the Employer: See section A36.
- Cost significant items: _____.

A54
PROVISIONAL WORK/ ITEMS

A54 PROVISIONAL WORK/ ITEMS

110 PROVISIONAL SUMS FOR DEFINED WORK

- Item: Relocation of Seating Shelter
- Description of work: Carefully remove and store, relocate to client's preferred location within park
- Provisional Sums: Include £3,000.
- Allow for general attendance.

590 CONTINGENCIES

- Provisional sum: Include: £7500

A55
DAYWORKS

PRE CONSTRUCTION INFORMATION

for

ERECTION of MAINTENANCE FACILITY
St MICHAELS RECREATION GROUND
ASHFORD ROAD
TENTERDEN

TENTERDEN TOWN COUNCIL

GPM2 DESIGN LTD
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

Tel: 01843 268010

Prepared October 2019

Contents

1 Introduction

Introduction

1.1 The Pre-Construction Information (PCI) draws together information obtained from the Client, the Designers, the Principal Designer and the site visit carried out by the CDM Advisor. It provides details on the significant site-specific issues the Principal Contractor will have to manage during the construction phase.

1.2 Apparent future maintenance hazards that have not been designed out are also identified to be transparent to the Employer & Designers and for eventual incorporation into the Health and Safety File. Potential health and safety risks that cannot yet be assessed by the Principal Designer because information is insufficient or unavailable at the time of preparing the PCI have been identified in order to ensure such matters are not overlooked.

1.3 The PCI also serves as a convenient vehicle for communication and co-ordination between the various Designers and Employer during the design phase. Where design continues or changes after the appointment of the Principal Contractor or into the construction phase, so as to significantly affect risks, the PCI document can similarly continue to be extended and circulated by the Principal Designer if it would be timely to do so.

1.4 The Construction (Design and Management) Regulations 2015 (CDM2015) require the Principle Contractor to develop a Construction Phase Plan (CHSP), outlining how the site is to be managed with regard to health and safety, before work starts on site. Advice relating to the necessary content of the CHSP can be obtained by reference to the following HSE publications:

- Managing Health & Safety in Construction – HSE Guidance on CDM Regulations 2015.
- HSE Construction Information Sheet No. 43 'The Health and Safety Plan during the Construction Phase'
- Health and Safety in Construction HS (G) 150 Rev. 3

1.5 When developing the CHSP, the Principle Contractor will identify the hazards and assess the risk for each of the main construction activities including, but not limited to, those hazards identified in the Pre-Construction Information. The CHSP is a working document that needs to be maintained throughout the construction phase, including programme.

Introduction (Cont'd)

Method Statements and detailed arrangements for management of construction, site safety and training.

1.6 The Project Manager will require a copy of the Principal's Contractor's Health and Safety Policy and Management System for inspection and file reference purposes.

Under the regulations, construction cannot commence without a Project Specific Construction Phase Health and Safety Plan in place & Welfare Facilities, and for this reason a copy of the CHSP developed by the Contractor should be forwarded to the Principal Designer prior to commencement of the works on site.

The Principle Contractor has a duty to develop the CHSP to take account of the following: -

a) Any change to the design proposed by any contractor, by agreement with the Designers and Principal Designer.

b) All aspects of Health and Safety relevant to the Contractors method of working.

c) Detailed Health and Safety procedures of contractors

d) All current relevant legislation.

1.7 This document should be read in conjunction with tender documentation and the drawings.

2 Definitions and Interpretations

Definitions and Interpretations

2.1 In this Plan the following words and expressions shall, where the context so admits, be deemed to have the following meanings: -

ACOP

Means the Approved Code of Practice published by the Health and Safety Executive in relation to CDM Regulations.

ACM's

Means any materials containing asbestos or asbestos fibres.

APS

Means the Association for Project Safety.

CDM

Means the Construction (Design and Management) Regulations 2015.

CDM-A

Means the CDM Advisor.

CHSP

Means the Construction Phase Health and Safety Plan.

COSHH

Means Control of Substances Hazardous to Health.

DRA

Means Designer's Risk Assessments and/or Designer's Risk Analysis.

DRM

Means Design Risk Management.

Employer

Shall also mean the Client.

2 Definitions and Interpretations (Cont'd)

Definitions and Interpretations (Cont'd)

H & S

Means Health and Safety.

HSE

Means The Health and Safety Executive.

HSG

Means Health and Safety Guidance.

KPI's

Means Key Performance Indicators.

PC

Means the Principal Contractor.

PD

Means the Principal Designer

PM

Means the Project Manager and shall also mean the Client Representative.

PPE

Means Personal Protective Equipment.

QA

Means Quality Assurance.

RIDDOR

Means the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.

SC

Means Sub-Contractor.

3 Project Details

Project Description

3.1 The works include the extension to public conveniences to provide a vehicle maintenance facility and associated external works.

Location of the Site

3.2 The works are located at St Michaels Recreation Ground, St Michaels, Tenterden, Kent.

Programme

3.3 It is anticipated the works will commence in mid November 2019 with a construction programme of 16 weeks.

Project Directory

3.4	Client:	Tenterden Town Council Town Hall 24 High Street Tenteren Kent TN30 6AN Contact: Deputy Town Clerk T: 01580 762271 E: dtc@tenterdentowncouncil.gov.uk
3.5	Principal Contractor:	TBC
3.6	Architect & Principal Designer:	GPM2 Design Ltd. Coach House Mews Quex Park Birchington Kent CT7 0BH Contact: Chris Chambers T: 01843 268010 E: chrischambers@gpm2.co.uk
3.7	Structural Engineer:	Salluz Ltd. 3 Oakridge Broadstairs Kent CT10 3QE Contact: Eamon Stafford T: 07392 295136 E: estafford@salluz.co.uk
3.8	Quantity Surveyor:	GPM2 Design Ltd. Coach House Mews Quex Park Birchington Kent CT7 0BH Contact: Chris Chambers T: 01843 268010 E: chrischambers@gpm2.co.uk

3 Project Details (Cont'd)

Project Directory (Cont'd)

3.9	HSE:	International House Dover Place Ashford Kent TN23 1HU F: 01233 634827

Information Reviewed by the Principal Designer

3.12 The information reviewed by the Principal Designer is as follows: -

GPM2

Drawing 307-101/-	Setting Out Plan
Drawing 307-102/-	Sections
Drawing 307-103/-	Elevations
Drawing 307-104/-	External Works
	Performance Specification October 2018
	Reference Specification Quality Standards October 2018

Salluz

0294/01/A	Foundations and Ground Floor
0294/02/C	Drainage Plan and Details
0294/03/-	Retaining Wall
0294/04/B	Drainage Details Sheet 1 of 2
0294/05/-	Drainage Details Sheet 1 of 2
0294/06/-	Public SW Sewer Diversion

Other

DS_DOS-112470	S185 Developer Diversion of Sewer
18/01153/AS	Planning Decision Notice
	Sewer Records

4 Client Considerations and Management Requirements

Planning and Management of Construction

4.1 To be discussed and agreed with the Principal Contractor prior to commencement on site. Arrangements to be detailed in the Construction Phase Health & Safety Plan.

Communication and Liaison between Client and Others

4.2 The Client and their team will work closely with the team to ensure effective management of the project. All issues that may affect the day to day running of the site should be directed to the Deputy Town clerk. Further details will be provided at the pre-commencement meeting.

4.3 The contractor should contact the client or their selected representative when dealing with site matters i.e. noise, access issues.

4.4 There is an obligation on the Designers, the Principal Contractor and the Sub Contractors and those employed directly by the Employer to liaise and co-operate with the Principal Designer in order for him to perform this duty.

4.5 All relevant information must be copied to the Principal Designer and other members of the Project Team and review meetings held periodically to ensure co-ordination.

4.6 Any design changes proposed must be accompanied by risk assessments and sent to the Principal Designer.

4.7 The preparation of the Health and Safety File will require ongoing liaison between the Principal Designer, the Designers, the Principal Contractor and the Sub Contractors and those employed directly by the Employer.

4.8 In order to comply with the Regulations all training must be completed, and training records, Operation Maintenance Manuals and all information related to hazards passed to the Client no later than the date when the project is completed and handed over to the Client.

4.9 The Principal Contractor shall ensure that all Sub Contractors and those employed directly by the Employer have the competence and knowledge necessary to comply with the Regulations. (see CDM Questionnaire included in Appendix C, which must also be completed by the Principal Contractor).

4.10 Where the contractor requires access to areas outside the site boundary at least 7 days notice must be given to the client and other parties affected by the work.

4.11 The Contractor must provide a main point of contact who will be available throughout the project.

Site Access and Egress Points

4.12 Main site access will be from the A28 Ashford Road. Access to other areas of the recreation ground must be maintained at all times unless agree otherwise and it is paramount all contractors and suppliers are provided with the agreed access proposals before visiting site to avoid potential issues and the Principal Contractor must detail this in their CHSP proposals.

4.13 Where the work may be external, at height, complex or prolonged the Contractor shall provide proposals for all access and egress points. Where such access and egress may be disruptive to traffic movements (vehicular or pedestrian), the Contractor must consult with the Police, Highways, Fire Authorities, client representatives and any other parties that maybe affected by the work activity.

4.14 Where works to or within the public highway or footway are intended the contractor should provide specific method statements, where they may be required, for services and footpath diversion, drop kerbs and public right of way crossing points.

4.15 Existing roads and footways outside the defined site are to be kept clear for use by all other users including emergency services and refuse collections during the contract unless otherwise agreed.

Compound Location

4.16 The site compound must be accommodated within the construction site boundary and the existing building can be used for welfare facilities. The Principal Contractor will need to prepare a detailed site facilities layout drawing and the plan should include and show clearly, perimeter fencing, access and egress provisions to the site, location of stores and storage areas, positioning of lifting appliances (i.e. cranes hoists), temporary accommodation, welfare facilities and car parking facilities for site operatives and visitors and the like in the CHSP. If possible, all parking should be within the site compound but if this is not possible a strategy should be discussed with the Town Council to ensure disruption to neighbouring areas is kept to a minimum.

4.17 Storage of equipment, tools and materials will be in the site compounds, unless otherwise agreed. Size, type and location of accommodation and compound are to be agreed with PM prior to erection. Materials shall not be stored outside the boundary of the site.

4.18 The Principal Contractor will be required to provide details and plans of all these proposals within the CHSP before works commence on site.

Security of the Site

4.19 Security: Prior to starting on site the contractor will provide details of their proposed security to be used. These arrangements should be reviewed at regular intervals to ensure they are operating effectively and providing sufficient security.

Welfare Arrangements

4.20 Welfare facilities must be installed and in operation prior to commencing works on site and shall be as required by statute and be maintained in good clean order throughout the works. Male and female toilets should be available with running water available. Where circumstances dictate barrier creams, cleansing creams and the like are to be provided. The areas must be kept clean at all times.

4.21 Where particularly dirty work or work associated with hazardous materials are anticipated full hair and body-washing facilities should also be provided.

4.22 Where external or wet work is necessary drying facilities should also be included.

4.23 All storage facilities shall be of adequate size to suit the number of operatives expected to work on site and shall be fully secure.

4.24 All compound and welfare facilities shall be cleared away on completions and areas re-instated. All accumulated rubbish and surplus materials shall be removed from site on completion.

4.25 The contractor should refer to the Regulations for exact requirements.

4.26 The contractor is to provide details of his proposals for discussion with the project team prior to commencement of the works.

4.27 Provision must be made for suitable resting/mess space for the site operatives, which must be of adequate size to suit numbers expected to work on site and shall be fully cleaned at the end of each day.

Noise and Vibration

4.28 Some operations throughout the Contract period may generate excessive noise and vibration. The Principal Contractor should outline in the CHSP, proposals for noise and vibration control, both in respect of being a hazard to site personnel, and as a nuisance to surrounding areas. Activities should be reviewed with the Town Council and monitored on a regular basis to minimise disruption as much as possible.

4.29 Limit use of vibrating equipment to maximum prescribed periods to prevent vibration white finger.

4.30 Consideration should be given to wearing high viz jackets at all times, given the nature of the works.

Fire Prevention

4.31 The Principal Contractor should take note of the advice given in Fire Prevention on construction sites - the Joint Code of Practice published by the Building Employers Confederation, the Loss Prevention Council, and the National Contractors Group.

4.32 The Principal Contractor must include in the CHSP fire prevention and evacuation measures that will be implemented throughout the construction period.

4.33 Burning of disposable waste at any location is **NOT** permitted and the contractor.

Lighting

4.34 All temporary lighting provided for the works shall be placed or screened to avoid causing nuisance to traffic and adjacent occupancies. Existing lighting may not be available, so the Principal Contractor will be required to provide all lighting in the work area and any access routes.

4.35 Consideration must also be given to prevent tampering with by the general public.

4.36 In addition, lighting must be positioned to prevent them from toppling over and from being touched to eliminate the risk of burns, whilst fully illuminating the works or associated access scaffolds and the potential hazards arising there from.

Permits and Authorisation Requirements

4.37 The Principal Contractor will supply to all working personnel employed upon the works a form of identification card which will contain the following: -

a) Photograph of operative and Operative's Name

b) Service Provider's name and address

c) Expiry date of card.

d) Unique Reference Number

4.38 The contractor must operate a permit to work system and details should be included in the CHSP.

Permits and Authorisation Requirements (Cont'd)

4.39 Everyone who works on site must be made aware of the site rules; no smoking, no radios; safety of the public, neighbouring properties etc. Induction training must be given to everyone on site. The induction must include the requirements with regards to emergency procedures. Records of training must be kept. All site personnel must be capable of reading and understanding the English Language.

4.40 The Principal Contractor shall provide a competent person on site, who can administer first aid, to those who may be injured or become ill while engaged on the works. They must be provided with all necessary first aid facilities as deemed necessary.

Overlapping with Clients Undertaking

4.41 Occupancies: Access and services for surrounding buildings not part of the site are to be maintained free of disruption at all times. The Principal Contractor should ensure the client and surrounding neighbours are notified of any times that their access maybe restricted i.e. large deliveries.

4.42 Accidents and Emergencies: It is a requirement that any reportable accidents and all emergencies are to be reported to the client or his representative as well as emergency services.

4.43 Health and Safety Policies: The Contractor shall comply in all respect with current and promulgated Health and Safety Acts and Regulations throughout the works.

4.44 Contractors' Enclosures: The area of operations and any storage, compounds and enclosures must be agreed prior to commence of the works. It may be necessary from time to time throughout the works to move, dismantle and re- erect such enclosures as may be necessary to accommodate the works. The Contractor shall include procedures for so doing in the CHSP.

4.45 Nuisance: The Principal Contractor shall confine all operatives including those of all sub-contractors to the site of the works, so as to minimise nuisance to others and prevent any conflict arising. Exceptional standards of cleanliness and "house keeping" will be required on the site during any operations. Ensure all rubbish, surplus materials, tools and equipment are removed at the end of each working day so as not to present a hazard or cause nuisance to the occupancies. Do not allow radios or other audible equipment to be taken into the work place that would cause disturbance to surrounding areas or prevent instructions from being heard by other operatives. Do not allow or tolerate abusive or offensive language from any operatives working on site. There may be occasion when other works, associated or non-associated, are to be carried out in or to the same place of work that are not under the supervision of the Contractor or attached to his team. Where this is the case the Contractor shall seek instruction before proceeding to determine that it is safe to do so.

Basic Site Rules

4.46 Scaffold Security: Scaffolding shall be designed to prevent access onto by unauthorised people after working hours, but also be mindful not to prevent emergency egress in the event of a fire.

4.47 Site Security: The Contractor shall ensure that steps are taken to limit the number of people on site to those directly concerned with the construction work and to ensure that the security of the site is maintained and that the security of the Client's is preserved. The Principal Contractor is required to describe in his Health and Safety Plan how he proposes to maintain security.

4.48 Safe Working Routes: Safe working routes shall be defined before commencement of any work.

4.49 Disturbance on Site: Radios and other audible equipment are not permitted at the workplace.

4.50 Personal Protection: Hard hats and foot protection will be worn as a minimum requirement throughout the duration of the contract. These shall be made available for visitors. Personal protective equipment shall be provided for all those who require it.

4.51 Visitors: will be required to report to the person in charge. Before entering the site, the Contractor shall carry out a site induction, indicating any hazards on the site, whether in the area to be visited or not. When a visitor leaves the site, he should inform the person in charge.

4.52 Highways: When working on or adjacent to the public highway, high visibility garments must be worn.

4.53 Site Signage: The Contractor shall identify by clear signage any safety hazards such as scaffolding which is out of use.

4.54 Hot Work: No "hot work" - involving blowlamps, welding equipment, soldering irons, etc. may be carried out during the last two hours of the working day. The Contractor shall inspect such sites immediately before he quits site and damp down as necessary.

4.55 Materials Storage: All materials shall be carefully stored prior to use in an area which can be maintained secure out of working hours.

4.56 Plant: All portable equipment not in use shall be isolated and carefully stored. Items of plant not in use shall be rendered safe and isolated.

4.57 Site Lighting: All escape routes shall be adequately illuminated during working hours. Lighting of routes accessible outside when dark is essential.

4.58 Tidy Site: The Contractor shall maintain the site in a tidy condition, especially along pedestrian and vehicular routes.

Basic Site Rules (Cont'd)

4.59 Permits - The Contractor shall operate a "Permit to Work" system for the following situations: -

Work involving insitu welding and shot blasting

Work involving the use of abrasive cutting and drilling equipment.

Paint stripping use heat or flame equipment.

Hot liquid asphalt and bitumen.

Work in areas where there are known hazardous materials.

4.60 Contract Requirements: The Contractor is required to comply with the requirements of the Contract Preliminaries. Any area of conflict between this document and the Contract Documents shall be brought to the attention of the Project Manager and the Principal Designer.

4.61 Competence 1: The Principal Contractor is required to ensure that any Designers responsible for any design work instigated by him are competent in terms of the Construction (Design & Management Regulations) 2015.

4.62 Competence 2: The Principal Contractor is required to check the competence of any domestic, named or nominated Contractor for the purposes of complying with the Construction (Design & Management) Regulations 2015.

4.63 Contractors and Self-employed People: It is a requirement under the Construction (Design and Management) Regulations 2015 that the Principal Contractor ensures that contractors and self-employed people working on the site are made aware of the relevant portions of his CHSP.

4.64 Health and Safety Executive: The Contractor shall take due notice of the guidance given in HSE publications, particularly HSG 150 – *Health and Safety in Construction*, which covers hazards most commonly found on construction sites. Other useful publications can be found on the HSE web site www.hse.gov.uk many of which are free.

4.65 Statutory Instruments: During the course of the building works, Contractors shall pay attention to all current and promulgated Statutory Instruments. Should the Contractor be required to carry out work affected by another statutory instrument, he shall immediately inform the PM and seek instructions before proceeding.

Basic Site Rules (Cont'd)

4.66 Person responsible: The Principal Contractor must appoint a suitable person to deal with all Health and Safety related matters, his / her name, Health and Safety qualifications, place of contact and telephone number must be clearly stated and included in the CHSP.

4.67 First Aid: The Principal Contractor must provide their own First Aid facilities, which must be available to all sub-contractors and visitors to the site. The Principal Contractor will ensure the entire workforce on site is aware of emergency procedures in the event of fire or accidents.

4.68 Records: An accident record book must be kept and maintained on site at all times.

4.69 Training: The principal Contractor is strongly advised to carry out regular and frequent "Toolbox" talks to ensure all sub-contractors and directly employed personnel are fully appraised of all current Health and Safety legislation and operating instructions.

4.70 KPI's: The Contractor shall carry out Key Performance Indicators to log and assess Health and Safety performance of themselves and their sub-contractors throughout the contract duration. The Client and/or the Principal Designer may request completed KPI's to determine such key issues as

- Accidents throughout the Construction process.
- Health and Safety measures on site.
- House keeping at cleanliness throughout construction.
- Compliance with CDM.
- Health and Safety File information.
- Design team Co-operation.

4.71 Working Hours: The working hours are 08:30 – 18:00 Monday to Fridays and 09:00 – 13:00 on Saturdays. No works on Sundays and Public Bank Holidays should be carried out unless in association with an emergency or agreed otherwise with the appropriate parties. The contractor must ensure disruption to neighbouring properties is kept to a minimum.

4.72 Environmental: The Contractor is to develop their own policy.

4.73 Suitable clothing must be worn at all times which includes shirt etc.

4.74 All accidents, near misses or damage incidents must be reported and recorded on the Principal Contractors Accident Report Forms. In the case of injury or ill health, first aid assistance must be summoned immediately.

4.75 Smoking Restrictions: Smoking is not permitted anywhere within the site boundary. The Principal Contractor should ensure all site personnel are aware of the locations of the designated areas.

Basic Site Rules (Cont'd)

4.76 All waste materials must be disposed of in accordance with the manufacturer's recommendations and by registered carriers. All disposals must be in accordance with current legislation.

4.77 The Principal Contractor is to observe the Electricity at Work Act 1992, Health and Safety at Work Act 1974 and BS.7671:2008 (IEE Regulations 17th Edition) regarding this. The Principal Contractor is to provide a 110 volt electricity supply for the works.

4.78 The Principal Contractor is to allow for the protection of the work areas as necessary and this is to be maintained outside working hours. The work is to be left safe and protected at the end of each day.

4.79 Ensure that all plant and small tools are removed from each property at the end of the working day and never left unattended at any time during the working day.

4.80 Special care must be taken to prevent access to the working areas.

4.81 DBS checks are not required.

4.82 Further site rules may be imposed if they deemed it to be necessary on the grounds of H & S.

Emergency Procedures

4.83 Fire Precautions: The contractor is to develop his own policy for dealing with fire and ensure safe warning and evacuation procedures are in place not only for the contracts workforce but also for visitors to site.

4.84 The Principal Contractor shall provide on site all necessary appropriate portable fire fighting appliances and all operatives shall be trained in the use of such equipment. The Principal Contractor must ensure that these are maintained at required service intervals.

4.85 Emergency Procedures: In conjunction with arranging fire warning and evacuation procedures, the contractor must ensure that an agreed meeting point is communicated to all personnel on the site in the event of an emergency.

Statutory Undertakers Rules

4.86 There are no specific Statutory Undertakers rules that have been made aware to the Principal Designer at the time of preparing this plan. Generally, the Contractor shall contact the Statutory undertakers prior to undertaking any works of maintenance or repair to the Statutory Authorities services or associated equipment.

4.87 Live services discovered not previously identified shall be referred to the relevant Statutory Authority for further instructions and advice.

Statutory Undertakers Rules (Cont'd)

4.88 Damage or disruption to services whether accidental or otherwise are to be reported to the appropriate Statutory Authority using the emergency help line telephone number. The number of each Authority emergency helpline shall be recorded on the site emergency information sheet and displayed in a prominent position on site. The information shall from time to time be verified as to the continuing use of displayed information and up-dated as necessary.

Continuing Liaison

4.89 Changes or additional design work carried out by the Contractor, Sub-contractors or Suppliers with design input together with risk assessments must be forwarded to the Principal Designer for their records.

4.90 The Principal Contractor shall furnish the Principal Designer with the following information for updating the F10 Notifications with the HSE (if notifiable): -

a) Name and address of the design organisation
b) Contact Name
c) Contact telephone number
d) Brief description of the design element

4.91 The Principal Designer should be included in the distribution of all drawings, designer risk assessments, calculations, site meeting minutes, contract programmes and other relevant documentation as and when appropriate.

4.92 The Principal Contractor is required to identify all those in the construction team involved or likely to be involved in the contract with any design input, so that the procedure for appraising all design in accordance and for compliance with the Construction (Design and Management) Regulations can be established.

4.93 The Principal Contractor is required to provide to the Principal Designer and any appointed designers, at least 5 working days prior for implementation, a document setting out clearly his hazard identification and risk assessment and method statement for dealing with the associated Health and Safety related matters for elements of the work designed by him/her.

4.94 The Principal Designer shall be advised, as soon as possible, by the Designer and / or Principal Contractor of any unforeseen eventualities during the project execution resulting in substantial design changes(s) which might affect resources and have health and safety implications.

Continuing Liaison (Cont'd)

4.95 Changes arising from unforeseen eventualities in the Construction Phase may materially affect the principles on which this first stage plan was prepared. The Principal Designer shall therefore be informed of any such changes proposed with the contractor ensuring that their CHSP is amended to cover said changes. No change shall be initiated on site that may affect Health and Safety related matters without the full knowledge of the Principal Designer duly appointed to administer Health and Safety in the Construction Phase.

4.96 Common changes that may arise as a result of unforeseen eventualities are listed hereafter, this list should not be regarded as exhaustive:

a) Unforeseen conditions encountered during demolition or construction, Instability in retained structures and previously unknown services for example.
b) Previously unknown conditions during excavations (e.g. Hazardous materials, obstructions, unstable ground, previously unknown services etc.).
c) Client changes.
d) Changes arising from new legislation.
e) Changes arising from accidental damage.
f) Civil commotion / violent behaviour / anti-social behaviour encountered in area of work or as a direct result of the work.

Future Health and Safety Management

4.97 Hazards that may occur in future maintenance, which the Designers have not been able to design out, will be included in the Health and Safety file. All live services remain in the vicinity; refer to as built Statutory Undertakers drawings.

4.98 Any specific which has been identified by the designers prior to formulating this plan are detailed within each consultants design package. It is also assumed all the usual hazards associated with this project will be present.

5 Environmental Restrictions and Existing Site Risks

Health & Safety: General

5.1 All health and safety hazards related to the project are to be identified as fair as reasonably practicable. For guidance, these could include any of the following areas but it is not intended to be exhaustive.

Environmental hazards to surrounding areas

Hazards following construction including those to end user

Confined spaces

Demolition / Alterations

Manual handling

Scaffolding

Ladders

Access Platforms

Underground & Overhead Services

COSHH

Electrical tools

Environmental Hazards (To be included in interface with Construction)

Noise, Vibration and Dust

Fire

Lead

Asbestos

Waste

5.2 Risk Identification: All hazards identified will be formally analysed by the Designers and the conclusions and risk assessments passed to the Principal Designer. Risk assessment is a continuing process facilitated by the completion of the Project Hazard Risk Assessments Forms.

Health & Safety: General (Cont'd)

5.3 Continued Risk Assessment: By the nature of the work, risk assessment of the contractors' proposed method of working are required. A standard pro-forma is included in Appendix B. The Principal Contractor will not permit the Sub contractors and those employed directly by the Employer, works to commence until these risk assessments are received.

5.4 The Principal Contractor and Sub-contractors, and those employed directly by the Employer, will make themselves aware of the location of the nearest suitable Accident and Emergency hospital (QEQM Hospital) to site and the most suitable route to get there.

Surrounding Land and Building Uses

5.5 The site is located off of the A28 Ashford Road and surrounding land/building uses include public highways, residential, recreational and a petrol station.

Restrictions, Sensitive Neighbours

5.6 The neighbours within close proximity to the site will be the surrounding residential properties, the petrol station and users of the recreational ground.

Maintain water, gas, electricity, telecom and other services to the existing buildings and in the surrounding built environment where works are to be carried out. Maintain all drainage systems to the existing buildings in the surrounding built environment and prevent contamination of same by construction materials, dust and rubble.

Storage of materials and the like (including waste containers) is not permitted outside the defined areas. Extreme care is to be exercised in the vicinity of the access ways.

The Principal Contractor and his appointed Sub-Contractors and Suppliers must observe all restrictions on adjoining roadways and access paths and respect and protect surrounding property and enclosures.

Hazardous substances, surplus materials and portable equipment are to not be left on site in the event of work carrying over from one day to the next, where they might be tampered with by the general public.

The Principal Contractors development of the Construction Phase Health and Safety Plan should include risk assessments relating to vehicular movements to and from the site and manoeuvring, loading and unloading on the site.

For the avoidance of doubt the Principal Contractor is deemed to have familiarised themselves and all appointed sub-contractors and suppliers with all existing and additionally imposed site rules and restrictions.

Proposed Construction Site

5.7 Works generally described as the site shall be determined as works within the curtilage of the site boundaries or might involve works outside the boundaries such as in the case of repairs to services arising as a fault elsewhere.

Planning Restrictions

5.8 Planning Restrictions: Please refer to Planning Approval dated 7th November 2018.

Building Control

5.9 Notification must be made to the Building Control Officer ensuring that inspections are carried out before such works are enclosed by finishes etc.

Existing Services

5.10 Live services include electric cables, gas service pipes, water, drainage and telecommunications exist on, under or near to the work area. Likely hazards are risk of Electric shock, explosion, fire and flooding. Any services information provided should only be taken as guidance and should hence be considered insufficient to discount additional unknown services or inaccuracies in the marked position. The Principal Contractor is advised to ascertain the accuracy of information provided on site before commencing operations. The contractor should carry out a survey and scan for services in all affected areas and produce a services layout drawing indicating their location for the use by site operatives. Without prejudice to any of the information provided, the Principal Contractors construction phase Health and Safety plan should include methods for locating and identifying all services on site prior to any works of excavation, demolition or cutting out, and include protection where appropriate prior to commencement of works on site. All services shall be considered as being LIVE until certified as safe by statutory service engineers. The contractor shall take such steps to ensure that all existing services are maintained throughout the duration of the works, including Electric, Gas, Water (including drinking water), telecoms and drainage.

The contractor shall be responsible for marking onto a layout plan all services remaining, not previously identified, diverted or new for inclusion in the Health and Safety file.

Where live services to remain (including drainage) may require relocation or modification arising out of the proposed works on site and not been specifically addressed in the description of works, then the Principal Contractor shall provide detailed risk assessments and method statements, including provisions for temporary supplies prior to commencement on site.

Existing Traffic Systems & Restrictions

5.11 Keep all surrounding road networks clear of all materials for the works and the like at all times, where there is scope for storing elsewhere. Provide wheel washing facilities and road cleaners as required. Access to the recreational ground must be maintained at all times unless agreed otherwise.

Site Transport Arrangements: Deliveries are to be carefully managed to avoid unnecessary conflict with neighbouring properties and the highway. The contractor as part of his health and safety proposals is to provide a method statement demonstrating that deliveries can be safely made, unloaded and stored at the site location. This must be fully coordinated and agreed with the representatives of the client. It is recommended that no deliveries/removals should take place between 8 – 9am and 4 – 6pm.

Careful planning and consideration must be given with regards to the movement of materials and plant around the sites. Details of how this is going to be controlled, must be included upon a method statement.

Observe all restrictions on adjoining roadways, railways and footways. Site operative's vehicles and site vehicles shall not be parked on surrounding roads in a manner that would restrict access or block other user's passageway, including emergency services vehicles.

Allow for all lighting, watching, protection to works, dust screens or netting, scaffolding and fans as the type of operations dictate. Comply with all statutory notices.

The contractor shall make necessary enquires of the Highways, Refuse, Building Control, Police, Fire and Lighting Authorities regarding sequencing the work and submit details of materials delivery, storage, collection, refuse disposal and parking provisions for approval before the work may proceed, unless the urgency of the work dictates otherwise.

Existing Structures

5.12 The existing structures within the site boundary is the toilet/storage building.

The predominant risks to health and safety are, falls to persons carrying out the work, falling objects endangering persons and/or property below; occupants gaining access to unfinished work areas.

When opening up existing structures care should be taken not to disturb insulation materials that may contain hazardous materials (asbestos for example). Where such materials are suspected the Contractor shall seek advice from the Project Manager.

Where it is necessary to remove or disturb materials suspected of containing hazardous substances, testing by approval specialist firm must be carried out and results known before commencement of operations.

Existing Structures (Cont'd)

Where hazardous substances are confirmed, the works of removal or alteration and disposal shall be approved (licensed) contractor only.

Where it is necessary to remove or disturb materials suspected of containing hazardous substances, testing by approval specialist firm must be carried out and results known before commencement of operations. Where hazardous substances are confirmed, the works of removal or alteration and disposal shall be approved (licensed) contractor only.

Existing Ground Conditions

5.13 Instabilities in the ground may arise during the works when scaffold is erected or when moving access platforms around the site. The Contractors development of the CHSP shall include measures for protection including temporary strutting, lining and where excavations may remain beyond the working day, protective barriers, notices and lighting will be required and should be included as part of the Contractor's method statement prior to commencement.

Existing Drawings and Documents

5.14 Any existing information not already made available may be available by representatives of the client. It is the duty of anyone undertaking works of Maintenance or repair under the CDM Regulations to view existing Health and Safety Files including asbestos registers, where available, before carrying out operations to or on the premises. Similarly, it is the duty of every Client under the Regulations to provide access to these files before the commencement of any work including design.

Existing Health & Safety Files

5.15 No file exists for the existing building but if any specific information is required please contact the PD or Architect.

Hazardous Materials Register(s)

5.16 It is unlikely that hazardous materials will be encountered (See Appendix D), however, the Principal Contractor shall ensure all site personnel are appropriately trained and asbestos aware. Furthermore, the Principal Contractor's CHSP should include method statements for dealing with all hazardous materials including asbestos, asbestos containing materials (ACM's) and lead. Where required by the regulations, the method statement is to include works by approved Licensed Contractors and it should be assumed that all paintwork contains lead and method statements should also be in place to deal with this risk. If any suspicious materials are identified during the works the client/PM should be notified immediately and works in that area should be stopped. they are identified in areas where works of maintenance, demolition, repair or alteration are expected to be done.

Hazardous Materials Register(s) (Cont'd)

5.17 Asbestos, ACM's, lead and other hazardous material based products shall be removed and disposed of at approved sites in accordance with current legislation. Removal of all hazardous materials unless otherwise directed by the specialist contractor, shall follow the rules for removal of Asbestos and will generally include but not be limited to: -

1. Works to be sealed off an all statutory notices erected prominently around the area.
2. Adequate de-contamination facilities provided for all operative.
3. Maintain damping down of materials throughout the works to reduce the risk of dust.
4. Do not use power tools that will create higher levels of dust and airborne fibres.
5. Use appropriate PPE including masks, respirators and disposable overalls.
6. Only trained operatives to carry out works of removal.
7. All disposable PPE and filters from respirators are to be treated as hazardous waste.
8. Do not allow hazardous waste to accumulate.
9. All hazardous waste is to be located in approved and suitable containers.
10. Clear away all dust arising from hazardous materials using dustless methods, type H vacuum cleaner for example.
11. Operatives to observe and maintain a strict regime of cleanliness following work on hazardous materials.
12. Maintain records in compliance with current legislation; Asbestos (licensing) Regulations and the control of Asbestos at Work Regulations.

6 The Design and Significant Design and Construction Hazards

Design Documents

6.1 This document is prepared from information available to the Principal Designer at the time of preparation and where design documents have been prepared for this purpose they are listed in Section 3.

Pre-Construction Operations

6.2 The Principal Contractor shall make all necessary inspections of the site for construction, contact all relevant Statutory Authorities, make advance arrangements with the PM where work is to be carried out and prepare site set up where this is necessary in advance of the works.

Significant Risks Identified During the Design Stage

6.3 The work includes a variety of 'traditional work' and there are a number of hazards associated with such work.

6.4 To a large extent they will be adequately controlled if the work is carried out in accordance with all relevant health, safety and welfare legislation, codes of practice and established guidance together with industry good practice.

6.5 The Designers have provided risk assessments identifying the significant hazards within the project and these are detailed in the respective design packages to provide the contractor with sufficient information relating to the foreseeable risks within the project and, an indication of the action that could be taken to reduce the risks.

6.6 Method statements will be required for most activities on site. All method statements, COSHH assessments and risk assessments must be submitted to the PM prior to the work being carried out on site.

6.7 The contractor is to carry out his own risk assessments where he considers risks remain or the methods proposed for the work may reveal further hazards.

6.8 All relevant notices, risk assessments, demolition plans and method statements must be in place and approved prior to carry out the demolition works.

The typical construction operations arising from the proposed works and the hazards likely to be encountered are identified hereafter.

6 The Design and Significant Design and Construction Hazards (Cont'd)

Significant Risks Identified During the Construction Stage

The Principal Contractor is advised to consider these when preparing risk assessments and method statements for the Construction Health and Safety Plan

The table below identifies some hazards where the Contractor is required to provide a statement of his proposed control measures and provide a Method Statement, where required, describing his proposed procedure for safe construction.

Element of construction	Outline description of hazard, and specific requirements on contractor	Persons at risk	Contractors method statement required
Access/Egress to site.	*Shared access to site from main highways.*	*Site Operatives, public*	☑
Debris/material storage.	*Tripping, collapse, obstruction.*	*Site Operatives, public*	☑
Scaffolding.	*Collapse, working at heights, unsafe working platforms.*	*Site Operatives, public*	☑
Traffic/Pedestrian management.	*Congestion, site debris on roads. Provide traffic management plan.*	*Site Operatives, public*	☑
Noise.	*Ensure disturbance is kept to a minimum.*	*Site Operatives, public.*	☑
Existing M & E Services.	*Damage to existing buried or hidden services, study existing drawings etc. Carry out scans etc.*	*Site Operatives.*	☑
Construction of Retaining Wall.	*Temporary closure of skate area*	*Public.*	
Drainage diversion.	*Refer to structural engineers' details and sewer records.*	*Site Operatives.*	
Erection of Timber Frame.	*Provide site specific management plan.*	*Site Operatives, public.*	☑
Security.	*Ensure appropriate security is in place to avoid unauthorised access.*	*Site Operatives, public.*	☑

6 The Design and Significant Design and Construction Hazards (Cont'd)

Construction Materials

6.9 The following are deemed to be construction materials that the Contractor is likely to encounter in pursuance of the intended work under the contract

- Heavy components and materials. Manual Handling Regulations apply to prevent spinal injuries. Where materials exceed 20kg in weight and are required to be dismantled from or installed in the works, the Contractor shall describe his method of dismantling, transporting, unloading and installing said materials paying due regard to the requirements and advice given in the Manual handling regulations involving heavy materials.
- Hazardous Materials (ACM's/lead for example) may be present. Present serious risk to health, if discovered stop work, erect barrier to close off area and report to Project Manager. Only trained specialist contractors to work with hazardous materials.
- Materials generating high levels of dust (MDF and cement powder for example). PPE to prevent inhalation. Use in well-ventilated areas only and clear away all resultant dust.
- Mineral wool and glass fibre insulation. Irritant, provide PPE to prevent skin infection and allergies. Keep disturbance to a minimum to reduce airborne fibres.
- Adhesives, solvents and sealants. PPE to prevent inhalation, and solvent burns. COSHH assessments required for materials of this nature. Provide adequate washing facilities adjacent to the works. Dispose of surplus materials to appropriate containers. All COSHH assessments should be retained by the Contractor for inclusion in the Health and Safety File.
- Lead. Toxic, prevent lead poisoning with appropriate PPE and washing facilities. Minimise use of lead products wherever possible. Assume all existing paint to contain lead.
- Glass and ceramic tiles. Handle with care and provide appropriate PPE to prevent cuts and splinters. Do not dispose of off-cuts and shards in general waste containers. Clean down soft fabrics in the work area that may harbour shards and splinters that could cause injury.

6.10 Materials and substances specified have been chosen to minimise risk to health and safety. COSHH sheets should be obtained for materials that the contractor considers a risk to site operatives.

6.11 Particular attention must be given where materials such as glues, primers, paints, sealants and solvent based materials are used inside the building. Natural ventilation in some areas may not be adequate. The use of personal protective equipment when using such substances should only be used as a last resort.

6 The Design and Significant Design and Construction Hazards (Cont'd)

Construction Materials (Cont'd)

6.12 Designers: All Designers will identify any proposed potentially hazardous construction materials, carry out risk assessments, and if adopted, notify these materials to the Principal Designer, these will be identified either on drawings or on a risk assessment form. Principal Contractor and Sub contractors and those employed directly by the Employer along with Health and safety Information and Guidance Documents regarding handling, use, storage, maintenance, cleaning and any other risk all in accordance with COSHH Regulations.

6.13 The Contractor shall determine by inspection and research where necessary, the principles of the existing structures where works are to be carried, to determine the likely risk of encountering any specific hazards.

6.14 In determining such principles, the Contractor shall use all means and resources available to him/her or by making enquiries that it would be reasonable to expect a competent Contractor to carry out.

Principles of the Existing Structure

6.15 The Contractor shall determine by inspection and research where necessary, the principles of the existing structure where works are to be carried out, to determine the likely risk of encountering any specific hazards. Details are included in the design package to assist with this process.

6.16 In determining such principles, the Contractor shall use all means and resources available to him/her or by making enquiries that it would be reasonable to expect a competent Contractor to carry out.

6 The Design and Significant Design and Construction Hazards (Cont'd)

Method Statements

6.17 Further Specific areas where contractors will be required to explain their proposals for managing these problems in the Construction Phase Health and Safety Plan are listed hereafter.

1. Demolition and removal and disposal of hazardous materials. (Where such materials are encountered). General excavations and disposal of deleterious materials.
2. Site set up, movement of contractors vehicles. (Access and egress to site) and to include traffic management, where necessary.
3. Works to services (existing and proposed).
4. Control of dust and noise with particular focus on the surrounding areas.
5. Control of substances hazardous to Health (in the construction process). COSHH assessment of materials and packaging.
6. Working in confined spaces. Do not allow "lone working" without reporting and recovery procedures being in place.
7. Working at height, erecting, maintaining, inspection and dismantling of scaffolding and working platforms.
8. Delivery, off loading of plant and large/heavy components, prefabricated panels etc. with particular focus on avoiding overhead cables, and disruption to the surrounding road network.
9. Off site works in adjacent areas and highways, location and repair to services for example. Specific reference to be made where there may be disruption to existing services.
10. Maintaining means of escape in the event of fire or emergency.
11. Work in areas that may be vulnerable to anti-social activities. Encountering needles used for administering drugs and/or violent behaviour for example.
12. Any other activities that are potentially hazardous, not specifically described, but in the experience of a competent Contractor may be encountered during the type of work covered by response maintenance and Gas servicing.

6 The Health & Safety File

The Construction Phase Plan

7.1 The contractor will be required to submit their Construction Phase Plan for acceptance prior to the commencement of the works.

7.2 In accordance with the Construction (Design and Management) Regulations 2015 and the Approved Code of Practice entitled Managing Construction for Health and Safety, the construction phase plan has to be developed by the Principal Contractor before work starts, particularly the procedures and arrangements which are applicable to the generality of the construction and mobilisation phase. In order to comply with the regulations, the principal contractor should ensure that the Construction Phase Plan is developed to generally include the following information: -

1. Description of the project.
2. Management of the works.
3. Arrangements for controlling significant site risks.
4. The Health and Safety File.

The contractor should refer to Appendix 3 of the ACOP for further information.

7.3 In particular, the contractor must also include the following information: -

1. Parking and turning areas for construction and delivery vehicles and site personnel
2. Timing of deliveries.
3. Details of site access point(s) for construction.
4. Dust control measures.
5. Demolition and construction waste - storage and removal.
6. Temporary traffic management/signage.
7. Details of wheel washing facilities and procedures.

The Health & Safety File

7.4 Format: The client requires the Principal Contractor to provide one hard copy and one electronic version in Adobe format (pdf). Drawings must be provided in Adobe format (pdf).

The Health & Safety File (Cont'd)

7.5 The file must be prepared by the Principal Contractor and contain items such as:

- Project Description
- Parties involved
- Schedule of Locations
- As built drawings: The main sets may form annexes to the manuals.
- All necessary Certificates
- Residual Hazards
- Technical Guides
- Maintenance Procedures
- Safety Certificates
- Guarantees

7.6 A complete DRAFT of the Health and Safety File must be submitted three weeks before the date for the submission of the final copy of the file but the document must be developed with the PD throughout the construction phase as required by CDM Regulations 2015. Amend the draft file in the light of any comments and resubmit to the PD/PM. Do not proceed with the production of the final copies of the file until authorised to do so by the PM/PD.

7.7 Final Copies (1 No.) of the Health and Safety file must be prepared, collated and submitted not less than one week before Practical Completion.

7.8 The contents of the file must include the following: -

- a brief description of the work carried out;
- any residual hazards which remain and how they have been dealt with. This is of particular importance as the dwelling will be handed over unfinished;
- hazardous materials used;
- information regarding the removal or dismantling of installed plant and equipment;
- health and safety information about equipment provided;
- the nature, location and markings of significant services, including underground cables, gas supply equipment, fire fighting services etc.;

The file does not need to include things that will be no help when planning future construction works.

The contractor should refer to the ACOP for further information.

Appendix A – F10 (to follow)

Appendix B – Risk Assessment Pro-Forma

HAZARD RISK ASSESSMENT FORM

Designer Jobcode:

Project Ref:

Designer name:

Sheet No:

Element:

Completed by:

Date:

Activity:

NBS/SMM7 Code:

or

Job BoQ Spec. Ref:

Drwg. Ref:

Significant Hazard:

Probability:

Low	1	
Medium	2	
High	3	
Mandatory	4	

Consequences:

Minor	1	
Medium	2	
Serious	3	
Public Risk	4	

Control of Risk:

Risk Severity:

Probaility X Consequences	

Hazard Strategy:

Eliminate	E	
Mitigate	M	
Accept	A	

Associated Hazards:

CDM Advisor's/PD's Review

Returned for Re-appraisel? **Yes** ☐ **No** ☐

Reviewed by:

Date:

Entered By:

Date:

Appendix C – CDM Questionnaire

MAIN CONTRACT WORKS

CDM 2015 REGULATIONS - QUESTIONNAIRE

CONTRACTORS SAFETY QUESTIONARRE		
1. CONTRACTORS DETAILS		
CONTRACTORS NAME:		
ADDRESS:		
TELEPHONE NUMBER:		EMAIL:
PROJECT NAME:		
SITE ADDRESS:		
PROJECT DESCRIPTION:		
2. EXPERIENCE		
A	Provide examples of work carried out previously, which is comparable in size and nature to this project.	
B	Provide details of the experience, qualifications, membership of professional bodies etc and arrangements for continuing professional development of key staff who would be employed on the project (Provide Curriculum vitae)	
C	What measures would you adopt to ensure the competence of the contractors to whom you propose to award work on this project?	
3. CONTRACTORS PROJECT PERSONNEL RESPONSIBLE FOR SAFETY		
A	Name of Director who has overall responsibility for safety:	
B	Name of the Contracts manager who will be responsible for this project:	
C	Name of the person who has the day-to-day responsibility for the management of health and safety and provide details of the experience and qualifications (Provide Curriculum vitae):	
D	Name of the Site Manager who will be responsible for this project:	
E	Name of person responsible for safety training:	
F	Name of person responsible for safety inspections and safety audits:	
G	Name of persons responsible for investigating accidents:	
H	Name of person responsible for monitoring, maintenance of plant & equipment:	
J	Name of person responsible for carrying out COSHH Assessments for site:	
K	Name of person who will carry out Site Safety Inductions:	
L	Name of person who will be producing Safe Method of Work Statements for the site:	
M	Name of person who will be carrying out Risk Assessments:	
4. TRAINING		
What safety training is carried out for management and employees (note: this should include details of all general safety awareness training and specific training in the safe use of equipment and safety procedures). Please give description below:		
Submit copies of certificates of training for all personnel who would be on site or otherwise involved in the project with this completed Contractors Safety Questionnaire. **Tick this box if enclosed.** ☐		
5. SAFETY MEETINGS		
How often will you hold your safety meetings, who will attend and who will be issuing the meeting reports?		

MAIN CONTRACT WORKS

CDM 2015 REGULATIONS - QUESTIONNAIRE

CONTRACTORS SAFETY QUESTIONARRE
6. INCREASING EMPLOYEES SAFETY AWARENESS
What methods do you use for increasing employee safety awareness and who is responsible for putting these in hand?
7. STAFF SAFETY QUALIFICATIONS
Certification Proof required.

Name:	Job Title:	Qualification:

Site operatives qualifications certificates and proof required for the following: Plant Operators, Hazardous Substances, Safety Procedures etc. Supply details of separate sheet.
8. COSHH TRAINING
How is the COSHH training conducted and who is responsible for organising it? Please supply certificates or other evidence of training for all operatives who would be working on site?
9. EMERGENCY PREPARDENESS
A Who is responsible for organising your emergency preparedness training?
B Describe how you would handle on-site emergencies giving names or personnel responsible, their specific roles and how they interact.
10. ENFORCEMENT POLICY
How do you ensure that all your site operations (including any sub-contractors) abide by site safety rules and procedures and put into practice everything taught at safety training sessions/ Please give details of all incentives and disciplinary procedures:

MAIN CONTRACT WORKS

CDM 2015 REGULATIONS - QUESTIONNAIRE

CONTRACTORS SAFETY QUESTIONARRE	
11. AUDITING TECHNIQUE AND FREQUENCY	
A	How often does your Safety Officer visit site and audit procedures to establish that safety policies and procedures are being adhered to?
B	What auditing techniques does your Safety Officer use?
12. USE OF PERSONAL PROTECTIVE EQUIPMENT	
What procedure do you have in place to ensure that the correct personal protective equipment is provided and used on site?	
13. METHOD STATEMENTS	
Enclose Safe Method of Work Statements to be issued for describing safe systems of work.	
14. SAFETY MANUALS AND PROCEDURES	
Please supply a copy of your safety manual.	
15. SAFETY ACHIEVEMENTS OR AWARDS	
How do you recognise safety achievements in your organisation? Give details of any award scheme you have:	
16. PROCEDURES FOR REPORTING AND INVESTIGATING ACCIDENTS AND INCIDENTS	
A	Describe how your accident reporting system works. Give details of who is responsible for receiving copies of reports. What follow up action would be taken to avoid a recurrence of the incident or accident. What statistics do you keep and what action is taken following an accident report. Please enclose copies of your accident/incident report form and any statistics you have available.

MAIN CONTRACT WORKS

CDM 2015 REGULATIONS - QUESTIONNAIRE

CONTRACTORS SAFETY QUESTIONARRE		
17. HSE ENFORCEMENT ACTION		
Please give below details of any enforcement action on your Company by the Health and Safety Executive. Eg, details of any prohibition or improvement notices which you may have received in the past 3 years:		
Date:	**Details of any Notice Served**	**Description/Comments:**
18. ACCIDENT FREQUENCY RATES		
Please send a copy of records of accident statistics.		
19.COMPANY REGISTRATION		
What year was your company first registered?		

Appendix D – Asbestos Survey

Asbestos Register Report

Alpha Surveys Limited
Asbestos Surveyors

Client:
Tenterden Town Council
24 High Street
Tenterden
Kent
TN30 6AN

Survey Type: Refurbishment/Demolition Survey

Site location: Public Toilet, St Michael's Recreation Ground, Tenterden, TN30 6DD

Survey Date: 27th January 2017

Survey report No: 3665NP

Executive Summary

The property is a single storey detached building currently used as public toilets with store room, built circa mid – late 1900's, it is good condition throughout and planned for refurbishment.

The general construction materials/finishes are:

- Clay roof tiles with timber soffits and facias
- UPVC guttering system including downpipes
- UPVC framed windows with external metal security bars
- Metal framed external doors
- Timber framed roof structure with internal bitumen felt lining
- Timber joists with timber board ceiling linings and fibre glass insulation fillings to loft
- Applied textured coating to ceilings throughout
- Solid brick/concrete block walls with internal hard plaster coverings and cement render
- Ceramic tile coverings to walls
- Concrete base floor construction with coverings including screed, vinyl sheeting and quarry tile
- Modern w/c facilities
- Modern service points inspected including electrical distribution boards and service pipework, insulating materials and pipe insulation

The survey was commissioned to comply with HSE/Local Authority regulation prior to refurbishment.
Following inspection, no **Asbestos Containing Material (ACM)** was found.

Sampling
Samples were taken of:

- Textured Coating, G03 Ceiling
- Textured Coating, G01 Ceiling
- Cement Render, G01 Wall
- Bitumen Felt, Roof Internal Lining

All samples analysed **negative** for **ACM**.

Surveying Strategy

A "walk through" was carried out to initially understand the orientation of the building and location of services etc. This was then followed by a review of the floor plans with photographs to identify rooms and features prior to the survey being undertaken.

A survey was then carried out taking samples where any Asbestos Containing Material (ACM) could have been present.

This report has been prepared with all reasonable skill, care and diligence taking account of the manpower and resources devoted to it by agreement with the client.

This survey has been carried out by:

Alpha Surveys Limited
16 Hestia Way
Kingsnorth
Ashford
Kent
TN23 3RH

Telephone: (01580) 860301
Mob: 07881307909
E-mail: nick@alphasurveys.co.uk

Alpha Surveys Limited disclaim any responsibility to the client and others in respect of any matter outside the scope of the above

Asbestos Register Report has been prepared by **Asbestos Surveyor -**
Nick Pullan BOHS 050711/004

Date survey carried out: 27th January 2017

Survey undertaken for: Tenterden Town Council

This report is confidential to Tenterden Town Council. Alpha Surveys Limited accepts no responsibility of any nature to any third party to whom this report or any part thereof is made known.

Table Of Contents

Summary Of Recommendations

COMMENT	
No asbestos containing materials found.	✓
Asbestos containing material found.	
Retain copy of this survey on site.	
Insert this survey into the existing Asbestos Register retained on site.	
Ensure contractors are aware of the presence of asbestos, where applicable in their area of work.	
Undertake urgent remedial works	
Ensure that suitable assessments are undertaken and recorded in writing for all the asbestos removal activities on site.	
Prepare a written management plan based on the findings of this report to manage the ACM's that remain in the premises as listed.	

Summation

Claire Gilbert representing Tenterden Town Council requested we carry out a Refurbishment & Demolition Survey of the property located at the following address:

Public Toilet
St Michael's Recreation Ground
Tenterden
Kent
TN30 6DD

Alpha Surveys Limited carried out the requested Refurbishment/Demolition Survey to determine whether asbestos or Asbestos Containing Materials (ACM's) were contained within the building(s), identify the nature of these through sampling and make risk assessments and recommendation as appropriate.

In accordance with The Control of Asbestos Regulations 2012, ACM's which have been visually identified (i.e. not sampled, or not referenced to a specific sample) should be presumed to contain amphibole asbestos, unless sampled to prove otherwise.

The report and accompanying site plans (where provided) should be consulted before any building or installation work is carried out in the building. All building users should be made aware of the contents of the report. It should not be used for the purposes of costing asbestos removal work. No responsibility will be accepted should the information contained herein be used in this way. Any person(s) using the report in this way MUST satisfy themselves as to the extent of the asbestos within the designated areas and thereby ensure that their tender is sufficient in every respect to remove ALL the asbestos within these areas.

The survey was carried out on the 27th January 2017 by Asbestos Surveyor – Nick Pullan BOHS 050711/004

This report may not be reproduced other than in full. An asbestos report and register based on methods should not be regarded as a definitive description of all Asbestos Containing Materials (ACM's) within the building(s) as defined for the purposes of this report.

How To Use This Asbestos Report And Register

This register is designed to enable the commissioning client to fulfil part of their legal duty of care under The Control of Asbestos Regulations 2012 as amended, by demonstrating that they have taken reasonable steps to determine the location and condition of asbestos containing materials (ACM's) in the buildings to which this report relates. This report and register also serves as the basis for risk assessment and for the formulation of management action plans to deal with any risks identified. **The management actions indicated in this report and register are only recommendations and do not constitute a definitive management plan.**

IMPORTANT NOTE: To continue to fulfil the duty of care, this register must be kept up to date and any alteration in the condition or removal of any ACM's monitored, noted and the register updated. Moreover all employees, contractors or any other person who may come into contact with any of the ACM's detailed in this report and register should be shown this register to ensure that they do not disturb that material unintentionally or that they use personal protective equipment while working in the area.

All sampling and recording techniques used throughout the document are in accordance with The Survey Guide HSG264 (January 2010) and MDHS 100 "Surveying, Sampling and Assessment of Asbestos Containing Materials in Premises for Management Plans" produced by the Health & Safety Executive (HSE). All surveying & sampling was carried out by a qualified competent asbestos surveyor (as named on the front of this register) and. undertaken in accordance with the relevant legislation including The Control of Asbestos Regulations 2012 as amended, and the Health and Safety at Work Act 1974.

A recommendations chart gives an 'at a glance' view of the main recommendations, followed by the full report and register.

Sections 1 & 2: Outlines methodology, analysis techniques and Quality assurance in accordance with MDHS 100.

Section 3: Describes the areas surveyed and any areas that were not inspected during the survey.

Section 4: Outlines the risk assessment methodology.

Section 5: Contains more detailed information on the sample points and the ACM's that may have been found, complete with risk scores and with photographs.The location of all confirmed ACM's are described and indicated on plans - where these have been provided or prepared.

Appendices :

Appendix 1 : Asbestos register tables

Appendix 2 : Certificates of Analysis

Appendix 3 : Marked Site Plans

Appendix 4 : Photo Gallery

1. Survey Methodology

1.1 Survey Type

The type of survey undertaken will depend on the purpose for which the register is intended to be used and purpose for which it is to be used. Surveys before demolition and refurbishment will continue to be required under CAR 2012 and the CDM regulations.5 However, it is anticipated that most surveys will be undertaken initially to comply with the duty to manage asbestos in premises. In these cases, the aim of an asbestos survey is, as far as reasonably practicable, to locate and assess all the ACM's present in the building and its purpose is to present the information collected in a way which allows the employer to manage the risk. The Health and Safety Executives Guidance Note MDHS 100 defines three separate types of survey which have subsequently been reduced to two types with the introduction of The Survey Guide HSG264 (January 2010)

Management Surveys – Standard sampling, identification and assessment survey (Sampling Survey)

The purpose of this survey is to locate, as far as reasonably practicable, the presence and extent of any suspected ACM's in the building and assess their condition. All areas (above false ceilings, lift shafts, roofs) need to be accessed and inspected as far as reasonably practicable or will be presumed to contain asbestos until a thorough inspection has been carried out. This survey will not require inspection by destructive means. Due to the nature of occupation of some buildings e.g. Schools, hospitals, some surveys will be non-intrusive and all areas where access was not gained should be clearly defined. Samples from each type of suspected ACM found are collected and analysed to confirm of refute the surveyors judgement. If the material sampled is confirmed to contain asbestos, other similar homogeneous objects in the building can strongly be presumed to contain asbestos. Less homogeneous materials will require a greater number of samples. The number of samples taken should be sufficient for the surveyor to make an adequate decision on whether asbestos is or is not present.

Refurbishment/Demolition Surveys – Full access sampling and identification survey (Pre-demolition/major refurbishment surveys)

This type of survey is used to locate and describe as far as reasonably practicable, all ACM's in the building and may involve destructive inspection, as necessary to gain access to all areas, including those deemed difficult to reach by the surveyor. A full sampling programme is undertaken to identify possible ACM's and estimates their volume and surface area. The survey is designed to be used as a basis for tendering the removal of ACM's from the building prior to demolition or major refurbishment so the survey does not therefore assess the condition of any asbestos found, other than note areas of damage or where additional debris may expected to be found.

Definitions and nomenclature

'*Asbestos'* is a term used for the fibrous forms of several naturally occurring silicate minerals which have been exploited for their useful properties of flexibility, high tensile strength, incombustibility, low thermal conductivity, and resistance to chemical attack. For regulatory purposes in Britain, the Control of Asbestos Regulations CAR 2012 define asbestos as any of the minerals chrysotile crocidolite, amosite, fibrous anthophyllite, fibrous actinolite or fibrous tremolite (see Table below), or any mixture of them.

'Asbestos-Containing Material' is a term used to describe a material which contains any of these regulated fibrous minerals.

Mineralogy of asbestos Silicate minerals are classified by the number and arrangement of silicate tetrahedra in the repeating units of the crystal lattice. Chrysotile is classed as a sheet silicate and is a member of the serpentine group. The other types of asbestos are chain silicates in the amphibole group of minerals. Rocks containing serpentine and amphiboles occur widely on the earth's surface, but only in rare circumstances have conditions favoured the formation of asbestos which occurs in veins. When veins are present in significant quantities (above about 1% of the host rock) commercial extraction of the fibres may be practicable. It is not uncommon for relatively low percentages of asbestos to be present in other mined products (such as talc and iron ore). The table below gives the asbestos and the non-asbestos varieties of the serpentine and the amphibole minerals together with nominal compositions. Variations in cation composition not only define the amphibole types, but are also responsible for the observed differences in optical properties within each type.

Health effects and regulations The regulated asbestos minerals have been associated with various diseases as a result of inhalation, including asbestosis, lung cancer and mesothelioma. For further information on medical effects please refer to HSE Medical Series Guidance Notes.

Varieties of asbestos, their non-asbestiform mineral analogues, and nominal compositions

Asbestos Variety	***Non-asbestos Mineral Analogue***	***Nominal Composition***
Serpentine group of minerals		
Chrysotile	Lizardite, Antigorite	Mg3(Si2O5)(OH)4
Amphibole group of minerals		
Crocidolite	Riebeckite	Na2Fe3 2+Fe23+(Si8O22)(OH)2
Amosite	Grunerite	(Fe2+,Mg)7 (Si8O22)(OH)2
Fibrous Anthophyllite	Anthophyllite	Mg,Fe2+)7 (Si8O22)(OH)2
Fibrous Actinolite	Actinolite	Ca2(Fe2+,Mg)5 (Si8O22)(OH)2
Fibrous tremolite	**Tremolite**	Ca2Mg5(Si8O22)(OH)2

A suitably qualified and experienced surveyor, (Min BIOH - P402 module) familiar with the range of asbestos products, undertaking and inspecting the building(s) as defined in this report. Where necessary samples were taken for subsequent laboratory analysis in order to determine whether they contained asbestos. Copies of the analysis documentation will be included within the survey report. Sampling points are repaired during the course of Management surveys to ensure no potential fibre release in the event of the sample being found to contain asbestos material. Sample points are not repaired during the course of Refurbishment/Demolition surveys.

Repairs to sample points made during surveys (Management Surveys only) are only to ensure safety and are not designed to make 'good' the sample point area to its original condition and should not be deemed as such.

Sample points will be photographed and will be included in the register report. In addition sample points will be marked on the buildings' plans where these are provided or have been prepared separately.

All surveys meet the requirements defined in Draft Guidance Note **MDHS 100 'Surveying, Sampling and Assessment of Asbestos Containing Materials in Premises for the Management Plans'** (Final Draft 29th October 1999) and **The Survey Guide HSG264 (January 2010**).Sampling of all suspected asbestos containing materials is always undertaken in accordance with the requirements of the following documentation:

'Asbestos and man-made mineral fibres in buildings', published by the Department of the Environment, Transport and the Regions.The Health and Safety at Work Act 1974.The Asbestos (Licensing) Regulations, 1983, as amended.The Control of Asbestos Regulations 2012, as amended and the approved Codes of practice issued for work in conjunction with the regulations.The Asbestos (Prohibitions) Regulations, 1992, as amended. Guidance Notes issued by the Health and Safety Executive:Guidance Note EH10 'Asbestos: Exposure Limits and measurement of airborne dust Concentrations. Guidance Note EH50 'Training Operatives and supervisors for work with asbestos insulation and coating. Guidance Note HSG 189/2 'Working with Asbestos Cement'. Draft Guidance Note MDHS 100 'Surveying, Sampling and Assessment of Asbestos Containing Materials in Premises for the Management Plans' (Final Draft 29th October 1999) and The Survey Guide HSG264 (January 2010)

1.3 Extent Of Survey And Exclusions

IMPORTANT: Duty holders and all persons reading this report and register for the purposes of managing asbestos or carrying out works must note and be familiar with the extent of the relevant survey.

A survey will be limited to those areas, which are accessible at the time of the survey. Areas which could not be inspected are listed in section 3 of this report.

Management Surveys do not, as a matter of course, include the inspection of flues, ducts, voids or any similarly enclosed areas, the access to which necessitated the use of specialist equipment or tools; or which would have caused damage to decoration, fixtures or the structure. Due to this, we are unable to report on any asbestos as may be present in these areas as part of a Management Survey. This does not apply to Refurbishment/Demolition Surveys due to the different nature of the survey. This type of survey is used to locate and describe as far as reasonably practicable, all ACM's

in the building and may involve destructive inspection, as necessary to gain access to all areas, including those deemed difficult to reach by the surveyor.

Lift shafts, plant rooms or similar which require the attendance of a specialist engineer are not inspected for any type of survey, unless there has been a specialist engineer present to ensure compliance with Health and Safety guidelines and ensure the integrity of the equipment.

Management Surveys do not as a matter of course, include the inspection of areas or surfaces that would require the removal or relocation or carpets, furniture, blinds, curtains, fixtures or fittings. In the course of Refurbishment/Demolition Surveys the aforementioned areas are included and come within the specifications of a Refurbishment/Demolition Survey.

Areas of buildings that require specialist access equipment other than stepladders will be noted within the body of the report and the extent of inspection noted.

Management Surveys do not report on concealed spaces, which may exist within the fabric of the building where the extent and presence of these is not evident due to inaccessibility or insufficient knowledge of the structure at the time of the survey. Refurbishment/Demolition Surveys wherever possible will report voids within the fabric of the building where the extent and presence of these is clearly evident and are accessible without endangering the survey team or other personnel. Refurbishment/Demolition Surveys do not report or comment on cavity wall voids or concealed spaces in the fabric of the building where the presence or extent of these spaces is not evident at the time of the inspection. Management Surveys do not extend to searching for concealed asbestos where removal of materials suspected of containing asbestos would be required for the inspection.

No responsibility is accepted for the presence of asbestos in voids (underfloor, floor, wall or ceiling) other than those opened up during the investigation.

It is recommended that bulk samples be taken, at the required density, from all materials that upon visual inspection appear likely to contain asbestos. However sampling density may have reduced where the client has imposed technical or financial restraints (e.g. fixed price fee) and the report annotated accordingly.

Samples will not be taken where prohibited or prevented by the client, tenant or their representative or other persons authorised or unauthorised.

Whilst every effort is always made to identify the true nature and extent of the material present in the building under survey, no responsibility has been accepted for the presence of asbestos in materials other than those sampled at the requisite density.

Bulk samples have been taken from all materials which upon visual inspection appeared likely to contain asbestos with the exception of items of bitumen, plastic, resin or rubber which contain asbestos, the thermal and acoustic properties of which are identical to their main purpose which falls outside the scope of the approved Code of Practice for Work with Asbestos Insulation, Asbestos Coating, and Asbestos Insulating Board (Third Edition) 1999.

During the course of Management & Refurbishment/Demolition Surveys inspection of pipe work will be restricted primarily to the insulation visible. The presence of debris to pipework, which is not readily visible or would require the removal and replacement of overlying non-asbestos insulation, is considered outside the scope of a Management survey. In the course of Refurbishment/Demolition Surveys only a limited inspection will be carried out of pipework concealed by overlying non-asbestos insulation, Limited samples will be taken and deemed as 'representative'.

Materials have been referred to as Asbestos Insulating Board or Asbestos Cement based upon their asbestos content and visual appearance alone. Density checks on materials have not been carried out unless stated otherwise.

1.4 Variations And / Or Deviations From Standard Survey Methodology As Defined By MDHS100/HSG264

This survey did not vary from the standard survey methodology as defined by MDHS100/HSG264.

2. Analysis Of Samples

Bulk Samples – laboratory analysis

Samples were returned to a known fully accredited UKAS laboratory for analysis. Asbestos is identified by a combination of techniques, principally:

(i) An initial visual inspection,(ii)A stereomicroscopic examination,(iii) Polarised light microscopy, (iv)Dispersion staining.

No single test is definitive and the analyst will have taken all evidence into account.

Analysis procedure HSG248 describes analytical techniques which have been shown to give reliable and reproducible results. Alternative methods can be used if equivalence in terms of detection and identification can be demonstrated. All procedures are designed to avoid cross contamination between samples. Identification of the asbestos fibres should be based on the following analytical sequenceA preliminary visual examination of the whole of the bulk sample is made to assess the sample type and the required sample treatment (if any): where possible a representative sub-sample may be taken at this stage; Sample treatment is undertaken (if required) to release or isolate fibres; A detailed and thorough search under the stereo microscope is made to classify the fibre types present; Representative fibres are mounted in appropriate RI liquids on microscope slides; The different fibrous components are identified using PLM. If no asbestos is identified by these procedures, additional searches for small asbestos fibres on random sub-samples of a few milligrams are undertaken using PLM .The full method is defined in HSG248 'Asbestos: The analysts guide for sampling, analysis and clearance procedures', published by the Heath and Safety Executive and is employed by all Laboratories used in the sampling process in accordance with their schedule of UKAS accreditation.Certificates of analysis for the samples taken are presented in Appendix 1, included on the certificate is the address of the laboratory, the Analysts name and the laboratories UKAS accreditation number.

Certificates of analysis, for the samples taken during this survey are presented in appendix 2.

2.1 Quality Assurance And Accreditation

Alpha Surveys Limited operates quality control procedures while carrying out surveys and sampling and our nominated UKAS accredited laboratory meets the requirements of ISO/IEC 17025: 1999 (EN 45001: 1989), "General criteria for the operation of testing laboratories".

2.2 Observations

OBSERVATIONS MADE BY THE SURVEYOR. This section includes commentary on materials that have only been visually inspected. In such circumstances these materials will be included in the register but will not have material or priority risk scores

3. Description Of Areas Inspected And Not Inspected

A Description of areas included in the survey
Single storey public toilet block including loft space
Exterior
Construction features of property where accessible

A description of areas not inspected in the course of this survey.	**Reason**
Any areas not identified within the scope of the survey	

NOTE: WHILST EVERY EFFORT IS ALWAYS MADE TO ACCESS EVERY AREA OF A BUILDING, SOME AREAS SUCH AS SLOPING ROOF TOPS, OR AREAS OF POOR VISABILITY (SUCH AS DUCTING AND SHAFTS) AND AREAS DEEMED DANGEROUS BY THE SURVEYOR WILL ONLY BE INSPECTED VISUALLY TO THE BEST OF THE SURVEYORS ABILITY WITHOUT RISK TO THAT PERSON OR OTHER PERSONS.

UNDER THE CONTROL OF ASBESTOS REGULATIONS 2012, (CAR 2012) THE CLIENT SHOULD PRESUME THAT THESE AREAS CONTAIN ASBESTOS FROM THE AMPHIBOLE GROUP UNTIL PROVEN OTHERWISE.

ANY MATERIAL THAT IN THE OPINION OF THE SURVEYOR COULD BE PRESUMED TO CONTAIN ASBESTOS BUT COULD NOT BE SAMPLED WILL BE NOTED. IN ACCORDANCE WITH THE CONTROL OF ASBESTOS REGULATIONS 2012, ACM'S WHICH HAVE BEEN VISUALLY IDENTIFIED (I.E. NOT SAMPLED, OR NOT REFERENCED TO A SPECIFIC SAMPLE) SHOULD BE PRESUMED TO CONTAIN AMPHIBOLE ASBESTOS

4. Risk Assessment

The production of a written plan, specifying the measures to be taken to control and manage the risk from identified and presumed asbestos containing materials is a requirement of the new duty to manage under the Control of Asbestos Regulations 2012.

The method of risk assessment, which has been adopted is based on both material assessment and priority assessment algorithm as defined by MDHS100/HSG264. An algorithm sets out the factors, which are most relevant in assessment of the potential release of fibres from a suspect material. The material assessment identifies the materials that will most readily release airborne fibres if disturbed. It does not automatically follow that those materials should given priority for remedial action. Management priority must be determined by carrying out a risk assessment that will take into account factors such as:-

- The location of material
- Its extent
- The use to which the location is put
- The Occupancy of an area,
- Activities carried out in the area,
- Frequency of activity.

This is referred to as Priority risk scoring. These two factors provide an overall risk score which will then be used to define potential management actions.

Under the Control of Asbestos Regulations 2012 the duty holder is required to make the risk assessments themselves, using the information given in the survey and their knowledge of the activities carried out within the premises. This report and register assists in that process by providing scores and suggested management actions, however the duty to verify these assessments and to define management actions as set out in any management plan remains with the duty holder.

4.1 Material Assessment

The four main parameters, which are used in order to determine the amount of fibre release from an asbestos-containing product when subject to standard disturbance, are:Asbestos type, Product Type, Extent of damage or deterioration, Surface treatment.Material Assessment AlgorithmEach parameter is given a score; High (3), Medium (2), Low (1), Very Low (0). The value assigned is totalled to give a score of between 2 and 12.

Materials, which achieve scores of ten or more, are regarded as having a high potential to release fibres, if disturbed. Scores of between 7 and 9 are regarded as having a medium potential, and those between 5 and 6 are regarded as having a low potential. Materials with a score of under 4 have a very low potential of fibre release. Non-asbestos materials are not scored. The material assessment score is calculated and recorded as part of the survey.

High>10 Medium 7-9 Low 4-6 Very low <4

It does not automatically follow that those materials assigned the highest score in the material assessment will be the materials that should be given priority for remedial action.

4.2 Priority Assessment

Management priority must be determined by carrying out a risk assessment, which is able to take into account factors such as:

The location of the material,Its Extent, The use to which the location is put, The occupancy of the area, The activities carried out in the area, Maintenance activities and frequency.Scores are awarded in the same way as the material assessment. For example an area where an asbestos product is accessible used by many people throughout the day and is disturbed by the activity occurring, will score higher than an asbestos product located in an inaccessible area where people rarely frequent.

Very High Priority	> 15
High Priority	11 – 15
Medium priority	6 – 10
Low Priority	< 6

5. Recommendations

The recommendations section is designed to give more detailed observations relating to the condition of any asbestos products found and the risk they may pose - along with immediate action required - where appropriate. It further makes outline suggested recommendations as the basis for the formulation of short and long-term management strategies. Clearly in managing any asbestos risks, there are many options available and the suggested recommendations made in this report have taken account factors known to the surveyor at the time of survey. However it should be noted that these recommendations are not definitive and are only based on the information available at the time of survey to the Alpha Surveys Limited surveyor, other material facts and circumstances unknown to Alpha Surveys Limited may mean other options may be as equally suitable. These need to be discussed and decided upon before producing a final strategic management plan. The recommendations contained within this report do not constitute a full management plan and only serve as the basis for the preparation of one.

5.1 Recommended Action - An Overview

Recommended action will normally involve removal, encapsulation or management as described below:

In addition we would make the following general recommendations:**The asbestos survey and Management reports contained in this report and register should not be interpreted as a definitive description of all ACM's within the building.That this report is made available for all staff / those working on site to see. That this report is made available for all contractors and maintenance workers working on site and that a signed record of them having read and understood the report is kept.This report may not be reproduced other than in full. The report should be read in its entirety. Questions arising from the survey report should be directed to the surveyor who has carried out the survey report, who will be pleased to clarify any technical issues raised. That the emergency services, specifically the Fire Service are made aware that such a report exists and that it is made available to them should they so wish.** (The following is for guidance only and the material facts based on CAR 2012 and ACOPS- MDHS100 contained therein was known to be correct at the beginning of 2005. However the regulations may change at any time; therefore the duty holder or person or persons using this report and register for any purpose relating to its contents must first verify that the information contained herein is still materially correct). See The Surveyors Guide HSH264 (Jan 2010)

Low priority materials

The low priority ACM's can remain in-situ provided they are labelled as asbestos, encapsulated or sealed (where recommended) and inspected by a competent person. They should be regularly re-inspected at the stipulated intervals by a competent person. The results of the re-inspection should be recorded in writing.

Should the condition of the ACM's deteriorate, or accessibility change then remedial action should be taken. If there are any planned refurbishment works for the future in these areas that would disturb any ACM's noted, then consideration must be given to removal of ACM's prior to these works taking place.

Good practice dictates that all ACM's not used in installations should be disposed of as soon as reasonably practicable as asbestos waste.

Medium Priority and above materials

Management is the preferred option when asbestos products are in good condition. This usually involves re-inspecting the products on a regular basis and recording the findings.

Enclosure or encapsulation together with making good materials when they are in poor condition or vulnerable to damage or deterioration is good practice.

However removal is the only practicable option for ACM's that are vulnerable to constant damage or in an extremely deteriorated condition or where refurbishment or demolition works are planned.

5.2 Definition Of Terms

Enclosure: Provision of a physical barrier to provide protection of the ACM so as to prevent it being disturbed or damaged.

Encapsulation: Provision of a PVA based coating to effect a continuous seal to the surface of the material, preventing fibre release.

Labelling: Fixing of standard 'red A' label as described in MDHS 100 or location to warn of the asbestos hazard present.

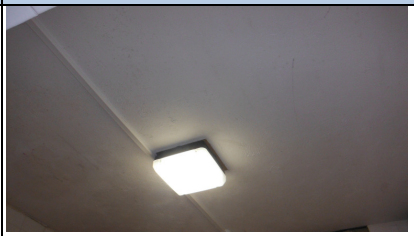
Periodic Inspection: Inspection of the material at regular (defined) intervals to verify its condition or the general usage of the area has not changed in any way. All findings must be dated, recorded and kept with this register.

Repair: If the material suffers from minor damage which may result in further damage over time e.g. loose tiles, panels or covers these must be corrected using safe methods of work in conjunction with the licensing regulations (Amendment) 1998.

Removal: Complete removal of the material and resultant debris under controlled conditions and in conjunction with the licensing regulations (Amendment) 1998.

5.3 Limitations of recommendations

Strictly within the scope and limitations of the Refurbishment/Demolition survey methods employed on this particular survey coupled with the laboratory sample analysis Alpha Surveys Limited make the following recommendations (see overleaf – individual records contain recommendations).

Item	S1
Location	**Public Toilet, St Michales Recreation Ground, Tenterden, TN30 6DD**
Position	**Interior**
Material Details **Location**: G03 **Status**: Textured coating **Position**: Applied to timber board ceiling **Product**: Textured coating **Accessibility**: Reach by hand **Reported**: 27th January 2017 **Amount**: N/A	
Material Risk Score (MDHS100) **Asbestos Type:** N/A **Condition:** N/A **Total Material Risk Score**	No Asbestos Containing Material was found N/A
Priority Risk Score (HSG227)	N/A
Total Risk Score	N/A
Recommendation: No action required **Comments:** N/A	

Item	S2
Location	**Public Toilet, St Michales Recreation Ground, Tenterden, TN30 6DD**
Position	**Interior**
Material Details **Location**: G01 **Status**: Textured coating **Position**: Applied to timber board ceiling **Product**: Textured coating **Accessibility**: Reach by hand **Reported**: 27th January 2017 **Amount**: N/A	
Material Risk Score (MDHS100) **Asbestos Type:** N/A **Condition:** N/A **Total Material Risk Score**	No Asbestos Containing Material was found N/A
Priority Risk Score (HSG227)	N/A
Total Risk Score	N/A
Recommendation: No action required **Comments:** N/A	

Item	S3
Location	**Public Toilet, St Michales Recreation Ground, Tenterden, TN30 6DD**
Position	**Interior**
Material Details **Location**: G01 **Status**: Cement render **Position**: Applied to internal solid walls **Product**: Cement **Accessibility**: Reach by hand **Reported**: 27th January 2017 **Amount**: N/A	
Material Risk Score (MDHS100) **Asbestos Type:** N/A **Condition:** N/A **Total Material Risk Score**	No Asbestos Containing Material was found N/A
Priority Risk Score (HSG227)	N/A
Total Risk Score	N/A
Recommendation: No action required **Comments:** N/A	

Item	S4
Location	**Public Toilet, St Michales Recreation Ground, Tenterden, TN30 6DD**
Position	**Interior**
Material Details **Location**: Loft **Status**: Bitumen felt **Position**: Lining to internal roof **Product**: Bitumen **Accessibility**: Reach by hand **Reported**: 27th January 2017 **Amount**: N/A	
Material Risk Score (MDHS100) **Asbestos Type:** N/A **Condition:** N/A **Total Material Risk Score**	No Asbestos Containing Material was found N/A
Priority Risk Score (HSG227)	N/A
Total Risk Score	N/A
Recommendation: No action required **Comments:** N/A	

Appendices

Appendix 1

Asbestos Register Tables

THE FOLLOWING PAGES CONTAIN THE ASBESTOS REGISTER TABLES

Glossary & key to tabulated Asbestos register

N.A.D.I.S: No Asbestos Detected in Sample.

REF: Referenced to previous sample of the same number thereby indicating that the material is the same as found in that sample and is therefore the same. e.g. 'REF 12' reference this sample to sample 12.

Location and Room Locator Number: The location column refers to the room or area concerned. The room locator number is the unique reference given to that room or area during the survey. This prevents confusion if the rooms usage is changed.

B01 = the basement.

G01 = the ground floor.

0101 = the first floor.

0201 = the second floor

0301 = the third floor

Loft

Item: The item column refers to the specific item or product sampled.

Sample Number: Each sample has been given an individual number, which is clearly marked on the site plans.

Asbestos Type: This refers to the type(s) of asbestos that was found in the sample upon analysis at the contracted UKAS accredited laboratory. For further information on asbestos type please see the certificates of analysis.

Extent: The extent column will quantify how large a single asbestos product is or how many similar products are present in that location.

Material and Priority Risk Scoring and Risk Rating: Risk assessments have been used to create material and priority risk rating which combined gives overall scores. There are four risk ratings low, medium, high and very high as per the MDHS100/HSG264 guidance.

ALPHA SURVEYS LIMITED						Site: Public Toilet, St Michaels Recreation Ground, Tenterden, Kent, TN30 6DD Date surveyed: 27th January 2017 Analysed by: Athena Environmental Solutions Ltd			
Area	**Item**	**Room Locator**	**Sample No.**	**Asbestos Type**	**Condition**	**Extent**	**Material Risk Score**	**Priority Risk Score**	**Total Risk Score**
Interior	Textured Coating	G03	S1	N.A.D.I.S					
Interior	Textured Coating	G01	S2	N.A.D.I.S					
Interior	Cement Render	G01	S3	N.A.D.I.S					
Interior	Bitumen Felt	Loft	S4	N.A.D.I.S					

Appendix 2
Certificates of analysis

ENVIRONMENTAL SOLUTIONS LTD

ATHENA ENVIRONMENTAL SOLUTIONS LTD
SUITE 3, SOPWITH HOUSE, HURRICANE WAY,
WICKFORD, ESSEX, SS11 8YU
Tel: 01268 761 171
Email: info@athena-env.co.uk

COMPANY REG NUMBER: 07376951
REGISTERED ADDRESS: AS ABOVE

4696

CERTIFICATE OF IDENTIFICATION OF ASBESTOS FIBRES

CERTIFICATE NUMBER: ATH/17/01/1258 **DATE SAMPLED:** 27/01/17 **DATE RECEIVED:** 30/01/17 **DATE ANALYSED:** 30/01/17 **OBTAINED:** DELIVERED **NUMBER OF SAMPLES:** 4	**SITE ADDRESS:** PUBLIC TOILETS, ST MICHAEL'S RECREATIONAL GROUND, TENTERDEN, TN30 6DD **SITE REFERENCE:** N/A		
	CLIENT: ALPHA SURVEYS **CLIENT ADDRESS:** WYCHWOOD, 12 CASTLE HURST, BODIAM, EAST SUSSEX, TN32 5UW **PHONE NUMBER:** 01580 860 301		
ANALYST NAME & SIGNATURE:	B. Hopson	**AUTHORISER NAME & SIGNATURE:**	A. Sheekey
COMMENTS:			

RESULTS

SAMPLE NUMBER	CLIENT NUMBER	SAMPLE LOCATION	FIBRE TYPE DETECTED	COMMENTS
1	1	TEXTURED COATING – G03	NADIS	TEXTURED COATING
2	2	TEXTURED COATING – G01	NADIS	TEXTURED COATING
3	3	CEMENT RENDER – G01	NADIS	CEMENT
4	4	BITUMEN FELT – ROOF	NADIS	BITUMEN

KEY: CHRYSOTILE (WHITE ASBESTOS) - CROCIDOLITE (BLUE ASBESTOS) – AMOSITE (BROWN ASBESTOS)
NADIS (NO ASBESTOS DETECTED IN SAMPLE) - TREMOLITE, ANTHOPHYLLITE & ACTINOLITE (LESS COMMON ASBESTOS FIBRE TYPES)

Note: When a trace of asbestos fibres are reported this represents one or two fibres only
Note: The material type reported is an opinion of the analyst only and does not form part of the ATHENA UKAS accreditation.
Note: Samples will be kept for a minimum of 6 months.
Note: This Certificate of Identification of Asbestos Fibres can only be reproduced in full unless written approval from Athena has been obtained.
Note: If the sample condition or size is deemed unacceptable or unsatisfactory by the analyst, the client will be contacted.
Note: The results relate only to the items tested.

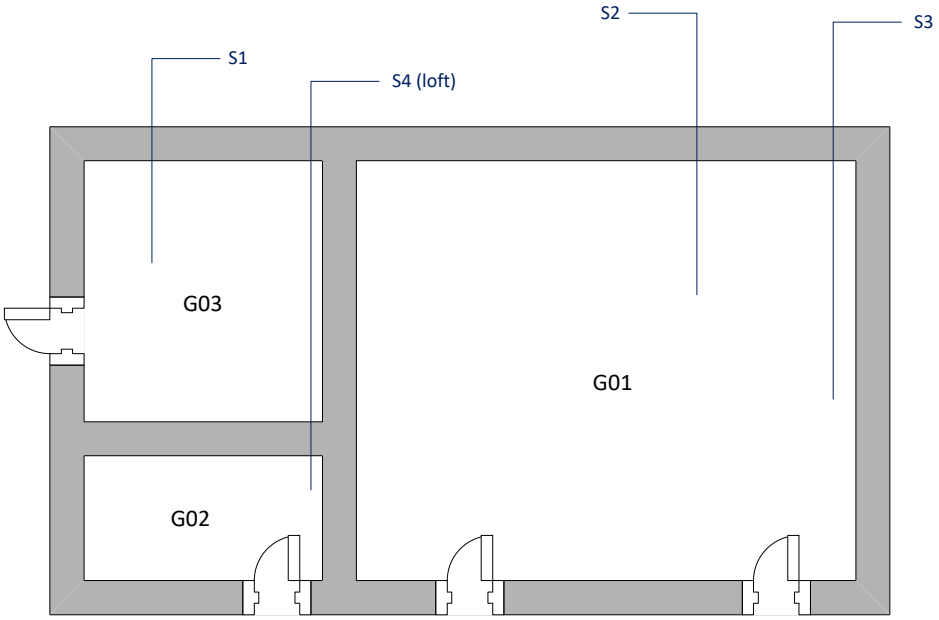
Samples have been analysed to determine the presence of asbestos fibres using Athena Environmental Solutions "in house" method of polarised light microscopy and central stop dispersion staining based on HSG 248. The site address and sample locations are given by the client and Athena are not responsible for the accuracy or competence of these details or of the sampling

BULK 001 VERSION 5 - 08/08/16

PAGE 1 OF 1

Appendix 3

Marked site plans



Public Toilet
St Michael Recreation Ground
Tenterden
Kent
TN30 6DD

Alpha Surveys Ltd
27th January 2017

Indicative plan – not to scale

Appendix 4
Photo gallery

External/Internal construction materials

ALPHA SURVEYS LIMITED
16 HESTIA WAY
KINGSNORTH
ASHFORD
KENT
TN23 3RH

Telephone: (01580) 860301
MOB: 07881307909
E-mail: nick@alphasurveys.co.uk
Web: www.alphasurveys.co.uk

REFERENCE SPECIFICATION
QUALITY STANDARDS - STRUCTURES

At

ERECTION of MAINTENANCE FACILITY
St MICHAELS RECREATION GROUND
ASHFORD ROAD
TENTERDEN

TENTERDEN TOWN COUNCIL

GPM2 DESIGN
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

Tel: 01843 268010

Prepared August 2019

St Michaels Recreation Ground Maintenance Facility

Reference Specification

Table of Contents

A90 GENERAL TECHNICAL REQUIREMENTS

GENERAL

Precedence

General: Where, and to the extent that, documents conflict the following orders of precedence apply:

- Schedules of work override preliminaries, which override contract drawings, which override the Reference specification.
- Work sections of the Reference specification override A90.

Conflict in the documents: Give notice.

Definitions and interpretations - general

Employer's Representative: The person nominated in the Contract as Employer's Representative, Architect, Contract Administrator or Project Manager.
Reference specification: Not all clauses in the Reference specification apply to this project. If in doubt about the applicability of a clause, obtain instructions.
Communication: When required to communicate – including advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements – do so in writing to the Employer's Representative.
Responses from the Employer's Representative: Do not proceed until response has been received.

Definitions and interpretations – products and work

Remove:

- Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fastenings, supports, linings and bedding materials. Dispose of unwanted materials.
- Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.

Keep for reuse:

- Do not damage designated products or work. Clean off bedding and jointing materials.

Make good:

- Execute local remedial work to designated work. Make secure, sound and neat.
- Excludes redecoration and/ or replacement.

Repair:

- Execute remedial work to designated products. Make secure, sound and neat.
- Excludes redecoration and/ or replacement.

Refix: Fix removed products.
Replace: Supply and fix new products matching those removed. Execute work to match original new state of that removed.
Ease: Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.

Documents

Currency: References to published documents are to the editions, including amendments, current on the date of the Invitation to tender.
Services drawings: Diagrammatic, except to the extent that figured dimensions are given or calculable.
Dimensions: Do not rely on scaled dimensions.

COMPLIANCE

Compliance generally

Submittals, samples, inspections and tests: Undertake to suit the Works programme. Do not conceal, or proceed with, affected work until compliance with requirements is confirmed.
Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.
Compliance with performance specifications: Submit evidence of compliance, including test reports indicating properties tested, pass/ fail criteria, test methods and procedures, test results, identity of testing agency, test dates and times, identities of witnesses, and analysis of results.

Design and production documentation

Design compliance: Submit certification that design complies with documented requirements.
Documentation:

- Draft: Submit complete design and production documentation.
- Final: Submit sufficient copies for distribution to affected parties. Keep at least one copy on site.

Space requirements: Check space requirements of products or work indicated diagrammatically in the contract documents. Submit a report on consequent variations needed to the design.
Drawings: Include dimensions.

Authorities and statutory undertakers

Approvals: Submit evidence of approvals of relevant authorities and statutory undertakers.

Product samples

Complying samples: Retain in good, clean condition on site.

PRODUCTS AND EXECUTION

General quality

Products generally: New. Proposals for recycled products will be considered.

- Supply of each product: From the same source or manufacturer.
- Whole quantity of each product required to complete the Works: Consistent kind, size, quality and overall appearance.
- Product tolerances: Where critical, measure a sufficient quantity to determine compliance.

Execution generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.

- Colour batching: Do not use different colour batches where they can be seen together.
- Dimensions: Check on-site dimensions.
- Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.

Sizes

General dimensions: Nominal.
Cross section dimensions of timber: Finished dimensions.

Substitution

Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
Work: If alternative work to that specified is proposed, obtain approval before execution.
Reasons: Submit reasons for the proposed substitution.
Documentation: Submit relevant information, including:

- manufacturer and product reference;
- cost;
- availability;
- relevant standards;
- performance;
- function;
- compatibility of accessories;
- proposed revisions to drawings and specification;
- compatibility with adjacent work;
- appearance; and
- copy of warranty/ guarantee.

Alterations to adjacent work: If needed, advise scope, nature and cost.
Manufacturers' guarantees: If substitution is accepted, submit.

Incomplete documentation

General: Where and to the extent that products or work are not fully documented, they are to be:

- Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
- Suitable for the purposes stated or reasonably to be inferred.

Manufacturers' recommendations

General: Comply with manufacturer's current printed recommendations and instructions.
Changes to recommendations or instructions since close of tender: Submit details.
Manufacturers' current recommendations and instructions: Keep copies on site.
Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.

Defects in existing work

Reporting undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
Documented remedial work: Do not execute work which may:

- hinder access to defective products or work; or
- be rendered abortive by remedial work.

Accuracy, appearance and fit

Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:

- submit proposals; or
- arrange for inspection of appearance of relevant aspects of partially finished work.

General tolerances (maximum): To BS 5606, tables 1 and 2.
Structural floor design level tolerances (maximum):

- Floors which are to be self-finished, and floors to receive sheet or tile finishes directly bedded in adhesive: ±10 mm.
- Floors to receive dry board/ panel work with little or no tolerance on thickness: ±10 mm.
- Floors to receive fully bonded screeds/ toppings/ beds: ±15 mm.
- Floors to receive unbonded or floating screeds/ beds: ±20 mm.

Services runs

General: Provide adequate space and support for services, including unobstructed routes and fixings.
Services inaccessible after installation: Submit proposals for future location and identification of runs and fittings.
Fixing of services: Submit typical details of locations, types and methods of fixing of services to fabric.

Spares

General: Supply designated spares in their original packaging.

B15 PREFABRICATED FRAMED STRUCTURES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Pre-completion testing

Air permeability: See Preliminaries A33/570.
Continuity of thermal insulation: See Preliminaries A33/580.
Resistance to passage of sound: See Preliminaries A33/590.

PRODUCTS

Timber frame design

Standard: In accordance with BS EN 1995-1-1 and -1-2 (Eurocode 5).

EXECUTION

Information from manufacturer

Prior to fabrication of frame, manufacturer to provide:

- Drawings showing all construction details, including connections and manufactured tolerances.
- Risk assessments for the installation and construction process.
- Installation instructions including training requirements for installers.
- Requirements for storage of materials.

Transportation

General: Handling, lifting and transportation must not cause damage, or impair the intended performance of elements or components when subsequently erected.

Delivery

Inspection: Upon delivery inspect all materials to ensure they are free from damage and that the required accuracy of erection can be achieved.

Storage

Support: So as not induce excessive stress into the components.
Protection: Prevent the ingress of water.

Supporting structure

Survey: Before commencing installation, carry out survey sufficient to verify that required accuracy of erection can be achieved.

Erection

Lifting, positioning, fixing:

- Do not drag units.
- Lift units from manufacturer's designated points only.
- Provide temporarily support, as required.

Assembly

Framing components: Cut squarely or as required for an angular fit against abutting members.
Fixings: Size and pattern as determined by structural calculation.
Splices: Not permitted except where specifically designed.
Anchor bolts and straps: Correctly positioned at all locations shown on the drawings.
Insulation: Ensure continuity.

Accuracy of erection

Finished appearance: Frames must be square, regular, true to line, level and plane.

D20 EXCAVATING AND FILLING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Herbicide for treating topsoil before stripping

Type: Suitable translocated nonresidual herbicide.

Proposed fill materials

Details: Prior to commencing filling, submit full details and test reports of proposed fill materials demonstrating compliance with specification, including:

- Imported fill: Type and source.
- Material excavated on site: Proposals for processing and reuse.

Hazardous, aggressive or unstable fill materials

General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling.
Do not use material that is:

- Frozen or containing ice.
- Organic.
- Contaminated or noxious.
- Susceptible to spontaneous combustion.
- Likely to erode or decay and cause voids.
- With excessive moisture content, slurry, mud or from marshes or bogs.
- Clay of liquid limit exceeding 80 and/ or plasticity index exceeding 55.
- Defined in Highways Agency (HA) publication 'Manual of contract documents for highway works: Volume 1: Specification for highway works', clause 601 as 'Unacceptable materials'.

Frost susceptibility of fill materials

General: Fill must not be frost-susceptible as defined in 'Specification for highway works', clause 801.
Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are not frost-susceptible:

- Fine grained soil with a plasticity index less than 20%.
- Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
- Crushed chalk.
- Crushed limestone fill with average saturation moisture content in excess of 3%.
- Burnt colliery shale.

Frost-susceptible fill: May only be used within the external walls of buildings below spaces that will be heated. Protect from frost during construction.

Compacted fill for landscape areas

Fill: Material capable of compaction by light earthmoving plant.

Highways Agency Type 1 granular fill

Fill: To 'Specification for highway works', clause 803:

- Crushed rock (other than argillaceous rock).
- Crushed concrete.
- Recycled aggregates.
- Crushed non-expansive slag.
- Well-burnt non-plastic colliery shale.

Highways Agency Type 2 granular fill

Fill: To 'Specification for highway works', clause 804:

- Crushed rock (other than argillaceous rock).
- Crushed concrete.
- Crushed non-expansive slag.
- Well-burnt non-plastic colliery shale.
- Natural gravel.
- Natural sand.

Hardcore fill
Fill: Granular material, free from excessive dust, well graded, passing a 75 mm BS sieve, and complying with one of the following requirements:

- 10% (minimum) fines value of 50 kN when tested in a soaked condition to BS 812-111 (partly replaced but remains current).
- Impact value SZ of 24 when tested to BS EN 1097-2.

In each layer only one of the following groups:

- Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
- Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
- Recycled aggregates.
- Crushed non-expansive slag.
- Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
- Well-burnt non-plastic colliery shale.
- Natural gravel.
- Natural sand.

Venting hardcore layer
Fill: Clean granular material, well graded, passing a 75 mm BS sieve but retained on a 20 mm BS sieve. In each layer only one of the following groups:

- Crushed hard rock.
- Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
- Recycled aggregates.
- Gravel.

Sand blinding
Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).
Alternative fine materials: Submit proposals.

EXECUTION
Site clearance
Timing: Before topsoil stripping, if any.
General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.

Removing small trees, shrubs, hedges and roots
Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety guides.

Felling large trees
Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.
Felling: As close to the ground as possible.
Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

Stripping topsoil
General: Before commencing general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
Depth of topsoil difficult to determine: Give notice.
Around trees: Do not remove topsoil from below the spread of trees to be retained.

Handling topsoil
Aggressive weeds:

- Give notice and obtain instructions before moving topsoil containing aggressive weeds included in the Weeds Act, section 2 or the Wildlife and Countryside Act, Schedule 9, part II.
- Minimize disturbance, trafficking and compaction.

Contamination: Do not mix topsoil with the following:

- Subsoil, stone, hardcore, rubbish or material from demolition work.
- Oil, fuel, cement or other substances harmful to plant growth.
- Other grades of topsoil.

Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when topsoil is wetter than the plastic limit as defined by BS 3882, Annex N2.

Adjacent excavations
Proximity: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto must be completed before the higher excavation is made.

- Angle of line from horizontal: 45° for stable soils, 30° for wet clays.

Permissible deviations from formation levels
Beneath mass concrete foundations: ±25 mm.
Beneath ground bearing slabs and reinforced concrete foundations: ±15 mm.
Embankments and cuttings: ±50 mm.
Ground abutting external walls: ±50 mm, but finished level must be at least 150 mm below dpc.

Inspecting formations
Give notice: Make advance arrangements for inspection of formations.
Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels, and remove loose material.
Formations: Seal with concrete within 4 hours of inspection.

Foundations
Give notice if:

- A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings; or
- The formation contains soft or hard spots or highly variable material.

Trench fill foundations
Excavation: Form trench down to formation in one operation.
Safety: Prepare formation from ground level.
Inspection of formations: Give notice before excavating.
Shoring: Where inspection of formation is required, provide localised shoring to suit ground conditions.
Concrete fill: Place concrete immediately after inspection and no more than four hours after exposing the formation.

Foundations in made up ground
Depth: Excavate down to a natural formation of undisturbed subsoil.
Discrepancy: Give notice if this is greater or lesser than depth given.

Unstable ground
Generally: Keep excavation stable at all times.
Give notice: Without delay, if newly excavated faces are too unstable to allow earthwork support to be inserted.
If instability is likely to affect adjacent structures or roadways: Take appropriate emergency action.

Recorded features
Recorded foundations, beds, drains, manholes, etc: Break out and seal drain ends.
Contaminated earth: Remove and disinfect as required by local authority.

Unrecorded features
Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. are encountered.

Existing watercourses
Diverted watercourses which are to be filled: Before filling, remove vegetable growths and soft deposits.

Topsoil & subsoil
Retained excavated material:

- Stockpile in separate temporary storage heaps.
- Spread and level surplus subsoil on site.
- Protected areas: Do not raise soil level within root spread of trees that are to be retained.

Remaining material: Remove from site.

Water
Generally: Keep excavations free from water until:

- Formations are covered;
- Below ground constructions are completed; and
- Basement structures and retaining walls are able to resist leakage, water pressure and flotation.

Drainage: Form surfaces of excavations and fill to provide adequate falls.
Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses.

Ground water level/ Running water
Give notice:

- If excavations are below water table.
- If springs or running water are encountered.

Pumping
General: Do not disturb excavated faces or stability of adjacent ground or structures.
Pumped water: Discharge without flooding the site or adjoining property.
Sumps: Construct clear of excavations. Fill on completion.

Placing fill
Excavations and areas to be filled: Free from loose soil, rubbish and standing water.
Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
Adjacent structures, membranes and buried services:

- Do not overload, destabilize or damage.
- Submit proposals for temporary support necessary to ensure stability during filling.
- Allow 14 days (minimum) before backfilling against in situ concrete structures.

Layers: Place so that only one type of material occurs in each layer.
Earthmoving equipment: Vary route to avoid rutting.

Compaction
General: Compact fill as soon as possible after placing.
After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
Defective areas: Remove and recompact to full thickness of layer using new material.

Geotextile sheeting
Preparation: Before laying, remove humps and sharp projections. Fill hollows.
Protect from:

- Exposure to light, except for five hours (maximum) during laying.
- Contaminants.
- Materials listed as potentially deleterious by geotextile manufacturer.
- Damage until fully covered by fill.
- Wind uplift, by laying 15 m (maximum) before covering with fill.

Compacted filling for landscape areas
Layer thickness: 200 mm (maximum).
Laying: Lightly compact each layer to produce a stable soil structure.

Highways Agency granular filling
Filling: To 'Specification for highway works', clauses 801–804.

Compacted general filling
Excavated material: Select suitable material and keep separate.
Filling: Spread and level material in layers. As soon as possible thoroughly compact each layer.
Proposals: Well in advance of starting work submit details of proposed:

- Materials to be used, including quantities of each type.
- Type of plant.
- Maximum depth of each compacted layer.
- Minimum number of passes per layer.

Backfilling around foundations
Under oversite concrete and pavings: Spread and level in 150 mm (maximum) layers. Thoroughly compact each layer.
Under grassed or soil areas: Lay and compact in 300 mm (maximum) layers.

Hardcore filling
Filling: Spread and level in 150 mm (maximum) layers. Compact each layer thoroughly.

Venting hardcore layer
Filling: Spread and level in 150 mm (maximum) layers. Thoroughly compact each layer whilst maintaining enough voids to allow efficient venting.

Blinding
Surfaces (other than venting hardcore layer) to receive sheet overlays or concrete, blind with:

- Sand or fine gravel applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
- Permissible deviations on surface level: +0 -25 mm.

E10 IN SITU CONCRETE

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Concrete

Standard: To BS EN 206-1.
Complimentary British Standard:

- Method of specifying and guidance: To BS 8500-1.
- Specification: To BS 8500-2.

Aggregates

Aggregates for concrete: To BS EN 12620.
Aggregates for exposed visual concrete:

- Limitations on contaminants: Free from absorbent particles which may cause 'popouts', and other particles such as coal and iron sulfide which may be unsightly or cause unacceptable staining.
- Colour: Consistent.
- Supply: From a single source and maintained throughout the contract.
- Samples: Submit on request.

Lightweight aggregates for concrete: To BS EN 13055-1.

Underlay

Building paper: To BS 1521, Class B1F.
Polyethylene sheet: Minimum 250 µm.

EXECUTION

Ready mixed concrete

Production plant: Currently certified by a body accredited by UKAS to BS EN ISO/ IEC 17065 for product conformity certification of ready-mixed concrete.
Source: Obtain from one source if possible, otherwise submit proposals.
Delivery notes: Retain for inspection.
Declarations of nonconformity from concrete producer: Notify immediately.
Substitution of standardized prescribed concrete for designated concrete:

- Generally: Conform to BS 8500-2, clause 8.
- Substitution: In accordance with BS 8500-1, table A.13. Submit proposals for each substitution, stating reasons.

Site mixed concrete

Application: Use where neither strength nor appearance is critical.
Water: Use mains water. Protect from contamination.
Batching by mass: Allow for water content of aggregates.
Site made standardized prescribed concrete mixes: Conform to BS 8000-2.1, sub sections 2, 3 and 4.
Admixtures:

- Calcium chloride and admixtures containing calcium chloride: Not permitted.

Construction (daywork) joints

Locations: Where not shown on drawings, submit proposals.
Preparation: While concrete is still green, remove surface laitance and expose aggregate finish.

- Condition of surface immediately before placing fresh concrete: Clean and damp.

Premature water loss

Requirement: Prevent water loss from concrete laid on absorbent substrates. Lay underlay. Lap edges 150 mm.

Placing

Cleanliness of surfaces immediately before placing concrete: Clean with no debris, tying wire clippings, fastenings or free water.
Pours: Maintain records for time, date and location.
Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction.
Temperature limitations for concrete: 5–30°C.
Continuity of pours: Place in final position in one continuous operation up to construction joints.
Placing of concrete must not:

- cause uneven dispersal, segregation or loss of ingredients;
- adversely affect the formwork or formed finishes;
- be carried out against frozen or frost covered surfaces; or
- form cold joints.

Thickness: To suit method of compaction and achieve efficient amalgamation during compaction.

Compacting
General: Fully compact concrete to full depth. Continue until air bubbles cease to appear on the top surface.
Consecutive batches of concrete: Amalgamate without damaging adjacent partly hardened concrete.
Methods of compaction: To suit consistence class and use of concrete.

Surface regularity
Sudden irregularities: Not permitted.
Measurement: Use slip gauges to BS 8204-1 or -2.

Curing
Requirement: Keep surface layers of concrete moist throughout curing period, including perimeters and abutments, by either restricting evaporation or continuously wetting surfaces of concrete.
Surfaces covered by formwork: Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.
Top surfaces: Cover immediately after placing and compacting.

- Removal of covering for finishing operations: Replace immediately thereafter.

Surface temperature: Maintain above 5°C for four days.
Records: Maintain details of location and timing of casting of individual batches, removal of formwork and removal of coverings. Keep on site, available for inspection.
Coverings for curing: Suitable impervious sheet materials.

- Curing compounds: Do not use without consent.

Interim covering to top surfaces of concrete: Until surfaces are in a suitable state to receive coverings in direct contact, cover with waterproof sheeting held clear of the surface and seal against draughts.
Curing periods (minimum):

- Surfaces which will be exposed in the finished work, and wearing surfaces of floors and pavements: 10 days.
- Other structural concrete surfaces: 5 days.

Protection
Prevent damage to concrete, including:

- Surfaces generally: From rain, indentation and other physical damage.
- Surfaces to exposed visual concrete: From dirt, staining, rust marks and other disfiguration.
- Immature concrete: From thermal shock, physical shock, overloading, movement and vibration.
- In cold weather: From entrapment and freezing expansion of water in pockets, etc.

E20 FORMWORK FOR IN SITU CONCRETE

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Loadings

Contractor designed formwork: Designed and constructed to withstand the worst combination of:

- Total weight of formwork, reinforcement and concrete.
- Construction loads including dynamic effects of placing, compacting and construction traffic.
- Wind and snow loads.

Design standards

- Standards – either BS 5975 or BS EN 12812.

PRODUCTS

Underslab sheet insulation

Expanded polystyrene (EPS) products: To BS EN 13163 and BS EN 14933.
Extruded polystyrene foam (XPS) products: To BS EN 13164.

Concrete for blinding

Standards: To BS EN 206-1, BS 8500-1 and -2.

EXECUTION

Work below ground

Casting vertical faces of footings, bases and slabs against faces of excavation:

- Obtain consent.
- If permitted increase minimum cover to reinforcement to 75 mm by increasing overall width of concrete to provide increased cover. Prevent contamination of concrete by loose soil.

Casting walls against faces of excavation: Use formwork on both sides.

Collapsible board substructure formwork (cardboard cellular core)

Installation generally: Keep dry. Lay tightly butted, fully supported and level on polyethylene sheet, on sand blinding. Overlay with polyethylene sheet to lap with bottom sheet. Joints lapped and sealed with tape.

- Pipes for introduction of water: Type and spacing as recommended by board manufacturer. Vertical and secure. Do not puncture bottom face of board.
- Cutting: Neat and accurate. Reseal polyethylene bags.

Compressible board substructure formwork (plastics cellular core)

Installation generally: Lay tightly butted and fully supported on firm, even substrate. Restrain against movement during concrete placement.

- Joints: Seal to prevent penetration of concrete.
- Cutting: Neat and accurate.

Compressible board substructure formwork (low density expanded polystyrene (EPS))

Installation generally: Lay tightly butted and fully supported on firm, even substrate. Restrain against movement during concrete placement.

- Cutting: Neat and accurate.

Ventilated substructure formwork

Installation generally: Lay tightly butted and fully supported on firm, even substrate.

Underslab insulation

Installation generally: Lay tightly butted and fully supported on firm, even substrate.

Accuracy

General requirement for formwork: Accurately and robustly constructed to produce finished concrete in the required positions and to the required dimensions.
Formed surfaces: Free from twist and bow (other than required cambers).
Intersections, lines and angles: Square, plumb and true.

Joints in forms

Requirements including joints in form linings and between forms and completed work:

- Prevent loss of grout, using seals where necessary.
- Prevent formation of steps. Secure formwork tight against adjacent concrete.

Inserts, holes and chases

Positions and details:

- As drawings: Give notice of any conflicts well in advance of placing concrete.
- Undefined positions and details: Submit proposals.
- Method of forming: Fix inserts or box out as required. Do not cut hardened concrete without approval.

Striking formwork

Timing: Prevent any disturbance, damage or overloading of the permanent structure.

E30 REINFORCEMENT FOR IN SITU CONCRETE

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Reinforcement

Ribbed weldable steel reinforcement: To BS 4449.
Plain, indented and ribbed steel wire reinforcement: To BS 4482.
Stainless steel bar reinforcement: To BS 6744.
Fabric reinforcement: To BS 4483.

EXECUTION

Cutting, bending and labelling

Standard: To BS 8666.
Site bending/ reshaping: Not permitted for Grade 500 bars. Obtain instructions for other grades.

Cleanliness

General: Clean and free of substances which may adversely affect the reinforcement, concrete or bond between the two.

Laps and splices

For details not shown on drawings:

- Laps in bar reinforcement (minimum): Tension lap length to BS 8110-1, table 3.27, appropriate to the concrete strength, and to BS EN 1992-1-1, section 8.7.3.
- Laps in fabric reinforcement (minimum): Tension lap length to BS 8110-1, table 3.27, for the same grade bar reinforcement and appropriate to the concrete strength, and to BS EN 1992-1-1, section 8.7.5. Avoid four layer build-up at corners.

Fixing

Sequence: Before placing concrete, fix reinforcement in position.
General: Provide adequate support, tie securely and maintain the cover. Prevent contact between ordinary carbon steel and stainless or galvanized reinforcement
Spacers: To BS 7973-1 and -2.
Tying: Tie with 16 gauge black annealed tying wire. Do not intrude tying wire into the concrete cover. Remove loose ends.

- Stainless steel reinforcement: Tie with 16 gauge annealed stainless steel wire.

E60 PRECAST CONCRETE FLOORS AND ROOF DECKS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Precast concrete beams for beam and block floors/ decks

Standard: Designed to BS EN 1992-1-1 or to BS EN 15037-1, or Agrément certified.

Infill units for precast concrete floors/ roof decks

Generic standard concrete infill blocks: Solid rectangular concrete to BS EN 771-3 and BS EN 15037-2.

- Size 440 x 215 x 100 mm.
- Compressive strength: 3.5 N/mm² (minimum).
- Transverse load capacity measured on a 420 mm span: 3.5 kN (minimum).

Generic autoclaved aerated concrete infill blocks: Solid rectangular autoclaved aerated concrete to BS EN 771-4.

- Size 440 x 215 x 100 mm.
- Compressive strength: 3.5 N/mm² (minimum).
- Transverse load capacity measured on a 420 mm span: 3.5 kN (minimum).

Proprietary concrete infill units:

- Standard: To BS EN 771-3, or to BS EN 771-4, or to BS EN 15037-2 or Agrément certified.
- Compressive strength: 3.5 N/mm² (minimum).
- Transverse load capacity: 3.5 kN (minimum) measured on a 420 mm span.

Proprietary insulating infill units:

- Expanded polystyrene (EPS): To BS EN 13163.

Precast concrete slabs for floors/ roof decks

Standard: To BS EN 1992-1-1.

In situ concrete for infill and toppings

Standard: To BS 8500-2.

Lateral restraint straps

Size:

- Section: 30 x 5 mm (minimum) cross section.
- Length: To extend 800 mm (minimum) from inside face of wall.

Form: Both ends cranked 100 mm.

Reinforcement

Carbon steel bar: To BS 4449.
Steel fabric: To BS 4483.

EXECUTION

General requirements

Lifting: At designed lifting points, using special lifting devices and cradles as necessary.
Bearings: Set on level bearings ensuring not less than the minimum seating recommended by precast unit manufacturer.
Site formed openings and sinkings: As precast unit manufacturer's recommendations.
Cutting/ Drilling: Do not cut or drill units except as recommended or agreed by manufacturer.

Perimeter split infill blocks

Installation: Infill gaps in walling below built in standard flooring blocks.

Concrete infill

Preparation: Thoroughly clean and wet surfaces of precast units.
Placing: Avoid segregation and compact thoroughly to eliminate voids.

- Extent: Fill troughs and other holes.
- Finish: Flush with top of precast units.

Protection: Ensure that units do not move. Prevent movement of units until concrete has gained sufficient strength.

Grouting to blocks

Extent: Fill joints and surface irregularities.

Lateral restraint straps

To external cavity walls: One cranked end in tight contact with cavity face of wall inner leaf, the other cranked end grouted into floor/ roof deck joint.

F10 BRICK AND BLOCK WALLING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Mortars: Read with Z21.

PRODUCTS

New masonry units

Aggregate concrete bricks and blocks: To BS EN 771-3.
Autoclaved aerated concrete (AAC) blocks: To BS EN 771-4.
Calcium silicate bricks: To BS EN 771-2.
Clay blocks: To BS EN 771-1.

- Type: LD.

Clay bricks: To BS EN 771-1.
Gypsum blocks: To BS EN 12859.
Manufactured stone blocks: To BS EN 771-5.
Standard special shape bricks: To BS 4729.

Second hand masonry units

Reclaimed facing bricks: Sound, free from mortar and deleterious matter.

EXECUTION

Workmanship generally

Standard: To BS 5628-3 (withdrawn but citied in Building Regulations).

Conditioning clay and calcium silicate bricks

Bricks delivered warm from manufacturing process: Do not use until cold.
Absorbent bricks in warm weather: Wet to reduce suction. Do not soak.

Conditioning concrete bricks/ blocks

Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
Avoidance of suction in concrete bricks/ blocks: Do not wet.

- Use of water retaining mortar admixture: Submit details.

Laying generally

Mortar joints generally: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
Autoclaved aerated concrete (AAC) blocks laid with thin mortar adhesive joints: Fill vertical joints. Lay blocks on a full bed.
Clay blocks with interlocking vertical joints: Dry vertical joints. Lay blocks on a full bed of thin layer mortar.
Bond where not specified: Half lap stretcher.
Vertical joints in facework: Even widths. Plumb at every fifth cross joint along course.

Height of lifts

General: Rack back when raising quoins and other advance work.
Walling using cement gauged or hydraulic lime mortar:

- Lift height: 1.2 m (maximum) above any other part of work at any time.
- Daily lift height: 1.5 m (maximum) for any one leaf.

Walling using thin joint mortar glue:

- Lift height: 1.3 m (maximum) above any other part of work at any time.

Levelling of separate leaves using cement gauged or hydraulic lime mortar

Locations for equal levelling of cavity wall leaves: As follows:

- Every course containing vertical twist type ties or other rigid ties.
- Every third tie course for double triangle/ butterfly ties.
- Courses in which lintels are to be bedded.

Coursing brickwork

Gauge for new work with bricks of 65 mm work height: Four brick courses including bed joints to 300 mm.
Tying in to existing brickwork: Line up with existing brick courses.

Laying frogged bricks

Single frogged bricks: Frog uppermost.
Double frogged bricks: Larger frog uppermost.
Frog cavity: Fill with mortar.

Laying gypsum blocks with tongues and grooves

Orientation: Tongued length uppermost.

Support of existing work

Joint above inserted lintel or masonry: Fully consolidated with semidry mortar to support existing structure.

Block bonding new walls to existing

Pocket requirements: Formed as follows:

- Width: Full thickness of new wall.
- Depth: 100 mm (minimum).

Vertical spacing of pockets:

- Brick to brick: 4 courses high at 8 course centres.
- Block to block: Every other course.

Pocket joints: Fully filled with mortar.

Jointing

Profile: Consistent in appearance.
Accessible joints not exposed to view: Struck flush as work proceeds.

Pointing

Joint preparation: Remove debris. Dampen surface.

Fire stopping

Avoidance of fire and smoke penetration: Tight fit between cavity barriers and masonry. Leave no gaps.

Adverse weather

General: Do not use frozen materials or lay on frozen surfaces.
Air temperature requirements: Do not lay bricks/ blocks:

- In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
- In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising.
- In thin joint/ layer mortar glue when outside the limits set by the mortar manufacturer.

Temperature of walling during curing: Above freezing until hardened.
Newly erected walling: Protect at all times from:

- Rain and snow.
- Drying out too rapidly in hot conditions and in drying winds.

Facework

Colour consistency of masonry units:

- Methods to ensure that delivered units are consistent and of an even colour range within deliveries: Submit proposals.
- Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
- Finished work: Free from patches, horizontal stripes and racking back marks.

Appearance:

- Brick/ block selection: Do not use units with damaged faces or arrises.
- Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
- Quality control: Lay masonry units to match relevant reference panels.
- Setting out: To produce satisfactory junctions and joints with built-in elements and components.
- Coursing: Evenly spaced using gauge rods.
- Lifts: Complete in one operation.
- Methods of protecting facework: Submit proposals.

Ground level: Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.
Putlog scaffolding: Not permitted in facework.
Toothed bond: New and existing facework in the same plane: Bond together at every course to achieve continuity of bond and coursing.
Cleanliness:

- Facework: Keep clean.
- Mortar on facework: Allow to dry before removing.
- Removal of marks and stains: Rubbing not permitted.

F30 ACCESSORIES AND SUNDRY ITEMS FOR BRICK BLOCK AND STONE WALLING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Air bricks in external walling

Standard: To BS 493, Class 1.

Cavity insulation

Glass or rock wool batts: To BS EN 13162 or Agrément certified.
Expanded polystyrene (EPS) boards: To BS EN 13163 or Agrément certified.
Extruded polystyrene (XPS) boards: To BS EN 13164 or Agrément certified.
Polyisocyanurate (PIR) foam boards: To BS EN 13165 or Agrément certified.
Polyurethane (PUR) foam boards: To BS EN 13165 or Agrément certified.
Phenolic foam boards: To BS EN 13166 or Agrément certified.

Concrete fill to base of cavity wall

Standard: To BS EN 206 and BS 8500-2.

Coping units

Precast concrete, clayware, slate and natural stone: To BS 5642-2.

Fireplace components

Standard: To BS 1251.

Flexible damp proof courses and cavity trays

Bitumen based: To BS 6398.
Polyethylene: To BS 6515.
Pitch polymer, bitumen polymer, polypropylene, and ethylene polypropylene based: Agrément certified.

Flue blocks

Clay/ Ceramic: To BS EN 1806.

Flue linings

Clay/ Ceramic: To BS EN 1457-1 and -2.
Concrete: To BS EN 1857.

Gratings/ Ventilators in internal walling

Standard: To BS 493, Class 2.

Lintels

Precast concrete, precast clay block and prefabricated steel: To BS EN 845-2.

Meshwork joint reinforcement

Standard: To BS EN 845-3.

Plain clay tiles

Standard: To BS EN 1304.

Sills

Precast concrete, clayware, slate and natural stone: To BS 5642-1.

Wall ties

Cavity ties: To BS 1243, DD 140-2 or BS EN 845-1.
Slip ties and slot ties: To BS EN 845-1.

EXECUTION

Air bricks in external walling and gratings/ ventilators in internal walling

Placement: Built in with no gaps at joints.

Cavities in masonry walling

Concrete fill to base of cavity wall:

- Extent: Maintain 75 mm between top of fill and external ground level and 225 mm (minimum) between top of fill and ground level dpc.
- Placement: Compact to eliminate voids.

Cleanliness: Cavity base and faces, ties, insulation and exposed dpcs free from mortar and debris.

Cavity trays
Formed in-situ:
- Joint treatment: Use unjointed wherever possible, otherwise lap 100 mm (minimum) and seal to produce a free draining and watertight installation.
- Horizontal cavity trays: Support using cavity closer.
- Sloping cavity trays: Prevent sagging.
- Cleanliness: Free from debris and mortar droppings.

Preformed:
- Placement: To provide a free draining and watertight installation.
- Joint treatment: As manufacturer's recommendations.

Over openings and other cavity bridgings:
- Length: To extend 150 mm (minimum) beyond ends of lintels/ bridgings.

Cavity trays – gas resistant
Formed in-situ:
- Joint treatment: Use unjointed wherever possible, otherwise lap 150 mm (minimum) and seal to form a gas and watertight installation.
- Joint with damp proof membrane: Overlap dpc/ cavity tray 150 mm (minimum).

Cavity wall insulation
Full fill type:
- Placement: Continuous and free of mortar and debris.

Partial fill type:
- Placement: Secure against face of inner leaf.
- Residual cavity: Clear and unobstructed.
- Joints between boards, at closures and penetrations: No gaps and free from mortar and debris.

Dpcs – horizontal
Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.
Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
Overall finished joint thickness: As close to normal as practicable.
Ground level dpcs:
- Joint with damp proof membrane: Continuous and effectively sealed.

Stepped dpcs in external walls:
- External walls on sloping ground: Install dpcs 150 mm (minimum) above adjoining finished ground level.

Sill dpcs: In one piece and turned up at back when sill is in contact with inner leaf.
Coping/ Capping dpcs:
- Bed in one operation to ensure maximum bond between masonry units, mortar and dpc.
- Dpcs crossing cavity: Provide rigid support to prevent sagging.

Dpcs – vertical
Form: In one piece wherever possible.
Joints: Upper part overlapping lower 100 mm (minimum).
Jamb dpcs at openings:
- Joint with cavity tray/ lintel at head: Full underlap.
- Joint with sill/ horizontal dpc at base: Full overlap.
- Projection into cavity: 25 mm (minimum).
- Relationship with frame: In full contact.

Jamb dpcs to built in timber frames:
- Fixing: Securely fastened to back of frame.
- Fasteners: Galvanized clout nails or staples.

Flues – block system
Block placement: Finish joints flush to ensure a smooth, unrestricted flueway.
- Starter, offset and transfer blocks: Use.
- Coursing: As adjacent masonry.
- Non-bonded blocks: Support.
- Joints between blocks: Seal.

Testing flue system:
- Core ball test and smoke test to BS EN 15287-1: On completion, carry out each test. If obstructions or leaks are revealed, submit proposals for making good.

Flues – clay/ ceramic lining system
Linings placement: Fully bed with socket or rebate uppermost using correct starters, adaptors, bends etc.

- Joints: Flush to provide an unrestricted flueway with smooth interior surfaces.

Testing flue system:

- Core ball test and smoke test to BS EN 15287-1, NA 8: On completion, carry out each test. If obstructions or leaks are revealed, submit proposals for making good.

Frames
Built in frames: Remove horns and provide support.

- Fixing cramps: Fully bed in mortar.

Frames in prepared openings:

- Formation of opening: Use accurate, rigid templates to required size.

Lintels
Placement: Bed on mortar used for adjacent work.

- Bearing: 100 mm (minimum).

Precast concrete and precast clay block lintels: Use slate packing pieces.

Meshwork joint reinforcement
Placement: Lay on an even bed of mortar in a continuous strip.
Laps:

- Joints: 225 mm (minimum).
- Angles: Full.

Keep edges back from face of work:

- External: 20 mm.
- Internal: 12 mm.

Joint finish: Normal thickness.

Movement joints with sealant
Joint preparation and sealant application: As section Z22.
Filler:

- Thickness: To match design width of joint.
- Placement: Build in as work proceeds with no projections into cavities and to correct depth to receive sealant system.

Movement joints without sealant
Filler to standard joints:

- Thickness: To match design width of joint.
- Placement: Build in as work proceeds filling the joint but without projecting into cavities.

Filler to fire resistant joints:

- Placement: Compress and insert into place in open joint.
- Adhesives and accessories: Types recommended by filler manufacturer.

Pinning up to soffits
Top joint of loadbearing walls: Fill and consolidate with mortar.

Pointing in flashings
Joint preparation: Free of debris and lightly wetted.
Pointing mortar: As for adjacent walling.
Placement: Fill joint and finish flush.

Precast concrete, clayware, slate and natural stone coping units
Joints: Full and finished flush.
Placement: Lay on a full bed of mortar to line and level.

Precast concrete, clayware, slate and natural stone sills
Joints: Flush.
Bedding one piece sills: Leave bed joints open except under end bearings and masonry mullions.
Pointing on completion: To match adjacent work.

Preformed dpc/ cavity tray junction cloaks/ stop ends
Placement: To provide a free draining and watertight installation.

Site formed dpc/ cavity tray junctions/ stop ends

- Three dimensional changes in shape: Form to provide a free draining and watertight installation. Seal laps.
- Alternative use of preformed junction cloaks/ stop ends: Submit proposals.

Ties in masonry cavity walls
Embedment in mortar beds: 50 mm (minimum).
Placement: Sloping slightly downwards towards outer leaf, without bending.

- Drip: Centred in the cavity and pointing downwards.

Provision of additional ties in cavity walls with full fill cavity insulation: One row to support lowest row of insulation batts.
Additional ties at openings and movement joints: 300 mm (maximum) centres vertically within 225 mm of vertical movement joints and reveals of unbonded openings.

Ties in masonry cladding to timber frames
Embedment in mortar beds: 50 mm (minimum).
Placement: Slope downwards away from timber frame, without bending.
Additional ties at openings and movement joints: 300 mm (maximum) centres vertically within 225 mm of vertical movement joints and reveals of unbonded openings.

Tile creasing
Placement: Two courses, broken jointed.

- Mortar: As adjacent work, full bed.

Joints: Full and finished flush.

Tile sills
Placement: Two courses, broken jointed, true to line and level on full bed of mortar.
Joints: Full and finished flush.

Tops of restrained nonloadbearing walls
Restraints: Secure to soffit.
Filler placement: Full, no gaps.

Ventilation ducts in external walling
Placement: Across cavity, sloping away from inner leaf.

- Cavity seal: Full mortar joints.

Protection from water penetration to inner leaf: Where barrier is not integral to duct, form stepped dpc cavity tray with stop ends above duct, extending 150 mm on each side.

Wall plates
Placement: On full bed of mortar to correct horizontal level.

Weep holes
Locations: Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings.

- Position: 75 mm above top of cavity fill at base of cavity.

Provision: 1000 mm (maximum) centres and not less than two over each opening.

F31 PURPOSE MADE PRECAST CONCRETE SILLS, LINTELS, COPINGS AND FEATURES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Concrete

Standard: To BS 8500-2 and BS EN 206-1.
Producer: Currently certified by a body accredited by UKAS to BS EN 45011 or BS EN ISO/IEC 17065 for product conformity certification of ready-mixed concrete.
Chloride class of concrete:

- Excluding SRPC: C1 0.40.
- Using SRPC: C1 0.20.
- Reinforced and heat cured: C1 0. 10.
- Prestressed: C1 0.10.

Admixtures containing calcium chloride: Not allowed.

Reinforcement

Carbon steel reinforcement: To BS 4449, BS 4482 and BS 4483 as appropriate.
Galvanized reinforcement: Galvanized to BS EN ISO 1461 after cutting. Chromate treated.
Stainless steel reinforcement: To BS 6744.

- Designation: 1.4301.

Cutting and bending: To BS 8666.

EXECUTION

Moulds

Permissible fabrication and operating tolerances: Length 0 to +6 mm, other dimensions ±3 mm.

Reinforcement

Nonstructural reinforcement: Include to resist shrinkage and handling stresses.
Bimetallic corrosion and staining: Prevent by appropriate selection and use of materials.
Condition at time of placement: Clean, free of corrosive pitting, loose materials and substances that adversely affect reinforcement, concrete, or bond between the two.
Fixing: Accurate and secure.

- Method: Wire tying, approved steel clips or tack welding if permitted.
- Concrete cover: Maintain free of tying wire or clips.

Casting and curing

Placement of concrete in mould: Thoroughly compact.
Protection against drying out: Methods and duration to BS EN 13369 Clause 4.2.1.3.
Immature components: Avoid movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
Delivery to site (minimum): 14 days after casting.

Control samples

Approval of appearance: Obtain before manufacture of remaining units.
Identification and storage location: Clearly label and retain at factory for comparison with production units.

Mixes for fair faced components

Constituent materials and mix design for each finish type: To remain constant.
Colour and appearance of each finish type: To remain constant.
Aggregates: To BS EN 12620.

- Origin: Single source for each finish type, having sufficient quantity for whole contract.

Conditions for separate facing and backing mixes

Difference in cement content (maximum): 80 kg/m³.
Thickness of facing mix: 10 mm greater than maximum aggregate size, minimum 25 mm.
Location of reinforcement: 20 mm (minimum) away from the interface between mixes.
Compaction of facing and backing mix: Carry out to create monolithic construction.

Quality of finishes

Appearance standard: As established by samples.

Cover on visible faces

Spacers: Not permitted.
Proposed method statement: Submit.

Consistency of production methods
Production methods: Consistent for each matching type of finish.
Finish appearance: Within the range of variation indicated by the samples submitted.
Changes to production methods: If variations are proposed for components of the same finish, submit evidence that there will be no difference in appearance.

Laying
Bedding components: On full bed of mortar.
Packing: If required use slate.
Removal of marks, stains and extraneous mortar on visible faces: Rubbing not permitted.

Support of existing work over new lintels
Joint above lintels: Fully fill and compact with semidry mortar.

One piece sills/ thresholds
Bed joints: Leave clear of mortar except at end bearings and beneath masonry mullions.
On completion: Point with mortar to match adjacent work.

G12 ISOLATED STRUCTURAL METAL MEMBERS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Steel sections

Hot rolled structural sections:

- Section properties: To BS 4-1.
- Steel: To BS EN 10025-2, grade S275JR.

Structural steel equal and unequal angles:

- Section properties: To BS EN 10056-1 and -2.
- Steel: To BS EN 10025-2, grade S275JR.

Hot finished structural hollow sections:

- Section properties: To BS EN 10210-2.
- Steel: To BS EN 10210-1, grade S275J2H.

Surface condition: Free from heavy pitting and rust, burrs, sharp edges and flame cutting dross.

Bolt assemblies

Hexagon head bolts: To BS EN ISO 4014 or BS EN ISO 4016.

- Nuts and washers: Material grade and finish to suit bolts.

EXECUTION

Fabrication of steel members

Cuts and holes: Accurate and neat.
Welding: Metal arc method to BS EN 1011-1 and BS EN 1011-2.

- Welded joints: Fully fused, with mechanical properties not less than those of the parent metal.
- Site welding: Obtain approval before planning work.

Shop priming

Preparation: To BS EN ISO 12944-4. Remove fins, burrs, sharp edges and weld spatter and clean out crevices.
Primer application: To BS EN ISO 12944-7.

Installation

Accuracy: Members positioned true to line and level using, if necessary steel packs of sufficient area to allow full transfer of loads to bearing surfaces.
Fixing: Use washers under bolt heads and nuts.

- Tapered washers: Provide under bolt heads and nuts bearing on sloping surfaces. Match taper to slope angle and align correctly.

G20 CARPENTRY AND TIMBER FRAMING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Timber procurement

Timber (including timber for wood based products): Obtained from well managed forests/ plantations in accordance with:

- The laws governing forest management in the producer country or countries.
- International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).

Documentation: Provide either:

- Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or
- Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

Strength grading

Grader: A company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.

Grading and marking of softwood

- Timber of target/ finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% and no reading greater than 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
- Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

Timber products

Structural softwood (graded direct to strength class):

- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
- Strength class: To BS EN 338.

Structural softwood (strength class not specified):

- Grading standard: To the appropriate standard or rules for the specified grade and so marked.

Structural hardwood (strength class not specified):

- Grading standard: To BS 5756, BS EN 16737 and so marked.

Ungraded softwood:

- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.

Wood trim for fascias, bargeboards and the like:

- Standard: To BS 1186-3.

Non-structural plywood:

- Standard: To an approved national standard.
- Surface appearance: To BS EN 635-1, -2, -3 and -5.
- Bonding quality: To BS EN 314-2.

Trussed rafters:

- Design and fabrication: To BS EN 14250.
- Manufacturer: A firm currently registered under a third party quality assurance scheme.

Structural softwood and hardwood cross section dimensions

Target sizes: To BS EN 336.

Maximum permitted deviations from target sizes: Tolerances to BS EN 336, clause 4.3.

- Sawn surfaces: Tolerance class 1 (T1).
- Further processed surfaces: Tolerance class 2 (T2).

Non-structural softwood cross section dimensions

Cross section dimensions specified are finished sizes.

Maximum permitted deviations from finished sizes: To BS EN 1313-1 and National Annex.

- Sawn surfaces: Clause 6.
- Further processed surfaces: Clause NA2.

Non-structural hardwood cross section dimensions
Cross section dimensions specified are finished sizes.
Maximum permitted deviations from finished sizes: To BS EN 1313-2 and National Annex.

- Sawn surfaces: Clause 6.
- Further processed surfaces: Clause NA3.

Warping of timber
Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 14081-1 for softwood, and BS 5756 or BS EN 14081-1 for hardwood.

Preservative treatment
Standard: To Wood Protection Association (WPA) Commodity Specifications.

- Softwood soffits, fascias and bargeboards: Commodity Specification C5.
- Constructional timbers: Commodity Specification C8.
- Timber frame housing (only applicable to structural framing to external walls): Commodity Specification C9.

Pre-finishing
Structural timber to be painted: Prime before delivery to site.
Structural timber to be clear finished: Keep clean and apply first coat of finish before delivery to site.

Joist hangers
Size: To suit joist, design load and crushing strength of supporting construction.

EXECUTION
Selection and use of timber
Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.
Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
Scarf joints, finger joints and splice plates: Do not use without approval.

Processing treated timber
Cutting and machining: Carry out as much as possible before treatment.
Extensively processed timber: Re-treat timber sawn lengthways, thicknessed, planed, ploughed, etc.
Surfaces exposed by minor cutting and drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

Moisture content
Moisture content of wood and wood based products at time of installation: Maximum:

- Covered and generally unheated spaces: 24%.
- Covered and generally heated spaces: 20%.
- Internal in continuously heated spaces: 20%.

Protection
Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
Trussed rafters: Keep vertical during handling and storage.

Exposed end grain
Components: Seal exposed end grain of timber components before delivery to site.

Exposed timber
Planed structural timber exposed to view in completed work: Prevent damage to and marking of surfaces and arrises.

Jointing and fixing
Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.
Framing anchors:

- Fasteners: Galvanized or sherardized square twist nails. Size, not less than size recommended by anchor manufacturer.
- Fixing: Secure using not less than number/ type of fasteners recommended by anchor manufacturer.

Bolt/ Screw assemblies:

- Nuts and washers: Material grade and finish to suit bolts.
- Washer dimensions: Diameter/ side length in contact with timber surfaces to be minimum 3 times bolt diameter, with a thickness not less than 0.25 times bolt diameter.
- Bolted joints:
- Bolt spacing (minimum): To BS EN 1995-1-1, section 8.5.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible in the completed building.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut. Check at agreed regular intervals up to Completion. Tighten as necessary.

Anticorrosion finishes for fasteners:

- Galvanizing: To BS 7371-6, with internal threads tapped and lightly oiled following treatment.
- Sherardizing: To BS 7371-8, Class 1.
- Zinc plating: To BS EN ISO 4042 and passivated.

Temporary bracing
Provision: As necessary to maintain structural timber components in position and to ensure complete stability during construction.

Additional supports
Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheet materials and wall/ floor/ ceiling mounted appliances, fixtures, etc. shown on drawings.
Material properties: Additional studs, noggings and battens to be of adequate size and have the same treatment as adjacent timber supports.

Wall plates
Position and alignment: To give correct span and level for trusses, joists, etc.
Bedding: Fully in fresh mortar.
Joints: At corners and elsewhere where joints are unavoidable use nailed half lap joints. Do not use short lengths of timber.

Installing joists
Generally:

- Centres: Equal, not exceeding designed spacing.
- Bowed joists: Install with positive camber.
- End joists: Positioned approximately 50 mm from masonry walls.

Joists on hangers:

- Hangers: Bedded directly on and hard against supporting construction. Do not use packs or bed on mortar.
- Joists: Cut to leave not more than 6 mm gap between ends of joists and back of hanger. Rebated to lie flush with underside of hangers.
- Fixing to hangers: A nail in every hole.

Trimming openings
Trimmers and trimming joists: When not specified otherwise, not less than 25 mm wider than general joists.

Trussed rafter installation
Erection: To Trussed Rafter Association (TRA) Technical handbook site installation guide and TRA Product data sheet PD3.
Trusses generally: Do not modify without approval.
Damaged trusses: Do not use.
Fixing: Truss clips and bottom chords of standard trusses and rafters of raised tie trusses bearing fully on wall plates.

- Bottom chords of standard trusses: Do not fix to internal walls until roofing is complete and cisterns are installed and filled.

Permanent bracing:

- Method of fixing: To every rafter, strut or tie with not less than two fasteners.
- Lap joints: Extended over and nailed to at least two truss members.

Lateral restraint straps

Fixing to top of joists/ rafters/ ties: Ensure that cranked end is in tight contact with cavity face of wall inner leaf and is not pointing upwards.
Straps spanning joists/ rafters/ ties running parallel to wall: Fix noggings and packs tightly beneath straps.

- Size of noggings and packs: Minimum three quarters of joist/ rafter/ tie depth and 38 mm (minimum) thick.
- Notching: Notch joists so that straps fit flush with surface. Do not notch rafters/ ties.

Strutting to floor joists

Fixing: Strutting must not project beyond top and bottom edges of joists.
Outer joists: Blocked solidly to perimeter walls.

G30 METAL PROFILED SHEET DECKING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Metal profiled sheet decking

Steel: To BS EN 10346.

- Design yield stress: 350 N/mm².
- Coating: Hot dip zinc, minimum coating designation Z275.

EXECUTION

Prevention of electrolytic action

Isolating tape: Type recommended by decking manufacturer.

- Location: To contact surfaces of supports and sheets of dissimilar metals.

Fixing decking generally

Cut sheets: Clean edges with true lines and no burrs.

- Treatment of edges: As recommended by manufacturer.

Penetrations: Cut openings to the minimum size necessary. Do not use angle grinding or other method that generates heat.
Cleanliness: Remove all debris from within decking construction.
Installation: Seams and ribs of deck must be parallel, with no damage to deck coating.

Attachment of decking

Fastener locations:

- Primary deck fixing: Troughs of profile.
- Side lap stitching fixings: Web (side) of profile.
- End lap stitching fixings: Troughs of profile.

H20 RIGID SHEET CLADDING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Preservative treatment: Read with Z12.

PRODUCTS

Plywood

Standard: To relevant standards and quality control procedures specified in BS EN 1995-1-1, and so marked.

- Bond quality: To BS EN 314-2, or to a national standard equal to or exceeding the requirements of the British Standard.
- Appearance class: To BS EN 635-1, or to a national standard equal to or exceeding the requirements of the British Standard.
- Moisture content at time of fixing: 13–19%.

Marine plywood

Standard: To BS 1088-1.
Moisture content at time of fixing: 13–19%.

Other wood based cladding boards/ sheets

General: To relevant standards and quality control procedures specified in BS EN 1995-1-1, and so marked.
Additional requirements:

- Cement bonded particle board: To BS EN 634-2.

Softwood battens/ counterbattens

General: Regularized softwood free from decay, insect attack (except ambrosia beetle damage) and with no knots wider than half the section width.
Moisture content at time of fixing (maximum): 20%.

Nails

Material: Stainless steel, nonferrous, or coated ferrous compatible with the selected timber, preservative system and local atmospheric conditions.
Standard:

- Aluminium: To BS 1202-3.
- Copper: To BS 1202-2.
- Steel annular ringed shank flat head: To BS 1202-1.
- Steel wire nails: To BS EN 10230-1.

Wood screws

Standard: To BS EN 14592.

Preservative treatment

General: To Wood Protection Association Commodity Specification C8.

EXECUTION

Battens/ Counterbattens

Setting out: In straight vertical lines.

- To framing/ sheathing: At centres coincident with vertical framing members.
- To counterbattens: Align on adjacent areas.

Length: 1200 mm (minimum).
Fixing: Fastener heads to finish flush with or slightly below batten face.

- To sheathing: Fix through sheathing into framing.
- To counterbattens: Fix each batten to each counterbatten. Use splay fixing at joints.

Treated timber

Exposed cut and drilled surfaces: Treat with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

Fixing cladding

General: Fix to supports without producing distortion.
Fasteners: Evenly spaced in straight lines, in pairs across joints and sufficient distance from edge of sheet to prevent damage.
Cover strips: Form straight runs in single lengths wherever possible.

H22 PLASTICS WEATHERBOARDING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Wood treatment: Read with Z12 Preservative and fire retardant treatment.

PRODUCTS

Battens and counterbattens

Timber: Preservative treated regularized softwood free from decay, insect attack (except ambrosia beetle damage) and with no knots wider than half the section width.

- Moisture content at time of fixing and covering (maximum): 20%.

Preservative treatment: To Wood Protection Association Commodity Specification C8.

Nails

Material: Stainless steel, nonferrous, or coated ferrous compatible with the selected timber, preservative system and local atmospheric conditions.
Standard:

- Aluminium: To BS 1202-3.
- Copper: To BS 1202-2.
- Steel annular ringed shank flat head: To BS 1202-1.
- Steel wire nails: To BS EN 10230-1.

EXECUTION

Battens and counterbattens

Setting out:

- To masonry: In straight vertical lines.
- To framing/ sheathing: In straight vertical lines at centres coincident with vertical framing members.
- Battens to counterbattens: In straight lines. Align on adjacent areas.

Length (minimum): 1200 mm.
Fixing: Fastener heads to finish flush with or slightly below batten face.

- To sheathing: Fix through sheathing into framing.
- Battens to counterbattens: Fix each batten to each counterbatten. Use splay fixing at joints. Joints to be square cut, butted centrally on counterbattens and not occurring more than once in any group of four battens on any one counterbatten.

Treated timber

Surfaces exposed by minor cutting and drilling: Treat with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

Fixing boarding

Environmental conditions: Do not fix cladding when ambient temperature is at or below 0°C, or above 30°C.
General: Fix boards securely to give flat, true surfaces free from undulations, splits, hammer marks and protruding fasteners.
Movement: Allow for thermal movement of boards and fixings. Prevent springing, excessive opening of joints or other defects.
Heading joints: Position centrally over supports and at least two board widths apart on any one support.

H31 METAL PROFILED SHEET CLADDING AND COVERING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Profiled metal roof coverings

Steel: To BS EN 508-1.
Aluminium: To BS EN 508-2.
Stainless steel: To BS EN 508-3.

Translucent/ transparent profiled plastics sheets

Glass fibre reinforced polyester resin (GRP): To BS EN 1013.
Polyvinyl chloride (PVC-U): To BS EN 1013.
Polycarbonate (PC): To BS EN 1013.

Roof sheeting generally

Fragility testing: To Advisory Committee for Roofwork (ACR) publication, ACR[M]001, 'Test for fragility of roofing assemblies'.

Fasteners and accessories generally

Unspecified fasteners, fittings, sealant and other accessories: Recommended for the purpose by sheeting manufacturer.

Mineral wool thermal insulation

Standard: To BS EN 13162.

Breather membrane

Standard: To BS 5250.

Warning signs

Warning sign: To BS EN ISO 7010, reference number W001 with supplementary text.
Mandatory action sign: To BS EN ISO 7010, reference number M001 with supplementary text.

EXECUTION

Completion of design

Cladding/ covering system: Complete detailed design to the extent specified and submit proposals before commencement of fabrication.

- Standard: To BS 5427-1.
- Related works: Coordinate in detailed design.

Painting supporting structure

Sequence: Paint outer surface of supporting structure before fixing cladding/ covering.

Prevention of electrolytic action

Isolating tape: Type recommended by cladding/ covering manufacturer.

- To contact surfaces of supports and sheets of dissimilar metals.

Vapour control membrane

Continuity: No breaks and with the minimum of joints.

- Penetrations and abutments: Seal to vapour control membrane with tape. Achieve full bond.
- Laps: Minimum 150 mm, seal with tape. Achieve full bond.

Tape: Double sided sealant with vapour resistivity not less than the vapour control membrane.
Repairs and punctures: Seal with lapped patch of vapour control membrane and continuous band of sealant tape along edges.

Mineral wool thermal insulation

Installation: Continuous and not compressed between outer and lining sheets. Secure to prevent future movement or dislodgement.

Breather membrane

Continuity: No breaks. Minimize joints.

- Penetrations and abutments: Attach to breather membrane with tape. Achieve full bond.
- Laps: Not less than 150 mm, bond with tape. Achieve full bond.

Tape: As recommended by breather membrane manufacturer.
Repairs: Lapped patch of vapour breather membrane material secured with continuous band of tape on edges.
Junctions at flashings, sills, gutters etc. Overlap and allow free drainage to exterior.

Profile fillers

Requirement: To close cavities/ regulate air paths within the external envelope. Tight fit with no unintended gaps.

Fixing sheets generally
Cut edges: Clean true lines.
Penetrations: Openings to minimum size necessary.

- Edges: Reinforce.

Sheet orientation: Exposed joints of side laps away from prevailing wind.
Sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap.
Fasteners: At regular intervals in straight lines, centred on support bearings.

- Position of fastener in oversized drilled holes: Central.
- Fasteners torque: Sufficient to correctly compress washers.

Debris: Remove dust and other foreign matter before finally fixing sheets.
Completion: Check fixings to ensure weathertightness and that sheets are secure with no buckling or distortion.
Cut edges: Paint to match face finish.

Fixing plastics sheets
Crown fixing: For sheets with a profile depth greater than 20 mm, support crowns at primary fasteners with profile fillers.
Fastener holes: Sized in accordance with sheet manufacturer's recommendations.
End laps between plastics sheets: Use two strips of sealant tape, one along each edge of lap.

Plastics multiple skin construction
Inaccessible surfaces: Clean before fixing.
Sheet fixing: Progressively fix from one end of sheet to avoid distortion.
Fixing sequence: Install spacers and outer sheets immediately after lining sheet installation.
Inner and outer sheet laps: Seal.

Flashings/ trims generally
Lap joint treatment:

- Vertical and sloping flashings/ trims: End laps to be same as adjacent sheeting.
- Horizontal flashings/ trims: End laps to be 150 mm, sealed and where possible arranged with laps away from prevailing wind.

Method of fixing: To structure in conjunction with adjacent sheeting. Otherwise to sheeting.

Sealing laps on external sheets
Continuity of sealant: Straight, unbroken lines, parallel to edge of sheet.
Seal quality: Effective, continuous and not overcompressed.
End laps: Sealant tape positions:

- Single line tape: Immediately below line of fasteners.
- Second line tape (where specified): Slightly set back from edge of external sheet.

Side laps: Sealant tape positions:

- Single line tape: Outside line of fasteners.
- Second line tape (where specified): On other side of fasteners.

Water vapour sealing at laps and penetrations in metal linings
Continuity of sealant: Straight, unbroken lines.
Seal quality: Continuous, effective and not over compressed, especially at sheet corners and at penetrations of pipes, ducts, rooflights, etc.
Sealant tape:

- Position: Below fixing positions, parallel to and slightly back from edge of sheet.

Aluminium foil tape:

- Position: Centrally and parallel to edge of oversheet.
- Joints in tape overlap (minimum): 50 mm.

Seal and adhesion quality: Effective and continuous.

Water penetration
Requirement: Under site exposure conditions moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted.

H72 ALUMINIUM STRIP OR SHEET COVERINGS AND FLASHINGS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Sealants: Read with Z22 Sealants.

PRODUCTS

Aluminium strip and sheet for coverings, cladding, flashings and weatherings

Standard:

- Aluminium and aluminium alloys strip sheet and plate: To BS EN 485-1 to -4.
- Fully supported roofing products of aluminium sheet: To BS EN 507.
- Temper designations of wrought aluminium products: To BS EN 515.
- Chemical composition and form of wrought aluminium products: To BS EN 573-1 to -3.

Nails for fixing clips

Type:

- To aluminium clips: Aluminium nails to BS 1202-3.
- To stainless steel clips: Stainless steel (austenitic) nails.

Shank type: Annular ringed or helical threaded.
Shank diameter: 2.65 mm (minimum).
Head: Flat.
Length: 25 mm (minimum) or equal to substrate thickness.

Screws for fixing clips to concrete/ masonry substrates

Type:

- To aluminium clips: Sherardized or zinc plated steel screws to BS EN 14592.
- To stainless steel clips: Stainless steel (austenitic) screws to BS EN 14592.

Diameter: 3.35 mm (minimum).
Length: 25 mm (minimum).
Washers and plastic plugs: Compatible with screws.

Screws for aluminium or stainless steel clips to composite metal decks

Type: Self tapping, as recommended by the deck and aluminium manufacturer/ supplier.

Sealant to flashings at masonry joints

Standard: To BS EN ISO 11600.

Underlay

Type:

- Geotextile: 220 g/m² needle punched nonwoven polyester.

EXECUTION

Workmanship generally

Standard: Generally to CP 143-15.
Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
Operatives: Trained in the application of aluminium coverings/ flashings. Submit records of experience on request.
Measuring, marking, cutting and forming: Prior to assembly wherever possible.
Marking out: With pencil, chalk or crayon. Do not use scribers or other sharp instruments without approval.
Folding: With mechanical or manual presses to give straight, regular and tight bends, leaving panels free from ripples, kinks, buckling and cracks. Use hand tools only for folding details that cannot be pressed.
Surface protection: Fully coat surfaces to be embedded in concrete or mortar with high build bitumen based paint, after folding.
Sharp metal edges: Fold under or remove as work proceeds.
Joints: Do not use sealants to attain waterproofing.
Finished aluminium work: Fully supported, adequately fixed to resist wind uplift and able to accommodate thermal movement without distortion or stress.

- Protection: Prevent staining, discolouration and damage by subsequent works.

Existing metal

To be reused:

- Handling/ Storage: Keep for reuse in the Works.

To remain the property of the employer:

- Removal: Give notice when the metal is to be stripped.
- Handling/ Storage: Keep for reuse by the Employer.

Substrates
Condition: Dry and free of dust, debris, grease and other deleterious matter.
Preparation of existing timber substrates:

- Remedial work: Adjust boards to level and securely fix. Punch in any protruding fasteners and plane or sand to achieve an even surface.
- Defective boards: Give notice.
- Moisture content: 22% (maximum) at time of covering.

Plywood underlay
Standard: Manufactured to an approved national standard and to BS EN 636, section 8 (plywood for use in humid conditions).
Laying: Parallel to perimeter edges with cross joints staggered and a 0.5–1 mm gap between sheets.
Fixing: With 25 mm annular ringed shank aluminium or galvanized steel nails, at 300 mm grid centres over the area of each sheet and at 150 mm centres along edges, set in 10 mm from perimeter edges and in pairs across joints.

- Nail heads: Set flush with or just below surface.

Timber roll cores, fillets etc. for use with aluminium work
Quality: Planed, free from wane, splits, pitch pockets, decay and insect attack (ambrosia beetle excepted).
Moisture content: 22% (maximum) at time of fixing and covering.
Preservative treatment: Wood Protection Association – Commodity Specification C8.

- Type: Organic solvent.

Fibrous underlay
Handling: Prevent tears and punctures.
Laying: Butt jointed onto a dry substrate.

- Fixing edges: With aluminium or galvanized steel staples or clout nails.
- Do not lay over eaves and drip/ step aluminium underlaps.

Protection: Keep dry and cover with aluminium at the earliest opportunity.

Valley gutter lining to slate or tiled roof
Laying: Over and beyond tilting fillets. In 3 m maximum lengths.

- Cross joints: Double lock welts.

Fixing: Fold edges and fix with clips for flashings/ cross joints at not more than 450 mm centres. Fold bottom end neatly into eaves gutter.

Recessed valley gutter lining to aluminium roof
Forming: With a clear width of 200 mm (minimum), side upstands equal to step in base and top flanges of 25 mm.
Laying: In 3 m (maximum) lengths.

- Cross joints: Double lock welts.

Aluminium underlap clips:

- Cover: 100 mm (minimum) with anti-capillary welt at top edge.
- Fix to roof slope at 200 mm centres.

Joint with roof covering: Project roof coverings with underlap clips over each side of gutter and single welt around flanges in gutter lining to form drips.

Valley gutter lining to aluminium roof
Forming: 200 mm (minimum) clear width.
Laying: In 3 m (maximum) lengths.

- Cross joints: Double lock welts.

Joint with roof covering: Overlap gutter lining with roof coverings and join together with single lock welts.

Standing seam longitudinal joints
Joint allowances: 45 mm overlap, 35 mm underlap and 5 mm gap for thermal movement. Preformed interlocking profiles for overlap and underlap are permitted.
Forming: Double welt overlap and clips around underlap to form standing seam 25 mm high of consistent cross section.

Batten roll longitudinal joints
Aluminium covering:

- Joint allowances: Form strips/ sheets each side of core with 5 mm gap for thermal movement and upstands to 10 mm above height of core.
- Fixing: Welt clips over upstands. Single lock welt upstands to cappings.

Cappings: Aluminium of the same alloy, finish and thickness of metal as the strip/ sheet being jointed, in 1.25 m (maximum) lengths, with single lock welt end to end joints.

Drip/ step cross joints

Strip/ sheet from below step: Fold up full height of upstand and fix to top edge.
Form aluminium underlap/ continuous clip:

- Cover to roof slope: 100 mm (minimum) with anticapillary welt at top edge.
- Projection: 25 mm for forming into drip welt.
- Downstand: 40 mm (minimum) with welt at bottom edge.
- Fixing: To roof slope at 100 mm centres, avoiding through fixings at longitudinal joint positions.

Strip/ sheet from above step: Fold around underlap projection and single welt to form a drip.

Single lock welt cross joints

Joint allowances: 100 mm overlap and 50 mm underlap.
Underlap: Welt and secure with cross joint clips, two per bay.
Overlap: Welt around underlap and clips and dress down.
Forming: Fold welts lightly to allow freedom of movement.

Double lock welt cross joints

Joint allowances: 90 mm overlap, 60 mm underlap.
Underlap: Welt and secure with cross joint clips, one per bay.
Overlap: Double welt around underlap and clips, and dress down.

Ridge/ hip batten rolls

Core fixing: To ridge/ hip board with sherardized or zinc plated steel or aluminium countersunk screws at 600 mm (maximum) centres.
Roof coverings: Fix two batten roll clips to each roof bay. Form roof coverings each side with upstands to 10 mm above height of core. Welt clips over upstands. Single lock welt upstands to cappings.
Cappings: Aluminium of same alloy, finish and thickness of metal as roof covering, in 1.25 m (maximum) lengths, with single lock welt end to end joints.

Standing seam eaves

Aluminium underlap:

- Cover to roof slope: 100 mm (minimum) with anticapillary welt at top edge.
- Projection: 25 mm for forming into drip welt.
- Fix to roof slope at 100 mm centres avoiding through fixings at standing seam positions.

Standing seams: Fold down ends with equal splays and allowance for lateral thermal movement.
Roof covering: Fold around underlap projection and single welt to form a drip.

Batten roll eaves

Aluminium underlap:

- Cover to roof slope: 100 mm (minimum) with anticapillary welt at top edge.
- Projection: 25 mm for forming into drip welt.
- Fix: At 100 mm centres avoiding through fixings at batten roll positions.

Batten roll cores: Fix over underlap, notching over anticapillary welt.
Roof tray upstands and batten roll capping ends: Close with welts to form a weathertight termination.
Roof covering: Fold around underlap projection and single welt to form a drip.

Standing seam verge

Top edge:

- Standing seam longitudinal joint: Position flush with verge.
- Forming: Secure top of verge into double welt and clips of standing seam.

Bottom edge:

- Continuous clip: Fix at 200 mm centres.

Forming: Secure bottom of verge around clip with fold.

Batten roll verge

Top edge:

- Batten roll longitudinal joint: Position flush with verge.
- Forming: Secure top of verge under batten roll cappings with batten roll clips.

Bottom edge:

- Continuous clip: Fix at 200 mm centres.

Forming: Secure bottom of verge around clip with fold.

Apron flashings

Dimensions:

- Lengths: 2 m (maximum), with end to end joints lapped not less than 100 mm.
- Upstand: 100 mm (minimum).

Bottom edge welted 15 mm.

Cover flashings
Dimensions:

- Lengths: 2 m (maximum), with end to end joints lapped not less than 100 mm.
- Cover to roofing upstand: 75 mm (minimum), with bottom edge welted 15 mm.

Step flashings
Dimensions:

- Lengths: 2 m (maximum), with end to end joints lapped not less than 100 mm.
- Cover to roofing upstand: 75 mm (minimum), with bottom edge welted 15 mm.

Soakers and step flashings
Soakers:

- Cut and folded for fixing by roofer.
- Length: Slate/ tile gauge + lap + 25 mm.
- Upstand: 75 mm (minimum).
- Underlap: 100 mm (minimum).

Step flashings:

- Lengths: 2 m (maximum), with end to end joints lapped not less than 100 mm.
- Cover: Overlap to soaker upstands 60 mm (minimum), with bottom edge welted 15 mm.
- Fixing: Aluminium wedges at every course, clips to bottom edge at laps.

Step and cover flashings
Dimensions:

- Lengths: 2 m (maximum), with end to end joints lapped not less than 100 mm.
- Upstand: 75 mm (minimum).
- Cover to roof: 150 mm (minimum).

Fixing: Aluminium wedges every course and clips at laps and 500 mm (maximum) centres along free edge.

Standing seam fixed clips
Aluminium clips: Cut from same alloy and thickness of metal as that being secured.
Stainless steel (austenitic) clips: Cut from same thickness of metal as the aluminium being secured.
Dimensions:

- Width: 50 mm (minimum).
- Base length: 20 mm (minimum).
- Upstand: To suit standing seam profile.

Fixing: Secure each clip to substrate with two fixings.

Standing seam sliding clips
Aluminium clips: Cut from same alloy and thickness of metal as that being secured.
Stainless steel (austenitic) clips: Cut from same thickness of metal as the aluminium being secured.
Dimensions of fixed component:

- Width: 90 mm (minimum).
- Base length: 20 mm (minimum).
- Upstand: 20 mm, with slot for locating sliding component.

Dimensions of sliding component:

- Width: 35 mm (minimum).
- Upstand: To suit standing seam profile.

Fixing: Secure each clip to substrate with three fixings.

Batten roll clips
Material: Cut from same alloy and thickness of metal as that being secured.
Dimensions:

- Width: 50 mm (minimum).
- Length: Sufficient to pass under batten and turn up each side, with 20 mm (minimum) projection for folding into welt.

Fixing: Secure each clip to substrate with one fixing.

Clips for flashings/ cross joints
Material: Cut from same alloy and thickness as that being secured.
Dimensions:

- Width: 50 mm (minimum).
- Length: Sufficient to suit detail.

Fixing: Secure each clip to substrate with two fixings, 50 mm (maximum) from edge of strip/ sheet being fixed.

Continuous clips
Material: Cut from same alloy and thickness as that being secured.
Dimensions:

- Width: Sufficient to suit detail.
- Length: 1.8 m (maximum).

Fixing: To substrate at 150 mm centres. Welt edge of strip/ sheet being fixed to continuous clip and dress down.

Wedge fixing into joints/ chases
Joint/ chase: Rake out to a depth of 25 mm (minimum).
Aluminium: Fold 25 mm into joint/ chase with a waterstop welted end.
Fixing: Aluminium wedges at 450 mm (maximum) centres, at every change of direction, and with at least two for each piece of aluminium.

Wedge fixing into damp proof course joints
Joint: Rake/ cut out under damp proof course to a depth of 25 mm (minimum).
Aluminium: Fold 25 mm into joint with a waterstop welted end.
Fixing: Aluminium wedges at 450 mm (maximum) centres, at every change of direction, and with at least two for each piece of aluminium.

Screw fixing into joints/ chases
Joint/ chase: Rake out to a depth of 25 mm (minimum).
Aluminium: Fold into joint/ chase and up back face.
Fixing: Into back face with sherardized, zinc plated steel or aluminium screws, washers and plastics plugs at 450 mm (maximum) centres, at every change of direction, and with at least two fixings for each piece of aluminium.

J40 FLEXIBLE SHEET WATERPROOFING AND DAMP PROOFING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Concrete

Standard: To BS 8500-2.

Bitumen damp proof sheets

Standard: To BS 743.

Polyester based bitumen damp proof membranes

Standard: To BS 8747.

Polyethylene membranes

Standard: To Packaging and Industrial Films Association (PIFA) Standard 6/83A, or Agrément certified.

Oxidized bitumen bonding compound

Standard: To BS EN 13304.

EXECUTION

General

Execution: In accordance with relevant parts of BS 8102 and CP 102.
Condition of substrate:

- Clean and even textured free from voids and sharp protrusions.
- Moisture content: Compatible with damp proofing/ tanking.

Air and surface temperature: Do not apply sheets if below minimum recommended by membrane manufacturer. Condition of membrane at completion:

- Neat, smooth and fully supported, dressed well into abutments and around intrusions.
- Completely impervious and continuous.
- Undamaged. Prevent puncturing during following work.

Permanent overlying construction: Cover membrane as soon as possible.

Hardcore/ Venting hardcore beds

Finish: Smooth, consolidated, blinded bed free of sharp projections.

Primers

Curing: Allow to dry thoroughly before covering.

Hot applied bonding compounds

Application: Continuous even coating to provide full bonding over whole surface. Do not overheat.

Loose laid membranes

Surfaces to be jointed: Clean and dry beyond full width of joint.
Covering to oversite damp proofing: Place immediately after laying membrane.

Self-adhesive membranes

Bonding: Full. Smooth out to exclude air.

Multilayer membranes

Subsequent layers: Apply as soon as possible.

Angles in bonded sheeting

Preformed rot proof fillet to internal angles:

- Size (minimum): 50 x 50 mm, splay faced.
- Bedding: Bitumen mastic or bonding compound.

Reinforcing strip to all angles:

- Material: As damp proofing/ tanking.
- Width (minimum): 300 mm.
- Timing: Apply before main sheeting.

Proprietary reinforcing strip to all angles:

- Timing: Apply before main sheeting.

Dressing of main sheeting on to adjacent surfaces (minimum): 100 mm.

Junctions with projecting dpcs/ cavity trays

Adjoining surfaces: Clean and dry.
Dpcs/ Cavity trays: Lap and fully bond/ seal with sheeting.

- Laps (minimum): 100 mm. Gas retardant dpcs/ cavity trays: 150 mm.
- Bonding/ Sealing: Method compatible with component materials.

Junctions with flush dpcs/ cavity trays

Adjoining surfaces: Clean and dry.
Dpcs/ Cavity trays:

- Expose edge where concealed.
- Lap and fully bond/ seal sheeting to wall.
- Dressing of sheeting beyond dpc/ cavity tray (minimum): 50 mm.
- Bonding/ Sealing: Method compatible with component materials.

Preformed collars for pipes, ducts, cables, etc

Sealing: Fully bond to penetrations and sheeting.
Completed junctions: Impervious.

Protection boards for damp proofing/ tanking

Application

- Membrane surface: Clean and free from contaminants.
- Board contact with membrane: Secure and continuous.

Backfilling: Carry out when tanking, loading and protection are complete.

K10 PLASTERBOARD DRY LININGS FOR WALLS, PARTITIONS AND CEILINGS

GENERAL REQUIREMENTS

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Insulation

Mineral wool: To BS EN 13162.

Gypsum plasterboards to BS EN 520

Type A:

- Face suitable for gypsum plasters or decoration to be applied.

Type H (plasterboard with reduced water absorption):

- Types H1, H2 and H3 have different water absorption performance.

Type E (gypsum sheathing board):

- Manufactured to be used as sheathing board in external walls.
- Not intended to receive decoration.
- Not designed to be permanently exposed to external weather conditions.
- Has reduced water absorption rates.

Type F (gypsum plasterboard with improved core adhesion at high temperatures):

- Face suitable for gypsum plasters or decoration to be applied.

Type P (gypsum baseboard):

- Face intended to receive gypsum plaster.
- May be perforated during manufacture.

Type D (gypsum plasterboard with controlled density):

- Face suitable for gypsum plasters or decoration to be applied.

Type R (gypsum plasterboard with enhanced strength):

- For applications where higher strength is required.
- Increased longitudinal and transverse breaking loads.
- Face suitable for gypsum plasters or decoration to be applied.

Type I (gypsum plasterboard with enhanced surface hardness):

- Face suitable for gypsum plasters or decoration to be applied.
- Designated Type I3.3 for edge and end profiles.

Edges:

- Normally square cut, but can be bevelled, tapered, half rounded, rounded or a combination of each.
- Type P – square or rounded.

Designation of plasterboards:

- _Gypsum plasterboard/ type letter/ BS EN 520 – width/ length/ thickness/ edge profile_.
- E.g. _Gypsum plasterboard/ Type A/ BS EN 520 – 1200/ 2400/ 12.5/ tapered edge_

Rigid beads/ stops

Standard: Galvanized steel: To BS EN ISO 1461.

EXECUTION

New wet laid bases

DPCs: Install under full width of partitions/ freestanding wall linings.

Metal framing for partitions/ wall linings

Setting out: Accurately aligned and plumb.

- Frame/ Stud positions: Equal centres to suit specified linings, maintaining sequence across openings.
- Additional studs: To support vertical edges of boards.

Fixing centres at perimeters (maximum): 600 mm.

Openings: Form accurately:

- Doorsets: Use sleeved/ or boxed metal studs and/ or suitable timber framing to achieve strength grade requirements for framing assembly and adequately support weight of door.
- Services penetrations: Allow for associated fire stopping.

Additional supports
Framing: Accurately position and securely fix to give full support to:

- Partition heads: Running parallel with, but offset from main structural supports.
- Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.
- Board edges and lining perimeters: As recommended by board manufacturer to suit type and performance of lining.

Metal furrings for wall linings
Setting out:

- Vertical furring positions: Equal vertical centres to suit specified linings, maintaining sequence across openings. Position adjacent to angles and openings.
- Additional vertical furrings: To support vertical edges of boards and at junctions with partitions.
- Horizontal furring positions: To provide continuous support to edges of boards.

Adhesive bedding to furrings:

- Dabs: Length 200 mm (minimum). Located at ends of furrings and thereafter at 450 mm (maximum) centres.
- Junctions with partitions: Continuous bed with no gaps across cavity.

Suspended ceiling grids
Grid members and hangers: Centres to suit specified linings and imposed loads.
Additional grid members: To provide bracing and stiffening as necessary at upstands, partition heads, access hatches, etc.

Dry lining generally
General: Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
Cutting plasterboard: Neatly and accurately without damaging core or tearing paper facing.

- Cut edges: Minimize and position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.

Fixing boards: Fix securely and firmly to suitably prepared and accurately levelled backgrounds.
Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.

Dry lining ceilings
Sequence: Fix boards to ceilings before dry lining walls and partitions.
Orientation of boards: Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.
Two layer boarding: Stagger joints between layers.

Installing mineral wool insulation
Fitting insulation: Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.
Services:

- Electrical cables overlaid by insulation. Sized accordingly.
- Ceilings: Do not lay over luminaires.

Sealing gaps and air paths
Location of sealant: To perimeter abutments and around openings.

- Pressurised shafts and ducts: At board-to-board and board-to-metal frame junctions.

Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.

- Gaps greater than 6 mm between floor and underside of plasterboard: After sealing, fill with jointing compound.

Cavity fire barriers
Installation: Form accurately and fix securely with no gaps to provide a complete barrier to smoke and flame.
Within suspended ceilings: Fixing at perimeters and joints: Secure, stable and continuous with no gaps, to provide a complete barrier to smoke and flame.
Service penetrations: Cut and pack to maintain barrier integrity. Sleeve flexible materials. Adequately support services passing through barriers.
Ceiling systems for fire protection: Do not impair fire resisting performance of ceiling system.

Fire stopping at perimeters of dry lining systems
Material: Tightly packed mineral wool or intumescent mastic/ sealant.
Application: Provide a complete barrier to smoke and flame.

Joints between boards
Tapered edged plasterboard:

- Bound edges: Lightly butted.
- Cut/ unbound edges: 3 mm gap.

Square edged plasterboard: 3 mm gap.
Square edged fibre reinforced gypsum board: 5 mm gap.

Vertical joints
Joints: Centre on studs/ framing.
Partitions: Stagger joints on opposite sides of studs.
Two layer boarding: Stagger joints between layers.

Horizontal joints
Surfaces exposed to view: Horizontal joints not permitted. Seek instructions where height of partition/ lining exceeds maximum available length of board.
Two layer boarding: Stagger joints between layers by at least 600 mm.
Edges of boards: Support using additional framing.

- Two layer boarding: Support edges of outer layer.

Insulation backed plasterboard
General: Do not damage or cut away insulation to accommodate services.
Installation at corners: Carefully cut back insulation or plasterboard as appropriate along edges of boards to give a continuous plasterboard face, with no gaps in insulation.

Fixing plasterboard to metal framing:
Screw fixing to framing/ furrings:

- Position of screws from edges of boards (minimum): 10 mm.
- Screw heads: Set in a depression. Do not break paper or gypsum core.
- Fixing insulation backed plasterboard to metal furrings: In addition to screw fixings, apply continuous beads of adhesive sealant to furrings.

Fixing plasterboard to timber framing:
Position of nails/ screws from edges of boards (minimum):

- Bound edges: 10 mm.
- Cut/ unbound edges: 13 mm.

Position of nails/ screws from edges of timber supports (minimum): 6 mm.

Fixing plasterboard with adhesive dabs
Setting out boards: Accurately aligned and plumb.
Fixing to background: Securely using adhesive dabs.
Dab spacing to each board horizontally: One row along top edge and one continuous dab along bottom edge.
Dab spacing to each board vertically: One row along each edge and at intermediate spacings to suit size of board:

- Boards 9.5 x 1200 mm: 400 mm centres.
- Boards 9.5/ 12.5 x 900 mm: 450 mm centres.
- Boards 12.5 x 1200 mm: 600 mm centres.

Adhesive dab dimensions (width x length): At least 50–75 mm x 250 mm.

- Position of dabs from edges/ ends of boards (minimum): 25 mm.

Fixing insulation backed plasterboard with adhesive dabs: In addition to adhesive dab fixings, secure boards with nailable plugs in locations recommended by board manufacturer.

Fixing insulation backed plasterboard with adhesive spots
Setting out boards: Accurately aligned and plumb.
Fixing to background: Securely using adhesive spots and mechanical fastenings.
Adhesive spot spacings to each board: Four vertical rows, at 400 mm centres in each row.
Adhesive spot diameters: 25 mm (minimum).
Mechanical fasteners: Nailable plugs in locations recommended by board manufacturer.

Level of dry lining across joints
Sudden irregularities: Not permitted.
Joint deviations: Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/ pads) to BS 8212, clause 3.3.5.

- Tapered edge joints: Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.
- External angles: Permissible deviation for both faces, 4 mm (maximum).
- Internal angles: Permissible deviation for both faces, 5 mm (maximum).

Seamless jointing to plasterboard
Cut edges of boards: Remove paper burrs.
Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of paper tape, fully bedded.
Protection of edges/ corners: Reinforce external angles, stop ends, etc. with specified edge/ angle bead.
Finishing: Apply jointing compound. Feather out each application beyond previous application to give a flush, smooth, seamless surface.
Nail/ screw depressions: Fill with jointing compound to give a flush surface.
Minor imperfections: Remove by light sanding.

Installing beads/ stops
Cutting: Neatly using mitres at return angles.
Fixing: Use longest possible lengths, plumb, square and straight, ensuring full contact of wings with substrate.
Finishing: After joint compounds/ plasters have been applied, remove surplus material while still wet from surfaces of beads exposed to view.

Repairs to existing plasterboard

Filling small areas with broken cores: Cut away paper facing, remove loose core material and fill with jointing compound.

- Finish: Flush, smooth surface suitable for redecoration.

Large patch repairs: Cut out damaged area and form neat hole with rectangular sides. Replace with matching plasterboard.

- Fixing: Use methods to suit type of dry lining, ensuring full support to all edges of existing and new plasterboard.
- Finishing: Fill joints, tape and apply jointing compound to give a flush, smooth surface suitable for redecoration.

K20 TIMBER BOARD FLOORING DECKING SARKING LININGS AND CASINGS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Timber board flooring

Basic quality tongued and grooved softwood: To BS 1297.

Timber board sarking

Basic quality: Softwood, free from decay, insect attack (except ambrosia beetle damage) and wane.
Boards with soffit exposed as finish: Blue stain, fissures, knot holes and loose or unsound knots not permitted on exposed (underside) face of boards.
Treatment:

- Fire retardant impregnation: To Wood Protection Association Flame retardant specification manual: Industrial flame retardant treatment of solid timber and panel products.
- Preservative impregnation: To Wood Protection Association Industrial wood preservation. Specification and practice.

Moisture content at time of fixing: Not more than 19%.

Timber board linings, casings, etc.

Standard: To BS 1186-3.

Battens for floating floors

Quality: Free from decay, insect attack (except ambrosia beetle damage) and with no knots wider than half the width of the section.
Treatment:

- Preservative impregnation: To Wood Protection Association Commodity Specification C8.

EXECUTION

Generally

Protection during and after installation: Keep boards dry. Protect from dirt, stain and damage until Completion.

Boards to be used internally:

Do not install until building is watertight.

Moisture content of concrete/ screed substrates for wood floating floors

Test for moisture content:

- Standard: To BS 8201, Appendix A, using an accurately calibrated hygrometer.
- Readings: Take in corners, along edges, and at random points over the area being tested.

Acceptability:

Do not lay flooring until all readings show 75% relative humidity or less.

Moisture content of timber

General:

- Conditions during and after installation: Control ambient temperature and humidity conditions to maintain moisture content at average level specified in BS EN 942, table B.1 for the relevant service condition until Completion.
- Test for moisture content: When instructed, using an approved moisture meter.

Sarking:

- Moisture content at time of fixing (maximum): 19%.

Timber supports:

- Moisture content at time of fixing boards (maximum): 18%.

Battens for floating floors:

- Moisture content at time of fixing boards (maximum): 16%.

Timber board linings, casings, etc.

Board fixing: To BS 1186-3.
Access panels:

- Size and position: Agree before fixing boards.
- Additional noggings/ dwangs, battens, etc: Provide as necessary.

Installing vapour check membrane to floating floors

Location: Immediately below the floating layer.
Joints: Overlap by at least 150 mm and seal with vapour resistant tape.
Perimeter/ Upstands: Turn membrane up around perimeter of flooring and around any upstands and seal to top face of boards.

- Excess material: Trim off neatly after fixing skirtings/ cover beads.

Membrane condition: Intact, clean and dry prior to laying flooring.

Treated timber

Surfaces exposed by minor cutting and/ or drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

Fixing boards

Environmental conditions: Do not fix boards when ambient temperature is at or below 0°C, or above 30°C.
General: Fix boards securely to each support to give flat, true surfaces free from undulations, lipping, splits and protruding fastenings.
Timber movement: Position boards and fixings to prevent cupping, springing, excessive opening of joints and other defects.
Heading joints: Tightly butted, central over supports and at least two board widths apart on any one support.
Termination of sarking at roof edges and junctions: In accordance with drawings and specification for roof covering.
Exposed nail heads: Neatly punch below surface.
Proud edges: Plane off.

K30 PANEL PARTITIONS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Relocatable partition systems

Strength grading: To BS 5234.
Fire resistance testing generally:

- Load bearing partitionsystems: To BS 476-21 or BS EN 1365-1.
- Non load bearing partition systems: To BS 476-22 or BS EN 1364-1.

Sound performance: In accordance with BS EN ISO 140-3, BS EN ISO 717-1 and BS EN ISO 10140-2.Glass for relocatable partitions

Standard: To BS 952 and relevant parts of:

- BS EN 572-1, -2, -3, -4, -5, -6 and -7 for basic soda lime silicate glass.
- BS EN 1096 for coated glass.
- BS EN 1748 for special glass.
- BS EN ISO 12543-1 for laminated glass.

Impact performance: To BS 6206 for safety plastics and BS EN 12600 for safety glass.

Plasterboard

Standard: To BS EN 520.
Fire resistance testing generally: To BS 476-22 or BS EN 1364-1.
Exposed surfaces and edge profiles: Suitable to receive specified finish.

Insulation to partition core

Mineral wool: To BS EN 13162.

Softwood sole plates and framing inserts to plasterboard panel partitions

Timber: Sawn softwood.
Timber quality: Free from decay, insect attack (except ambrosia beetle damage).

- Knot width (maximum): Half section width.

Moisture content at time of laying: 16% (maximum).
Fixing sole plates:

- To concrete: Plugged and screwed.
- To timber: Screwed through to joists.

EXECUTION

Environmental conditions

General: Before, during and after installation, maintain temperature and humidity levels similar to those that will prevail after building is occupied.

New wet laid bases

Dpcs: Install under full width of partitions.
Perimeter joints: Sealed to provide an impervious structure.
Skirtings: Sealed to partitions and floors.

Installation generally

Setting out: Plumb, true to line and level. Free from bowing, undulations and other planar distortions.
Joints: Align accurately with no lipping.
Additional supports: Provide where necessary at perimeters to ensure stability.
Moisture and thermal movement: Make adequate allowance.

Installing relocatable partitions

Perimeter abutments: Accommodate deviations whilst maintaining partition system performance. Form make up/ closer pieces accurately around projections and features.
Customization: Do not cut or otherwise alter framing/ panels on site, except where shown on drawings.
Intermediate joints in exposed frame members and trims: Keep to a minimum.

Installing plasterboard panel partitions

Timber or metal framing inserts: Size to give a firm press fit into the panel cavity.
Perimeter fixing:

- Preparation: Fix continuous sole plate to floor at 600 mm centres.
- Floor, wall and ceiling: Fix framing inserts to substrates at 600 mm centres. Locate panels into framing inserts and fix at 300 mm centres with screws or 230 mm centres with nails.

Installing plasterboard laminated partitions
Joints: Stagger between layers by 150 mm (minimum).
Layers: Fully bond with bands of adhesive. First and third layers nailed to battens.
Fire resisting partitions: Provide additional mechanical fixings in accordance with partition manufacturer's recommendations.
Complete partitions: Protect against movement for four hours (minimum).

Taped seamless finish to plasterboard partitions
Cut edges of boards: Lightly sand to remove paper burrs.
Joints, gaps and internal angles: Fill with jointing compound and cover with continuous lengths of paper tape, fully bedded. Finish flush with board surface.
Edges and corners: Reinforce with edge/ angle bead or tape.
Nail/ screw depressions: Fill with jointing compound to give a flush surface.
Minor imperfections: Remove by lightly sanding.

Perimeter seals
Application: To clean, dry, dust-free surfaces, with no gaps in accordance with sealant manufacturer's instructions.

Fire stopping
Gaps at junctions of partitions with perimeter abutments, cavity barriers, service penetrations, and the like: Seal tightly to prevent penetration of smoke and flame.
Material: Non-combustible or intumescent.

Glazing for relocatable partitions
Panel size: ±2 mm of nominal size.
Pane condition: Clean and free from obvious scratches, bubbles, rippling, dimples and other defects.
Preglazed panels: Capable of being reglazed in situ.

Ironmongery for relocatable partitions
Installation: Accurate and without damage to components or surrounding surfaces.
Completion: Check, adjust and lubricate as necessary for correct operation.

K32 PANEL CUBICLES LININGS AND SCREENS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

High pressure laminate (HPL)

Laminate facings < 2 mm thick, single faced, bonded to substrate: To BS EN 438-3.
Compact laminate > 2 mm thick, double faced: To BS EN 438-4.

Particleboard, moisture resisting

Standard: To BS EN 312, Type P5.

EXECUTION

Protection

Doors and panels: Stack flat on bearers and separate by spacers where necessary to prevent damage to or from projections.
Completed cubicles: Keep clean and dry, and adequately protect from damage until completion.

Installation

Programming: Do not install cubicles or duct/ wall panels before building is weathertight, wet trades have finished their work, wall and floor finishes are complete, and the building is well dried out.
Accuracy: Set out to ensure frames and/ or panels and doors are plumb, level and accurately aligned.
Modifications: Do not cut, plane or sand prefinished components except where shown on drawings.
Fixing: Secure components using methods and fasteners recommended by the cubicle/ panel manufacturer. Prevent pulling away, bowing or other distortions to frames, panels and doors.
Moisture and thermal movement: Make adequate allowance for future movement.

K40 DEMOUNTABLE SUSPENDED CEILINGS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Suspended ceiling components

Standard: To BS EN 13964.

- Aluminium sheet, strip and plate: To BS EN 485.
- Aluminium bars, tubes and sections: To BS EN 573, BS EN 755, and BS EN 12020.

Softwood edge battens

Standard: To BS EN 942.

- Moisture content at time of fixing: 15% ± 2%.

EXECUTION

Setting out

General:
A continuous and even surface, jointed (where applicable) at regular intervals. Infill and access units, integrated services: Fitted correctly and aligned.
Edge/ Perimeter infill units size (minimum): Half standard width or length.
Corner infill units size (minimum): Half standard width and length.
Grid: Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill units.
Infill joints and exposed suspension members: Straight, aligned and parallel to walls, unless specified otherwise.
Suitability of construction: Give notice where building elements and features to which the ceiling systems relate are not square, straight or level.

Protection

Loading: Do not apply loads for which the suspension system is not designed.
Ceiling materials: When necessary, remove and replace correctly using special tools and clean gloves, etc. as appropriate.

Installing hangers

Wire hangers: Straighten and tension before use.
Installation: Install vertical or near vertical without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes.
Obstructions: Where obstructions prevent vertical installation, either:

- Brace diagonal hangers against lateral movement; or
- Hang ceiling system on an appropriate rigid sub-grid bridging across obstructions and supported to prevent lateral movement.

Extra hangers: Provide as necessary to carry additional loads.
Fixing:

- Wire hangers: Tie securely at top with tight bends to loops to prevent vertical movement.
- Angle/ Strap hangers: Do not use rivets for top fixing.

Installing perimeter trims

Jointing: Neat and accurate, without lipping or twisting.

- External and internal corners: Mitre joints.
- Intermediate butt joints: Minimize. Use longest available lengths of trim. Align adjacent lengths.

Fixing: Fix firmly to perimeter wall, edge battens or other building structure.

Exposed grids

Main runners: Install level. Adjust with supporting hangers taut. Do not kink or bend hangers.

- Spliced joints: Stagger.
- Wire hangers passing through main runners: Sharply bend and tightly wrapped loops.
- Angle/ Strap hangers: Do not use rivets for bottom fixing.
- Angular displacement of long axis of one runner in relation to next runner in line with it: Not visually apparent.

Cross members supported by main runners or other cross members: Install perpendicular to intersecting runners.
Cross tees: Flat and coplanar with flanges of main runners after panel insertion:

- Cross tees over 600 mm long, cut and resting on perimeter trim: Provide an additional hanger.

Holding down clips: Locate to manufacturer's recommendations.

- Fire protecting/ resisting ceiling systems: Use clip type featured in the fire test/ assessment.

Concealed grids
Primary support channels: Install level. Do not kink or bend hangers.

- Wire hangers wrapped around primary channels: Twice wrapped. Loops tightly formed.
- Angle/ Strap hangers: Do not use rivets for bottom fixing.

Splines: Locate between infill units to assist levelling of adjacent units and to resist air movement at joints.
Spring-tee grids: Do not omit primary channel.

Installing mineral infill units
General:

- Perimeter infill units: Trimmed, as necessary, to fully fill space between last grid member and perimeter trim. Prevent subsequent movement.
- Deeply textured infill units: Minimize variations in apparent texture and colour. In particular, avoid patchiness.

Concealed grids: Install infill units uniformly, straight and aligned. Avoid dimension creep.

- Infill units around recessed luminaries and similar openings: Prevent movement and displacement.

Installing metal infill units
Sound absorbing pads: Fit to prevent upward air movement through infill units. Cut or fold pads in cut perimeter infill units to full unit size. Reseal cut pads.
Perimeter infill units: Firmly wedge cut units into perimeter trim, or clip down.

Openings in ceiling materials
General: Neat and accurate. To suit sizes and edge details of fittings. Do not distort ceiling system.

Integrated services
General: Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
Small fittings: Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.

- Surface spread of flame rating of additional supporting material: Not less than ceiling material.

Services outlets:

- Supported by ceiling system: Provide additional hangers.
- Independently supported: Provide flanges to support ceiling system.

Ceiling mounted luminaires
Support:

- Independently supported luminaires: Suspension adjusted to line and level of ceiling.
- Ceiling supported luminaires: Do not inhibit designed grid expansion in fire.

Modular fluorescent recessed luminaires: Compatible with ceiling module. Extension boxes must not foul ceiling system.
Recessed rows of luminaires: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.
Fire protecting/ resisting ceiling systems: Luminaires must not diminish protection integrity of ceiling system.
Access: Provide access for maintenance of luminaires.

Mechanical services
Fan coil units:

- Inlet and outlet grilles: Trim ceiling grid and infill units to suit.
- Space beneath: Sufficient for ceiling system components.
- Suspension and connections: Permit accurate setting out and levelling of fan coil units.

Air grilles and diffusers:

- Setting out: Accurate and level.
- Linear air diffusers: Retain in place with lateral restraint. Provide flanges for support of grid and infill units.
- Grille/ Diffuser ceiling joints: Provide smudge rings and edge seals.

Smoke detectors and PA speakers:

- Ceiling infill units: Scribe and trim to suit.
- Flexible connections: Required.

Sprinkler heads: Carefully set out and level.

Installing insulation
Fitting: Fit accurately and firmly with butted joints and no gaps.
Insulation within individual infill units: Fit closely. Secure to prevent displacement when infill units are installed or subsequently lifted.

- Dustproof sleeving: Reseal, if cut.

Width: Lay insulation in the widest practical widths to suit grid member spacings.
Services: Do not cover electrical cables that have not been sized accordingly. Cut insulation carefully around electrical fittings, etc. Do not lay insulation over luminaires.
Sloping and vertical areas of ceiling system: Fasten insulation to prevent displacement.

Ceiling systems intended for fire protection

Junctions of ceiling systems with perimeter abutments and service penetrations: Seal gaps with tightly packed mineral wool or intumescent sealant to prevent penetration of smoke and flame.
Ceiling system/ Wall junctions: Maintain protective value of ceiling system.

- Fixings and grounds: Noncombustible.
- Metal trim: Provide for thermal expansion.

Access and access panels: Maintain continuity of fire protection.

Installing cavity fire barriers

Fixing:

- General: Fix barriers securely to channels or angles at abutments to building structure.
- At perimeters and joints: Provide permanent stability and continuity with no gaps to form a complete barrier to smoke and flame.

Joints: Form to preserve integrity in fire.
Service penetrations: Cut barriers neatly to accommodate services. Fit fire resistant sleeves around flexible materials. Fill gaps around services to fire barrier manufacturer's recommendations to maintain barrier integrity. Adequately support services passing through the barrier.
Ceiling systems intended for fire protection: Do not impair fire resisting performance of ceiling system.
Ceiling systems not intended for fire protection: Do not mechanically interlink barriers with ceiling system.

Installing sound barriers

Setting out: Align accurately with partition heads.
Fixing: Fix tightly at perimeters and joints using methods recommended by barrier manufacturer, including steel support sections as appropriate. Provide permanent stability and continuity Completed installation to be stable, secure and continuous, with no gaps.
Gaps at junctions with partition heads, ceiling system, structural soffit, walls, ducts, pipes, etc.: Seal with mineral wool or suitable sealant.

Electrical continuity and earth bonding

Substantial conductive parts of the ceiling system: Electrically continuous and fully earth bonded to carry prospective earth fault currents.

- Standard: To BS 7671.

Sequence: Complete earth bonding as soon as possible after completion of each independent area of suspension system.
Testing: After completion of the ceiling system, associated services and fittings, test conductive parts of suspension system required to carry earth fault current, or used as bonding connections. Give notice before testing.

- Electrical continuity: Measure from various distant conductive points of ceiling system and to earth bar in distribution board serving the area.
- Test current: Sufficient to indicate probable electrical performance under fault conditions.
- Test instrument: Type providing a pulse of about 25 A at safe voltage for safe duration, and indicating resistance in ranges 0-2 ohms and 0-20 ohms.
- Resistance of measuring conductors: Deduce from test instrument readings.
- Test readings: Record and certify. Add results to resistance of other parts of the path forming the earth fault loop.

L10 WINDOWS ROOFLIGHTS SCREENS AND LOUVRES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Sealants: Read with section Z22 Sealants.
Joinery workmanship: Read with section Z10 Purpose made joinery.

PRODUCTS

Moisture content of windows, screens, louvres and subframes on delivery to site

External joinery: 12–19%.
For unheated buildings: 12–16%.
For buildings with heating providing room temperatures in the range 12–21°C: 9–13%.
For buildings with heating providing room temperatures in excess of 21°C: 6–10%.

Windows

Aluminium:

- Standard: To BS 4873.
- Factory applied powder coatings: To BS 6496.

PVC-U windows (white and surface covered):

- Standard: Manufactured to BS 7412 from extruded profiles.
- Manufacturer: Registered under a quality assurance scheme operated by a certification and inspection body accredited by the United Kingdom Accreditation Service (UKAS).
- Operation and strength characteristics: To BS 6375-2.

Steel:

- Standard: To BS 6510.
- Operation and strength characteristics: To BS 6375-2.
- Factory applied powder coatings: To BS EN 13438.

Wood:

- Standard: To BS 644.
- Manufacturer: Registered under a third party quality assurance scheme.
- Operation and strength characteristics: To BS 6375-2.
- Certification: All wood being traded in the EU should be 'legal' under the European Timber Regulation (EUTR). For public procurement projects the UK Timber Procurement Policy may be applicable, and evidence should be submitted as appropriate (contact CPET for advice).

Glazing

Safety glazing:

- Standard: In accordance with BS 6262-4 as appropriate for installation.

Wood members for purpose made windows, screens, louvres and subframes

Timber: Generally to BS EN 942.
Appearance class to BS EN 942:

- For opaque finish: Glazing beads, drip mouldings and the like, class J10; all other members, J40 or better.
- For clear finish: Glazing beads, drip mouldings and the like, Class J2; other members, as specified.

Knots on arrises and finger jointing in timber: Not permitted where exposed to view.
Adhesives:

- Polyvinyl acetate (PVAC) to BS EN 204, class D4.
- Thermosetting resin to BS EN 12765, class C4.

EXECUTION

Protection of components

General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.
Stored components: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

Priming/ sealing

Wood surfaces inaccessible after installation: Prime or seal before fixing components.

Corrosion protection

Protective coating: Two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape.

- Timing of application: Before fixing components.

Building in
General: Not permitted unless specified.

- Brace and protect components to prevent distortion and damage during construction of adjacent structure.

PVC-U windows
Installation standard: To BS 8213-4.

Replacement windows installation
Standard: To BS 8213-4.

Window installation
General: Install into prepared openings, without twist or diagonal racking.
Gap between frame edge and surrounding construction (maximum):

- Steel windows: 3 mm.
- Timber and PVC-U windows: 10 mm.

Fixing of wood frames
Positions of fasteners unless predrilled:

- Distance from ends of each jamb: 150 mm (maximum).
- Adjacent to each hanging point of opening lights.
- Centres: 450 mm (maximum).

Fixing of steel frames
Positions of fasteners unless predrilled:

- Distance from ends of each jamb: 50–190 mm.
- Adjacent to each hanging point of opening lights.
- Centres: 900 mm (maximum).

Windows fixed direct into openings: After fixing, fill back of steel frame with waterproof cement fillet.

Fixing of aluminium frames
Positions of fasteners unless predrilled:

- Distance from ends of each jamb: 250 mm (maximum).
- Adjacent to each hanging point of opening lights.
- Centres: 600 mm (maximum).

Fixing of PVC-U frames
Positions of fasteners unless predrilled:

- Distance from ends of each jamb: 150–250 mm (maximum).
- Fasteners at critical points: Adjacent to each hanging point of opening lights, but no closer than 150 mm to a transom or mullion centre line.
- Centres: 600 mm (maximum).

Fixing of composite frames
Positions of fasteners unless predrilled:

- Distance from ends of each jamb: 150 mm (maximum).
- Adjacent to each hanging point of opening lights.
- Centres: 600 mm (maximum).

Ironmongery
Assembly and fixing: Careful and accurate.
Fasteners: With matching finish. Do not damage ironmongery and adjacent surfaces.
Completion: Check, adjust and lubricate as necessary. Ensure correct functioning.

L20 DOORS/ SHUTTERS/ HATCHES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Purpose made joinery: Read with Z10.
Preservative/ fire retardant treatment: Read with Z12.
Fixings/ adhesives: Read with Z20.
Sealants: Read with Z22.

PRODUCTS

Door facings: laminate

Standard: To BS EN 438-1 and -7.
Grade: Horizontal:

- Standard general purpose: HGS.
- Flame retardent general purpose: HGF.
- Post forming general purpose: HGP.

Door facings: plywood

Bonding quality: To BS EN 314.
Surface appearance:

- Hardwood: To BS EN 635-2.
- Softwood: To BS EN 635-3.

Conditions of use: To BS EN 636.

External wood matchboarded doors

Standard: Generally to BS 459.

Fire performance

Fire resistant doorsets and shutter assemblies:

- Type testing: To BS 476-22 or BS EN 1634-1.

Smoke control doorsets and shutter assemblies:

- Type testing: To BS 476-31.1 or BS EN 1634-3.

Intumescent seals:

- Type testing: To BS 476-23.

Testing authority: UKAS accredited.

Metal door frames

Steel frames: Generally to BS 1245.

Metric internal and external wood doorsets, door leaves and frames

Coordinated sizes: To BS 4787.

Safety glazing to door leaves and sidelights

Standard: To BS 6206 for safety plastics and BS EN 12600 for safety glass.
Location: To BS 6262-4.

Single leaf external doorsets to dwellings

Security: To BS 8220-1.

- General performance requirements: To British Standards Institute (BSI) publication, PAS 23-1.
- Enhanced security requirements: To BSI publication, PAS 24.

Wood framed panel doors

Timber quality: To BS EN 942.

Wood preservative treatment

Service life: Not less than 30 years.
External softwood doors and frames: Wood Protection Association (WPA) commodity specification C5.
External hardwood doors and frames: WPA commodity specification C10.

Adhesives for wood doors and frames

- Polyvinyl acetate (PVAC) to BS EN 204.
- Thermosetting resin to BS EN 12765, class C4.

EXECUTION

Protection of components

General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry, floored and covered storage.
Stored components: Stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

Protection of timber surfaces inaccessible after installation

Protective coating: Primed or sealed before fixing components.

Protection of metallic surfaces inaccessible after installation

Relevant conditions: External or damp (high humidity) internal.
Copper alloys: Avoid direct contact with aluminium, iron, steel or zinc (including galvanizing).
Aluminium alloys: Avoid direct contact with:

- Timber treated with copper, zinc or mercury based preservatives.
- Unseasoned oak, sweet chestnut, Douglas fir, western red cedar.
- Iron and steel unless galvanized.
- Copper, copper alloys and rainwater run off from these materials.
- Concrete, mortars, plasters or soil, especially when embedded.
- Paints containing copper or mercury based fungicides, graphite or lead.

Protective coating as separating layer: Two coats of bitumen solution to BS 6949, an approved mastic impregnated tape or submit proposals.

- Timing: Before fixing components.
- Constraint: Only to surfaces not exposed on completion.

Building in

General: Not permitted except where specifically stated.
Components specified for building in:

- Bracing and protection: Prevent distortion and damage of built-in frames during erection of adjacent structure.
- Damp proof courses associated with built in wood frames: Fixed to backs of frames using galvanized clout nails.

Fixing of wood frames

Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb and at 600 mm maximum centres.

Fire resisting and/ or smoke control doors/ doorsets

Installation: In accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.
Gaps between frames and supporting construction: Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.

L40 GENERAL GLAZING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Glass

Standards: To BS 952-1 and -2 and relevant parts of:

- BS EN 572 for basic soda lime silicate glass.
- BS EN 1096 for coated glass.
- BS EN 1748-1 for borosilicate glass.
- BS EN 1748-2 for ceramic glass.
- BS EN 1863 for heat strengthened soda lime silicate glass.
- BS EN 12150 for thermally toughened soda lime silicate safety glass.
- BS EN 12337 for chemically strengthened soda lime silicate glass.
- BS EN 13024 for thermally toughened borosilicate safety glass.
- BS EN ISO 12543 for laminated glass and laminated safety glass.

Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.

- Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

Heat soaking of thermally toughened glass

Heat soaking regime: Glass specified as 'heat soaked' to BS EN 14179-1 and -2 must be subjected to a heat soaking regime designed to reduce the incidence of failure due to nickel sulfide inclusions.

- Heat soaking period (minimum): Submit proposals.
- Mean glass temperature: 290°C ±10°C.

Certified evidence of treatment: Submit.

Impact resistance

Plastics: To BS 6206.
Glass: To BS EN 12600.

Fire resistance

Test standards: To BS 476-22 or BS EN 1364-1.

Mirrors

General: Silvered to give maximum reflection, free from distortion, tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions.
Standard: To BS EN 1036-2.
Fixing: To BS 6262-6, clause 8.3 for glass mirrors and clause 8.4 for plastic mirrors.

Glazing sealants

Type G to BS EN 11600.

Insulating glass units

CE marked to BS EN 1279-5.

EXECUTION

Workmanship

Glazing generally: To BS 6262-1, -2, -3, -4, -6 and -7.
Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
Dimensional tolerances: Panes/ sheets to be within ±2 mm of specified dimensions.
Materials:

- Compatibility: Glass/ plastics, surround materials, sealers primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.
- Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

Preparation:

- Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing.

Removal of glazing for reuse

Existing glass/ plastics and glazing compound, beads, etc: Remove carefully, avoiding damage to frame, to leave clean, smooth rebates free from obstructions and debris.
Deterioration of frame/ surround: Submit report on defects revealed by removal of glazing.

- Affected areas: Do not reglaze until instructed.

Reusable materials: Clean glass/ plastics, beads and other components that are to be reused.

Bead fixing

With pins:

- Pin spacing: Regular at maximum 150 mm centres, and within 50 mm of each corner.
- Exposed pin heads: Punched just below wood surface.

With screws:

- Screw spacing: Regular at maximum 225 mm centres, and within 75 mm of each corner.

Single glazing putty fronted

Glazing installation:

- Glass: Located centrally in surround using setting and location blocks, and secured with glazing sprigs/ cleats/ clips at 300 mm centres.
- Finished thickness of back bedding after inserting glazing (minimum): 1.5 mm.
- Front putty: Finished to a smooth, neat triangular profile stopping 2 mm short of sight line. Surface lightly brushed to seal putty to glass and left smooth with no brush marks.

Sealing putty: Seal as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either the full final finish, suitably protected until completion and cleaned down and made good as necessary, or two coats of primer/ sealer applied locally to the compound, to be followed nearer completion with the full specified finish.
Opening lights: Keep in closed position until putty has set sufficiently to prevent displacement of glazing when opened.

Single glazing bead fixed with glazing compound

Glazing installation:

- Glass: Located centrally in surround using setting and location blocks and distance pieces.
- Finished thickness of back bedding after inserting glazing (minimum): 3 mm.
- Front bedding: Applied to fill voids.
- Beads: Bedded in glazing compound and fixed securely.
- Visible edge of glazing compound: Finished internally and externally with a smooth chamfer.

Single glazing bead fixed with tapes and capping sealant

Glazing installation:

- Glass: Located centrally in surround using setting and location blocks.
- Glazing tape: Top edge approximately 6 mm short of sight line on external side of glazing, to allow for capping sealant. Corners butt jointed with no gaps.
- Thickness of glazing tape bed (minimum): 3 mm on both sides of glazing after compression.
- Beads: Bedded in sealant, pressed firmly into position to compress tape, and fixed securely.
- Excess tape on internal side: Carefully trimmed to a smooth chamfer.
- Capping sealant: Applied to fill void between bead and glazing and finished to a smooth chamfer.

Single glazing bead fixed with extruded gaskets

Glazing installation:

- Glass: Located centrally in surround using setting and location blocks.
- Gaskets and beads: Installed as recommended by frame manufacturer.
- Gasket fit at corners: Tight, without gaps.

Insulating glass units bead fixed with extruded gaskets

Glazing installation:

- Insulating unit: Located centrally in surround using setting and location blocks.
- Gaskets and beads: Installed as recommended by frame manufacturer.
- Gasket fit at corners: Tight, without gaps.
- Drainage and ventilation holes: Unobstructed.

Insulating glass units bead fixed with cellular adhesive sections

Glazing installation:

- Insulating unit: Located centrally in surround using setting and location blocks.
- Glazing sections/ strips/ tapes: Applied to rebate upstands and beads in positions recommended by manufacturer.
- Beads: Installed using sufficient pressure to compress inner and outer sections/ strips/ tapes and fixed securely.
- Drainage and ventilation holes: Unobstructed.

Insulating glass units bead fixed with loadbearing tapes and sealant capping

Glazing installation:

- Insulating unit: Located centrally in surround using setting and location blocks.
- Glazing sections/ strips/ tapes: Applied to rebate upstands and beads finishing approximately 5 mm short of sight line to allow for capping sealant.
- Beads: Installed using sufficient pressure to compress inner and outer sections/ strips/ tapes and fixed securely.
- Capping sealant: Applied to both sides of glass unit and finish to a smooth chamfer.
- Drainage and ventilation holes: Unobstructed.

Insulating glass units bead fixed with solid bedding

Glazing installation:

- Insulating unit: Located centrally in surround using setting and location blocks and distance pieces.
- Inner sealant: Applied to full height of rebate.
- Outer sealant: Applied to fill edge clearance void and space between unit and beads up to sight line.
- Finished thickness of back and front bedding after inserting glazing (minimum): 3 mm.
- Beads: Bedded on outer sealant and fixed securely.
- Excess sealant: Trimmed to a smooth chamfer.

Single glazing into grooves with sealant capping

Glazing installation:

- Glass: Located centrally in grooves using setting blocks and distance pieces of appropriate thickness.
- Backing strip: Expanded polyethylene, inserted at head and jambs, ensuring a tight fit and allowing a minimum distance of 6 mm between strip and sight line.
- Sill beads: Fixed securely with backing strip between bead and glazing.
- Capping sealant: Applied to fill recesses on both sides of glass and finished to a smooth chamfer.

Internal tape glazing

Glazing installation: Beads bedded dry to rebate and glazing tape/ section and fixed securely. Tape trimmed flush with sight line on both sides.

Mirrors

Installation: Fixed accurately and securely without overtightening fasteners, to provide a flat surface giving a distortion free reflection.

Window film

Application: Carried out by a firm approved by the film manufacturer in accordance with manufacturer's recommendations.

- Evidence of applicator's competence and experience: Submit on request.
- Sample area: Complete as part of the finished work, in an approved location and obtain approval of appearance before proceeding.
- Ambient air temperature at time of application: Above 5°C.

Installed film: Fully adhered to the glass with no peeling, and free from bubbles, wrinkles, cracks or tears.

- Further contact with applied films: Avoid until bonding adhesive has cured.
- Cleaning and maintenance instructions: Submit copies.

Manifestation

Factory application: Acid etching or engraving to be carried out by the glass manufacturer or by a firm approved in accordance with manufacturer's recommendations.
Site application: Adhesive film or transfers to be applied by a firm approved by film manufacturer and in accordance with manufacturer's recommendations.

- Sample area: Complete as part of the finished work, in an approved location, and obtain approval of appearance before proceeding.
- Ambient air temperature at time of film/ transfer application: Above 5°C.

Installed film: Fully adhered to the glass with no peeling, and free from bubbles, wrinkles, cracks or tears.

- Further contact with applied films: Avoid until bonding adhesive has cured.
- Cleaning and maintenance instructions: Submit.

M10 CEMENT BASED LEVELLING AND WEARING SCREEDS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Aggregates

Sand: To BS EN 13139.

- Grading limit: In accordance with BS 8204-1, table B1.

Coarse aggregates for fine concrete levelling screeds: To BS EN 12620, Designation 4/10.
Lightweight aggregates: In accordance with BS 8204-1, Annex A.

Cements

Cement types: In accordance with BS 8204-1, clause 5.1.3.

Admixtures

Standard: In accordance with BS 8204-1, Table 1.
Calcium chloride: Do not use in admixtures.

Proprietary screeds

Standard: To BS EN 13813.

Self smoothing levelling screeds

Standard: In accordance with BS 8204-7.

Reinforcement

Steel fabric: To BS 4483.

Overlay to conduits cast into or under screeds

Reinforcement: Select from:

- 500 mm wide strip of steel fabric to BS 4483, reference D49; or
- welded mesh manufactured in rolls from mild steel wire minimum 1.5 mm diameter to BS 1052, mesh size 50 x 50 mm.

Insulation

Mineral wool (MW) boards: To BS EN 13162.
Expanded polystyrene (EPS) boards: To BS EN 13163.
Polyurethane (PU) foam boards: To BS EN 13165.

EXECUTION

Suitability of substrates

General:

- Suitable for specified levels and flatness/ regularity of finished surfaces. Consider permissible minimum and maximum thicknesses of screeds.
- Sound and free from significant cracks and gaps.

Concrete strength: In accordance with BS 8204-1, Table 2.
Cleanliness: Remove plaster, debris and dirt.
Moisture content: To suit screed type. New concrete slabs to receive fully or partially bonded construction must be dried out by exposure to the air for minimum six weeks.

Surface hardness of substrates to receive polymer modified wearing screeds

General: Substrates must restrain stresses that occur during setting and hardening of wearing screeds.
Test for surface hardness: To BS EN 12504-2 using a rebound hammer with compliance values selected from the following:
Screed thickness 15 mm or less: Rebound hammer value greater than 25.
Screed thickness greater than 15 mm: Rebound hammer value greater than 30.
Report: Submit details of areas where substrate surface hardness does not comply with these values.

Proprietary levelling/ wearing screeds

General: Materials, mix proportions, mixing methods, minimum/ maximum thicknesses and workmanship must be in accordance with recommendations of screed manufacturer.
Standard: In accordance with BS 8204-3.

Conduits

Under floating screeds: Before laying insulation for floating screeds, haunch up in 1:4 cement:sand on both sides of conduits.
Cast into or under screeds: Overlay with reinforcement placed mid depth between top of conduit and screed surface.
Screed cover over conduit: 25 mm (minimum).

Fully bonded construction
Preparation: Generally in accordance with BS 8204-1.
Removing mortar matrix: Shortly before laying screed, expose coarse aggregate over entire area of hardened substrate.
Texture of surface: Suitable to accept screed and achieve a full bond over complete area.

Cement slurry bonding
Application: Shortly before laying screed, thoroughly wash clean the surface and keep well wetted for several hours. Remove free water then brush in cement slurry bonding coat of creamy consistency.
Screeding: While slurry is still wet.

Unbonded construction
Separation: Lay screed over sheet dpm or a separating layer.
Separating layer: Lay on clean substrate. Turn up for full depth of screed at abutments with walls, columns, etc. Lap 100 mm at joints.

Floating construction
Insulation: Lay with tight butt joints. Continue up at perimeter abutments for full depth of screed.
Separating layer: Lay over insulation and turn up at perimeter abutments. Lap 100 mm at joints.

Floating construction (thin sheet impact sound insulation)
Substrate: Remove projections that may puncture the insulation.
Insulation: Lay on substrate. Turn up for full depth of screed at perimeter abutments. Lap 100 mm at joints and seal with tape.
Perimeter: Maintain isolation of screed.

Batching with dense aggregates
Mix proportions: Specified by weight.
Batching: Select from:

- Batch by weight.
- Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.

Mixing
Water content: Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.
Mixing: Mix materials thoroughly to uniform consistency. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.
Consistency: Use while sufficiently plastic for full compaction.
Ready-mixed retarded screed mortar: Use within working time and site temperatures recommended by manufacturer. Do not retemper.

In situ crushing resistance (ISCR)
Standards and category: In accordance with BS 8204-1 table 4.

- Testing of bonded and unbonded screeds: In accordance with BS 8204-1, Annex D.
- Testing of floating levelling screeds: In accordance with BS 8204-1, Annex E.
- Make arrangements for test to be witnessed/ certified.

Adverse weather
Screeds surface temperature: Maintain above 5° C for a minimum of four days after laying.
Hot weather: Prevent premature setting or drying out.

Flatness/ Surface regularity of floor screeds
Standard: In accordance with BS 8204-1, Table 5.
Test: In accordance with BS 8204-1, Annex C.
Sudden irregularities: Not permitted.

Screeding to falls
Minimum screed cover: Maintain at lowest point.
Falls: Gradual and consistent.

Compaction of screeds
General: Compact thoroughly over entire area.
Screeds over 50 mm thick: Lay in two layers of approximately equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

Stair screeds
Construction: Fully bonded to treads, risers and landings.
Risers: Form using fine finish formwork.
Wearing screed surfaces: Make good with compatible cement:sand mix. Wood float. When hardened remove laitance.

Installation of reinforcement
Steel fabric: In accordance with BS 8204-1.
Strip reinforcement: Place between the two layers of screed and centre over joints. Lap ends 100 mm (minimum).

Joints in levelling screeds
Laying screeds: Lay continuously using 'wet screeds' between strips or bays. Minimize defined joints.
Daywork joints: Form with vertical edge.

Formed joints in wearing screeds
Temporary forms: Square edged with a steel top surface and in good condition.
Placing screed: Compact thoroughly at edges to give level, closely abutted joints with no lipping.

Crack inducing grooves in wearing screeds
Groove depth: At least half the depth of wearing screed.
Cutting grooves: Straight, vertical and accurately positioned. Saw cut sufficiently early after laying to prevent random cracking.

Strip movement joints
Installation: Set securely into screed to exact finished level of floor. Extend joints through to substrate.

Finishing
Timing: Carry out finishing operations at optimum times in relation to setting and hardening of screed material.
Prohibited treatments to screed surfaces:

- Wetting to assist surface working.
- Sprinkling cement.

Smooth floated finish: Even texture with no ridges or steps.
Trowelled finish to levelling screeds:

- Floating: To an even texture with no ridges or steps.
- Trowelling: To a uniform, smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive specified flooring material.

Trowelled finish to wearing screeds:

- Floating: To an even texture with no ridges or steps.
- Trowelling: Successively trowel at intervals, applying sufficient pressure to close surface and give a uniform smooth finish free from trowel marks and other blemishes.

Curing
General: Prevent premature drying. Immediately after laying, protect surface from wind, draughts and strong sunlight. As soon as screed has set sufficiently, closely cover with polyethylene sheeting.
Curing period: Keep polyethylene sheeting in position for a minimum period of seven days.
Drying after curing: Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions that will cause cracking or other shrinkage related problems.

Slip resistance testing of wearing screeds
Test:

- To the relevant parts of BS 7976-1 and BS 7976-2 using a TRL Pendulum.
- Make arrangements for test to be witnessed/ certified.

Report: Submit. Include slip resistance values in the wet and dry states.

Abrasion testing of wearing screeds
Test method: To BS EN 13892-4.

M20A PLASTERED COATINGS

GENERAL

Cross-reference

General: Read with A90 general technical requirements.

PRODUCTS

Component materials for cement gauged plaster mortars

Lime:sand, ready-mixed: Lime to BS EN 459-1, type CL 90. Sand to BS EN 13139, grading 0/2 or 0/4 (CP or MP) with category 2 fines.
Sand: To BS EN 13139; grading 0/2 or 0/4 (CP or MP) with category 2 fines.
Lime: To BS EN 459-1; type CL 90S.
Air entraining (plasticizing) admixtures: To BS EN 934-2 and compatible with other mortar constituents.
Pigment for coloured mortars: To BS EN 12878.
Cement: Common Portland to BS EN 197-1; from CEM 1, slag CEM II/S, fly ash CEM II/V or W.
White cement: Portland to BS EN 197-1, CEM 1
Sulfate resisting cement: Portland to BS EN 197-1.
Masonry cement: To BS EN 998-1.

Component materials for lime:sand plaster mortars

Nonhydraulic ready prepared lime putty: Slaked directly from CL 90 (high calcium) quicklime to BS EN 459-1.
Natural hydraulic lime (NHL): To BS EN 459-1.
Sand: To BS EN 13139; grading to approval.

Gypsum plasters

Lightweight gypsum plaster undercoats: To BS EN 13279-1.
Gypsum plaster: To BS EN 13279-1.
Board finish plaster: To BS EN 13279-1, Class B.

Finish plaster:

To BS EN 13279-1, Class B.

Gypsum plasterboard backings

Plasterboard: To BS EN 520.

Beads, stops and lath

Galvanized steel: To BS EN 13658-1.
Stainless steel: To BS EN 10088-1, grade 1.4301 (304).

Isolating membranes

Building paper: To BS 1521.

EXECUTION

Admixtures

Suitable admixtures:

- Other than air entraining (plasticizing) admixtures to BS EN 934-2: Submit proposals.

Prohibited admixtures: Calcium chloride and any admixture containing calcium chloride.

Mixing

Render mortars (site-made):

- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mix proportions: Based on damp sand. Adjust for dry sand.
- Lime:sand: Mix thoroughly. Allow to stand, without drying out, for at least 16 hours before using.

Mixes: Of uniform consistence and free from lumps. Do not retemper or reconstitute mixes.
Contamination: Prevent intermixing with other materials.

Site preparation of lime putty for lime:sand plaster mortars

Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.

- Maturation: In pits/ containers that allow excess water to drain away.
- Density of matured lime putty: 1.3-1.4 kg/litre.

Maturation period before use (minimum): 90 days.
Storage: Prevent drying out or wetting. Protect from frost.

Cold weather

General: Do not use frozen materials or apply coatings to frozen or frost bound backgrounds.
Internal work. Take all necessary precautions to enable internal coating work to proceed without damage when air temperature is below 3°C.

Hair reinforcement for lime:sand plaster mortars
Proportions (approximate): 5 kg hair to 1 m³ of coarse stuff.
Condition: Clean, free from grease and other impurities. Well teased before adding to the mix.
Distribution: Evenly throughout with no balling into lumps.

- Storage period for haired mortar (maximum): Four weeks.

Suitability of substrates
Soundness: Free from loose areas and significant cracks and gaps.
Cutting, chasing, making good, fixing of conduits and services outlets and the like: Completed.
Tolerances: Permitting specified flatness/ regularity of finished coatings.
Cleanliness: Free from dirt, dust, efflorescence and mould, and other contaminants incompatible with coatings.

Stipple key
Mix proportions (cement:sand): 1:1.5-2.
Consistency: Thick slurry, well stirred.
Application: Brushed and stippled to form deep, close-textured key.
Curing: Controlled to achieve a firm bond to substrate.

Bonding agent
General: Apply evenly to substrate to achieve effective bond of plaster coat. Protect adjacent joinery and other surfaces.

Removing defective existing plaster
Plaster for removal: Detached, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.

- Hollow areas: Submit proposals.
- Stained plaster: Submit proposals.

Removing defective plaster: Cut back to square, sound edge.
Faults in substrate (structural deficiencies, damp, etc.): Submit proposals.
Cracks:

- Fine hairline cracking/ crazing: Leave.
- Other cracks: Submit proposals.

Dust and loose material: Remove from exposed substrates and edges.

Existing damp affected plaster
Plaster affected by rising damp: Remove to a height of 300 mm above highest point reached by the damp or 1 m above dpc, whichever is higher.
Perished and salt contaminated masonry:

- Mortar joints: Rake out.
- Masonry units: Submit proposals.

Faults in substrate (structural deficiencies, additional sources of damp, etc.): Submit proposals.
Drying out substrates: Established drying conditions. Leave walls to dry for as long as possible before plastering.
Dust and loose material: Remove from exposed substrates and edges.

Gypsum plasterboard backings
Exposed surface and edge profiles: Suitable to receive specified plaster finish.

Fixing plasterboard backings to timber backgrounds
Fixings, accessories and installation methods: As recommended by board manufacturer.
Fixing: At the following centres (maximum):

- Nails: 150 mm.
- Screws to partitions/ walls: 300 mm. Reduce to 200 mm at external angles.
- Screws to ceilings: 230 mm.

Position of nails/ screws from edges of boards (minimum):

- Bound edges: 10 mm.
- Cut/ unbound edges 13mm.

Position of nails/ screws from edges of supports (minimum): 6 mm.
Nail/ screw heads: Set below surface. Do not break paper or gypsum core.

Fixing plasterboard backings to metal framing/ furrings
Fixings, materials, accessories and installation methods: As recommended by board manufacturer.

Joints in plasterboard backings
Ceilings:

- Bound edges: At right angles to supports and with ends staggered in adjacent rows.
- Two layer boarding: Stagger joints between layers.

Partitions/ Walls:

- Vertical joints: Centre on studs. Stagger joints on opposite sides of studs. Two layer boarding: Stagger joints between layers.
- Horizontal joints: Two layer boarding: Stagger joints between layers by at least 600 mm. Support edges of outer layer.

Joint widths (maximum): 3 mm.

Dampproof lathing
Fixing and sealing accessories: As recommended by the dampproof lathing manufacturer.
Fixing: Secure and firm to provide a continuous, keyed backing for coatings.
Joints between lathing sheets and junctions with services, windows and other openings: Prevent penetration and bridging of cavity by coatings.

Beads and stops generally
Location: External angles and stop ends, except where specified otherwise.
Corners: Neat mitres at return angles.
Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
Finishing: After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.

Crack control at junctions between dissimilar solid substrates
Locations: Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together but defined movement joints are not required.
Crack control materials:

- Isolating layer: Building paper.
- Metal lathing: Galvanized steel plain expanded metal with spacers.

Installation: Fix metal lathing over isolating layer. Staggerfixings along both edges of lathing.
Width of installation over single junctions:

- Isolating layer: 150 mm.
- Lathing: 300 mm.

Width of installation across face of dissimilar background material (column, beam, etc. with face width not greater than 450 mm):

- Isolating layer: 25 mm (minimum) beyond junctions with adjacent substrate.
- Lathing: 100 mm (minimum) beyond edges of isolating layer.

Fibrous plaster mouldings
Noggings, bearers, etc. to support mouldings: Position accurately. Fix securely.
Installation: True to line and level.

- Framing, fixing points and joints: Reinforce.

Finishing: Smooth, to correct profile and with flush joints.

Plastering application generally
Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
Drying out: Prevent excessively rapid or localised drying out.

Flatness/ surface regularity
Sudden irregularities: Not permitted.
Deviation of plaster surface: Measure from underside of a straight edge placed anywhere on surface.

- Permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1800 mm.

Dubbing out
General: Correct substrate inaccuracies.
New smooth, dense concrete and similar surfaces: Dubbing out prohibited unless total plaster thickness is within range recommended by plaster manufacturer.
Thickness of any one coat (maximum): 10 mm.
Mix: As undercoat.
Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Cross scratch surface of each coat.

Undercoats generally
General: Rule to an even surface. Cross scratch to provide a key for the next coat.
Undercoats on metal lathing: Work well into interstices to obtain maximum key.
Undercoats gauged with Portland cement: Do not apply next coat until drying shrinkage is substantially complete.

Smooth finish
Appearance: A tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Avoid water brush, excessive trowelling and over polishing.

Wood float finish
Appearance: An even overall texture. Finish with a dry wood float as soon as wet sheen has disappeared.

M20B RENDERED AND ROUGHCAST COATINGS

GENERAL

Cross-reference

General: Read with A90 general technical requirements.

PRODUCTS

Component materials for cement gauged render mortars

Lime:sand, ready-mixed: Lime to BS EN 459-1, type CL 90. Sand to BS EN 13139, grading 0/2 or 0/4 (CP or MP) with category 2 fines.
Sand: To BS EN 13139; grading 0/2 or 0/4 (CP or MP) with category 2 fines.
Coarse aggregates: Single size to BS EN 12620.
Lime: To BS EN 459-1; type CL 90S.
Air entraining (plasticizing) admixtures: To BS EN 934-2 and compatible with other mortar constituents.
Pigment for coloured mortars: To BS EN 12878.
Cement: Common Portland to BS EN 197-1; from CEM 1, slag CEM II/S, fly ash CEM II/V or W.
White cement: Portland to BS EN 197-1, CEM 1.
Sulfate resisting cement: Portland to BS EN 197-1.
Masonry cement: To BS EN 998-1.

Component materials for lime:sand render mortars

Nonhydraulic ready prepared lime putty: Slaked directly from CL 90 (high calcium) quicklime to BS EN 459-1.
Natural hydraulic lime (NHL): To BS EN 459-1.
Sand: To BS EN 13139; grading to approval.

Beads, stops and lath

Internal: Galvanized steel to BS EN 13658-1.
External: Stainless steel to BS EN 10088-1, grade 1.4301 (304).

Isolating membranes

Building paper: To BS 1521.

Dry dash finish

Coarse aggregate: To BS BS EN 12620. Well washed.

EXECUTION

Admixtures

Suitable admixtures:

- Other than air entraining (plasticizing) admixtures to BS EN 934-2: Submit proposals.

Prohibited admixtures: Calcium chloride and any admixture containing calcium chloride.

Mixing

Render mortars (site-made):

- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mix proportions: Based on damp sand. Adjust for dry sand.
- Lime:sand: Mix thoroughly. Allow to stand, without drying out, for at least 16 hours before using.

Mixes: Of uniform consistence and free from lumps. Do not retemper or reconstitute mixes.
Contamination: Prevent intermixing with other materials.

Preparation of lime putty for lime:sand render mortars

Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.

- Maturation: In pits/ containers that allow excess water to drain away.
- Density of matured lime putty: 1.3-1.4 kg/litre.

Maturation period before use (minimum): 90 days.
Storage: Prevent drying out or wetting. Protect from frost.

Cold weather

General: Do not use frozen materials or apply coatings to frozen or frost bound backgrounds.
External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising. Maintain temperature of work above freezing until coatings have fully hardened.

Hair reinforcement

Proportions (approximate): 5 kg hair to 1 m^3 of coarse stuff.
Condition: Clean, free from grease and other impurities. Well teased before adding to the mix.
Mix: Well distributed throughout with no balling into lumps.

- Storage period for haired mortar: 4 weeks (maximum).

Suitability of substrates
Soundness: Free from loose areas and significant cracks and gaps.
Cutting, chasing, making good, fixing of conduits and services outlets and the like: Completed.
Tolerances: Permitting specified flatness/ regularity of finished coatings.
Cleanliness: Free from dirt, dust, efflorescence and mould, and other contaminants incompatible with coatings.

Stipple key
Mix proportions (cement:sand): 1:1.5-2.
Consistency: Thick slurry, well stirred.
Application: Brushed and stippled to form deep, close-textured key.
Curing: Controlled to achieve a firm bond to substrate.

Bonding agent
General: Apply evenly to substrate to achieve effective bond of render coat. Protect adjacent joinery and other surfaces.

Removing defective existing render
Render for removal: Detached, hollow, soft, friable, badly cracked affected by efflorescence or otherwise damaged:
Removing defective render: Cut out to regular rectangular areas with straight edges.

- Horizontal and vertical edges: Square cut or slightly undercut.
- Bottom edges to external render: Do not undercut.
- Render with imitation joints: Cut back to joint lines.

Cracks:

- Fine hairline cracking/ crazing: Leave.
- Other cracks: Submit proposals.

Dust and loose material: Remove from exposed substrates and edges.

Dampproof lathing
Fixing and sealing accessories: As recommended by the dampproof lathing manufacturer.
Fixing: Secure and firm to provide a continuous, keyed backing for coatings.
Joints between lathing sheets and junctions with services, windows and other openings: Prevent penetration and bridging of cavity by coatings.

Beads and stops generally
Location: External angles and stop ends, except where specified otherwise.
Corners: Neat mitres at return angles.
Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
Finishing: After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.

Crack control at junctions between dissimilar solid substrates
Locations: Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together but defined movement joints are not required.
Crack control materials:

- Isolating layer: Building paper.
- Metal lathing: Stainless steel ribbed expanded metal.

Installation: Fix metal lathing over isolating layer. Staggerfixings along both edges of lathing.
Width of installation over single junctions:

- Isolating layer: 150 mm.
- Lathing: 300 mm.

Width of installation across face of dissimilar background material (column, beam, etc. with face width not greater than 450 mm):

- Isolating layer: 25 mm (minimum) beyond junctions with adjacent substrate.
- Lathing: 100 mm (minimum) beyond edges of isolating layer.

Rendering generally
Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
Accuracy: Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
Drying out: Prevent excessively rapid or localised drying out.

Flatness/ surface regularity of rendering to receive ceramic tiles
Sudden irregularities: Not permitted.
Deviation of render surface: Measure from underside of a 2m straight edge placed anywhere on surface.

- Permissible deviation: 3 mm (maximum).

Dubbing out for rendering

General: Correct substrate inaccuracies.
Thickness of any one coat: 16 mm (maximum).

- Total thickness: 20 mm (maximum), otherwise obtain instructions.

Mix: As undercoat.
Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Comb surface of each coat.

Undercoats generally

General: Rule to an even surface. Comb to provide a key for the next coat. Do not penetrate the coat.
Undercoats on metal lathing: Work well into interstices to obtain maximum key.

Thrown undercoats for lime:sand roughcast (harling)

Application of undercoats and dubbing out: Throw from a casting trowel or scoop.
Finishing: Press back to give an even finish without smoothing the surface.

Final coat finish

Plain floated finish: Even, open texture free from laitance.
Scraped finish: Scraped to expose aggregate and achieve an even texture.
Roughcast (harling) finish: Left as cast with an even thickness and texture.
Dry dash finish: Achieve firm adhesion to an even overall appearance. After throwing aggregate tap particles lightly into coating.

Curing and drying renders generally

General: Prevent premature setting and uneven drying of each coat.
Curing coatings: Keep each coat damp by covering with polyethylene sheet and/ or spraying with water.

- Curing period (minimum): 3–4 days.
- Final coat: Hang sheeting clear of the final coat.

Drying: Allow each coat to dry thoroughly, with drying shrinkage substantially complete before applying next coat.
Protection: Protect from frost and rain.

Curing and drying nonhydraulic lime:sand render

General: Prevent premature setting and uneven drying of each coat.
Curing coatings: Keep each coat damp by covering with damp hessian and polythene sheeting hung clear of coating. Spray with water until sufficiently firm.
Shrinkage: Thoroughly consolidate/ scour each coat one or more times as necessary to control shrinkage.

Substrates for waterproof renders

Leaks: Prevent leaks from cracks, porous patches and other defective areas subject to water pressure and liable to admit water.
Holes for fasteners: Minimize. Form and seal before coatings applied. Do not make any holes after coatings have been applied.

Application of waterproof renders

General: Achieve good adhesion and effective waterproofing.
Joints: Minimize.

- Joints in successive coatings: Stagger by 100 mm (minimum) and splay edges. Do not locate joints at angles.

Internal angles: Form fillets after applying first coat. Form smooth round coves after applying final coat.
Cross scratching/ combing coatings: Prohibited.

M40 STONE, QUARRY AND CERAMIC TILING OR MOSAIC

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Tiles

Ceramic floor and wall tiles (including quarry tiles and ceramic mosaics): To BS EN 14411.
Natural stone calibrated modular tiles: To BS EN 12057.
Natural stone not calibrated modular tiles: To BS EN 12057.
Natural stone slabs: To BS EN 12058.

Bedding adhesive

Standard: To BS EN 12004.

Mortar bedding mix

Cement: Portland to BS EN 197-1, type CEM I/42.5.
Sand:

- For bedding to walls: To BS EN 13139, with grading designation 0/2 (CP or MP) category 2 fines.
- For bedding to floors: Fine aggregate to BS EN 13139, with grading designation 0/4 (MP) category 1 fines and between 20%–66% passing a 0.5 sieve.

Ready mixed lime:sand (coarse stuff) for bedding to floors: To BS EN 998-2.

Cement:sand grouting mix

Cement: Portland to BS EN 197-1, type CEM I/42.5.
Sand:

- Joint widths of 6 mm or more: Fine aggregate to BS EN 13139, with grading designation 0/2 (FP or MP), category 2 fines.
- Joint widths of 3–6 mm: To BS 5385-5, table 1 or to BS EN 13139, grading designation 0/2 (FP or MP), category 2 fines.

Mixing: Mix thoroughly. Use the minimum of clean water needed for workability.

Sealants

Standard: To BS EN ISO 11600, type F.

Crack control reinforcement

Standard: To BS 4483.

EXECUTION

Adverse weather

Temperatures below 5°C or damp conditions: Do not fix tiles.
Frozen materials: Do not use.
Frozen or frost bound substrates: Do not apply finishes.
Inclement weather, frost and premature drying out: Protect work.

Suitability of backgrounds/ bases

Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thicknesses of bedding.
New background/ base drying times (minimum) before tiling:

- Concrete slabs, concrete walls and brick/ block walls: 6 weeks.
- Cement: sand screeds: 3 weeks.
- Rendering: 2 weeks.
- Gypsum plaster: 4 weeks.

Falls in bases

General: Give notice if falls are inadequate.

Existing backgrounds/ bases

Efflorescence, laitance, dirt and other loose material: Remove.
Deposits of oil, grease and other materials incompatible with the bedding: Remove.
Tile, paint and other nonporous surfaces: Clean.
Wet substrates: Dry before tiling.
Loose or hollow portions: Cut out.
Plaster which is loose, soft, friable, badly cracked or affected by efflorescence: Remove. Cut back to straight horizontal and vertical edges.

- Making good: Use plaster or nonshrinking filler.

Defective areas of glazed brick: Cut out.
Loose or hollow sounding tiles: Remove.
Paint with unsatisfactory adhesion: Remove so as not to impair bedding adhesion.

New in situ concrete
Background/ base to be tiled: Remove mould, oil, surface retarders and other materials incompatible with bedding.

New plaster
Plaster: Dry, solidly bedded, free from dust and friable matter.
Plaster primer: Apply if recommended by adhesive manufacturer.

Plasterboard
Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.

Smoothing underlayment
Type: Recommended by the adhesive manufacturer.
Condition: Allow to dry before tiling.

Intermediate substrate
Joints: Close butt.
Penetrations: Seal.
Substrate surface: Secure, true and even.

Fixing
Colour/ Shade: Unintended variations within tiles for use in each area/ room are not permitted.

- Variegated tiles: Mix thoroughly.

Adhesive: Compatible with background/ base. Prime if recommended by adhesive manufacturer.
Use of admixtures with cementitious adhesives: Only admixtures approved by adhesive manufacturer.
Cut tiles: Neat and accurate.
Fixing: Provide adhesion over entire background/ base and tile backs.
Final appearance:

- Before bedding material sets, adjust tiles and joints to give true, regular appearance when viewed under final lighting conditions.
- Width, plane and alignment of joints between mosaic sheets: To match joints between mosaic tiles.

Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

Setting out
Joints: True to line, continuous and without steps.

- Walls: Horizontal, vertical and aligned round corners.
- Floors: If setting out is not indicated on drawings, parallel to the main axis of the space or specified features.
- Adjoining floors/ walls and adjoining floors/ skirtings: Align.

Cut tiles: Minimize number, maximize size and position unobtrusively.
Movement joints: If locations are not indicated, submit proposals.

Flatness and regularity of tiling/ mosaics
Sudden irregularities: Not permitted.
Deviation of surfaces: Measure from underside of a 2 m straightedge with 3 mm thick feet placed anywhere on the surface. The straightedge must not be obstructed by the tiles and no gap should be greater than 6 mm, i.e. a tolerance +3 mm.

Level of tiling across joints
Deviation (maximum) between tile surfaces either side of any type of joint:

- 1 mm for joints less than 6 mm wide.
- 2 mm for joints 6 mm or greater in width.

Bedding mortar
Batching: Select from:

- Batch by weight.
- Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.

Mixing: Thoroughly to achieve uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.
Application: Within two hours of mixing at normal temperatures. Do not use after initial set. Do not retemper.

Crack control reinforcement
Installation: Place centrally in depth of bed. Lap not less than 100 mm and securely tie together with steel wire.
Corners: Avoid a four layer build at corners.

Skirtings
Coved tile skirtings: Bed solid to wall before laying floor tiles.
Sit-on tile skirtings: Bed solid to wall after laying floor tiles.

Semidry cement:sand bedding (floors)

Mortar bedding mix: 1:3.5-4 cement:sand.

- Water content: A film of water must not form on surface of bed when fully compacted.

Laying: Lay suitably small working areas of screeded bed. Compact thoroughly to level.
Tiling: Within 2 hours and before bedding sets, evenly coat backs of tiles with neat cement slurry. Beat tiles firmly into position.

Movement joints

General: Extend through tiles and bedding to base/ background.
Rigid joint sections: Set to exact finished level of floor.
Structural joints: Centre movement joint over joints in base/ background.

Grouting

Sequence: Grout when bed/ adhesive has set sufficient to prevent disturbance of tiles.
Joints: 6 mm deep (or depth of tile if less). Free from dust and debris.
Grouting: Fill joints completely, tool to profile, clean off surface. Leave free from blemishes.
Polishing: When grout is hard, polish tiling with a dry cloth.
Coloured grout:

- Staining of tiles: Not permitted.
- Evaluating risk of staining: Apply grout to a few tiles in a small trial area. If discolouration occurs apply a protective sealer to tiles and repeat trial.

M60 PAINTING AND CLEAR FINISHING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Coating materials

Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
Knotting: To BS 1336.
Primers:

- Aluminium primer for woodwork: To BS 4756.
- Calcium plumbate: To BS 3698.
- Metallic zinc rich primer: To BS 4652.
- Water/ Organic solvent based primers for wood: To BS 7956.
- Cold applied bitumen based coatings (excluding use in contact with potable water): To BS 6949.

Paint manufacturer selected by contractor: Submit names before commencement of any coating work.

Other materials

Biocides: Types listed as surface biocides in current Health and Safety Executive (HSE) online publications covering non-agricultural approved pesticides.

EXECUTION

Handling and storage

Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
Materials from more than one batch: Give notice. Store separately and allocate to distinct parts or areas of the work.

Protection

'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

Preparation generally

Standard: To BS 6150.
Substrates: Sufficiently dry in depth to suit coating.
Efflorescence salts: Remove.
Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
Surface irregularities: Abrade to a smooth finish.
Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Work well in and finish off flush with surface. Abrade to a smooth finish.
Dust, particles and residues from abrasion: Remove.
Water based stoppers and fillers:

- Apply before priming unless recommended otherwise by manufacturer.
- If applied after priming, patch prime.

Oil based stoppers and fillers: Apply after priming.
Junctions of walls and ceilings with architraves, skirtings and other trims: Fill with water based acrylic filler.
Doors, opening windows and other moving parts:

- Ease, if necessary, before coating.
- Prime resulting bare areas.

Fixtures and fittings:Before commencing work: Remove from surfaces to be coated.
Existing ironmongery: Refurbishment: Remove old coating marks. Clean and polish.

- Hinges: Do not remove.
- Replacement: Refurbish as necessary; refit when coating is dry.

Organic growths:

- Dead and loose growths and infected coatings: Scrape off and remove from site.
- Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.
- Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

Wall coverings:

- Retained wallcoverings: Check that they are in good condition and well adhered to substrate.
- Previously covered walls: Wash down to remove paper residues, adhesive and size.

Previously coated surfaces generally

Preparation: To BS 6150, 11.5.
Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
Alkali affected coatings: Completely remove.
Contaminated surfaces: Give notice of:

- Coatings suspected of containing lead.
- Substrates suspected of containing asbestos.
- Significant rot, corrosion or other degradation of substrates.

Retained coatings: Thoroughly clean to remove dirt, grease and contaminants. Abrade gloss coated surfaces to provide a key.
Partly removed coatings: Apply additional preparatory coats to restore original coating thicknesses. Abrade junctions to give a flush surface.
Completely stripped surfaces: Prepare as for uncoated surfaces.

Previously coated surfaces

Burning off:

- Risk assessment and action plan: Prepare, and obtain approval before commencing work.
- Adjacent areas: Protect from excessive heat and falling scrapings.
- Exposed resinous areas and knots: Apply two coats of knotting.
- Removed coatings: Dispose of safely.

Galvanized, sherardized and electroplated steel:

- White rust: remove.

Pretreatment: Apply one of the following: 'T wash'/ mordant solution to blacken whole surface; or, etching primer recommended by coating system manufacturer.
Steel:

- Defective paintwork: Remove to leave a firm edge and clean bright metal.
- Sound paintwork: Abrade to provide key for subsequent coats.
- Corrosion and loose scale: Abrade back to bare metal.
- Residual rust: Treat with a proprietary removal solution.
- Bare metal: Apply primer as soon as possible.
- Remaining areas: Degrease.

Preprimed steel:

- Areas of defective primer, corrosion and loose scale: Abrade back to bare metal. Reprime as soon as possible.

Wood:

- Degraded or weathered surface wood: Abrade to remove.
- Degraded substrate wood: Repair with sound material of same species.
- Exposed resinous areas and knots: Apply two coats of knotting.

Preprimed wood:

- Areas of defective primer: Abrade back to bare wood and reprime.

Uncoated surfaces

Aluminium, copper and lead:

- Surface corrosion: Remove and lightly abrade surface.
- Pretreatment: Etching primer if recommended by coating system manufacturer.

Concrete:

- Release agents: Remove. Repair major surface defects.

Masonry and render:

- Surface contaminants, loose and flaking material: Remove.

Plaster:

- Nibs, trowel marks and plaster splashes: Scrape off.
- Overtrowelled 'polished' areas: Abrade lightly.

Plasterboard:

- Depressions around fixings: Fill with stoppers/ fillers.

Plasterboard to receive textured coating:

- Joints: Fill, tape and feather out with materials recommended by textured coating manufacturer.

PVC-U:

- Dirt and grease: Remove. Do not abrade surface.

Steel - manual cleaning:

- Oil and grease: Remove.
- Corrosion, loose scale, welding slag and spatter: Abrade to remove.
- Residual rust: Treat with a proprietary removal solution.
- Primer: Apply as soon as possible.

Wood:

- General: Abrade to a smooth, even finish with arrises and moulding edges lightly rounded or eased.
- Heads of fasteners: Countersink sufficient to hold stoppers/ fillers.
- Resinous areas and knots: Apply two coats of knotting.

Existing frames

Previously painted window frames:

- Paint encroaching beyond glass sight line: Remove.
- Putty:

Loose and defective putty: Remove.
Putty cavities and junctions between previously painted surfaces and glass: Clean thoroughly.
Finishing: Patch prime, reputty as necessary and allow to harden. Seal and coat as soon as sufficiently hard.
External sealant pointing:

- Defective sealant pointing: Remove.
- Joint depth: Approximately half joint width; adjust with backing strip if necessary.

Existing gutters

Dirt and debris: Remove from inside of gutters.
Defective joints: Clean and seal with suitable jointing material.

Coating generally

Application standard: To BS 6150, Clause 9.
Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
Surfaces: Clean and dry at time of application.
Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
Overpainting: Do not paint over intumescent strips or silicone mastics.
Priming coats: Thickness to suit surface porosity. Apply as soon as possible on same day as preparation is completed.
Finish: Even, smooth and of uniform colour. Free from brush marks, sags, runs and other defects. Cut in neatly.

Coating of concealed surfaces

Workshop coating of joinery: Apply coatings to all surfaces of components.
Site coating of joinery: After priming/ sealing, apply additional coatings to surfaces that will be concealed when component is fixed in place.
Site coating of metal surfaces: Apply additional coatings to surfaces that will be concealed when component is fixed in place.
Bottom edges of external doors: Prime/ seal and coat before hanging doors.

Coating of wood

End grain: Before assembly, seal with primer or sealer, as appropriate. Allow to dry.
Staining:

- Sealer: Apply if recommended by stain manufacturer.
- Application: In flowing coats and brush out excess stain to produce uniform appearance.

Varnishing:

- First coat: For solvent based varnishes, thin with white spirit. Brush well in and lay off, avoiding aeration.
- Subsequent coats: Rub down lightly along the grain between coats.

Coating for glazing elements

Bead glazed coated wood: Before glazing, apply first two coats to rebates and beads.
Setting glazing compounds:

- Sealer: Apply two coats to rebates.
- Setting: Allow compound to set for seven days.
- Sealing: Within a further 14 days, seal with a primer as recommended by the glazing compound manufacturer. Fully protect glazing compound with coating system as soon as it is sufficiently hard. Extend finishing coats on to glass up to sight line.

M61 INTUMESCENT COATINGS FOR FIRE PROTECTION OF STEELWORK

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

EXECUTION

Validation of materials

Project specific evaluation of intumescent coating materials:

- Standard: To BS 8202-2, clause 4.
- Test results: Submit on request.

Working procedures

Standard: To BS 8202-2.
Give notice: Before commencing surface preparation and coating application.
Quality control: Record project specific procedures for surface preparation and coating application.

Working conditions

General: Maintain suitable temperature, humidity and air quality during coating application and drying.
Surfaces to be coated: Clean and dry at time of coating application.

Sprayed coating application

Spray drift: Minimize.
Adjacent self-finished surfaces: Mask.

Inspection

Permit intumescent coating manufacturer to:

- Inspect work in progress.
- Inspect quality control records.
- Take dry film thickness and other measurements.
- Take samples of coating products.

Intumescent coating manufacturer's inspection reports: Submit without delay.

Existing steel - cleaning

Preparation: Remove oil and grease.
Blast cleaning: Remove existing coatings.

- Atmospheric condition: Dry.
- Abrasive: Suitable type and size, free from fines, moisture and oil.
- Finish: To BS EN ISO 8501-1, preparation grade SA2½, with an average profile of approximately 75 micrometres.
- Abrasive residues and moisture: Remove.

Manual cleaning:

- Finish: To BS EN ISO 8501-1, preparation grade St2. Leave a clean but unpolished dry surface.

Primer: Apply as soon as possible after cleaning and before gingering or blackening appears.

Intumescent dry film thickness (dft)

Required dft: Determine for every steel member to give specified period of fire resistance. Use intumescent coating manufacturer's current published loading tables.

- Special sections and partial fire exposure conditions: Obtain required dft in writing from manufacturer.

Schedule and drawings: Submit at least two weeks before starting work.

- Schedule content: Member sizes, weights/ thicknesses, loading conditions, etc. showing, for each variant, the exposed perimeter/ sectional area (Hp/A) ratio and required dft.
- Drawing content: Steelwork drawings marked in colour to show required dft for each member.

Measurement of intumescent dft

Primer dft: Determine average dft (for deduction from total dft after application of intumescent).
Intumescent dft: Determine at:

- 500 mm centres along each coated plane of universal sections (8 planes) and rectangular hollow sections (4 planes).
- 125 mm centres along coated circular hollow sections, spread evenly around circumference.

Acceptance standard:

- Average intumescent dft: Not less than required dft (exclusive of primer and top sealer).
- Local intumescent dft: Minimum 80% of required dft. Areas greater than 100 mm equivalent diameter, with a dft of less than 80% of required dft, must be brought up to thickness.

Finishes - Definitions

Basic: Reasonably smooth and even. Orange peel, other texture, minor runs and similar minor defects are acceptable.
Normal decorative: Good standard of cosmetic finish generally, when viewed from a minimum distance of 5 m. Minor orange peel or other texture is acceptable.
High decorative: High standard of evenness, smoothness and gloss when viewed from a minimum distance of 2 m.

Top sealer coat

Application: To achieve dft recommended by manufacturer and to give an even, solid, opaque appearance, free from runs, sags and other visual defects.

Records of coated steel

On completion of intumescent coating work, submit:

- Accurate surface preparation and coating application records.
- Fire resistance certificates.
- Intumescent coating manufacturer's recommendations for maintenance and overcoating.

N10 GENERAL FIXTURES FURNISHINGS AND EQUIPMENT

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Purpose made furniture

Adhesives – non loadbearing: To BS EN 204.
Adhesives – loadbearing: To BS EN 301.
Medium density fibreboard (MDF): To BS EN 622-5.
Particleboard: To BS EN 312.
Plywood: Manufactured to a national standard and equal to or exceeding the requirements of the relevant British Standard.

- Bonding quality: To BS EN 314-2.
- Appearance class: To BS EN 635-1, -2, -3 and -5.

Timber: To BS EN 942.

Educational furniture

Functional dimensions: To BS EN 1729-1.
Safety requirements: To BS EN 1729-2.

Laboratory work benches

Dimensions and safety requirements: To BS EN 13150.

Freestanding office screens

Dimensions: To BS EN 1023-1.
Performance: To BS EN 1023-2.

Office storage furniture

Safety requirements: To BS EN 14073-2.

Office tables and desks

Dimensions: To BS EN 527-1.
Performance: To BS EN 527-2.

Non domestic seating

Strength, durability and safety: To BS EN 16139.

Whiteboards

Surface: To BS EN 438-1.

Lockers

Standard: To BS 4680.

Curtains

General requirements: To BS 5867-1.
Flammability requirements: To BS 5867-2.

Open fireplace components

Standard: To BS 1251.

EXECUTION

Moisture content of wood and wood based boards

Temperature and humidity: Maintain conditions to suit specified moisture content of wood components during delivery, storage, fixing and to handover.
Testing: When instructed, test components with approved moisture meter to manufacturer's recommendations.

Installation generally

Fixings and fasteners: As reference specification section Z20.

Sealant pointing

Application: As reference specification section Z22.

Trims

General: Wherever possible, use continuous lengths for open runs and between angles.
Running joints: Where unavoidable, obtain approval of location and method of jointing.
Angle joints: Mitre.

N13 SANITARY APPLIANCES AND FITTINGS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Baths

To BS EN 14516.

Bidets

To BS EN 14528.

Disabled user WC package

Type approval certificate: Submit.

Jointing and bedding compounds

Types: Recommended by manufacturers of appliances/ accessories/ pipes being jointed or bedded.

Sealant for pointing

To BS EN ISO 11600.

Showers

Trays: To BS EN 14527.
Enclosures: To BS EN 14428.
Hoses: To BS EN 1113.

Sinks

Fireclay sinks: To BS 1206.
Kitchen sinks: To BS EN 13310.

Urinals and cisterns

Urinal bowls (for use with auto-flushing cisterns): To BS EN 13407, Class 2, Type III, B.
Automatic flushing urinal cisterns: To BS 1876.

Wash basins

To BS EN 14688.

Wastes and traps

To BS EN 274-1, -2 and -3.

WCs and cisterns

General: To DEFRA WC suite performance specification or approved by relevant water company.
Pan: To BS EN 997 for close coupled pans and BS EN 33 and BS EN 997 for pans with independent water supply.
Seat and cover (where not specified otherwise): To BS 1254.
Pan connector: To BS 5627.
Cisterns (replacement only): To BS 1125 or BS 7357.

EXECUTION

Installation generally

Standards: To BS 6465-1, -2 and -3.
Assembly and fixing: Surfaces designed to falls to drain as intended.
Fasteners: Nonferrous or stainless steel.
Supply and discharge pipework: Fix before appliances.
Appliances:

- Fix securely to structure. Do not support on pipework.
- Do not use or stand on appliances.

Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.
Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
On completion: Components and accessories working correctly with no leaks.
Labels and stickers: Remove.

Installing cisterns

Cistern operating components: Obtain from cistern manufacturer.

- Float operated valve: Matched to pressure of water supply.

External overflow pipe: Fix to falls and locate to give visible warning of discharge.

- Location: Agreed, where not shown on drawings.

Installing taps

Fixing: Securely against twisting.
Seal with appliance: Watertight.
Positioning: Hot tap to left of cold tap as viewed by user of appliance.

Installing wastes and overflows
Bedding: Waterproof jointing compound.
Fixing: With resilient washer between appliance and backnut.

Installing WC pans
Floor mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
Seat and cover: Stable when raised.

Tiled backgrounds other than splashbacks
Timing: Complete before fixing appliances.
Fixing appliances: Do not overstress tiles.

N15 SIGNS AND NOTICES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Fasteners/ Adhesives: As section Z20.

PRODUCTS

Safety signs

Safety signs generally: To BS ISO 3864-1.
Photoluminescent safety signs: To Photoluminescent Safety Products Association Standard 002 Part 1.

Public information signs

Graphic symbols: To BS 8501.

Tactile signs for the visually impaired

Corners of rectangular rigid signs: Radiused.
Surface: Nonreflective with maximum gloss factor of 15% when tested to BS 2782-5 or BS EN ISO 2813.
Characters: Embossed between 1 and 1.5 mm with a stroke width that allows both sides of the character to be felt with the fingers at a single pass.
Braille: English Standard located 6 mm below bottom of text with braille locator at left edge of sign.

Metal posts for signs

Hot rolled steel: To BS EN 10210-2.

EXECUTION

Fixing signs generally

Fixing signs: Secure, plumb and level, using fixing methods recommended by manufacturer.
Strength of fasteners: Sufficient to support all live and dead loads.
Fasteners for external signs: Corrosion resistant material or with a corrosion resistant finish. Isolate dissimilar metals to avoid electrolytic corrosion.
Fixings showing on surface of sign: Must not detract from the message being displayed.

Concrete foundations for sign posts

Mix: To BS EN 206-1 and BS 8500-2, Designated concrete not weaker than GEN 1 or Standardized prescribed concrete not less than ST2.
Alternative mix for small quantities: 50 kg Portland cement, class 42.5, to 100 kg fine aggregate to 180 kg 20 mm nominal maximum size coarse aggregate, medium workability.
Admixtures: Submit proposals.

- Prohibited content: Calcium chloride.

Blinding to post holes: 50 mm concrete.
Installation of posts: Plumb and central in holes.
Concrete fill: Fully compacted with concrete to not less than 150 mm below ground level.
Duration of support to posts after placing concrete: Not less than three days.
Backfilling: Not less than 48 hours after placing concrete.

N25 PERMANENT ACCESS AND SAFETY EQUIPMENT

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Fasteners, inserts and bolts for building in

Supplier: Equipment manufacturer/ supplier.

Mechanical fixings

Materials: Unless otherwise recommended by equipment manufacturer:

- Connecting bolts and other fixings fully accessible for inspection: Carbon steel hot dip galvanized to BS 7371-6.
- Nuts: Tapped after galvanizing.
- Cast-in anchors and other fixings not accessible for routine inspection: Austenitic stainless steel, grade 1.4401 (316) to BS EN 10088-1.

Single point anchorage devices

Standard: To BS EN 795.

EXECUTION

Single point anchorage device

Installation: To BS 7883.
Provide with each anchor:

- A backing disc giving the manufacturer's name and telephone number and the date of installation.
- A certificate of compliance with testing and examination requirements of BS EN 365.

Safety

General: The equipment as installed must have no irregularities/ projections capable of inflicting personal injury.
Finished surfaces and edges of all accessible parts: Regular and smooth.

Maintenance programme

Schedule for maintenance and for replacement of components: Submit.

Fabrication and assembly generally

Machine cutting, drilling and assembly: Carry out as much as possible in the workshop. Obtain approval for any reassembly on site.
Dissimilar metal surfaces of assembly components/ supports/ fixings: Isolate to prevent electrolytic corrosion.

Protection

General: Do not deliver to site any components or assemblies that cannot be installed immediately or unloaded into a suitable well protected storage area.

Execution generally

Structural members: Do not modify, cut notch or make holes in structural members without permission.
Frameworks: Assemble and brace, including temporary members required for installation.

- Temporary support: Do not use access systems as temporary support or strutting for other work.

Bolted joints:

- Contact between dissimilar metals: Avoid.
- Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.

Welded joints: Comply with latest edition of National Structural Steelwork Specification (NSSS), Section 5.
Finished components: Smooth, free from distortion, cracks, burrs and sharp arrises.

Fixings for securing equipment

Adjustment capability: Adequate three dimensional adjustment to accommodate building structure/ fabric irregularities.

Fixing anchor installation

Site drilling or cutting into structure/ fabric: Permitted only in approved locations.
Distance between all fixing devices and edges of supporting material: Not less than recommended by fixing manufacturer.

Marking of anchor devices

Provision: Provide on or near each anchor device a label or other clear marking giving:

- Manufacturer's name and telephone number.
- Serial number and year of manufacture of device.
- Maximum number of personnel that may be attached to the device at any one time.
- Requirements for energy absorbers, ground clearance, etc.

Anchor devices intended solely for use with personal protective equipment: Indicate restriction of use by pictogram or other suitable marking on or near the device.

Operating instructions

Equipment and accessories: Where appropriate, mark in such a way that it is possible to identify the correct mode of operation for their safe use.

Operating and maintenance manual

General: Provide, for inclusion in the Building Manual, printed instructions and recommended procedures to be established by the Employer for operating and routinely maintaining the equipment. Provide diagrams where appropriate.
Content:

- Instructions for assembling/ erecting equipment for use.
- Comprehensive operating instructions, including safety and emergency procedures.
- Servicing and planned maintenance procedures.
- List of replacement parts, with references.
- Recommended procedures for testing equipment.

N91 EXTERNAL SIGNAGE AND INTERPRETATION

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Fasteners/ Adhesives: As section Z20.
Internal signage: As section N15.

PRODUCTS

Signs generally

Standard: To BS 559.
Geometric shapes, colours and layout: In accordance with BS 8501 and ISO 7001.
Wind loads: To BS EN 1991-1-4.

Road traffic signs

Standard: To BS EN 12899-1.
Geometric shapes, colours and layout: In accordance with DFT 'Traffic Signs Manual'.
Wind loads: To BS EN 1991-1-4 or BS EN 12899-1, Table NA.2.

Graphic symbols

Public information signage systems: To BS 8501.
Safety signage systems: To BS EN ISO 7010 and BS ISO 20712-1.

Inclusive signage systems

Corners of rectangular rigid signs: Radiused.
Surface: Nonreflective with maximum gloss factor of 15% when tested to BS 2782-5 or BS EN ISO 2813.
Characters: Embossed 1–1.5 mm with a stroke width that allows both sides of the character to be felt with the fingers at a single pass.
Braille: English Standard, located 6 mm below bottom of text with Braille locator at left edge of sign.

Metal posts for signs

Hot rolled steel: To BS EN 10210-2, grade S275J0.

Fasteners for external signs

Material: Corrosion resistant material or with a corrosion resistant finish. Isolate dissimilar materials to avoid electrolytic corrosion.
Strength of fasteners: Sufficient to support all live and dead loads.
Safety of users:

- Sharp edges or protrusions that would cause injury to users: Not permitted.
- Fasteners for tactile/ Braille signs: Avoid protruding caps/ heads that would cause confusion to users.

Concrete to post holes

Standard: To BS 8500-2.
Concrete: Designated, not less than GEN1 or standardized prescribed concrete not less than ST2.

- Alternative mix for small quantities: 50 kg Portland cement, class 42.5 to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
- Admixtures: Not permitted.

EXECUTION

Fixing signs generally

Fixing signs: Secure, plumb and level, using fixing methods recommended by manufacturer.
Strength of fasteners: Sufficient to support all live and dead loads.
Fasteners for external signs: Corrosion resistant material or with a corrosion resistant finish. Isolate dissimilar metals to avoid electrolytic corrosion.
Fixings showing on surface of sign: Must not detract from the message being displayed.

Fixing road traffic signs

Evaluation of conformity: To BS EN 12899-1, section 10.
Protrusion of post top above sign: Not permitted unless supporting a luminaire.
Plastics sheeting: Apply clear lacquer recommended by plastics sheet manufacturer to edges of holes to prevent ingress of moisture damaging the lamination.
Erection: In accordance with the DFT 'Traffic signs manual,' Chapter 1.
Fixing: Austenitic stainless steel fasteners recommended for the purpose by the sign manufacturer.
Graphic symbols: To BS 8501 and BS EN ISO 7010.

Concrete foundations for posts

Blinding to post holes: 50 mm concrete.
Installation of posts: Plumb and central in holes.
Concrete fill: Fully compacted with concrete to not less than 150 mm below ground level.
Duration of support to posts after placing concrete: Not less than three days.
Backfilling: Not less than 48 hours after placing concrete.

P10 SUNDRY INSULATION AND PROOFING WORK

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Insulation

Blown mineral fibre loft insulation: To BS 5803-2.
Blown cellulose fibre loft insulation: To BS 5803-3.
Mineral wool insulation boards, batts, rolls and slabs (MW): To BS EN 13162.
Expanded polystyrene insulation boards (EPS): To BS EN 13163.
Extruded polystyrene insulation boards (XPS): To BS EN 13164.
Polyurethane insulation boards (PUR): To BS EN 13165.
Cellulose fibre insulation blown between studs: To BS EN 13171.

EXECUTION

Eaves roof ventilators for existing roofs

Eaves free air space: Not less than required by Building Regulations for ventilation of roof space.

Insulation batts or quilt laid between ceiling ties/ joists

Installation requirements:

- Joints: Butted, no gaps.
- Extent of insulation: Over wall plates.
- Service holes: Sealed, and debris removed before laying insulation.
- Eaves ventilation: Unobstructed.
- Electric cables overlaid by insulation: Sized accordingly.
- Water cistern platforms on ceiling joists: Insulation below omitted.

Mineral wool installation: To BS 5803-5.

Insulation batts or quilt laid across ceiling ties/ joists

Installation requirements:

- Insulation widths: Widest practical.
- Laid direction: At right angles to ties/ joists.
- Joints: Butted, no gaps.
- Insulation: Fitted neatly around rafter ends and extended over wall plates.
- Service holes: Sealed, and debris removed before laying insulation.
- Eaves ventilation: Unobstructed.
- Electric cables overlaid by insulation: Sized accordingly.
- Water cistern platforms on ceiling joists: Insulation below omitted.

Mineral wool installation: To BS 5803-5.

Insulation boards or batts fitted between rafters

Installation requirements:

- Joints: Butted, no gaps.
- Fasteners: Used where necessary to retain insulation and/ or prevent slumping.
- Eaves ventilation where required: Unobstructed.
- Air space above insulation where required: Unrestricted.

Faced mineral wool insulation fitted between rafters

Installation requirements:

- Fixing: Secure, with facing on warm side, staple flanges at 300 mm centres to underside of rafters.
- Joints: Closely butted, no gaps. Seal at ends of lengths with adhesive tape.
- Eaves ventilation where required: Unobstructed.
- Air space above insulation where required: Unrestricted.

Polyurethane foam sprayed between rafters

Installation: In accordance with Agrément Certificate.

Blown loft insulation
Installation: In accordance with BS 5803-2.
- Installer: Trained by the insulation manufacturer.

Installation requirements:
- Service holes: Sealed, and debris removed before laying insulation.
- Eaves ventilation: Unobstructed.
- Electric cables overlaid by insulation: Sized accordingly.
- Water cistern platforms on ceiling joists: Insulation below omitted.

Loose laid loft insulation
Installation requirements:
- Insulation: Level, covering all parts of the ceiling.
- Service holes: Sealed, and debris removed before laying insulation.
- Eaves ventilation: Unobstructed.
- Electric cables overlaid by insulation: Sized accordingly.
- Water cistern platforms on ceiling joists: Insulation below omitted.

Insulation to loft access hatch
Installation: Cut to fit with no gaps and securely fixed.
Edges of hatch: Sealed with an approved compressible draught excluder.

Insulation to existing water cistern
Mineral wool products: Installation to BS 5803-5.
Cistern position: At ceiling level directly over joists:
- Sides and top of cistern: Covered with insulation.
- Continuity: Continuous with loft insulation, no gaps.

Cistern position: At high level:
- Sides, top and bottom of cistern: Covered with insulation.
- Continuity: No gaps.

Fixing: Securely to prevent slumping/ displacement but without undue compression.
Insulation to lid: Extended over side insulation and removable with lid.

Cellulose fibre insulation blown between wall studs
Installation requirements:
- Openings for hose: Submit proposals of locations.
- Service holes: Sealed, and debris removed before commencing insulation.
- Electric cables overlaid by insulation: Sized accordingly.

Insulation sprayed between wall studs
Application: In accordance with Agrément Certificate.
Installation requirements:
- Service holes: Sealed, and debris removed before commencing insulation.
- Electric cables overlaid by insulation: Sized accordingly.
- Residual material: Removed before fixing wall lining.

Insulation boards or batts fitted between studs
Installation requirements:
- Fixing: Secure, friction fitted between studs.
- Joints: Closely butted, no gaps.
- Fasteners: Used to prevent slumping/ displacement.

Faced mineral wool insulation fitted between studs
Installation requirements:
- Fixing: Secure, with facing on warm side, flanges stapled at 300 mm centres to face of studs.
- Joints: Closely butted, no gaps. Ends of lengths sealed with adhesive tape.

Mineral wool insulation fixed to backing wall
Installation requirements:
- Joints: Closely butted, no gaps.
- Cladding supports: Fitted tightly between and around.

Unfaced mineral wool insulation suspended vertically in timber frame separating wall
Installation requirements:
- Joints: Closely butted, no gaps.
- Head fixing: Staples or large head nails.

Unfaced mineral wool insulation fitted between studs in timber frame separating wall
Installation requirements:

- Fixing: Fit tightly with joints closely butted, no gaps.
- Fasteners: Used to prevent slumping/ displacement.

Mineral wool insulation laid between floor joists
Installation requirements:

- Joints: Closely butted, no gaps.
- Service holes: Sealed, and debris removed before laying insulation.
- Electric cables overlaid by insulation: Sized accordingly.

Mineral wool insulation supported between suspended ground floor joists
Installation requirements:

- Support: 20–25 mm square mesh polyethylene net draped over joists and stapled to sides of joists.
- Insulation: Laid on net between joists, no space between top surface and underside of flooring.

Vapour control layer
Fixing to timber studs, joists or framing:

- Moisture content of timber: 20% (maximum).
- Method of fixing: Staples at maximum 250 mm centres along all supports. No sagging.

Fixing to metal framing: Double sided sealant tape. Prime substrate as necessary.
Fixing to concrete/ masonry: Prime and apply adhesive recommended by membrane manufacturer.
Installation requirements:

- Setting out: Continuous, minimum joints, no sagging.
- Lapped joints: 150 mm (minimum), at supports only.
- Openings: Lap over and fix to reveals.
- Joints and edges: Sealed using double sided tape with vapour resistivity not less than the vapour control layer.
- Penetrations: Sealed.

Breather membrane
Installation requirements:

- Setting out: Continuous. Form a barrier preventing water, snow and wind blown dust reaching the substrate.
- Lapped joints: 100 mm (minimum) horizontally and 150 mm (minimum) vertically.
- Openings: Lap over and fix to reveals.
- Bottom edges: Lapped over flashings, sills, etc. to allow free drainage to the exterior.
- Penetrations: Sealed.

Flexible cavity barrier
Installation requirements:

- Spacing: Subdivide void into areas to comply with Building Regulation requirements.
- Fixing: Secure, with no gaps, to provide a complete barrier to smoke and flame.

Sleeved Mineral wool small cavity barrier
Installation requirements:

- Fasteners: Staples at 150 mm (maximum) centres.
- Vertical barriers: Fixed by both flanges.
- Horizontal barriers: Fixed by upper flange only.
- Joints and intersections: closely butted, with barriers compressed along full length to give complete seal.

Wired mineral wool small cavity barrier
Installation requirements:

- Fasteners: Staples at 150 mm (maximum) centres, fold if necessary to ensure a tight fit.
- Joints and intersections: Butted, no gaps.

Mineral wool slab cavity barrier
Installation requirements: Continuous, with minimum joints.

Ventilated cavity barrier
Installation requirements: Continuous, with minimum joints.

P12 FIRE STOPPING SYSTEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Insulation board

Mineral wool rigid batts: To BS EN 13162.

EXECUTION

Workmanship generally

Gaps: Seal gaps between building elements and services, to provide fire resistance and resist the passage of smoke.
Adjacent surfaces: Prevent overrun of sealant or mortar onto finished surfaces.

Intumescent foam

New joints: Remove builder's debris, mortar droppings, grease, and the like.
Old joints: Clean and remove existing sealant from the joint.
Priming: Lightly moisten substrate with water.
Application: Fill joint to approximately half its depth, allowing foam to expand to face of joint.
Trimming: Do not trim or cut the face of the cured foam.

Intumescent mortar

Sequence: Install mortar after services are permanently installed.
Loose dust and combustible materials: Remove from the opening.
Shuttering: Install suitable shuttering panels to the faces of the opening.
Temperature: Do not apply mortar when it could be damaged by frost.
Mortar cure: Do not disturb mortar before final set has taken place.
Shuttering: Remove after mortar has cured.

Batts

Installing batts: Fit tight into void between the floor or wall and the penetrating services.
Face of batts: Flush with the surface of wall, floor or soffit.
Gaps between services and batts: Seal with fire resisting sealant.

Pipe collars

Integrity: Fit tightly and accurately to structure and pipe. Fill gaps between collar and structure and/or pipe with intumescent material.
Fixings: Plastics free.
Clearance around service pipe: Minimum possible, pipe in contact with sleeve.
Installation: Bed solid.
Exposed to view: Finish bedding and sealing neatly.

COMPLETION

Cleaning

Masking tapes: Remove.
Cleaning: Clean off splashes and droppings. Wipe down finishes.

P20 UNFRAMED ISOLATED TRIMS SKIRTINGS AND SUNDRY ITEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Wood architraves, skirtings, window boards and trims

Quality of wood and fixing: To BS 1186-3.
Moisture content at time of fixing: To BS EN 942.

- Exterior trim: 12–19%.
- Interior trim to continuously heated rooms, temperatures of 12–19ºC: 9–13%.
- Interior trim to continuously heated rooms, temperatures of 20–24ºC: 6–10%.

Sheet materials

Fibreboards:

- Hardboard: To BS EN 622-2.
- Medium board: To BS EN 622-3.
- Dry processed boards (Medium density fibre board): To BS EN 622-5.

Particleboards: To BS EN 312.
Plywood:

- Appearance class, hardwood: To BS EN 635-2.
- Appearance class, softwood: To BS EN 635-3.
- Bond quality: To BS EN 314-2.

Plastics veneered board: To BS 4965.

- Durability class: D2.
- Laminate grade: VG.

EXECUTION

Installation

Straight runs: Form in single lengths wherever possible.
Location and method of forming running joints: Submit proposals.
Joints at angles: Mitre, unless shown otherwise.
Position and level of trims: Submit proposals.

P21 DOOR AND WINDOW IRONMONGERY

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Ironmongery selected by contractor

Source: Single co-ordinated range. Submit details of selected range, manufacturer and/ or supplier.

Samples

Timing: Before placing orders with suppliers obtain list of required samples from Contract Administrator.
Submission: Submit labelled examples of required samples.
Conformity: Retain samples on site for the duration of the contract. Ensure conformity of ironmongery as delivered with labelled samples.

Ironmongery for fire doors

Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.
Compliance: Ironmongery included in successful tests to BS 476-22 or BS EN 1634-1 on door assemblies similar to those proposed.

- Certification: Submit evidence of successful testing by CERTIFIRE or other UKAS accredited laboratory.

Melting point of components (except decorative non functional parts): 800°C (minimum).

Door bolts

Standard: To BS EN 12051.

Door closing devices (controlled)

Overhead closers and floor springs: To BS EN 1154.

- Door closing devices to fire/ smoke control doors: CE marked.

Door coordinators

Standard: To BS EN 1158.

- Door co-ordinators to fire/ smoke control doors: CE marked.

Door hinges

Single axis door hinges: To BS EN 1935.

- Hinges to doors on escape routes and fire/ smoke control doors: CE marked.

Door latches

General: To BS EN 12209.

Door lever handles and knobsets

Standard: To BS EN 1906.

Door locks

General: To BS EN 12209.
Thief resistant: To BS 3621, Kitemark certified.

Door track and running gear

Standard: To BS EN 1527.

Electromagnetic hold open devices

Standard: To BS 5839 or to BS EN 1155.

Electromagnetic hold open/ swing-free devices

Standard: To BS EN 1155.

- Electromagnetic devices to fire/ smoke control doors: CE marked.

Emergency/ Panic exit devices

Emergency exit devices: To BS EN 179.
Panic exit devices: To BS EN 1125.

- Emergency/ Panic exit devices for locked doors on escape routes: CE marked.

Letter plates

Standard: To BS EN 13724.

Padlocks

Standard: To BS EN 12320.

Pull handles

Standard: To BS 8424.

Window hinges

Single axis hinges to access windows (window doors): To BS EN 1935.

EXECUTION

Overhead door closers

Operational adjustment:

- Variable power: Matched to size, weight and location of doors.
- Latched doors: Override latches and/ or door seals when fitted.
- Unlatched doors: Hold shut under normal working conditions.
- Closing against smoke seals of fire doors: Positive. No gaps.

Floor springs

Operational adjustment:

- Variable power: Matched to size, weight and location of doors.
- Latched doors: Override latches and/ or door seals when fitted.
- Unlatched doors: Hold shut under normal working conditions.

Closing against smoke seals of fire doors: Positive. No gaps.

Electromagnetic hold open/ swing-free devices

Means of release: Alarm system and/ or failure of power supply.
Test switch: Located in a convenient position adjacent to door.
Operational adjustment for devices with integral closer:

- Variable power: Matched to size, weight and location of doors.
- Latched doors: Override latches and/ or door seals when fitted.
- Unlatched doors: Hold shut under normal working conditions.

Door coordinators

Application: To all single swing double doors with rebated meeting stiles and fitted with self closers.

Uncontrolled door closers

Operation:

- Power: To suit the size and weight of doors to which they are fitted.
- Unlatched doors: Hold closed under normal conditions.

P30 TRENCHES, PIPEWAYS AND PITS FOR BURIED ENGINEERING SERVICES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Access covers and frames

Standard: To BS EN 124.

Proprietary access and inspection chambers

Standard: To BS EN 13598-1.

Perforated gas collection pipework

Vitrified clay: To BS EN 295-5, Kitemark certified, perforated, strength FN22, with flexible mechanical joints.

Pipeducts

Material:

- Vitrified clay: To BS 65.
- PVC-U: To BS EN 1401-1, class SN4, Kitemark certified.
- Twin wall HDPE: To BS EN 61386-24 or Agrément certified.

Small surface access boxes

Standard: To BS 5834-2.

- Pipeguard: Cut from 110 mm outside diameter PVC-U pipe to BS EN 1401-1, class SN4.

Large surface access boxes

Standard: To BS 750 (2006), BS 5834-2, or BS EN 124, subject to requirements of service undertaker, highway authority or fire brigade as appropriate.

Granular material for bedding or surrounds

Standard: To BS EN 12620.

- Size: 4/10.

Drawlines

Material: To the requirements of service undertakers.

Warning marker tapes

Standard: To BS EN 12613.
Type: Continuous colour coded, heavy gauge polyethylene identification tapes.

EXECUTION

Routes of services below ground

Locations of new service runs and pipeducts:

- Temporary marking: Indicate new service runs and pipeducts with 75 x 75 mm softwood posts painted white and projecting not less than 600 mm above ground level, or with clearly visible waterproof markings on hard surfaces.

Excavation for services in public roads and pavings

Excavation and backfilling:

- England, Wales and Scotland: To Department for Transport (DfT) New roads and street works act 1991: Specification for the reinstatement of openings in highways: code of practice'.
- Northern Ireland: To Northern Ireland Road Authority and Utilities Committee (NIRAUC) 'Specification for the reinstatement of openings in roads'.

Service trenches

Trench width: As small as practicable.
Trench bottoms: Remove mud, rock projections, boulders and hard spots. Trim level.
Give notice: To inspect trench for each section of the work.

Tree roots in service trenches

Protected area: The larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk.
Roots in protected area: Do not cut.
Roots exceeding 25 mm diameter (all areas): Give notice and do not cut without permission.
Cutting:

- Use a hand saw to make clean smooth cuts.
- Minimise wound area and ragged edges.
- Pare cut surfaces smooth with a sharp knife.

Unintentionally severed roots: Give notice and form a new clean cut slightly nearer the trunk.
Backfilling to trenches containing intact or cut tree roots: Topsoil, well watered.

Laying pipeducts

General: Lay straight to line, true to gradient or level on an even continuous bed.
Clearance between pipeducts where they cross: 50 mm (minimum).
Drawlines: Thread through pipeducts. Leave in place for future pulling through of services.
Seal: Ends of pipeducts terminating inside buildings.

- Material: Mortar.

Protection: Protect from ingress of debris. During construction, temporarily seal all exposed ends.

Pipeduct bedding and surround – selected as-dug material

Location: General use.
As-dug bed: Trimmed by hand, level or to accurate gradient. Replace overdig with compacted spoil.
Bedding: Selected as-dug material thoroughly compacted by hand in 150 mm (maximum) layers.

- Thickness: 150 mm (minimum).

Surround: Selected as-dug material. Lay and compact to 150 mm (minimum) above pipeduct crown.

Pipeduct bedding and surround – granular material

Location: Where specified.
Bedding: Granular material thoroughly compacted by hand in 150 mm (maximum) layers.

- Thickness: 100 mm (minimum).

Surround: Granular material. Lay and compact to 150 mm (minimum) above pipeduct crown.

Pipeduct structural/ protective surround – concrete

Location: Close to buildings (where structural stability may be affected by the trench, or where a pipeduct needs protection).
Concrete blinding: 25 mm thick over full width of trench. Allow to set.
Pipeducts:

- Temporary support: Folding wedges of compressible board. Prevent flotation.
- Height above blinding: 100 mm (minimum).

Surround, to full width of trench:

- Depth: To 150 mm above crown of pipeduct or as shown on drawings.
- Vertical construction joints: At face of flexible pipeduct joints using 18 mm thick compressible board pre-cut to pipeduct profile.

Concrete surround for shallow pipeducts under buildings

Locations: Where pipeduct crowns are less than 300 mm below underside of slab.
Timing: Excavate trench after hardcore has been laid and compacted.
Concrete blinding: 25 mm thick over full width of trench. Allow to set.
Pipeducts:

- Temporary support: Folding wedges of compressible board. Prevent flotation.
- Height above blinding: 100 mm (minimum).

Surround: Cast integral with slab. Extend surround to within 150 mm of nearest flexible joint.

Installing proprietary access and inspection chambers and surface boxes

Setting out relative to adjacent construction features: Square and tightly jointed.
Permissible deviation in level of external covers and gratings: +0 to -6 mm.
Raising pieces (clay and concrete units): Joint with 1:3 cement:sand mortar.
Exposed openings: Fit purpose made temporary caps. Protect from traffic.

Bedding of frames for access covers and surface boxes

Bedding: Solidly in mortar, centrally over opening and level with surrounding finishes.

- In road or pavement finishes: Flush, and square with block or slab joints.
- In grassed areas: Set 30 mm below soil surface. Haunch back edge of bedding so that it is not visible.

Backfilling generally

Backfill from top of pipeduct surround: Material excavated from the trench.
Backfilling: Lay and compact in 300 mm (maximum) layers. Do not use heavy compactors before backfill is 600 mm deep.

Backfilling under new roads and pavings
Backfill from top of pipeduct surround: Granular sub-base material to Highways Agency Specification for highway works, clause 803 (Type 1).
Backfilling: Lay and compact in 150 mm (maximum) layers.

Warning marker boards, tapes and tiles
Installation: During backfilling.
Depth: Continuously, 200–300 mm above service pipe or cable or to requirements of service undertaker if different.

- Pipelines deeper than 2 m: Lay additional marker 600 mm above the top of the pipeline or to requirements of service undertaker if different.

Additional requirements for water and gas mains
Anchor blocks: Provide at all bends, tapers, cap ends and junctions.

Service testing
Timing: Where services require testing undertake tests before backfilling.

Documentation
Record drawings: Submit.

Perforated or slotted gas collection piping
Position: Lay just below floor slab in venting hardcore layer.

Brick radon sumps
Construction: Rectangular chamber. Lay perforated bricks on edge in honeycomb bond with mortar in bed joints only. Cap with paving slab. Enclose and seal end of vent pipe within sump.
Position: Centrally below ground floor slab, 15 m maximum from farthest point of area served.

- Area served (maximum): 250 m².

Plastics radon sumps
Position: Centrally below ground floor slab, 15 m maximum from farthest point of area served.

- Area served (maximum): 250 m².

P31 HOLES, CHASES, COVERS AND SUPPORTS FOR SERVICES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

EXECUTION

Ducts, chases and holes generally

General: Wherever possible, form during construction rather than by cutting.

Holes and chases in concrete

Holes larger than 10 mm diameter and chases: Cast in.
Holes smaller than 10 mm diameter: Drilling is permitted.

Holes in structural steelwork

General: Cutting and drilling are not permitted.

Holes, recesses and chases in masonry

Locations: Select to maintain integrity of strength, stability and sound resistance of construction.
Sizes: Minimum needed to accommodate services.

- Holes: (maximum) 300 mm².

Walls of hollow or cellular block: Do not chase.
Walls of other materials:

- Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
- Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.

Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Do not spall, crack or otherwise damage surrounding structure.

Notches and holes in structural timber

General: Avoid if possible.
Sizes: Minimum needed to accommodate services.
Position: Do not locate near knots or other defects.
Notches and holes in the same joist: 100 mm apart horizontally (minimum).
Notches in joists:

- Position: Locate at top. Form by sawing down to a drilled hole.
- Depth (maximum): 0.15 x joist depth.
- Distance from supports: Between 0.1 and 0.2 x span.

Holes in joists: Locate on neutral axis.

- Position: Locate on neutral axis.
- Diameter (maximum): 0.25 x joist depth.
- Centres (minimum): 3 x diameter of largest hole.
- Distance from supports: Between 0.25 and 0.4 of span.

Notches in roof rafters, struts and columns: Not permitted.
Holes in struts and columns: Locate on neutral axis.

- Diameter (maximum): 0.25 x minimum width of member.
- Centres (minimum): 3 x diameter of largest hole.
- Distance from ends: Between 0.25 and 0.4 of span.

Floor ducting and trunking

Fixing: Pack ducting and trunking level and true before screeding.

Pipe sleeves

Sleeves: Extend through full thickness of wall or floor. Position accurately.

- Generally: Clearance around service pipe: 20 mm (maximum) or diameter of service, whichever is the lesser.
- Installation: Bed solid.

Exposed to view: Finish bedding and sealing neatly.

Access covers/ gratings and frames

Vertical positioning of frames: Level, or marry in with levels of surrounding surfaces.
Permissible deviation in level of external covers and frames: +0 to -6 mm.

COMPLETION

Meter cabinets

Keys: At completion, hand over to Employer.

Q10 KERBS, EDGINGS, CHANNELS AND PAVING ACCESSORIES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Precast concrete kerbs, edgings and channels

Standard: To BS EN 1340.

Drainage channel systems with gratings

Loading grade standard: To BS EN 124.

Concrete for foundations and haunching

Standard: To BS 8500-2.

Steel bar dowels for haunching

Standard: To BS 4482.

Mortar for bedding and jointing

Portland cement: To BS EN 197-1 CEM I 42.5 N.
Sand: To BS EN 12620, Grade 0/4 or 0/2 (MP).

EXECUTION

Laying kerbs, edgings and channels

Cutting: Neat, accurate and without spalling. Form neat junctions.

- Long units (450 mm and over) minimum length after cutting: 300 mm.
- Short units minimum length after cutting: The lower of one third of their original length or 50 mm.

Bedding: Position true to line and level along top and front faces, in a mortar bed on accurately cast foundations.
Securing: After bedding has set, secure with a continuous haunching of concrete.

Haunching dowels

Size: 12 mm diameter, 150 mm long.
Installation: While concrete is plastic, insert dowels vertically into foundation.

- Centres: 450 mm.
- Distance from back face of kerb: 50 mm.
- Projection: 75 mm.

Haunching: Rectangular cross section, cast against formwork, fully enclosing and protecting dowels.

Channels

Installation: Lay to an even gradient. Avoid ponding and backfall.
Lowest points of channels: 6 mm above drainage outlets.

Drainage channel systems

Installation:

- Constant depth channels: Lay to an even gradient. Avoid ponding and backfall. Commence laying from outlets.
- Channel systems with a built in fall: Lay with top of channels level, installed in correct sequence to form an even gradient without ponding or backfall. Commence laying from outlets.

Silt and debris: Immediately before handover, remove from entire system.
Washing and detritus: Safely dispose without discharging into sewers or watercourses.

Accuracy

Deviations (maximum):

- Level: ± 6 mm.
- Horizontal and vertical alignment: 3 mm in 3 m.

Mortar joints

Jointing: As laying proceeds, butter ends of units with bedding mortar. Completely fill joints.

- Narrow mortar joints: Tightly butt. Clean off surplus mortar immediately.
- Tooled mortar joints: Tool to a neat flush profile.

Road marking

Standard: To Road Safety Markings Association (RSMA) StanSpec 2003: Standard specification document for road marking and road studs incorporating European standards BS EN 1436, BS EN 1824 and BS EN 1871.

Q20 GRANULAR SUB-BASES TO PAVINGS

GENERAL

Cross-reference

General: Read with A90 General Technical requirements.

PRODUCTS

Granular material

Quality: Free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to BS 812-111.
In any one layer only one of the following groups:

- Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
- Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
- Crushed non-expansive slag.
- Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
- Well-burned non-plastic colliery shale.
- Natural gravel.
- Natural sand.

Highways Agency material

Standard: Highways Agency 'Specification for highway works'.

- Type 1 material: To HA specification clause 803.5.
- Type 2 material: To HA specification clause 804.6.

Non frost susceptible material

Definition (non frost susceptible material): To Highways Agency 'Specification for highway works' clause 705.5.

EXECUTION

Excavation of subgrades

Final excavation to formation/ sub-formation level: Carry out immediately before compaction of subgrade.
Soft spots and voids: Give notice.
Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilised.

Installation of sub-base filter sheets

Protect from:

- Exposure to light, except during laying (maximum five hours).
- Contaminants.
- Materials listed as potentially deleterious by membrane manufacturer.
- Damage, until fully covered by fill.
- Wind uplift, by laying not more than 15 m before covering with fill.

Preparation: Remove humps and sharp projections and fill hollows before laying.

Preparation/ compaction of subgrades

Timing: Immediately before placing sub-base.
Soft or damaged areas: Excavate and replace with sub-base material, compacted in layers 300 mm (maximum) thick.
Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

Compaction of sub-base

Proposals: Well in advance of starting work submit details of:

- Maximum depth of each compacted layer.
- Type of plant.
- Minimum number of passes per layer.

Preparation: Remove loose soil, rubbish and standing water.
Structures, membranes and buried services: Ensure stability and avoid damage.
Laying: Spread and level in layers. As soon as possible thereafter thoroughly compact each layer.
At drainage fittings, inspection cover bases and at perimeters: Take particular care to compact fully.
After compaction and immediately before overlaying: The sub-base surface must be uniformly well closed and free from loose material, cracks, ruts or hollows.

Blinding

Finish: Vibrate to provide a close, smooth surface.

Cold weather working

Frozen materials: Do not use.
Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.

Protection

Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

Q25 SLAB, BRICK, SETT, OR COBBLE PAVINGS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.
Mortar: Read with Z21 Mortar.
Movement joint sealant: Read with Z22 Sealants.

Completion of design by contractor

Concrete flag paving system: In accordance with BS 7533-4.
Concrete sett paving system: In accordance with manufacturer's instructions.
Natural stone cobble paving system: In accordance with BS 7533-7.
Natural stone sett paving system: In accordance with BS 7533-7.
Natural stone slab paving system: In accordance with BS 7533-4.
Precast concrete and grass paving system: In accordance with manufacturer's instructions.
Rigid brick paving system: In accordance with Brick Development Association Design Note 8.

Design proposals

Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

PRODUCTS

Standards:

Natural stone slabs: To BS EN 1341.
Concrete setts: To BS EN 1338.
Concrete flags: To BS EN 1339.
Tactile flags and slabs: To DD CEN/TS 15209.
Natural stone setts: To BS EN 1342.

- Freeze/ thaw resistance: Class 1 (F1).

Laying course sand for sand bedded concrete flags: To BS 7533-4, maintained at even moisture content that will give maximum compaction.
Sand for mortar to fully bedded slab/ flag paving: To BS EN 12620, grading 0/4 or 0/2 (MP) or 0/2 or 0/1 (FP).
Bedding sand for precast concrete and grass paving: To BS EN 12620, grading 0/4 or 0/2 (MP).
Nonhydraulic lime for mortar bedding and pointing: To BS EN 459-1, -2 and -3.
Ready-mixed lime:sand for mortar bedding and pointing: To BS EN 998-2.

Natural stone cobbles

Selection: Hard smooth, egg-shaped beach or river stones.

EXECUTION

Material samples

Samples representative of colour and appearance of any designated materials specified for the project: Submit before placing orders.
Designated materials:

- Natural stone slab paving; reference sample to BS EN 1341.
- Concrete slab paving.
- Brick paving.
- Natural stone sett paving; reference sample to BS EN 1342.
- Concrete sett paving.
- Natural stone cobble paving.

Adverse weather

General:

- Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
- Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.

Paving with mortar joints and/ or bedding: Protect from frost damage, rapid drying out and saturation until mortar has hardened.
Paving laid and jointed in sand:

- Stockpiled bedding sand: Protect from saturation.
- Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
- Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
- Laying dry-sand jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

Laying pavings – general
Appearance: Smooth and even with regular joints and accurate to line, level and profile.
Falls: To prevent ponding.
Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.

- Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.

Slopes: Lay paving units upwards from the bottom of slopes.
Paving units: Free of mortar and sand stains.
Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.

Levels of paving
Permissible deviation from specified levels (generally): ± 6 mm.
Height of finished paving above features:

- At gullies: +6 to +10 mm.
- At drainage channels and kerbs: +3 to +6 mm.

Regularity
Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface): 10 mm.
Sudden irregularities: Not permitted.
Difference in level between adjacent blocks/ pavers/ setts (maximum): 2 mm.

Colour banding
General: Unless premixed by manufacturer, select from at least 3 separate packs in rotation to avoid colour banding.

Protection
Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
Materials storage: Do not overload pavings with stacks of materials.
Handling: Do not damage paving unit corners, arrises, or previously laid paving.
Mortar bedded pavings (ordinary site mixed mortar without additives): Keep free from traffic after laying:

- Pedestrian traffic (minimum): 4 days.
- Vehicular traffic (minimum): 10 days.

Access: Restrict access to paved areas to prevent damage from site traffic and plant.

Cementitious bases and sub-bases
General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

Condition of sub-bases/ bases before spreading bedding (laying course)
Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
Levels and falls: Accurate and within the specified tolerances.
Drainage outlets: Within +0–10 mm of the required finished level.
Features in sand bedded paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

Drainage holes in existing bases
Location: Impervious layers of existing road/ paving where new paving is to be overlayed on sand laying course.
Drainage: Form regular grid of holes, through base and any additional build up, down to sub-base:

- Spacing in both directions: 1000 mm.
- Clear opening (minimum): 30 mm. Do not weaken or excessively disturb road/ paving.

Completion: Remove jagged or protruding edges. Fill voids with pea gravel. Ram down to form flush smooth surface.
Laying geotextile sheet patches over drainage holes: Lay geotextile patches on the base, centred over each hole.

Planing and repairs to existing bases
Existing macadam/ asphalt surfaces: Plane to required levels.
Repairs: Cut out depressions. Cut out cracks over 25 mm wide. Fill to match existing surface and compact.
Building up existing surfaces to required levels: Regulate using coated macadam to BS EN 13108-1 or rolled asphalt to BS EN 13108-4.

Laying geotextile sheet edging strips
Location: Immediately below sand laying course, abutting features which interrupt the laying course, including:

- Perimeters/ Edge restraints/ Kerbs.
- Other types of paving.
- Drainage fittings, e.g. channels and manholes.

Edge detail: Turn sheet up to a height not less than thickness of sand bedding to form an upstand fitted neatly against features.

- Width (minimum): 1000 mm.

Laying geotextile sheet overlays
Location: Immediately below sand laying course.
Laying: Fit neatly at edge restraints and other features that interrupt sand laying course, e.g. drainage fittings, channels, manholes and kerbs.
Edge detail: Turn sheet up to form an upstand against features, height not less than thickness of sand bedding.

- Width (minimum): 1000 mm.

Site mixed fine concrete laying courses
Standard: In accordance with BS 7533-7.

Laying flag and slab paving – sand laying course and jointing
Standard: In accordance with BS 7533-4.
Flag installation and cutting: To Interpave 'Concrete flag paving'.

Laying rigid brick paving
Standard generally: In accordance with Brick Development Association Design Note 8.
Bedding and jointing method: Simultaneous bedding and jointing with stiff plastic mortar.
Cement slurry: Apply thin slurry (1–3 mm) of neat cement or 1:1 cement:soft sand over the freshly laid mortar bed immediately prior to laying bricks.
Laying: Wet bricks as necessary (but do not soak), butter joint faces and press down firmly to give a level surface with 10 mm regular joints.

Laying natural stone sett paving
Standard generally: In accordance with BS 7533-7.
Laying type: Rigid.

Laying concrete sett paving – mortar bedded
Laying: Spread and level a bed of mortar. Individually lay and hammer down the setts so that tops are level, leaving joints open.
Jointing: Fill joints and finish neatly. Clean mortar from face of setts before it sets.

Laying natural stone cobble paving
Bedding, laying, jointing and completion: In accordance with BS 7533-7 and -10.

Laying precast concrete and grass paving
Laying: Tamp down into lightly compacted laying course.
Filling: Allow to settle and refill level with surface.

Sealant movement joints in mortar bedded units
Joint filler: Build in as work proceeds.
Barrier (joint breaker): Position filler and barrier accurately to fully support sealant at recommended distance from exposed faces of units.

Completion of paving with dry sand or fine aggregate filled joints
Sand dressing: Leave a thin layer of dry jointing sand over the paving, sweep clean before practical completion.
Final compaction of the surface course: In accordance with BS 7533-3.
Vacuum cleaning machines: Not allowed.

Completion of grassed pavings
Protection: Protect from traffic for 6–8 weeks or until grass can tolerate traffic.

Q28 TOPSOILING

GENERAL

Cross-reference

General: Read with A90 general technical requirements.

PRODUCTS

Imported topsoil

Classification: To BS 3882.

Compost

Standard: To PAS 100.

EXECUTION

Grading subsoil

General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
Areas of thicker topsoil: Excavate locally.

Loosening soil

Light and noncohesive soils: Use a three tine ripper, drawn 300 mm deep at 600 mm centres in two directions obliquely, when ground conditions are reasonably dry.
Stiff clay and cohesive subsoils: Use a single tine ripper, driven 450 mm deep at 1 m centres in two directions obliquely, when ground conditions are reasonably dry.
Rock and chalk subgrades: Lightly scarify to promote free drainage.

Preparation of undisturbed topsoil

General: Prepare areas to receive soft landscaping as necessary to ensure that the topsoil is in a suitable state for cultivation operations.
Hard ground: Break up with a ripper operated in transverse directions. Remove roots and boulders.
Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.

Surplus topsoil to be retained

General: Spread and level on site:

- Protected areas: Do not raise soil level within root spread of trees that are to be retained.

Contamination

General: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:

- Corrosive, explosive or flammable.
- Hazardous to human or animal life.
- Detrimental to healthy plant growth.

Subsoil: In areas to receive topsoil, do not use subsoil contaminated with the above materials.
Give notice: If any evidence or symptoms of soil contamination are discovered on the site, or in topsoil to be imported.

Handling topsoil

Aggressive weeds: Give notice and obtain instructions before moving topsoil.
Plant: Select and use plant to minimize disturbance, trafficking and compaction.
Contamination: Do not mix topsoil with:

- Subsoil, stone, hardcore, rubbish or material from demolition work.
- Other grades of topsoil.

Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit.

Spreading topsoil

Temporary roads/surfacing: Remove before spreading topsoil.
Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

Q30 SEEDING AND TURFING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Seed

Freshness: Seed produced for the current growing season.
Certification: Blue label certified varieties to EC purity and germinating regulations.

- Evidence of certification: Submit.

Samples: Submit on request.

Turf

Supplier: A member of the Turfgrass Growers Association (TGA).
Standard: Free from undesirable grasses and weeds.

Compost as soil ameliorant or turf dressing

Standard: To PAS 100.
Horticultural parameters:

- pH (1:5 water extract): 7.0–8.7.
- Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
- Moisture content (m/m of fresh weight): 35–55%.
- Organic matter content (minimum): 25%
- Grading (air dried samples) for soil ameliorant: 99% passing 25 mm screen, and 90% passing 10 mm screen mesh aperture.
- Grading (air dried samples) for turf dressing: 100% passing 5 mm screen mesh aperture.
- Carbon:Nitrogen ratio (maximum): 20:1.

Texture: Friable.
Objectionable odour: None.

EXECUTION

Generally

Application of seeding and turfing: While soil and weather conditions are suitable. Not during periods of frost, strong winds, heavy rain or drought.
Handling/ storage and transport:

- Handling: Protected from frost, mechanical damage and shock. Stored, only when necessary, and for the minimum period in a cool, dry and dark location.
- Stacking turfs: Not higher than 1 m.

Preparation

Cultivation:

- Ground conditions: Suitably dry.
- Compacted soil: Loosened, aerated and broken up for full depth of topsoil to particles of 2-8 mm.
- Undesirable material: Weeds, roots, stones and clods larger than 50 mm in any dimension (25 mm for fine lawns), tufts of grass and foreign matter.
- Within root spread of existing trees: Do not cultivate.

Grading:

- Topsoil condition before grading: Reasonably dry and workable.
- Contours after grading: Smooth and flowing, with falls for adequate drainage. Minor hollows and ridges removed.
- Finished levels after settlement: 25 mm above adjoining paving and features.
- Blade grading: May be used to adjust topsoil levels, provided topsoil depth is nowhere less than specified.
- Submit: If required levels and topsoil depth cannot be achieved by movement of existing soil, submit proposals.

Fertilizing: Before final cultivation and 3–5 days before seeding/ turfing.
Final cultivation: Reduce to fine, firm tilth with good crumb structure.

- Depth: 25 mm.
- Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
- Remove surface stones/ earth clods exceeding: 20 mm (10 mm for fine lawns).

Watering: Soak the full depth of topsoil. Water evenly not to displace soil.

Installation

Seed:

- Adjusted levels: True, even surface, friable and lightly firmed but not over compacted.
- Adjacent levels: Cultivation extended into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
- Sowing: Good seed contact with the soil. Method of sowing to suit soil type and weather conditions.
- Watering: Full depth of topsoil. Water evenly not to displace seed or soil.

Turf:

- Timing: Laid with minimum possible delay after lifting. Spring and summer, lay within 18 hours of delivery; Autumn and winter, lay within 24 hours of delivery.
- Dried out or deteriorated turf: Do not use.
- Access: Not permitted on prepared beds or recently laid turf.
- Adjusted levels of beds: High spots raked out and hollows infilled with fine soil.
- Jointing of turfs: Broken joints, well butted up. Do not stretch turf.
- Edges of laid areas: Whole turfs trimmed to a true line.
- Consolidation: Lightly and evenly as work proceeds to ensure full contact with substrate. Do not use rollers.
- Dressing: Brushed well in. All joints filled.
- Watering: Full depth of turf and topsoil thoroughly watered immediately after laying.
- Turf on slopes exceeding 30°: Diagonal or horizontal configuration.

– Fixing: Galvanized wire pins or softwood pegs.

Maintenance

Generally:

- Trimming: All grass edges, around trees, manholes, etc. remove arisings. Avoid damage to planting.
- Weed control: Keep sward free of broad leaved weeds.
- Pathogens: Keep sward free of pests and diseases.
- Cleanliness: Remove soil and arisings from paved surfaces.
- Failures: Make good by re-cultivation and reseeding/ returfing.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Stones brought to the surface: Remove regularly.
- Areas of settlement: Make good.

Wildflower cutting (timing):

- Annual wildflowers, as soon as flowers start to loose colour and look untidy. Remove arisings.
- Perennial wildflowers, every 6 to 8 weeks through the summer of the first year after planting.

Instructions:

- Submit written instructions for one full year's maintenance.

Q40 FENCING

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Fencing types

Chain link fencing:

- Standard: To BS 1722-1.

Cleft chestnut pale fencing:

- Standard: To BS 1722-4.

Close boarded wood fencing:

- Standard: To BS 1722-5.

Wood palisade fencing:

- Standard: To BS 1722-5.

Wood post and rail fencing:

- Standard: To BS 1722-7.

Carbon steel vertical bar fencing:

- Standard: To BS 1722-9.

Anti intruder fencing:

- Standard: To BS 1722-10.

Prefabricated wood panel fencing:

- Standard: To BS 1722-11.

Steel palisade fencing:

- Standard: To BS 1722-12.

Open mesh steel panel fencing:

- Standard: To BS 1722-14.

Gates/ gate posts

Wood gates, stiles and gate posts to footpaths and bridleways:

- Standard: To BS 5709.

Steel gates and gate posts:

- Steel: As section Z11.
- Jointing: Welded.

Domestic steel gates:

- Standard: To BS 4092-1.

Concrete to post holes and sills

Standard: To BS 8500-2.
Concrete: Designated, not less than GEN1 or standard prescribed concrete not less than ST2.

- Alternative mix for small quantities: 50 kg Portland cement, class 42.5 to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
- Admixtures: Not permitted.

Hot-dip galvanizing

- Standard: To BS EN ISO 1461.

Plastics powder coating

- Standard: To BS 1722-16.

EXECUTION

General

Installation:

- Alignment: Straight lines or smoothly flowing curves.
- Tops of posts: Following profile of the ground.
- Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
- Fixings: All components securely fixed.

Competence

- Operatives: Contractors must employ competent operatives.
- Qualifications: Submit certification of training and experience of Sector Scheme 2A for the design, supply, installation and repair of fences.

Setting out

Wood post and rail fencing:

- Morticed fences: Posts maximum 2850 mm centres.
- Nailed fences: Posts maximum 1800 mm centres.

Close boarded wood fencing:

- With gravel board: Posts maximum 3000 mm centres.
- Without gravel board: Posts maximum 2400 mm centres.

Wood palisade fencing: Posts maximum 3000 mm centres. Mild steel vertical bar fencing: Posts maximum 2750 mm centres.
Open mesh steel panel fencing: Posts maximum 3000 mm centres.

Chain link mesh

Joining: Interweave a spiral and restore knuckle or barb to top and bottom.

Size of fencing post holes for concrete foundation/ surround (normal ground conditions)

Chain link fencing (general purpose):

- Straining posts:

Up to 1400 mm high fencing: 450 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
1400–2150 mm high fencing: 450 mm square or 450 mm diameter (augered) post hole, minimum 750 mm depth in ground.

- Struts: Minimum 300 x 450 mm hole, base of strut to be a minimum 450 mm depth in ground.
- Intermediate posts:

Up to 1400 mm high fencing: 300 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
1400–2150 mm high fencing: 450 mm square or 450 mm diameter (augered) post hole, minimum 750 mm depth in ground.

- Gate posts: Depths as for fence straining posts, minimum 450 mm square holes.

Cleft chestnut pale fencing:

- Straining posts:

Up to 1350 mm high fencing: 300 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
Over 1350 mm high fencing: 450 mm square or 450 mm diameter (augered) post hole, minimum 750 mm depth in ground.

- Struts: Minimum 300 x 450 mm hole, base of strut to be a minimum 450 mm depth in ground.
- Intermediate posts:

Up to 1350 mm high fencing: Minimum 75 mm concrete surround to all sides, 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
Over 1350 mm high fencing: Minimum 75 mm concrete surround to all sides, 300 mm diameter (augered) post hole, minimum 750 mm depth in ground.

Close boarded wood fencing:

- Up to 1500 mm high fencing: Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
- Over 1500 mm high fencing: Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 750 mm depth in ground.

Wood palisade fencing:

- Up to 1500 mm high fencing: Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
- Over 1500 mm high fencing: Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 750 mm depth in ground.

Wood post and rail fencing (sawn or cleft posts):

- Up to 1100 mm high fencing (or 1050 mm high for fencing with cleft rails): Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.
- Over 1100 mm high fencing (or 1250 mm high for fencing with cleft rails): Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 700 mm depth in ground.

Carbon steel vertical bar fencing:

- Up to 1000 mm high fencing: Allow for 100 mm concrete bed (below post) and surround, minimum 450 mm embedded length in ground.
- 1000–1400 mm high fencing: Allow for 100 mm concrete bed (below post) and surround, minimum 550 mm embedded length in ground.
- Over 1400 mm high fencing: Allow for 100 mm concrete bed (below post) and surround, minimum 600 mm embedded length in ground.
- Gate posts: In accordance with BS 1722-9 table 4.

Prefabricated wood panel fencing:

- Up to 1400 mm to top of panel: Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 500 mm depth in ground.
- Over 1400 mm to top of panel: Minimum 300 mm square or 300 mm diameter (augered) post hole, minimum 600 mm depth in ground.

Anti intruder fencing:

- Straining posts: 450 mm square or 450 mm diameter (augered) post hole, minimum 750 mm depth in ground.
- Struts: Minimum 300 mm wide x 450 mm deep hole, base of strut to be a minimum 450 mm depth in ground.
- Intermediate posts: 300 mm square or 300 mm diameter (augered) post hole, minimum 750 mm depth in ground.

Steel palisade fencing, general purpose (GP):

- Up to 1800 mm high (GP) fencing: Minimum 350 mm square or 450 mm diameter (augered) post hole, minimum 525 mm embedded length.
- 2100 mm high (GP) fencing: Minimum 350 mm square or 450 mm diameter (augered) post hole, minimum 625 mm embedded length.
- 2400 mm high (GP) fencing: Minimum 350 mm square or 450 mm diameter (augered) post hole, minimum 725 mm embedded length.

- 3000 mm high (SP) fencing: Minimum 450 mm square or 600 mm diameter (augered) post hole, minimum 925 mm embedded length.
- 3600 mm high (SP) fencing: Minimum 450 mm square or 600 mm diameter (augered) post hole, minimum 1125 mm embedded length.

Open mesh steel panel fencing:

- Up to 1800 mm high general purpose (category 1) fencing: Minimum 450 mm square or 300 mm diameter (augered) post hole, to allow not less than 75 mm concrete surround to post, minimum 600 mm depth in ground.
- Over 1800 mm high general purpose (category 1) fencing: Minimum 450 mm square or 450 mm diameter (augered) post hole, to allow not less than 75 mm concrete surround to post, minimum 750 mm depth in ground.
- Gate posts: Minimum 450 mm square post hole, minimum 750 mm depth in ground.
- Abnormal ground conditions: Give notice.

Foundation/ surround to fencing posts set in concrete

Setting in: Position post/ strut and fill hole with concrete to not less than specified depth, well rammed and consolidated as filling proceeds.
Post holes not completely filled with concrete: Backfill with excavated material, well rammed and consolidated.
Exposed concrete foundations not subsequently covered by paving: Compact until air bubbles cease to appear on upper surface, weather to shed water, and trowel smooth.
Chain link fencing (category 1, general purpose):

- Intermediate and straining posts: Minimum two thirds depth of post hole.
- Gate post holes: Completely fill with rammed concrete to 50 mm above adjacent ground level, weather to shed water, and trowel smooth.

Cleft chestnut pale fencing (straining posts and intermediate posts):

- Concrete surround: Minimum half depth of post hole.

Close boarded wood fencing:

- Concrete surround: Minimum half depth of post hole.

Wood palisade fencing:

- Concrete surround: Minimum half depth of post hole.

Wood post and rail fencing (sawn or cleft posts):

- Concrete surround: Minimum half depth of post hole.

Carbon steel vertical bar fencing:

- Concrete bed: Minimum 100 mm below post.
- Concrete surround: Full depth of post hole.

Anti intruder fencing:

- Concrete surround: Minimum two thirds depth of post hole.

Prefabricated wood panel fencing:

- Concrete surround: Minimum half depth of post hole.

Steel palisade fencing, general purpose (GP):

- Concrete surround: Full depth of post hole.

Open mesh steel panel fencing, general purpose (category 1):

- Concrete surround: Minimum half depth of post hole.
- Gate post holes: Completely fill with rammed concrete to 50 mm above adjacent ground level, weather to shed water, and trowel smooth.

Setting posts in earth

Post holes: Excavate neatly, with vertical sides and as small as practicable to allow refilling.
Setting in: Position posts/ struts and replace excavated material, ramming well as filling proceeds.

Driving wood posts

Preparation: Posts pointed 225 mm length at base.
Protection: Minimize damage to heads of posts when driving and repair by neatly finishing post tops after installation.

Nailed rails to wood post and rail fencing

Minimum span: Not less than two bays, with joints in adjacent rails staggered.
Nailing: Nail each length of rail to each post with two 100 mm galvanized wire nails.
Rails with split ends: Replace.

Cleft wood rails to wood post and rail fencing

Length: Maximum 3050 mm.
Mortice position: Centre line of 150 mm face of post.
Rail fixing: Shape to adequately fill post mortice and fix to prick post with two 4 x 100 mm galvanized clenched wire nails.
Rails with split ends: Replace.

Arris rails

Rail end: Shape to adequately fit the post mortice or recess.
Fixing to recessed posts: Bolt.
Top rails: Fix at both ends.

Site cutting of wood

Site cutting: Keep to a minimum, with no cutting where timber is to be used below or near ground level.
Cut surfaces: Treat surfaces exposed by minor cutting and drilling with two flood coats of a solution recommended for the purpose by main preservative treatment solution manufacturer.

Completion

Conformity: Submit manufacturer's and installer's certificates in accordance with the appropriate part of BS 1722.

Q50 SITE AND STREET FURNITURE AND EQUIPMENT

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

DESIGN

Accessibility

Standard: In accordance with BS 8300.

PRODUCTS

Concrete foundations generally

Standard: To BS 8500-2.
Mix: Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
Admixtures: Do not use.

EXECUTION

Setting components in concrete

Foundation holes: Neat vertical sides.
Components: Accurately positioned and securely supported.
Depth of foundations, bedding and haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
Concrete fill: Fully compacted as filling proceeds.
Temporary component support: Maintain undisturbed for minimum 48 hours.
Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.

Setting in earth

Holes: As small as practicable.
Components being fixed: Accurately positioned and securely supported.
Earth refill: Well rammed as filling proceeds.

Preservative treated timber

Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
Heavily worked sections: Re-treat.

Building in to masonry walls

Components being built in: Accurately positioned and securely supported. Set in mortar and pointed neatly to match adjacent walling.
Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.

Erection of timber and prefabricated structures

Checking: 5 days (minimum) before proposed erection date, check foundations, holding down bolts, etc.

- Inaccuracies or defects in prepared bases or supplied structures: Report immediately. Obtain instructions before proceeding.

Fixing timber decking boards.

- Joints: Butt joints over joists.
- Joint frequency: kept to a minimum.
- Length: Each board must span not less than two bays between joists with joints in adjacent boards staggered.

Damage to galvanized surfaces

Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.

- Material:Low melting point zinc alloy repair rods or powders made for this purpose, or at least two coats of zinc-rich paint to BS 4652.
- Thickness: Sufficient to provide a zinc coating at least equal in thickness to the original layer.

Site painting

Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

R10 RAINWATER DRAINAGE SYSTEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Completion of design

Standard: To BS EN 12056-3, clauses 3–7 and National Annexes.
Collection and distribution of rainwater: Complete, and without leakage or noise nuisance.

PRODUCTS

Gutters

Aluminium: Agrément certified or otherwise submit proposals.
Cast iron:

- Half round: To BS 460.
- Other than standard half round sections: To BS 460 except for shape.

PVC-U: To the relevant parts of BS EN 607 and BS EN 1462, Kitemark certified.

Pipework

Aluminium: Agrément certified or otherwise submit proposals.
Cast iron - flexible couplings: To BS EN 877, Agrément certified.
Cast iron spigot and socket:

- Round: To BS 460.
- Shape other than round: To BS 460 except for shape.

PVC-U:

- External: To BS EN 12200-1, Kitemark certified.
- Sealed: To BS EN 1329-1 or BS 4514, Kitemark certified.

Insulation to internal gutters and pipelines

Fire performance: Class 1 spread of flame when tested to BS 476-7.

EXECUTION

Preparation

Work to be completed before commencing work specified in this section:

- Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
- Painting of surfaces which will be concealed or inaccessible.

Installation generally

Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
Plastics and galvanized steel pipes: Do not bend.
Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
Protection:

- Fit purpose made temporary caps to prevent ingress of debris.
- Fit access covers, cleaning eyes and blanking plates as the work proceeds.

Fixing and jointing gutters

Brackets: Securely fixed.

- Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.

Roofing underlay: Dressed into gutter.

Setting out eaves gutters

Setting out to level: Level and as close as practical to the roof.
Setting out to falls: To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points 50 mm (maximum) below the roof.
Outlets: Aligned with connections to below ground drainage.

Installing rainwater outlets

Fixing: Secure. Fix before connecting pipework.
Junctions between outlets and pipework: Accommodate movement in structure and pipework.

Fixing pipework

Pipework: Fix securely, plumb and/ or true to line.
Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
Externally socketed pipes and fittings: Fix with sockets facing upstream.
Additional supports: Provide as necessary to support junctions and changes in direction.
Vertical pipes:

- Provide a loadbearing support at least at every storey level.
- Tighten fixings as work proceeds so that every storey is self supporting.
- Wedge joints in unsealed metal pipes to prevent rattling.

Wall and floor penetrations: Isolate pipework from structure.

- Pipe sleeves: As section P31.
- Masking plates: Fix at penetrations if visible in the finished work.

Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

Jointing pipework and gutters

General: Joint with materials and fittings that will make effective and durable connections.
Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
Cut ends of pipes and gutters: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
Junctions: Form with fittings intended for the purpose.
Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
Surplus flux, solvent jointing materials and cement: Remove.

Cutting coated pipework and gutters

Cutting: Recoat bare metal.

Fixing insulation to internal pipelines and gutters

Fixing: Secure and neat. Provide continuity at supports and leave no gaps. Fix split pipe insulation with the split on 'blind' side of pipeline.
Timing: Do not fit insulation until completion of pipe airtightness or leakage testing.

Electrical continuity – pipework

Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

Internal pipework test – England, Wales, Ireland and Northern Ireland

Preparation: Temporarily seal open ends of pipework with plugs.
Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug.
Testing: Pump air into pipework until gauge registers 38 mm.
Required performance:

- Allow a period for temperature stabilization, after which the pressure of 38 mm is to be maintained without loss for at least 3 minutes.

Internal pipework test – Scotland

Standard: To BS EN 12056-2, National Annex NG.

Gutter test

Preparation: Temporarily block all outlets.
Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

R11 ABOVE GROUND FOUL DRAINAGE SYSTEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Completion of design

Standards: To BS EN 12056-1 and BS EN 12056-2, and in accordance with BS EN 12056-2 National Annexes NA–NG.

- System type to BS EN 12056-2: System III ('single stack' system).

Collection and distribution of foul water

General: Quick, quiet and complete, self-cleansing in normal use, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.
Pressure fluctuations in pipework (maximum): ±38 mm water gauge.
Water seal retained in traps (minimum): 25 mm.

PRODUCTS

ABS pipework

Standard: To BS 5255, Kitemark certified; or
Standard: To BS EN 1455-1, Kitemark certified.

- Application area code: B.
- Opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.

Cast iron pipework - flexible couplings

Standard: To BS EN 877.

MUPVC pipework

Standard: To BS 5255, Kitemark certified.

PVC-C pipework

Standard: To BS EN 1566-1, Kitemark certified.

- Application area code: B.
- Opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.

Polypropylene pipework

Standard: To BS 5255, Kitemark certified; or
Standard: To BS EN 1451-1, Kitemark certified.

- Application area code: B.
- Opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.

PVC-U pipework

Standard: To BS 4514 (82.4 mm OD only); or
Standard: To BS EN 1329-1, Kitemark certified.

- Weather resistance, connectors to WC pans, opening dimensions of access fittings, design of swept fittings, stand off dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.

Air admittance valves

Standard: To BS EN 12380 or Agrément certified.

- Minimum air flow rate: To BS EN 12056-2.

EXECUTION

Installation generally

Standard: To BS EN 12056-5.
Components: From the same manufacturer for each type of pipework.
Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
Plastics and galvanized steel pipes: Do not bend.
Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
Concealed or inaccessible surfaces: Decorate before starting work specified in this section.
Protection:

- Purpose made temporary caps: Fit to prevent ingress of debris.
- Access covers, cleaning eyes and blanking plates: Fit as the work proceeds

Pipe routes

General: The shortest practical, with as few bends as possible.

- Bends in wet portion of soil stacks: Not permitted.
- Routes not shown on drawings: Submit proposals before commencing work.

Fixing pipework

Pipework: Fix securely plumb and/ or true to line. Fix discharge stack pipes at or close below socket collar or coupling.
Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
Externally socketed pipes and fittings: Fix with sockets facing upstream.
Additional supports: Provide as necessary to support junctions and changes in direction.
Vertical pipes: Provide a load bearing support not less than every storey level. Tighten fixings as work proceeds so that every storey is self supporting.
Wall and floor penetrations: Isolate pipework from structure, e.g. with pipe sleeves.

- Masking plates: Fix at penetrations if visible in the finished work.

Expansion joint sockets: Fix rigidly to the building.
Fixings: Allow the pipe to slide.

Jointing pipework – generally

General: Joint with materials, fittings and techniques that will make effective and durable connections.
Jointing differing pipework systems: With adaptors intended for the purpose.
Cut ends of pipes: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
Junctions: Form with fittings intended for the purpose.
Jointing material: Do not allow it to project into bore of pipes and fittings.
Surplus flux, solvent jointing materials and cement: Remove from joints.

Electrical continuity

Joints in metal pipes with flexible couplings: Make with clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

Identification of internal foul drainage pipework

Markings: To BS 1710:
Type: Integral lettering on pipe wall, self-adhesive bands or identification clips.
Locations: At 500 mm centres, junctions and both sides of slabs, valves, appliances, bulkheads and wall penetrations.

Discharge and ventilating stacks

Terminations: Perforated cover or cage that does not restrict airflow.

Installing air admittance valves

Position: Vertical, above flood level of highest appliance served and clear of insulation materials (other than the manufacturer's insulating cover).
Connection to discharge stack: Allow removal for rodding, e.g. ring seal.
Roof spaces and other unheated locations: Fit manufacturer's insulating cover.

Pipework airtightness test

Preparation:

- Open ends of pipework: Temporarily seal using plugs.
- Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug or through trap of an appliance.

Testing: Pump air into pipework until gauge registers 38 mm.
Required performance: Pressure of 38 mm is to be maintained without loss for at least three minutes.

Prehandover checks

Temporary caps: Remove.
Permanent blanking caps, access covers, rodding eyes, floor gratings and the like: Secure complete with fixings.

R12 BELOW GROUND DRAINAGE SYSTEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

DESIGN

Completion of design by contractor

Below ground drainage systems: In accordance with BS EN 752, BS EN 1295-1 and BS EN 1610.
Land drainage systems: In accordance with relevant parts of BS 4428 and BS EN 752.

PRODUCTS

Adaptors for above ground drainage

To plastics drainage pipes: Plastics to BS 4660 and Kitemark certified, to BS EN 13598-1 or to BS EN 1401-1 and Kitemark certified.
To clay drainage pipes: Polypropylene to BS EN 295-1 and Kitemark certified.

Access covers and frames

Standard and cover loading grade: To BS EN 124.

Concrete (general)

Standards: To BS 8500-1 and -2.
Usage: In small quantities for general purposes including bedding of gullies and small accessories, backfilling and mass concrete surrounds to tanks.
Mixes:

- Ready mixed concrete: Designated concrete GEN1. Submit proposals if requesting higher strength mixes used elsewhere in the project to be considered.
- Site mixed concrete: Standardized prescribed concrete ST2.

Concrete (structural)

Usage: Foundations to manholes, pipe surrounds, benching/ toppings in manholes.
Mixes: See reference specification section E10 and associated work items.

Concrete manholes and inspection chambers

Standards: To BS 5911-3 and BS EN 1917 and Kitemark certified; or to BS 5911-4 and BS EN 1917.

- Cover loading grade: To BS EN 124.
- Concrete for backfilling and surrounds to tanks in nonagressive soils: Concrete (general).

Flexible couplings

Standard: To BS EN 295-4 or Water Industry Standard WIS 04-41-01 and Kitemark certified, or Agrément certified.

Granular material

Standard: To Water Industry Specification WIS 4-08-02 (as amended 2008).

- Grade: Dependent on location – see Execution clauses in this section, and in sections R13, R16 and R17, if used.

Granular sub-base material

Standard: To Highways Agency Volume 1, 'Specification for Highway Works', Type 1 Unbound mixtures for sub-base.

Grease traps and converters

Standards: In accordance with BS EN 1825-1 and to BS EN 1825-2 and Kitemark certified, or Agrément certified.

Gullies

One piece gullies/ One piece gullies and covers/ Composite gullies: To BS EN 1253-1, -2, -3, -4 and -5; or

- Cast iron: To BS 437 and Kitemark certified, or Agrément certified.
- Clay: To BS EN 295-1 and Kitemark certified, or Agrément certified.
- Plastics: To BS 4660 and Kitemark certified, to BS EN 13598-1 or Agrément certified.
- Polypropylene: To BS EN 1852-1.
- Concrete: To BS 5911-6 and Kitemark certified, or Agrément certified.
- Cover loading grade: To BS EN 124.

Manhole steps

Standard: To BS EN 13101.

Pipes, bends and junctions
Supply of pipes and fittings: From same manufacturer for each pipeline.
Material and standards:

- Cast iron – grey: To BS EN 877, Kitemark certified, with double spigot joints and proprietary coupling system.
- Vitrified clay – flexible joints: To BS EN 295-1, Kitemark certified.
- Plastics – structured wall: To BS EN 13476-1 and -2 or -3 with supplementary testing to Water Industry Standard WIS 4 -35-01 issue 2, Kitemark or Agrément certified.
- PVC-U solid wall: To BS EN 1401-1, class SN4 or SN8, with flexible joints.

Plastics access points
Standard: To BS 4660 and Kitemark certified, to BS EN 13598-1, or Agrément certified.

- Cover loading grade: To BS EN 124.

Plastics inspection chambers
Standard: To BS EN 13598-1, BS EN 13598-2, or Agrément certified.

- Cover loading grade: To BS EN 124.

Plastics oil and petrol separator units
Standards: To Environment Agency Pollution Prevention Guidelines PPG 3 and BS EN 858-1, with oil level alarm.

Precast concrete seatings for access covers and frames
Standards: To BS 5911-3 and BS EN 1917 and Kitemark certified.
Opening sizes: To suit access covers.

Rodding points
Standards:

- Clay: To BS EN 295-1 and Kitemark certified, or Agrément certified.
- Plastics: To BS 4660 and Kitemark certified, to BS EN 13598-1 or Agrément certified.

Saddle connectors
Standards:

- Cast iron: To BS 437 and Kitemark certified, or Agrément certified.
- Clay: To BS EN 295-1 and Kitemark certified, or Agrément certified.
- Concrete: To BS 5911-6 and Kitemark certified, or Agrément certified.
- Plastics: To BS 4660 and Kitemark certified, to BS EN 13598-1 or Agrément certified.

Storage tanks – foul water
Standard: To BS EN 12566-1.

EXECUTION
General
Standard: In accordance with BS EN 752, with National Annex NA, and BS EN 1610.

Stripping out
Exposed ends of existing drainage to be abandoned: Seal with concrete (general).

Existing drains
Setting out: Before starting work, check invert levels and positions of existing drains, sewers, inspection chambers and manholes against drawings. Report discrepancies.
Protection: Protect existing drains to be retained and maintain normal operation if in use.

Excavated material
Turf, topsoil, hardcore, etc: Set aside for use in reinstatement.

Selected fill for backfilling
Selected fill: As-dug material, free from vegetable matter, rubbish, frozen soil and material retained on a 40 mm sieve.

- Compaction: By hand in 100 mm layers.

Lower part of trench – general
Trench up to 300 mm above crown of pipe: Vertical sides, width as small as practicable.

- Width: External diameter of pipe plus 300 mm (minimum).

Type of subsoil
General: Where type of subsoil at level of crown of pipe differs from that stated for the type of bedding, surround or support, give notice.

Formation for beddings
Timing: Excavate to formation immediately before laying beddings or pipes.
Mud, rock projections, boulders and hard spots: Remove. Replace with consolidated bedding material.
Local soft spots: Harden by tamping in bedding material.
Inspection of excavated formations: Give notice.

Class D bed

Usage: Rigid pipework (clay, concrete or grey iron) laid on a natural bed.
Trench: Excavate slightly shallower than final levels.

- Trimming: By hand to accurate gradients. Replace overdig with compacted spoil.

Pipes: Rest uniformly on barrels, adjust to line and gradient. Do not use hard packings under pipes.
Backfilling:

- Material: Protective cushion of selected fill.
- Depth: 150 mm (250 mm for adoptable sewers) above crown of pipe.
- Compaction: By hand in 100 mm layers.

Class F bedding

Usage: Rigid pipework (clay, concrete or grey iron) requiring granular bedding.
Granular material sizes: To Water Industry Specification WIS 4-08-02 (as amended 2008).
Bedding:

- Material: Granular, compacted over full width of trench.
- Thickness: 50 mm (minimum) for sleeve jointed pipes, 100 mm (minimum) for socket jointed pipes. Where trench bottom is uneven, increase thickness by 100 mm.

Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
Backfilling:

- Material: Protective cushion of selected fill.
- Depth: 150 mm (250 mm for adoptable sewers) above crown of pipe.
- Compaction: By hand in 100 mm layers.

Class N bedding

Usage: Rigid pipework (clay, concrete or grey iron) requiring as-dug material bedding.
Bedding:

- Material: As-dug material with a compaction fraction of not more than 0.3 (granular material, sizes to Water Industry Specification WIS 4-08-02 – as amended 2008 – may be substituted).
- Compaction: Over full width of trench.
- Thickness: 50 mm (minimum) for sleeve jointed pipes, 100 mm (minimum) for socket jointed pipes. Where trench bottom is uneven, increase thickness by 100 mm.

Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
Backfilling:

- Material: Protective cushion of selected fill.
- Depth: 150 mm (250 mm for adoptable sewers) above crown of pipe.
- Compaction: By hand in 100 mm layers.

Class O support

Usage: Plastics pipework requiring a full depth granular support (single size material only).
Granular material sizes: To Water Industry Specification WIS 4-08-02 (as amended 2008).
Bedding:

- Material: Granular, compacted over full width of trench.
- Thickness: 100 mm (minimum).

Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
Support:

- Material: Granular.
- Depth: To slightly above crown of pipe.
- Compaction: By hand.

Backfilling:

- Material and depth: Protective cushion of selected fill to 300 mm above crown of pipe; or Additional granular material, to 100 mm above crown of pipe.
- Compaction: By hand in 100 mm layers.

Class P support

Usage: Plastics pipework requiring a full depth granular support (single size or graded material).
Granular material sizes: To Water Industry Specification WIS 4-08-02 (as amended 2008).
Bedding:

- Material: Granular, compacted over full width of trench.
- Thickness: 100 mm (minimum).

Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
Support:

- Material: Granular.
- Depth: To slightly above crown of pipe.
- Compaction: By hand.

Backfilling:

- Material and depth: Protective cushion of selected fill to 300 mm above crown of pipe; or Additional granular material, to 100 mm above crown of pipe.
- Compaction: By hand in 100 mm layers.

Class Q surround

Usage: Plastics pipework requiring a granular surround with protection (typically shallow pipes with 600 mm cover or less in landscaped areas).
Granular material sizes: To Water Industry Specification WIS 4-08-02 (as amended 2008).
Bedding:

- Material: Granular, compacted over full width of trench.
- Thickness: 100 mm (minimum).

Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
Surround:

- Material: Granular.
- Depth: To 75 mm (minimum) above crown of pipe.
- Compaction: By hand.

Compressible material:

- Laying: Continuously over completed surround before laying protection slabs.

Precast concrete protection slabs:

- Bearing: 300 mm (minimum).

Backfilling: Soil or topsoil, as appropriate.

Class W surround

Usage: Plastics pipework requiring a granular surround (typically under solid ground floors where the cover from the underside of the slab is 300 mm or more).
Timing: Excavate trench after hardcore has been laid and compacted.
Granular material sizes: To Water Industry Specification WIS 4-08-02 (as amended 2008).
Bedding:

- Material: Granular, compacted over full width of trench.
- Thickness: 100 mm (minimum).

Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
Surround:

- Material: Granular.
- Depth: To 100 mm above crown of pipe.
- Compaction: By hand.

Backfilling:

- Material: Hardcore as section D20, or granular.
- Depth: Up to slab formation.
- Compaction: In 300 mm (maximum) thick layers.

Class Y surround

Usage: Pipework below solid ground floors, requiring a concrete surround cast integrally with a floor slab (cover from the underside of the slab is less than 300 mm).
Timing: Excavate trench after hardcore has been laid and compacted.
Blinding:

- Material: Concrete (general).
- Thickness: 25 mm (minimum).
- Width: Full width of trench.
- Allow to set before proceeding.

Pipes:

- Temporary support: Folding wedges of compressible board. Prevent flotation.
- Clearance under pipes: 100 mm (minimum).
- Adjust pipes to line and gradient.

Surround, cast integrally with slab:

- Material: Concrete of same mix as slab.
- Width: External diameter of pipe plus 200 mm (minimum).

Extent of surround: To within 150 mm of nearest flexible joint.

Class Z surround

Usage: Pipework requiring a concrete surround to ensure the stability of adjacent structures.
Blinding:

- Material: Concrete (general).
- Thickness (minimum): 25 mm (minimum).
- Width: Full width of trench.
- Allow to set before proceeding.

Pipes:

- Temporary support: Folding wedges of compressible board. Prevent flotation.
- Clearance under pipes (minimum): 100 mm (minimum).
- Adjust pipes to line and gradient.

Surround:

- Material: Concrete (general).
- Depth: To 150 mm above crown of pipe.
- Width: Full width of trench.

Vertical construction joints:

- Location: At face of flexible pipe joints.
- Material: 18 mm thick compressible board precut to profile of pipe.
- Socketed pipes: Fill gaps between spigots and sockets with resilient material to prevent entry of concrete.

Concrete surround for pipe runs near foundations

Class Z surround: Provide in locations where bottom of trench is lower than bottom of foundation and as follows (horizontal clear distance between nearest edges of foundations and pipe trenches):

- Trenches less than 1 m from foundations: Top of concrete surround not lower than bottom of foundation.
- Trenches more than 1 m from foundations: Top of concrete surround not lower than D mm below bottom of foundation, where D mm is horizontal distance of trench from foundation, less 150 mm.

Laying pipelines

Laying pipes: To true line and regular gradient on even bed for full length of barrel with sockets (if any) facing up the gradient.
Ingress of debris: Seal exposed ends during construction.
Timing: Minimize time between laying and testing.

Jointing pipelines

Connections: Durable, effective and free from leakage.
Junctions, including to differing pipework systems: With adaptors intended for the purpose.
Cut ends of pipes: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
Allowance for movement: Provide and maintain appropriate clearance at ends of spigots as fixing and jointing proceeds.
Jointing material: Do not allow to project into bore of pipes and fittings.

Pipelines passing through structures
Pipelines that must be cast in or fixed to structures (including manholes, catchpits and inspection chambers): Provide 600 mm long rocker pipes adjacent to the external face of the structure (or both faces where appropriate, e.g. walls to footings), with flexible joints at both ends.

- Distance to rocker pipe from structure: 150 mm (maximum).

Provision for movement for pipelines that need not be cast in or fixed to structures (e.g. walls to footings):

- Rocker pipes as specified above; or
- Openings in the structures to give 50 mm (minimum) clearance around the pipeline. Closely fit a rigid sheet to each side of opening to prevent ingress of fill or vermin.

Bends at base of soil stacks
Bedding: Do not impair flexibility of pipe couplings.

- Material: Concrete (general).

Direct connection of ground floor WCs to drains
Drop from crown of WC trap to invert of drain (maximum): Comply with Building Regulations Approved/ Technical guidance documents.
Horizontal distance from the drop to a ventilated drain (maximum): 6 m.

Backdrop pipes outside manhole walls
Excavation beneath backdrop pipe: Backfill.

- Material: Concrete (general).

Pipe encasement:

- Material: Concrete (general).
- Thickness (minimum): 150 mm (minimum).

Installing flexible couplings
Ends of pipes to be joined: Cut cleanly and square.
Outer surfaces of pipes to be joined: Clean and smooth. Where necessary, e.g. on concrete or iron pipes, smooth out mould lines and/ or apply a cement grout over the sealing area.
Clamping bands: Tighten carefully to make gastight and watertight seals.

Initial testing of pipelines
Before testing:

- Cement mortar jointing: Leave 24 h.
- Solvent welded pipelines: Leave 1 h.

Method: Block open ends of pipelines to be tested and pressurise. Air test short lengths to BS EN 1610.

Backfilling to pipelines
Backfilling above top of surround or protective cushion: Material excavated from trench, compacted in layers 300 mm (maximum) thick.
Heavy compactors: Do not use before there is 600 mm (total) of material over pipes.

Backfilling under roads and pavings
Backfilling from top of surround or protective cushion up to formation level: Granular sub-base material, laid and compacted in 150 mm layers.

Public roads and pavings – E&W, Scot
Excavating and backfilling of trenches: To Department for Transport 'Specification for the reinstatement of openings in highways'.

Public roads and pavings – NI
Excavating and backfilling of trenches: To Northern Ireland Road Authority and Utilities Committee 'Specification for the reinstatement of openings in highways'.

Laying warning marker tapes
Installation: During backfilling, lay continuously over pipelines.
Depth: 300–400 mm.

- Pipelines deeper than 2 m: Lay an additional tape 600 mm above the top of the pipeline.

Installing access points and gullies
Setting out relative to adjacent construction features: Square and tightly jointed.
Permissible deviation in level of external covers and gratings: +0 to -6 mm.
Raising pieces (clay and concrete units): Joint with 1:3 cement:sand mortar.
Exposed openings: Fit purpose made temporary caps. Protect from site traffic.

Installing rodding points
Bedding and surround:

- Material: Concrete (general).
- Thickness (minimum): 100 mm (minimum).

Permissible deviation in level of external covers and gratings: +0 to -6 mm.

Installing oil and petrol separator units
Installation: Fill tank with water then encase tank and access shafts with concrete (general) to fully support tank.

Fixing manhole steps
Fixing: Bed in joints.
Positioning: 300 mm vertical centres staggered 300 mm horizontally, with lowest step 300 mm (maximum) above benching and top step 450 mm (maximum) below top of cover.

Jointing concrete manhole chamber sections
Inner joint surface: Trim surplus jointing material extruded into chamber and point neatly.

Laying conventional channels, branches and benching
Main channel: Bed solid in 1:3 cement:sand mortar.

- Branches: Connect to main channel at or slightly above invert level, but not higher than half channel level, so that discharge flows smoothly in direction of main flow.
- Branches greater than nominal size 150 mm: Connect the branch soffit level with the main drain soffit.
- Connecting angles more than 45° to direction of flow: Use three-quarter section channel bends.

Concrete benching:

- Profile: Rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then slope upwards at 10% to walls.
- Topping: Concrete or 1:3 Cement:Sand mortar.
- Application of topping: Before benching concrete has set, and with dense smooth uniform finish.

Laying preformed plastics channels, branches and benching
Main channel: Bed solid in 1:3 cement:sand mortar.

- Branches: Connect to main channel at or slightly above invert level, but not higher than half channel level, so that discharge flows smoothly in direction of main flow.
- Connecting angles more than 45° to direction of flow: Use three-quarter section channel bends.

Bedding: 1:3 cement:sand mortar. Use clips or ensure adequate mechanical key.
Benching:

- Material: Concrete (general).
- Profile: Rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then slope upwards at 10% to walls.
- Topping: Concrete or 1:3 Cement:Sand mortar.
- Application of topping: Before benching concrete has set, and with dense smooth uniform finish.

Installing access covers and frames
Bedding and haunching of frames: Continuously.

- Top of haunching: 30 mm below surrounding surfaces.

Horizontal positioning of frames:

- Centred over openings.
- Square with joints in surrounding paving.

Vertical positioning of frames:

- Level; or
- marry in with levels of surrounding paving.

Permissible deviation in level of external covers and frames: +0 to -6 mm.

Exposed openings in inspection chambers, access points, fittings and equipment
General: Fit purpose made temporary caps. Protect from site traffic.

Removal of debris and cleaning
Preparation: Lift covers to manholes, inspection chambers and access points. Remove mortar droppings, debris and loose wrappings.

- Timing: Before cleaning, final testing, CCTV inspection if specified, and immediately before handover.

Cleaning: Thoroughly flush pipelines with water to remove silt and check for blockages. Rod pipelines between access points if there is any indication that they may be obstructed.
Washings and detritus: Do not discharge into sewers or watercourses.
Covers: Securely replace after cleaning and testing.

Temporary measures
Water used to stabilize tanks and the like during installation: Drain.

Testing and inspection
Dates for testing and inspection: Give notice.

Final testing of private gravity drains and sewers up to DN 300

Before testing:

- Cement mortar jointing: Leave 24 h.
- Solvent welded pipelines: Leave 1 h.

Standard: Comply with Building Regulations Approved/ Technical guidance documents.
Method: Air or water, Contractor's choice.

Water testing of manholes and inspection chambers

Timing: Before backfilling.
Standard:

- Exfiltration: To BS EN 1610. Testing with water (Method W).
- Infiltration: No identifiable flow of water penetrating the chamber.

Water testing of ancillary components

Standard: To BS EN 1610.

R13 LAND DRAINAGE

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Design

General: Read with section R12 Below ground drainage systems.

Existing drains and watercourses

Setting out: Before starting work, check invert levels and positions of existing drainage against drawings. Report any discrepancies.
Protection: Protect existing drains to be retained and maintain normal operation.

PRODUCTS

Below ground drainage systems

Products generally: As reference specification section R12.

Clayware field drain pipes and junctions

Standard: To BS 1196.

Concrete (general)

Standards: To BS 8500-1 and -2.
Usage: In small quantities for general purposes including bedding of gullies and small accessories, backfilling and mass concrete surrounds to tanks.
Mixes:

- Ready mixed concrete: Designated concrete GEN1. Submit proposals if requesting higher strength mixes used elsewhere in the project to be considered.
- Site mixed concrete: Standardized prescribed concrete ST2.

Granular material for pipe bedding

Standard: BS EN 13242.

- Size: 4/10.

Gully and manhole tops

Standard: To BS EN 124.

Plastics pipes and fittings for use as subsoil field drains

Standard: To BS 4962.

Vitrified clay pipes and fittings

Standard: To BS EN 295-5.

- Strength: FN22.

EXECUTION

General

Standard: In accordance with relevant parts of BS 4428 and BS EN 752, with National Annex NA.
Below ground drainage systems: As section R12.

Laying pipes

Conditions: Lay pipes in good weather using methods suitable for the site conditions.

- Soil structure: Prevent compaction, smearing, top ponding, rutting and damage.

General: Lay to line and gradient on a firm bed free from loose soil to give a free-draining installation without backfalls. Do not lay on soil backfill or in slurry.
Junctions between branches and mains: Use purpose made components.
Backfilling: Carefully backfill with filter material.

- Pipes: Do not damage, distort or displace.

Cold weather

Plastics pipes: Do not lay or backfill at temperatures lower than 5°C.

Trees/ hedges

Drains closer than 6 m to trees/ hedges: Nonporous, unperforated pipes with positively sealed joints and as-dug backfill.

Excavation

Pipe gradients: Between 1 in 200 and 1 in 80.
Topsoil: Carefully remove topsoil before forming trenches. Prevent mixing with subsoil.
Subsoil: Remove from site or to approved locations at end of each day and before pipe laying. Do not disperse on topsoiled areas.
Spoil: Remove without contaminating grass surfaces.

Existing live land drains
Drains exposed by excavation: Mark positions.
Cutting out: Carefully break back piped drains to an undisturbed section.
Reconnection: Connect exposed drain to new work.
Record drawing: Show position of exposed system and new connections. Submit copy.

Formation for beds or pipes
Timing: Excavate to formation immediately before laying beds or pipes.
Hard spots: Remove rock projections, boulders, etc. Replace with consolidated bedding material.
Soft spots: Tamp in bedding material.
Inspection: Give reasonable notice of completed excavated formation for each section of the work.

Granular beds
Compacted thickness: 50 mm (minimum). Increase thickness as manufacturer's recommendation for pipes larger than DN 150 and/ or for spigot and socket joints.
Execution: Scoop out locally at couplings/ sockets and lay pipes digging slightly into bed and resting uniformly on their barrels.

Granular surround/ backfilling to drains with pipes
General: Not applicable to narrow trenches where a backfill is placed continuously by machine.
Placing: In 300 mm (maximum) layers, with mechanical compaction from 300 mm above crown of pipe, up to finished ground level.

- Surround and backfill material: Do not heap in the trench before spreading.
- Packing: Carefully pack material around the sides of the pipe. Compact thoroughly.
- Pipelines: Prevent damage or disruption.

Granular backfilling to drains without pipes
General: Not applicable to narrow trenches where a backfill is placed continuously by machine.
Placing: In 300 mm (maximum) layers, with mechanical compaction, up to finished ground level.
Covering to subsoil drains: Cap granular material before topping off trench up to finished ground level.

Backfilling with as-dug material
General: Not applicable to narrow trenches where a backfill is placed continuously by machine.
Material: As excavated from the trench.
Placing and compaction: 300 mm (maximum) layers, up to finished ground level.

- Layers: Compact each layer before placing the next.

Heavy compactors: Do not use before there is 600 mm of material over pipes.

Surround/ backfilling with selected as-dug material
Material: Selected as-dug, free from vegetable matter, rubbish, frozen soil, large lumps of clay and material retained on a 40 mm sieve.

- Packing: Carefully pack material around the sides of the pipe. Compact thoroughly.
- Pipelines: Prevent damage or disruption.

Granular fill soakaways
Vertical inspection/ distributor pipes: DN 225 perforated for full depth of granular fill, unperforated above.

Cast iron access covers
Bedding and haunching of frame:

- Execution: Solidly in 1:3 cement:sand mortar over whole area.
- Placing: Centrally over opening, top level and square with joints in surrounding finishes.
- Level: Cut back top of haunching to 30 mm below top of surface material.

Plain pipe outfalls to open watercourses
Invert minimum level: Seasonal peak level or 150 mm above normal water level, whichever is the higher.
Buried length of pipe (minimum): 1.5 m. Project end of pipe over water surface of the watercourse.
Backfill around pipe: Well-rammed subsoil for a length of 2.0 m (minimum).

R17 SOAKAWAY AND SEPTIC TANK AND SEWAGE TREATMENT UNITS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Design

General: Read with section R12 Below ground drainage systems.

PRODUCTS

Below ground drainage systems

Products generally: As reference specification section R12.

Concrete (general)

Standards: To BS 8500-1 and -2.
Usage: In small quantities for general purposes including bedding, backfilling and mass concrete surrounds to tanks.
Mixes:

- Ready mixed concrete: Designated concrete GEN1. Submit proposals if requesting higher strength mixes used elsewhere in the project to be considered.
- Site mixed concrete: Standardized prescribed concrete ST2.

Distribution and sampling chambers

Cover loading grade: To BS EN 124.

Pipes, bends and junctions

Vitrified clay perforated: To BS EN 295-5, Kitemark certified.
PVC-U solid wall perforated: To BS EN 1401-1, class SN4, with flexible joints.

Private packaged septic tank units

Standard: To BS EN 12566-1 or Agrément certified.

- Cover loading grade: To BS EN 124.

Private packaged sewage treatment units

Standard: To BS EN 12566-3 or Agrément certified.

- Cover loading grade: To BS EN 124.

EXECUTION

General

Standard: In accordance with relevant parts of BS EN 752, with National Annex NA, and BS EN 1610.
Below ground drainage systems: As section R12.

Soakaways – granular fill

Geotextile membrane: Line bottom and sides of pit.

- Jointing: Overlap 300 mm.

Inspection and distributor pipes: Insert as required.
Height of fill: Above crown of inlet pipe.
Top of fill: Cover with geotextile membrane.
Backfill: As-dug material.
Access covers: Bed and haunch continuously in 1:3 cement:sand mortar.

Installing septic tank and sewage treatment units

Base: Concrete (general).
Surround:

- Preparation: Temporarily fill tanks with water to prevent flotation.
- Material: Concrete (general).

Installing distribution and sampling chambers

Collar: Concrete (general).

Septic tank drainage fields

Standard: To BS 6297.
Percolation trenches:

- Width (minimum): 300 mm.
- Depth: To suit pipe gradient, thickness of granular material below pipes and to give a pipe invert depth of 200 mm (minimum) below ground level.
- Width of undisturbed ground between trenches (minimum): 1 m.

Granular material:

- Depth below pipe inverts (minimum): 300 mm.
- Compaction: Thoroughly, in maximum 300 mm thick layers.
- Thickness above pipe crowns: 50 mm.

Pipes:

- Uniform gradient (maximum): 1 in 200 away from distribution and sampling chamber.
- Laying: Dig slightly into bed, resting uniformly on barrels and adjust to line and gradient.

Barrier layer across the top of granular material:

- Laying: Tuck 75 mm down trench sides. Lap joints 300 mm.

Backfill to surrounding ground level: As-dug material.

Laying cable ducts

Drawlines: Thread through during laying.

Backfilling with as-dug material

Material: As excavated from the trench.
Placing and compaction: Maximum 300 mm thick layers, up to finished ground level. Compact each layer before placing the next.
Heavy compactors: Do not use before there is 600 mm of material over pipes.

Commissioning of septic tanks and sewage treatment units

Testing: Test the operation of all pumps, valves, controls, sensors and the like to verify correct operation, and make good if necessary.
Hand over at completion:

- Manufacturers' operating and maintenance instructions.
- Tools for operation, maintenance and cleaning, including keys for access covers.

S90 HOT AND COLD WATER SUPPLY SYSTEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Design and detailing by contractor

Standard: To BS EN 806-2 and BS 8558.

PRODUCTS

Equipment

Solar collectors: To BS EN 12975-1 and BS EN ISO 9806.
Controls: To BS EN 60730-1, BS EN 60730-2-14 and -2-9.
Instantaneous water heaters – gas: To BS EN 26.
Instantaneous water heaters and shower units – electric: To BS EN 60335-2-35, BEAB approved and/ or accepted by water supply undertaker.
Storage water heaters – gas: To BS EN 89.
Storage water heaters – electric: To BS EN 60335-2-21, BEAB approved and/ or accepted by water supply undertaker.

Cisterns

Nonpotable water storage and feed & expansion tanks: With removable cover.

- Moulded plastics: To BS 4213.
- Grp: To BS EN 13280.

Potable water storage: To BS 7181, insulated with secured cover, screened air inlet and screened warning pipe termination assembly.

- Moulded plastics: To BS 4213.

Cistern valves: Float operated diaphragm type to BS 1212-2 or -3.

- Float: Plastics to BS 2456 size to suit water pressure.

Hot water storage cylinders

Direct: To BS 1566-1, Kitemark certified.
Double feed indirect: To BS 1566-1, Kitemark certified.
Single feed indirect: To BS 1566-2, Kitemark certified.
Separate insulating jacket: To BS 5615.

Insulated combination units

Standard: To BS 3198, Kitemark certified.
Combination units for hot and cold water linked to a boiler: Provide a feed and expansion cistern unless integral cistern included.

Indirectly heated unvented hot water storage

Standard: To BS EN 12897.

Immersion heaters

Standard: To BS EN 60335-2-73, BEAB approved.

Metal flue pipes

Standard: To BS 715 for gas fired appliances.

Copper pipe and fittings

Tube: To BS EN 1057, Kitemark certified.
General use: Half hard temper R250.
General use wall thickness (nominal):

- 6, 8, 10 and 12 mm pipes: 0.6 mm.
- 15 mm pipes: 0.7 mm.
- 22 and 28 mm pipes: 0.9 mm.
- 35 and 42 mm pipes: 1.2 mm.

Underground use: Soft coil temper R220 or half hard temper R250.
Underground use wall thickness (nominal):

- 6, 8, 10 and 12 mm pipes: 0.8 mm.
- 15 mm pipes: 1.0 mm.
- 22 and 28 mm pipes: 1.2 mm.
- 35 and 42 mm pipes: 1.5 mm.

Capillary fittings: To BS EN 1254-1, Kitemark certified.
Compression fittings: To BS EN 1254-2, Kitemark certified.
Fittings with threaded ends: To BS EN 1254-4, Kitemark certified.
Plastics coated copper pipelines for use below ground:

- Coating: Seamless polyethylene, to BS 3412.

Chromium plated copper pipe
Tube: To BS EN 1057, Kitemark certified, half hard temper R250.

- Finish: Chromium plate, to BS EN ISO 1456, service condition 2.

Wall thickness (nominal):

- 6, 8, 10 and 12 mm pipes: 0.6 mm.
- 15 mm pipes: 0.7 mm.
- 22 and 28 mm pipes: 0.9 mm.
- 35 and 42 mm pipes: 1.2 mm.

Compression fittings: To BS EN 1254-2, Kitemark certified, Type A.

- Finish: Chromium plate to BS EN ISO 1456, service condition 3.

Fittings with threaded ends: To BS EN 1254-4, Kitemark certified.

Stainless steel pipe
Tube: To BS EN 10312.
Fluxes containing chlorides or borides: Not permitted.

Thermoplastics pipe and fittings
Polybutylene (PB): To BS 7291-1 and BS 7291-2, or Water Regulations Advisory Scheme (WRAS) approved and Agrément certified.
Cross-linked polyethylene (PE-X): To BS 7291-1 and BS 7291-3, or Water Regulations Advisory Scheme (WRAS) approved and Agrément certified.

Polyethylene pipe for use below ground
Tube: Blue polyethylene to BS EN 12201-2.

- Jointing: Compression fittings to BS EN 12201-3.

Pipeline insulation

- Fire performance: Class 1 spread of flame to BS 476-7.

Timers and thermostats
Standards: To relevant parts of BS EN 60730 and C, BEAB approved.

Valves
Generally: Approved by local water supply undertaker and of appropriate pressure and/ or temperature ratings.
For isolation control: With handwheels.
For isolation and regulation: With lockshields.
Ball valves: To BS EN 331.
Stop valves for below ground use: DZR copper alloy CZ 132 to BS 5433.
Gate valves: Copper alloy to BS 5154, Series B, Kitemark certified or BS EN 12288.
Double check valve assemblies: Copper alloy check valves to BS EN 13959 with intervening test cock to BS 2879.
Draining taps: Copper alloy to BS 2879, Type 1, hose connection pattern, Kitemark certified.
Gas plug cocks: To BS 1552.

EXECUTION
Hot and cold water services for domestic use
Standard: To BS EN 806-4.

Gas services
Standard: To BS 6891.

Installation generally
Performance: Free from leaks and audible effects of expansion, vibration and water hammer.
Fixing of equipment, components and accessories: Secure, parallel or perpendicular to building structure.
Preparation: Clear debris and projections before installing tanks and cisterns on floors or platforms.
Corrosion resistance: Use corrosion resistant fittings/ fixings and avoid contact between dissimilar metals.

Dezincification
Fittings used below ground or in concealed or inaccessible locations: Gunmetal or another material resistant to dezincification.

Flue pipe
Joints and bends: Minimize number.
Slope: Not more than 30° from the vertical.
Joints:

- Sockets: Uppermost.
- Supports: Fully supported and fixed securely with brackets supplied for the purpose.
- Sealing: Gas-tight, in accordance with manufacturer's instructions.
- Joints within floor void: Not permitted.

Expansion and contraction: Accommodate thermal movement.
Fire safety: Locate a safe distance from combustible materials.
Roof junction: Weatherproof.

Balanced flue terminal
Opening in external wall: Submit proposals for position.
Flue guard: Required if flue may be touched.

Cisterns
Outlet positions: 30 mm (minimum) above bottom.
Access clear space:

- Cistern does not exceed 450 mm in any dimension: 225 mm (minimum) above.
- Cistern does exceed 450 mm in any dimension: 350 mm (minimum) above.

Warning/ overflow pipes to cisterns
Normal water level and overflow level difference (minimum):

- Cold water storage cisterns: The greater of 32 mm or the bore of warning pipe.
- Feed and expansion cisterns: To allow 20% increase in the volume of water plus 25 mm.

Supply inlet above overflow level: Bore of warning pipe (minimum).
Fall: 1 in 10 (minimum).
Support: To prevent sagging.
Exposed end: Prominent position with turned down end.
Cistern end: Turned down to terminate 50 mm below normal water level.
Insulation: Insulate within the building where subject to freezing.

Vent pipes over cisterns
Route: No restrictions or valves.
Slope: Rising continuously from system connection to discharge over cistern.
Internal diameter: 20 mm (minimum).

Unvented hot water storage discharge pipes
Discharge pipe size: To suit outlet on safety device and length and configuration of pipe.

- Fall: 1 in 80 (minimum).
- Discharge: Via an air break and tundish.

Water softeners
Supply continuity: Fit bypass pipe and stop valves.
Drains: Overflow/ drain lines to trap and waste.
Back siphonage: Prevent back siphonage during regeneration.

Pipelines
Generally to:

- BS 8000-15, clause 3.7;
- BS 5955-8, clause 6.11;
- BS EN 806-4; and
- BRE Defect Action Sheets 120 and 121.

Notches and holes in timber to:

- BS EN 806-4 clauses 4.5 and 4.7.
- Building Regulations E&W Approved Document A, section 1B6.
- Building Regulations NI Technical Booklet D, section 2.6.

Position:

- Arrangement: Straight, and parallel or perpendicular to building elements.
- Location: Within floor, ceiling and/ or roof voids.
- Access: To facilitate installation of equipment, accessories and insulation without compression.
- Maintenance: Allow sufficient space for access.
- Where routed together horizontally: Hot pipelines above cold.
- Heating pipelines: Do not run cold water pipelines near.
- Heated spaces: Do not run cold water pipelines through.
- Electrical enclosures: Do not run water pipelines through.
- Electrical equipment: Do not run water pipelines above.

Pipelines fixing
Fixing: Secure and neat.
Joints, bends and offsets: Minimize.
Pipeline support: Prevent strain.
Drains and vents: Fix pipelines to falls. Fit draining taps at low points and vents at high points.
Thermal expansion and contraction: Allow for thermal movement. Isolate from structure. Prevent noise or abrasion.
Pipelines passing through walls, floors or other building elements: Sleeve.
Dirt, insects or rodents: Prevent ingress.

Support for copper/ stainless steel pipelines
Fixing: Secure and true to line.
Support centres (maximum):

- 15 and 22 mm pipe: Horizontal 1200 mm, vertical 1800 mm.
- 28 and 35 mm pipe: Horizontal 1800 mm, vertical 2400 mm.
- 42 and 54 mm pipe: Horizontal 2400 mm, vertical 3000 mm.

Additional supports: Locate within 150 mm of connections, junctions and changes of direction.

Supports for exposed thermoplastics pipelines
Fixing: Secure and true to line.
Support centres (maximum):

- Up to 16 mm pipe: Horizontal 300 mm, vertical 500 mm.
- 17-25 mm pipe: Horizontal 500 mm, vertical 800 mm.
- 26-32 mm pipe: Horizontal 800 mm, vertical 1000 mm.

Additional supports: Locate within 150 mm of connections, junctions and changes of direction.

Bends in thermoplastics pipelines
Bends: Do not use 90º elbow fittings. Large radius bends: Support at maximum centres.
90° bends: Fix pipe clips either side of bend.
Small radius bends: Fully support 90° bends with cold form bend fixtures.

Polyethylene pipelines for use below ground
Jointing: Compression fittings recommended by tube manufacturer.

Pipeline spacing
Clearance (minimum) to face of wall-fixed pipes or pipe insulation:

- From floor: 150 mm.
- From ceiling: 50 mm.
- From wall: 15 mm.
- Between pipes: 25 mm.
- From electrical conduit, cables, etc: 150 mm.

Joints in copper/ stainless steel pipelines
Preparation: Cut pipes square. Remove burrs.
Joints: Neat, clean and fully sealed.
Pipe ends: inserted to full depth.
Formed bends: Do not use on exposed pipework, except for small offsets.
Changes of direction: Use radius fittings.
Adaptors for connecting dissimilar materials: Purpose designed.
Substrate and plastics pipes and fittings: Do not damage.
Flux residue: Clean off.

Capillary joints in plastics coated pipes
Plastics coating: Do not damage.
Completed joint: When cool, wrap with PVC tape of matching colour, half lapped.

Joints in thermoplastics pipelines
Fittings and accessories for joints: Purpose designed.
Preparation: Cut pipes square. Remove burrs.
Joints: Neat, clean and fully sealed. Pipe ends: inserted to full depth.
Compression fittings: Do not overtighten.
Transition joints to boilers, circulators and adjacent to radiant heat sources: 300 mm long (minimum) copper transition tube, diameter as heating pipeline, compression jointed to pipeline and fitting.

Pipelines entering buildings
Depth: Lay pipes 750 mm (minimum) below finished ground level.
Pipelines rising into building within 750 mm of the external face of the external wall or passing through a ventilated void below floor level: Insulate from finished floor level to 600 mm beyond external face of building.
Ends of pipeducts: Seal both ends to a depth of 150 mm (minimum).

External supply pipelines
Pipelines exposed to air and less than 750 mm below finished ground level: Insulate.

Insulation to pipelines
Standard: In accordance with BS 5970.
Cold water pipelines: Insulate in unheated spaces and to potable cold water pipelines.
Hot water pipelines: Insulate, except for short lengths in prominent positions next to appliances.
Appearance: Fix securely and neatly. Make continuous over fittings and at supports. Locate split on 'blind' side of pipeline.
Gaps: Not permitted.
Timing: Fit insulation after testing.

Insulation to cisterns
Standard: In accordance with BS 5970.
General: Fix securely to sides and top of cisterns.
Gaps: Not permitted.
Access cover: Allow removal of cover with minimum disturbance to insulation.
Underside of cistern: Insulate where exposed in unheated spaces.

Valves
Isolation and regulation valves: Provide on equipment and subcircuits.
Location: Next to equipment to be isolated.
Access: Locate for ease of operation and maintenance.
Connection to pipework: Fit with joints to suit pipe material.

COMPLETION
System disinfection
Disinfection: To BS EN 806-4.

Testing and commissioning
Testing and commissioning: To BS EN 806-4.

- Notice: 3 days (minimum).

Preparation: Secure and clean pipework and equipment. Fit cistern/ tank covers.
Flushing and filling: To BS EN 806-4.
Leak testing: Start and run until all parts are at normal operating temperatures, allow to cool to cold condition for a period of 3 hours.
Pressure testing: At both hot and cold joints, fittings and components free from leaks and signs of physical distress when tested for 1 hour (minimum) as follows:

- Systems fed directly from the mains and systems downstream of a booster pump: Test pressure of 1.5 times the designed maximum operating pressure.
- Systems fed from storage: Test pressure equal to storage cistern filled to normal maximum operating level.
- Inaccessible or buried pipelines: Hydraulic pressure test to twice the maximum operating pressure.

Equipment, controls and safety devices: Check and adjust operation.
Outlets: Check operation, rate of flow and temperature.

Testing gas pipelines
Testing and purging: To BS 6891.

Documentation
Manufacturers' operating and maintenance instructions: Submit for equipment and controls.
System operating and maintenance instructions: Submit for the system as a whole giving optimum settings for controls.
Record drawings: Submit drawings showing the location of circuits and operating controls.

Operating tools
Tools: Supply for operation, maintenance and cleaning purposes.
Valve keys: Supply for valves and vents.

Labels
Isolating and regulating valves on primary circuits: Label with statement of function.

T90 HEATING SYSTEMS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

DESIGN

Basic domestic room design temperatures at given ventilation rates

Living rooms: Temperature 21°C.

- Air changes: 1.5 per hour.

Dining rooms: Temperature 21°C.

- Air changes: 1.5 per hour.

Bedsitting rooms: Temperature 21°C.

- Air changes: 1.5 per hour.

Bedrooms: Temperature 18°C.

- Air changes: 1 per hour.

Halls and landings: Temperature 18°C.

- Air changes: 1.5 per hour.

Kitchens: Temperature 18°C.

- Air changes: 2 per hour.

Bathrooms: Temperature 22°C.

- Air changes: 2 per hour.

Toilets: Temperature 18°C.

- Air changes: 2 per hour.

Thermal insulation of building fabric - heat loss determined by contractor

Heat loss calculations: Based on U values in the specified source documents or calculated from the fabric described elsewhere.
Submit: Heat loss calculations for each room using the HEVACOMP suite of programmes or an agreed equivalent.

System capacity

Output of total heating surface area in any space: As near as practicable to, but not less than, design heat loss for that space.
Boiler output (minimum): Total calculated heat loss, including emission from system pipelines and sufficient to meet hot water supply requirements.
Total heat loss calculations: Allow for intermittent use, exposure, and the like.

PRODUCTS

Central heating boilers

Gas fired:

- Standard boiler: To relevant parts of BS 5258-1, BS EN 483 or BS EN 297.
- Combination boiler: To BS 5258-15, BS EN 297 or BS EN 483 and BS EN 625.

Oil fired: To BS 799-2 or BS 799-3 and BS EN 15035.

Fires

Gas:

- Gas fire: To BS 7977-1.
- Gas fire with back boiler: To BS 7977-2.
- Inset live fuel effect gas fire: To BS EN 509 and BS 7977-1.
- Decorative fuel effect gas appliance: To BS EN 509 and BS 7977-1.

Chimneys and flues

Insulated chimneys with stainless steel linings for solid fuel fired appliances: To BS EN 1856-1, tested to BS EN 1859.
Insulated chimneys with stainless steel linings for oil fired appliances: To BS EN 1856-1, tested to BS EN 1859.
Flue liners: Flexible, spiral wound, austenitic stainless steel tube.
Metal flues for gas fired appliances: To BS 715, BS EN 1856-1 and BS 5440-1.

Oil storage tanks

Steel: To BS 799-5 and BS 5410-1.
Plastics: To OFS T100 (OFTEC) and BS 5410-1.

Cisterns
Feed and expansion cisterns with removable cover:

- Moulded plastics: To BS 4213.
- GRP: To BS EN 13280.

Cistern valves: Float operated diaphragm type to BS 1212-2 or -3.
Float: Plastics to BS 2456, size to suit water pressure.

Circulating pumps
Standard: To BS EN 16297-1, BS EN 16297-2 and BS EN 60335-2-51.

Radiators
Standard: To BS EN 442.

Convectors
Natural convectors: To BS EN 442.
Fan assisted convectors: To BS EN 442 and BS 4856-1, -2, -3, -4.

Copper pipelines for general use
Standard: To BS EN 1057, Kitemark certified.

- Temper: Half hard temper R250.

Wall thickness (nominal):

- 6, 8, 10 and 12 mm nominal O.D. pipes: 0.6 mm.
- 15 mm nominal O.D. pipes: 0.7 mm.
- 22 and 28 mm nominal O.D. pipes: 0.9 mm.
- 35 and 42mm nominal O.D. pipes: 1.2 mm.

Microbore copper pipelines
Standard: To BS EN 1057, Kitemark certified.
Temper: Soft coil temper R220.
Wall thickness (nominal):

- 6 and 8 mm nominal O.D. pipes: 0.6 mm.
- 10 mm nominal O.D. pipes: 0.7 mm.

Plastics coated copper pipelines
Standard: To BS EN 1057, Kitemark certified.

- Coating: Seamless polyethylene, to BS 3412.

Temper: Half hard temper R250.
Wall thickness (nominal): As copper pipelines for general use.

Fittings for copper pipelines
Jointing:

- Integral lead free solder ring capillary fittings: To BS EN 1254-1, Kitemark certified.

Connections to appliances and equipment:

- Compression fittings: To BS EN 1254-2, Kitemark certified.
- Fittings with threaded ends: To BS EN 1254-4.

Thermoplastic pipe and fittings
Polybutylene (PB): To BS 7291-2.
Cross linked polyethylene (PE-X): To BS 7291-3.

Pipeline insulation
Material: Preformed flexible plastics closed cell foam or mineral fibre split tube.
Thermal conductivity: 0.04 W/m²K (maximum).
Thickness:

- Heating and primary pipelines: Equal to the outside diameter of the pipe up to 40 mm (maximum).
- Internal cold water pipelines: 25 mm.
- Roof space cold water pipelines: 32 mm.
- External cold water pipelines: 38 mm.
- Fire performance: Class 1 spread of flame to BS 476-7.

Controls
Programmers: To relevant parts of BS EN 60730 and BS EN 61058, BEAB approved.
Timers and thermostats: To relevant parts BS EN 60730 and BS EN 61058, BEAB approved.

- Types: Recommended for purpose.

Valves
Generally:

- Types: Approved for the purpose by local water supply undertaker and of appropriate pressure and temperature ratings.
- Control of valves: Fit with handwheels for isolation and lockshields for isolation and regulation of circuits or equipment.

Motorized valves: To relevant parts of BS EN 60730 and BS EN 61058, BEAB approved.
Manual radiator valves: Copper alloy to BS 2767.
Thermostatic radiator valves: To BS EN 215-1 and capable of providing isolation.

EXECUTION
System performance
Control:

- Controls: Compatible with each other and with the central heating boiler.
- Temperature and time control: Fully automatic and independent.

Domestic heating systems: To Water Supply Regulations/ Byelaws and the requirements of the water supply undertaker.

Installation generally
Performance: Free from leaks and the audible effects of expansion, vibration and water hammer.
Fixing of equipment, components and accessories: Fix securely, parallel or perpendicular to the structure of the building.
Preparation: Clear debris and projections before installing tanks and cisterns on floors or platforms.
Corrosion resistance: Use corrosion resistant fittings/ fixings and avoid contact between dissimilar metals.
Electrical work: To BS 7671.
Fire resisting pipe sleeves:

- Types and sizes: Recommended by manufacturer.

Sealing around services: Fill space completely. Finish neatly.
Decoration and other work: Drop radiators when required.

Gas fired boilers
Installation: To BS 6798.
Space around the boiler:

- Ensure sufficient air circulation for draught diverter operation.
- Ensure sufficient air for combustion and cooling.
- Sufficient for maintenance and servicing.

Combustible material: Either 75 mm clear of the boiler, or lined with non-combustible material.
Combination boilers:

- Expansion vessel connection pipework: Locate the neutral point of the system in the return pipework close to the heat generator.
- Fill point location: Between the expansion vessel connection point and circulation pump inlet.

Solid fuel fired roomheaters with backboiler
Installation: To BS 8303-3.
Hearth: Place appliances wholly or partially upon constructional hearths or upon finished hearths constructed of non-combustible materials.
Existing flues: Ensure flue is clean, clear of obstructions, in a sound condition and of adequate size.

Gas fires
Type: With or without back boiler.

- Installation: To BS 5871-1.

Room sealing: Room seal appliances installed in spaces containing baths, showers or beds.

Fuel effect gas fires
Installation: To BS 5871-2.
Siting: Stand on a hearth or floor, or secure to wall.
Existing chimneys: Remove dampers or restrictor plates in the chimney, or where this is not practicable, permanently fix in the fully open position.
Live fuel effect gas fires:

- Sealing: To eliminate the entry of excess air into the flue, seal fire into position.

Decorative fuel effect gas fires:

- Servicing: Install appliances so they can be removed for servicing.

Flue pipes
Installation: To BS 5440-1.
Joints and bends: Minimize number.
Slope: Not more than 30° from the vertical.
Joints: Install with sockets uppermost, fully supported and fixed securely with brackets supplied for the purpose. Do not locate joints within the depth of floors.

- Seals: Seal to provide a gas-tight installation.

Expansion and contraction: Accommodate thermal movement.
Fire safety: Locate a safe distance from combustible materials.
Roof junction: Weatherproof. Fit terminal and flashings, collars etc.

Flexible flue liners
Installation: Complete, gas tight.
Flue: Unobstructed and clean.
Liner: One piece.

- Fixing: Fix securely at top of stack and to boiler with purpose-made clamps.

Joint at boiler: Seal. Fill completely with jointing material.

Existing chimneys
Preparation: Clean thoroughly. Check for obstructions and blockages.
Tests: Carry out core ball test and smoke test.

- Programme: Give notice.
- Obstructions or leaks: Submit proposals for making good.

Air supply to contractor design appliances
Air supply requirements: Submit details.
Sizes and locations of vents: Submit proposals.

Oil storage tanks
Installation: To BS 5410-1.

Feed and expansion cisterns
Installation: To BS EN 806-4.
Outlet positions: 30 mm (minimum) above base.
Access clear space (minimum):

- Cistern does not exceed 450 mm in any dimension: 225 mm above.
- Cistern does exceed 450 mm in any dimension: 350 mm above.

Mounting height (minimum): One metre above highest point of circulation system, unless boiler manufacturer's recommendations allow less.
Location: Sufficient space for cleaning and maintenance, with enough clearance above the tank to service the valve and accommodate the expansion pipe.
Plinth: Firm and level. Ensure adequate distribution of the load - especially if required to be carried by trussed rafters.
Installation of insulation:

- General: Fix securely to sides and top of cisterns. Leave no gaps.
- Access cover: Allow removal of cover with minimum disturbance to insulation.
- Underside of cistern: Insulate where exposed in unheated spaces.

Warning and overflow pipes to feed and expansion cisterns
Difference (minimum) between normal water level and overflow level:

- Feed and expansion cisterns: Sufficient to allow 20% increase in the volume of water in the tank, plus 25 mm.

Vertical distance (minimum) of water supply inlet above overflow level: Bore of warning pipe.
Fall: 1 in 10 (minimum).
Installation: Support to prevent sagging. Terminate pipes separately in prominent positions with turned down ends. Turn down within the cistern. Terminate 50 mm below normal water level.
Insulation: Insulate within the building where the pipe is in an un-insulated space and subject to freezing.

Vent pipes over feed and expansion cisterns
Route: Install with no restrictions or valves and rising continuously from system connection to discharge over cistern.
Internal diameter: 20 mm (minimum).

Circulating pumps
Location: Readily accessible positions.
Installation: As recommended by manufacturer.

Radiators
Towel warmers: Install on primary hot water circuit.

Pipelines

Generally to:

- BS 8000-15, clause 3.7;
- BS 5955-8, clause 6.11;
- BS EN 806-2, clause 5 and
- BRE Defect Action Sheets 120 and 121.

Notches and holes in timber to:

- BS 8558, Figure 14.
- Building Regulations Eng Approved Document A, section 1B6.
- Building Regulations Wales (E&W) Approved Document A, section 1B6.
- Building Regulations NI Technical Booklet D, section 2.6.

Position:

- Arrangement: Straight, and parallel or perpendicular to building elements.
- Location: Within floor, ceiling and/ or roof voids.
- Access: To facilitate installation of equipment, accessories and insulation without compression.
- Maintenance: Allow sufficient space for access.
- Where routed together horizontally: Hot pipelines above cold.
- Heating pipelines: Do not run cold water pipelines near.
- Heated spaces: Do not run cold water pipelines through.
- Electrical enclosures: Do not run water pipelines through.
- Electrical equipment: Do not run water pipelines above.

Pipelines fixing general

Fixing: Secure and neat.
Joints, bends and offsets: Minimize.
Pipeline support: Prevent strain.
Drains and vents: Fix pipelines to falls. Fit draining taps at low points and vents at high points.
Thermal expansion and contraction: Allow for thermal movement. Isolate from structure. Prevent noise or abrasion.
Pipelines passing through walls, floors or other building elements: Sleeve.
Dirt, insects or rodents: Prevent ingress.
Spacing:

- Clearance (minimum) to face of wall-fixed pipes or pipe insulation:

From floor: 150 mm.
From ceiling: 50 mm.
From wall: 15 mm.
Between pipes: 25 mm.
From electrical conduit, cables, etc: 150 mm.

Copper and plastics coated copper pipelines

Jointing:

- Preparation: Cut pipes square. Remove burrs.
- Joints: Neat, clean and fully sealed. Install pipe ends into joint fittings to full depth.
- Bends: Do not use formed bends on exposed pipework, except for small offsets. Form changes of direction with radius fittings.
- Adaptors for connecting dissimilar materials: Purpose designed.
- Substrate and plastics pipes and fittings: Do not damage, e.g. by heat when forming soldered joints.
- Flux residue: Clean off.

Capillary joints in plastics coated pipelines:

- Plastics coating: Do not damage, e.g. by direct or indirect heat. Wrap completed joint (when cool) with PVC tape of matching colour, half lapped.

Support centres (maximum):

- 15 and 22 mm pipes: Horizontal 1200 mm, vertical 1800 mm.
- 28 and 35 mm pipes: Horizontal 1800 mm, vertical 2400 mm.
- 42 and 54 mm pipes: Horizontal 2400 mm, vertical 3000 mm.

Additional supports: Within 150 mm of connections, junctions and changes of direction.

Thermoplastics pipelines
Bends:

- 90° elbow fittings to form bends: Not permitted.
- Large radius bends: Support at maximum centres.
- 90° bends: Fix pipe clips either side of bend.
- Small radius bends: Fully support 90° bends with cold form bend fixtures.

Support centres (maximum):

- Up to 16 mm pipes: Horizontal 300 mm, vertical 500 mm.
- 17–25 mm pipes: Horizontal 500 mm, vertical 800 mm.
- 26–32 mm pipes: Horizontal 800 mm, vertical 1000 mm.

Fixing: Secure and true to line.
Additional supports: Provide as necessary within 150 mm of connections, junctions and changes of direction.

Bends in thermoplastics pipelines
Bends: Do not use 90° elbow fittings. Large radius bends: Support at maximum centres.
90° bends: Fix pipe clips either side of bend.
Small radius bends: Fully support 90° bends with cold form bend fixtures.

Insulation to pipelines
Cold water pipelines: Insulate in unheated spaces and to potable cold water pipelines.
Hot water pipelines: Insulate, except for short lengths in prominent positions next to appliances.
Appearance: Fix securely and neatly. Make continuous over fittings and at supports. Leave no gaps. Locate split on 'blind' side of pipeline.
Gaps: Not permitted.
Timing: Fit insulation after testing.

Reflective aluminium foil
Installation: Cut neatly to size 25 mm smaller than radiator and fix behind radiators.

Valves
Isolation and regulation valves: Provide on equipment and subcircuits.
Location: Next to equipment to be isolated.
Access: Locate for ease of operation and maintenance.
Connection to pipework: Fit with joints to suit the pipe material.
Lockshield valves: Fitted to return side of radiators.

COMPLETION
Testing and commissioning
Notice: 3 days (minimum).
Preparation: Secure and clean pipework and equipment. Fit cistern/ tank covers.
Leak testing: Start and run until parts are at normal operating temperatures, allow to cool to cold condition for a period of 3 hours.
Pressure testing: At both hot and cold joints, fittings and components free from leaks and signs of physical distress when tested for 1 hour (minimum) as follows:

- Systems fed directly from the mains and systems downstream of a booster pump: Test pressure of 1.5 times the designed maximum operating pressure.
- Systems fed from storage: Test pressure equal to storage cistern filled to normal maximum operating level.
- Inaccessible or buried pipelines: Hydraulic pressure test to twice the maximum operating pressure.

Equipment, controls and safety devices: Check and adjust operation.

Testing gas pipelines
General: Test and purge.

- Standard: To BS 6891.

Documentation
Manufacturers' operating and maintenance instructions: Submit for equipment and controls.
System operating and maintenance instructions: Submit for the system as a whole giving optimum settings for controls.
Record drawings: Submit drawings showing the location of circuits and operating controls.
Water Regulations/ Byelaws notifications and certificates: See Preliminaries, section A33.
Gas installation certification: See Preliminaries, section A33.

Operating tools
Tools: Supply for operation, maintenance and cleaning purposes.
Valve keys: Supply for valves and vents.

Labels
Isolating and regulating valves on primary circuits: Label with statement of function.

U10 GENERAL VENTILATION

GENERAL

Cross-reference

General: read with A90 General technical requirements.

PRODUCTS

Ventilators for heating appliances

General: Not adjustable. Not restricted, e.g. with mesh.

Air vents and ducts for gas appliances (rated input not exceeding 70 kW)

Standard: To BS 5440-2.

Safety of household and similar electrical equipment

Range (cooker) hoods: To BS EN 60335-2-31, BEAB approved.
Fan units: To BS EN 60335-2-80, BEAB approved.

EXECUTION

Site applied insulation

- Location: Fit insulation to ductwork in unheated spaces.
- Installation: Fix securely. Leave no gaps. Make continuous.

Ductwork

Rigid duct: Install complete, with necessary bends, junctions, reducers, connectors, and adaptors.

- Installation: Do not distort or reduce cross-sectional area. Do not strain joints.

Flexible duct: Install complete, with necessary junctions, reducers, connectors, and adaptors.

- Installation: Fully extend. Do not overstretch. Form smooth flowing curves without kinking, sagging or slumping.

Joints: Seal. Provide a robust airtight installation.
Falls: Fall away from fans, dampers and other in-line accessories.
Sleeves: Locate where ducts pass through building fabric. Bed solidly to the surrounding construction. Leave a gap of 10-20 mm between sleeve and duct and fill completely.

Passive stack ventilation systems

- Ducts: Install in runs that are as short and straight as possible, with smooth curvature to offsets. Arrangement: Do not install ducts at more than 45° from vertical.

COMPLETION

Commissioning

- Ventilation system: Balance airflow using methods recommended by the system manufacturer.
- Operation: Examine ductwork for leakage. Test the operation of fans, equipment, controls and sensors. Verify correct operation. Submit report.

Operation and maintenance

- Operating and maintenance instructions: Submit copies of manufacturers' operating and maintenance instructions for equipment and controls.
- Tools: Supply tools for operation, maintenance and cleaning purposes, including keys for valves and vents.

V90 ELECTRICAL INSTALLATION

GENERAL

Cross-reference

General: Read with section A90 General technical requirements.

DESIGN

General electrical installation

Standard: In accordance with BS 7671.

Internal lighting

Standard: In accordance with 'SLL Code for lighting'.

External lighting

Standards: In accordance with BS 5489-1, 'SLL Code for lighting' and CIBSE 'Lighting Guide 6'.

Emergency lighting

Standard: In accordance with BS 5266-1.

Photovoltaic systems

Standards generally: To DECC Guide to the installation of photovoltaic systems and ENA G83/2.

Small scale wind generating systems

Wind turbines: To BS EN 61400-2.

PRODUCTS

Conduit and trunking

Types and sizes: Suitable for operating conditions.
Rigid conduit and fittings: To BS EN 61386-1 and -21.
Cable trunking and cable ducting systems for wall and ceiling mounting: To BS EN 50085-1 and -2-1.
PVC mini trunking: To BS 4678-4.
PVC trunking: To BS 4678-4..

Cable Tray

Standard: To BS EN 61537.
Types and sizes: Suitable for operating conditions.

Cables

Standard: BASEC certified.
Types and sizes: To BS 7671.

Distribution boards

Distribution boards: To BS EN 61439-3, ASTA certified.
Main control rating: Suit maximum demand.
Number of ways: Permanently label each way to identify circuit function, cable size and protective device rating.
Circuit protection: Miniature circuit breakers to BS EN 60898-1 or fuses to BS HD 60269-2 or BS HD 60269-3.
Additional circuit protection: To BS EN 61008-1 or BS EN 61009-1.

Equipment and accessories

Minor accessories needed to complete the installation: Types recommended for purpose by relevant manufacturer.
Electrical accessories: Complete with mounting boxes.
Choice of manufacturer: Submit details of selected manufacturer with relevant catalogues.
Thirteen amp socket outlets: To BS 1363-2.
Socket outlets with integral RCD: To BS 7288.
Fused connection units: To BS 1363-4.
Shaver outlets: Single voltage to BS 4573, dual voltage to BS EN 61558-2-5.
Coaxial cable socket outlet: To BS 5733 and BS EN 60669-1.
Wall mounted switchplates: To BS EN 60669-1.
Ceiling mounted pullcord switches: To BS EN 61058-2-1.
Ceiling roses: To BS 67.
Bayonet cap lampholders: To BS EN 61184.
Edison screw lampholders: To BS EN 60238.
Compact fluorescent lampholders: To BS EN 60061-2.
Photoelectric control units for control of individual lights or lighting circuits: To BS 5972.
Television antennae: In accordance with CAI Aerial benchmarking scheme.
Electric thermal storage heaters: To BS EN 60335-2-61, BEAB approved.
Electric room heaters: To BS EN 60335-2-30, BEAB approved.
Electric heated towel rails and sauna heaters: To BS EN 60335-2-43, BEAB approved.
Time switches: To BS EN 60730-1 and BS EN 60730-2-7, BEAB approved.
Photoelectric control units for control of individual lights or lighting circuits: To BS 5972.

Emergency lighting systems
Luminaires and related components: Registered under Industry Committee for Emergency Lighting (ICEL) Product Registration Scheme.
Luminaires, including self contained emergency lighting luminaires: To BS EN 60598-2-22.
Luminaires modified for emergency use: Certified to ICEL 1004.

Photovoltaic systems
Crystaline silicon terrestrial photovoltaic (PV) modules: To BS EN 61215.
Thin film terrestrial photovoltaic (PV) modules: To BS EN 61646.
Junction Boxes and switchgear assemblies: To BS EN 61439-1 and -2.

EXECUTION
Circuits
Arrangement: Divide installation into separately controlled circuits. Subdivide further where necessary.

Installation generally
Performance: Provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.
Supports and fasteners: Corrosion resisting where moisture is present or may occur. Avoid contact between dissimilar metals.

Switchgear
Clearance in front of switchgear (minimum): 1 m.
Labelling: Permanently label each way, identifying circuit function, rating and cable size.
Enclosure identification: Label with project reference.

Cable trays
Access: Provide space encompassing cable trays to permit access for installing and maintaining cables.
Cutting: Along an unperforated line. Minimize. Make good edges. Treat surface as the tray.

Cable baskets
Access: Provide space encompassing cable trays to permit access for installing and maintaining cables.
Cutting: Minimize. Make good cut edges by treating to same standard as the basket.

Conduit and fittings
Fixing: Fix securely. Fix boxes independently of conduit.
Location: Position vertically and horizontally in line with equipment served, and parallel with building lines. Locate where accessible.
Jointing:

- Number of joints: Minimize by using maximum practicable lengths of conduit.
- Cut ends: Remove burrs, and plug during building works.
- Movement joints in structure: Manufactured expansion coupling.
- Threaded steel conduits: Tightly screw to ensure electrical continuity, with no thread showing.
- Conduit connections to boxes and items of equipment, other than those with threaded entries: Earthing coupling/ male brass bush and protective conductor.

Changes of direction: Use site machine formed bends, junction boxes and proprietary components. Do not use elbows or tees. Alternatively, use conduit boxes.
Connections to boxes, trunking, equipment and accessories: Use appropriate screwed couplings, adaptors, connectors and glands. Provide rubber bushes at open ends.

Conduit in concrete
Fixing: Securely to reinforcement. Fix boxes to formwork to prevent displacement.
Concrete cover: As for reinforcement.

Drainage of conduit
Drainage outlet locations: At lowest points in conduit installed externally and where condensation may occur.

Trunking/ Ducting/ Cable management systems
Positioning: Accurately with respect to equipment served and, where relevant, floor level.
Access: Provide space around cable trunking to permit access for installing and maintaining cables.
Jointing:

- Number of joints: Minimize by using maximum practicable lengths of conduit.
- Steel systems: Use mechanical couplings; do not weld. Fit a copper link at each joint to ensure electrical continuity.
- Movement joints in structure: Manufactured expansion coupling.

Fixing: Fix securely. Restrain floor mounted systems to prevent movement during screeding.
Junctions and changes of direction: Use proprietary units.
Cable exit holes: Fit grommets, bushes or liners.
Protection: Do not damage components. Fit temporary blanking plates to prevent ingress of screed and other extraneous materials.
Service outlet units: Fit when cables are installed.

Fire stopping of trunking/ ducting
Trunking/ ducting passing through fire resisting construction: Seal internally.

- Sealing material: Submit proposals.

Cable routes
Cables generally: Conceal wherever possible:

- Concealed cable runs to wall switches and outlets: Vertically in line with the accessory.

Exposed cable runs: Submit proposals.

- Orientation: Straight, vertical and/ or horizontal and parallel to walls.

Distance from other services running parallel: 150 mm minimum.

- Position cables below heating pipes.

Installing cables
General: Install cables neatly and securely. Protect against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
Timing: Do not start internal cabling until building enclosure provides permanently dry conditions.
Jointing: At equipment and terminal fittings only.
Cables passing through masonry walls: Sleeve with conduit bushed at both ends.
Cables surrounded or covered by insulation: Derate.

Protective conductors
Type: Cable conductors.

Armoured cables
Temperature: Do not start installation if cable or ambient temperature is below 0°C, or has been below 0°C during the previous 24 hours.
Galvanized steel guards: Fit where cables are vulnerable to mechanical damage.
Earthing: Bond armour to equipment and main earthing system.
Connections to apparatus: Moisture proof. Use sealed glands and PVC shrouds.

PVC sheathed cables
Low temperatures: Do not install if ambient temperature is below 5°C.

MICC cables
Bending: Do not corrugate sheath.
Equipment and boxes: Connect with PVC shrouded glands.
Cable fasteners: Clips and spacings recommended by manufacturer and within 150 mm of bends and connections.
Testing: Test each length immediately after fixing. Repeat 24-48 hours later.

Cables laid directly in the ground
Cable bedding: 75 mm of sand.
Backfilling: 75 mm of sand over cables, then as-dug material.
Marker tape: nominally 250 mm above cable.
Multiple cables in same trench: Set 150 mm apart.
Cables below roads and hardstandings: Ducted, derate if longer than 10 m.

Cables entering buildings from below ground
Pipeducts: Seal at both ends.
Method: Submit proposals.

Cables in plaster
Cover: Galvanized steel channel. Nail to substrate.

Cables in vertical trunking/ ducts
Support: Pin racks or cleats at each floor level or at 5 m vertical centres, whichever is less.
Heat barrier centres (maximum): 5 m.
Heat barriers: Required except where fire resisting barriers are not provided.

Cables in accessible roof spaces
Cables running across ceiling joists: Fasten to timber battens fixed to joists.

Fixing electrical accessories/ equipment
Location: Coordinate with other wall or ceiling mounted equipment.
Positions: Accurate. Square to vertical and horizontal axes.
Alignment: Place adjacent accessories on the same vertical or horizontal axis, as appropriate.

Multigang switches
Connection: Provide a logical relationship with luminaires. Fit blanks to unused switch spaces.
Segregation: Internally segregate each phase with phase barriers and warning plates.
Location: To suit requirements of Building Regulations.

Luminaires, lamp holders and pendant sets
Supports: Adequate for weight of luminaire.
Lamps: Provide.

External luminaires and lighting columns
Cleanliness: Check seals for particle ingress and clean before sealing.
Columns: Install to Highways Agency 'Specification for highway works'.

Earth bars
Location: At incoming electrical service position.
Mounting: Wall mounted on insulated supports.

Labelling
Identification and notices generally:

- Standards: To BS ISO 7010.
- Equipment: Label when a voltage exceeding 230 V is present.

Distribution boards and consumer units: Card circuit chart within a reusable clear plastic cover. Fit to the inside of each unit. Include typed information identifying the outgoing circuit references, their device rating, cable type, size, circuit location and details. Label each outgoing way corresponding to the circuit chart.
Sub-main cables: Label at both ends and to both sides of wall/ floor penetrations with proprietary cable markers.
Photovoltaic systems:

- Provide dual supply warning notices (grid connected systems only) stating that the system is energized from more than one source.
- PV modules: Label with warning notices describing the presence of live terminals.
- A.C. isolation switches: Label with notices stating 'PV system – Point of emergency switching'.
- Circuit diagram: Provide at point of interconnection.
- Details of protective settings incorporated in the PCU: Provide at point of interconnection.
- Fuses, terminal blocks and other assembly components: Label describing their purpose.
- Spare fuses: Label, describe their rating and purpose.

Small scale wind turbines:

- Content of turbine nameplate: Wind turbine manufacturer and country; production year; rated power; reference wind speed; hub height operating wind speed range; operating temperature range; wind turbine class; rated voltage at the wind turbine terminals; frequency at the wind turbine terminals or frequency range in the case where normal variation is greater than 2%.

Emergency lighting systems
Standards: In accordance with BS 5266-1.

Emergency luminaires
Permanent electrical supplies: Derive from adjacent local lighting circuit.
Charge indicator: Position in a conspicuous location.

Engraving
Metal and plastic accessories: Engrave, indicating their purpose.
Emergency lighting test key switches: Describe their function.
Multigang light switches: Describe the luminaire arrangement.

Photovoltaic modules
Fix independently of any other systems installation with zinc electroplated fasteners indoors and stainless steel fasteners outdoors.

Small scale wind turbines
Standard: To BS EN 61400-2.
General: Separate dissimilar materials to prevent bi-metallic corrosion.
Building mounted turbine support poles and fixings: Do not fix fasteners into mortar courses.

COMPLETION
Inspection and testing
Testing and commissioning: In accordance with BS 7671.
Notice before testing (minimum): 24 hours.
Labels and signs required by Regulations: Fix securely in correct locations before system is tested.
Evidence: System log books, inspection and completion certificates.
Emergency lighting system:

- Standard: In accordance with BS 5266-1.
- Test certificates: In accordance with To BS 5266-1, Annex G.
- System log book: In accordance with BS 5266-1.

External lighting system:

- Standard: In accordance with CIBSE Lighting guide 6.
- Method: Test results based on average illuminance measurement method using a full grid.

Photovoltaic systems:

- Generally: To DECC Guide to the installation of photovoltaic systems and ENA G83/2.

Final fix
Accessory faceplates, luminaires and other equipment: Fit after completion of decorations.

Cleaning
All electrical equipment: Clean immediately before handover.

Training
General: Before Completion, explain and demonstrate the purpose, function, operation and maintenance of the facility to end user nominees.
Scope: Use items and procedures listed in the Building Manual as the basis for instruction.
Times and locations: Submit proposals. Include for items requiring seasonal operation.

W41 INTRUSION AND HOLD-UP ALARM SYSTEMS

GENERAL

Cross-reference

General: Read with section A90 General technical requirements.

PRODUCTS

Combined passive infrared and microwave detectors

Standard: To BS EN 50131-2-4.

Combined passive infrared and ultrasonic detectors

Standard: To BS EN 50131-2-5.

Deliberately operated devices

Standard: To BS 4737-3.14.

External warning devices

Standard: To BS EN 50131-4.

Internal warning devices

Standard: To BS EN 50131-4.

Intrusion and hold-up alarm control panel

Standard: To BS EN 50131-3 and -6.

Microwave detectors

Standard: To BS EN 50131-2-3.

Multicore alarm cables

Standard: To BS 4737-3.30.

Passive infra red detectors

Standard: To BS EN 50131-2-2.

Protective switches

Standard: To BS 4737-3.3.

Supervised premises transceivers

Standard: To BS EN 50136-2.

Ultrasonic detectors

Standard: To BS 4737-3.5.

EXECUTION

Design

Standard: In accordance with PD 6662.
Proposals: Submit in accordance with DD/CLC/TS 50131-7, Annex G.

Installing system

Standard: In accordance with DD CLC/TS 50131-7.
Main power supply: From an unswitched fused connection unit. Permanently wire with a dedicated circuit from the building's main switchboard/ consumer unit.

Installing cables

Standards: To BS 4737-3-30 and in accordance with BS 7671.
General: Install cables neatly and securely in one length. Conceal wherever possible. Protect against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
Concealed cable runs to accessories: Align vertically with the accessory.
Exposed cable runs: Submit proposals.
Orientation: Straight, vertical and/ or horizontal and parallel to walls.
Distance from other services running parallel: 150 mm (minimum).
Heating pipes: Position cables below.
Device wiring: Individual radial circuit from control panel.
Timing: Do not start internal cabling until building enclosure provides permanently dry conditions.
Cable pulling: Submit proposals. Do not overstress. Prevent kinks and twisting of the cable.
Cables passing through walls: Sleeve with conduit bushed at both ends.
Cables running across ceiling joists: Fix to timber battens which are nailed to joists.
Jointing: At equipment terminals only.
Length of final connection: Sufficient for equipment removal and maintenance.

Installing accessories and equipment generally

Location: Coordinate with other wall or ceiling mounted equipment.
Positioning: Accurate and square to vertical and horizontal axes.
Alignment: Align adjacent accessories on the same vertical or horizontal axis.

Testing and commissioning
Standard: In accordance with DD CLC/TS 50131-7.
Cable insulation resistance tests: Submit results.
Standby supply: Verify operation in the event of a mains failure.
Charger: Verify operation.
Device voltage: Submit details of the voltage at powered devices.
Zone names: Submit proposals.
Detection devices: Verify the operation, and adjust to provide maximum coverage.
Tamper detection: Verify operation.
Local warning devices: Verify operation.
Remote signalling: Verify operation.
User codes: Set up and commission.
Timers: Set up and adjust entry and exit timers.

Cleaning
All equipment: Clean immediately before handover.

Training
General: Before Completion, explain and demonstrate the purpose, function, operation and maintenance of the facility to end user nominees.
Scope: Use items and procedures listed in the Building Manual as the basis for instruction. Otherwise, submit proposals.
Times and locations: Submit proposals. Include for items requiring seasonal operation.

Documentation
Standard: In accordance with DD CLC/TS 50137-7.
Timing: Submit at completion.
Contents:

- Full technical description of each system installed.
- Manufacturers' operating and maintenance instructions for fittings and apparatus.
- Manufacturers' guarantees and warranties.
- As-installed drawings showing circuits and their ratings and locations of fittings and apparatus.
- List of normal consumable items.

Z10 PURPOSE MADE JOINERY

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

EXECUTION

Fabrication

Joinery components, timber and workmanship: To BS 1186-2.
Sections: Formed out of solid.
Lengths and profiles: Accurate.
Sections after machining: Free from twist and bowing.
Surfaces after machining: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
Joints: Tight, close fitting.
Components: Rigid. Free from distortion.
Screws: Provide pilot holes.
Screws of 8 gauge (4mm diameter) or more and screws into hardwood: Provide clearance holes.
Screw heads: Sunk at least 2 mm below surfaces visible in completed work.
Adhesive: Compatible with wood preservatives applied and end use of timber.

Permitted deviations from timber finished sizes (maximum)

Softwood:

- Sawn sections: To BS EN 1313-1, clause 6.

Hardwood:

- Sawn sections: To BS EN 1313-2, clause 6.
- Further processed sections: To BS EN 1313-2, clause NA3.

Dimensions on drawings: Finished sizes.

Preservative treated wood

Cutting and machining: Completed as far as possible before treatment.
Extensively processed treated timber: Re-treat timber sawn along length, ploughed, thicknessed, planed or otherwise extensively worked.
Surfaces exposed by minor cutting and drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

Moisture content

Wood and wood based boards: Maintained within specified range during manufacture and storage.

Finishing

Joinery finish: Smooth, flat surfaces suitable to receive finishes.
Arrises: Eased.
End grain of external components: Before assembly, sealed with primer or sealer and allowed to dry.

Z11 PURPOSE MADE METALWORK

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Coatings and coated products

To iron and steel:

- Vitreous enamelled carbon steel and cast iron building components: To BS EN 14431.
- Sherardized coatings on carbon steel and cast iron: To BS 4921.
- Powder organic coatings to galvanized steel for external architectural purposes: To BS 6497 or BS EN 13438.
- Zinc electrodeposited coatings with supplementary treatment on iron or steel: To BS EN 12329.
- Cadmium electrodeposited coatings on iron or steel: To BS EN 12330.
- Nickel, nickel/ chromium, copper/ nickel and copper/ nickel/ chromium electrodeposited coatings: To BS EN 12540 (also applicable to zinc alloys, copper and copper alloys).
- Hot dip galvanized coatings on fabricated iron and steel: To BS EN ISO 1461.

To aluminium and aluminium alloys:

- Anodic oxidation coatings on wrought aluminium for external architectural applications: To BS 3987.
- Liquid organic coatings to aluminium alloy for external architectural purposes: To BS 4842.
- Powder organic coatings to aluminium alloy for external architectural purposes: To BS 6496.
- Welding:

General guidance for arc welding: To BS EN 1011-1.
Arc welding of ferritic steels: To BS EN 1011-2.

Materials generally

Prefinished metal: Do not damage or alter appearance of finish.
Fasteners: To appropriate British Standard and, unless specified otherwise, of same metal as component, with matching coating or finish.

EXECUTION

Fabrication generally

Contact between dissimilar metals in components that are to be fixed where moisture may be present or occur: Avoid.
Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.

- Moving parts: Free moving without binding.

Corner junctions of identical sections: Mitred unless specified otherwise.

Cold formed work

Profiles: Accurate with straight arrises.

Welding/ Brazing generally

Surfaces to be joined: Thoroughly cleaned.
Tack welds: Use only for temporary attachment.
Joints: Made with parent and filler metal fully bonded throughout with no inclusions, holes, porosity or cracks.
Surfaces of materials that will be self-finished and visible in completed work: Protect from weld spatter.
Traces of flux residue, slag and weld spatter: Removed.

Welding of steel

Preferred method: Metal arc welding.

- Alternative methods: Submit proposals.

Finishing welded/ brazed joints visible in completed work

Butt joints: Smooth and flush with adjacent surfaces.
Fillet joints: Neatly executed and ground smooth where specified.

Preparation for application of coatings

General: Fabrication complete, and fixing holes drilled before applying coatings.
Paint, grease, flux, rust, burrs and sharp arrises: Removed.

Galvanizing

Vent and drain holes: Provide in approved locations and submit proposals for sealing after galvanizing.

Powder coating

Applicator requirements:

- Approved by the powder coating manufacturer.
- Currently certified to BS EN ISO 9901.

Anodizing

Processor requirements:

- Approved by the Aluminium Finishing Association.
- Currently certified to BS EN ISO 9901.

Z12 PRESERVATIVE AND FIRE RETARDANT TREATMENT

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

EXECUTION

Treatment application

Timing: After cutting and machining timber, and before assembling components.
Processor: Licensed by manufacturer of specified treatment solution.
Certification: For each batch of timber provide a certificate of assurance that treatment has been carried out as specified.

WPA Commodity Specifications

Standard: Wood Protection Association (WPA) publications 'Industrial flame retardant treatment of solid timber and panel products' and 'Industrial wood preservation specification and practice'.
Solution strengths and treatment cycles: Select to achieve specified service life and to suit timber treatability.

Copper-organic preservative treatment

Type: Copper azole (CuAz), alkaline copper quaternary (ACQ) or equivalent.
Application: High pressure impregnation.
Moisture content of wood at time of treatment (maximum): 28%.
Condition of treated timber before use: Dry.

Water-based organic preservative treatment

Application: Vacuum pressure process.
Colour: Colourless.
Usage: Unsuitable for use in ground or seawater contact.
Incorporation of treated timber into the Works: Timber is wet immediately after treatment and must be stored at the treatment plant until in a condition ready for transporting.

Copper chromium arsenic (CCA) preservative treatment

Usage: European legislation restricts new treatment. Submit proposals if use of recycled timber treated with CCA is intended. Copper chromium based preservative treatment (other than CCA).
Type: Chromated copper (CC), copper chromium phosphate (CCP), copper chromium borate (CCB) or equivalent.
Application: High pressure impregnation.
Moisture content of wood at time of treatment (maximum): 28%. After treatment, allow timber to dry before using.
Condition of treated timber before use: Dry and at moisture content specified elsewhere.
Incorporation of treated timber into the Works: Do not use for minimum 14 days after treatment.

Organic solvent preservative treatment

Colour: Colourless.
Usage: Do not use near animals, plants or foodstuffs, or in association with bituminous/ coal tar based materials.
Application: Double vacuum + low pressure impregnation, or immersion.
Moisture content of wood at time of treatment: As specified for the component at time of fixing.
Condition of treated timber before use: Surface dry.

Water based microemulsion preservative treatment

Application: Double vacuum + low pressure impregnation.
Moisture content of wood at time of treatment: As specified for the component at time of fixing.
Condition of treated timber before use: Surface dry.

Boron compound preservative treatment

Usage: Do not use in timber subject to continual wetting.
Application: High pressure impregnation.
Moisture content of wood at time of treatment (maximum): 28%.
Condition of treated timber before use: Dry.

Fire retardant treatment

Application: Vacuum + pressure impregnation.
Moisture content of wood at time of treatment: As specified for the timber/ component at time of fixing.
Condition of treated timber before use: Redried slowly at temperatures not exceeding 65°C to minimize degradation and distortion.

Leach resistant fire retardant treatment

Application: Vacuum + pressure impregnation.
Moisture content of wood at time of treatment: As specified for the timber/ component at time of fixing.

Z20 FIXINGS AND ADHESIVES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Definitions

In this section the following definitions are used:

- Fixing: The act of securing an object to another object or background, e.g. Fix A to B with screws at 200 mm centres.
- Fixings: Systems that fix objects together, composite connection items comprising, e.g. nuts, bolts, washers, spacers, cover caps.
- Fasteners: Components that fix objects together, e.g. screws, nails.

PRODUCTS

Fasteners generally

Materials: To have bimetallic corrosion resistance and atmospheric corrosion resistance appropriate to fixing location.
Appearance: Submit samples on request.

Packings

Material: Noncompressible, corrosion resistant, rot proof.
Area of packings: Sufficient to transfer loads.

Masonry fixings

Light duty: Plugs and screws.
Heavy duty: Expansion anchors or chemical anchors.

Pelleted countersunk fixings

Pellets: Cut from matching timber, grain matched.

Plugs

Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

Adhesives generally

Standards:

- Hot-setting phenolic and aminoplastic: To BS 1203.
- Thermosetting wood adhesives: To BS EN 12765.
- Polyvinyl acetate thermoplastic adhesive: To BS 4071.

Pelleted countersunk fixings

Pellets: Cut from matching timber, grain matched.

Powder actuated fixing systems

Types of fastener, accessories and consumables: As recommended by tool manufacturer.
Tools: To BS 4078-2, Kitemark certified.
Operatives: Trained and certified as competent by tool manufacturer.

EXECUTION

Fixing generally

Types, sizes and quantities of fasteners/ packings and spacings of fixings: Selected to retain supported components without distortion and loss of support.
Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
Components, substrates, fixings and fasteners of dissimilar metals: Isolate with plastics washers/ sleeves to avoid bimetallic corrosion.
Penetration of fasteners and plugs into substrate: To achieve a secure fixing.
Appearance: Fixings to be in straight lines at regular centres.

Fixing packings

Function: To take up tolerances and prevent distortion of materials/ components.
Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
Locations: Not within zones to be filled with sealant.

Fixing cramps

Cramp positions: 150 mm (maximum) from each end of frame sections and at 600 mm (maximum) centres.
Fasteners: Fix cramps to frames with screws of same material as cramps.
Fixings in masonry work: Fully bedded in mortar.

Pelleted countersunk fixings

Finished level of countersunk screw heads: 6 mm (minimum) below timber surface.
Pellets: Cut from matching timber, match grain and glue in to full depth of hole.
Finished level of pellets: Flush with surface.

Plugged countersunk screw fixing

Finished level of countersunk screw heads: 6 mm (minimum) below timber surface.
Plugs: Glue in to full depth of hole.
Finished level of plugs: Projecting above surface.

Powder actuated fixing systems

Powder actuated fixing tools, method of use: To BS 4078-1.
Operatives: Trained and certified as competent by tool manufacturer.

Applying adhesives

Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
Support and clamping during setting: Provide as necessary. Do not mark surfaces or distort components being fixed.
Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z21 MORTARS

GENERAL

Cross-reference

General: read with A90 General technical requirements.

PRODUCTS

Admixtures for site made cement gauged and hydraulic lime:sand masonry mortars

Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

Cements for mortar

Cement: To BS EN 197-1 and CE marked.

- Type: Portland cement, CEM I. Portland limestone cement, CEM II/A-L or CEM II/A-LL. Portland slag cement, CEM II/B -S, Portland fly ash cement, CEM II/B.
- Strength class: 32.5, 42.5 or 52.5.

White cement: To BS EN 197-1 and CE marked.

- Type: Portland cement, CEM I.
- Strength class: 52.5.

Sulfate resisting Portland cement.

- Type: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
- Strength class: 32.5, 42.5 or 52.5.

Masonry cement: To BS EN 413-1 and CE marked, class MC 12.5.

Lime:sand for cement gauged masonry mortars

Ready mixed:

- Standard: To BS EN 998-2.
- Lime: Nonhydraulic to BS EN 459-1, type CL 90S.
- Pigments for coloured mortar: To BS EN 12878.

Site made:

- Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
- Lime: Nonhydraulic to BS EN 459-1, type: CL 90S.
- Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

Retarded ready to use cement gauged masonry mortars

Standard: To BS EN 998-2.
Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.

- Type: CL 90S.

Pigments for coloured mortars: To BS EN 12878.
Time and temperature limitations: Use within limits prescribed by mortar manufacturer.

- Retempering: Restore workability with water only within prescribed time limits.

Sand for lime:sand masonry mortars

Type: Sharp, well graded.

- Quality, sampling and testing: To BS EN 13139.

Sand for site made cement gauged masonry mortars

Standard: To BS EN 13139.

- Grading: 0/2 (FP or MP). Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5 – 6): Lower proportion of sand, use category 3 fines. Higher proportion of sand, use category 2 fines.

Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

EXECUTION

Making cement gauged mortars

Batching: By volume. Use clean and accurate gauge boxes or buckets.

- Mix proportions: Based on dry sand. Allow for bulking of damp sand.

Mixing: Mix materials thoroughly to uniform consistency, free from lumps.

- Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.

Working time (maximum): Two hours at normal temperatures.
Contamination: Prevent intermixing with other materials.

Ready prepared lime putty

Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.

- Maturation: In pits/ containers that allow excess water to drain away.
- Density of matured lime putty: 1.3–1.4 kg/L.

Maturation period before use (minimum): 30 days after slaking.

Making lime:sand mortars

Batching: By volume. Use clean and accurate gauge boxes or buckets.
Mixing: Mix materials thoroughly to uniform consistency, free from lumps.

- Site prepared nonhydraulic lime:sand mortars: Use roller pan mixer. Mix materials thoroughly by compressing, beating and chopping. Do not add water. Maturation period before use (maximum) 7 days.
- Site prepared hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix. Water quantity, only sufficient to produce a workable mix. Working time, within limits recommended by the hydraulic lime manufacturer.

Contamination: Prevent intermixing with other materials, including cement.

Ready to use nonhydraulic lime:sand mortars

Type: Select from:

- Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.
- Quicklime to BS EN 459-1 slaked directly with sand.

Maturation period before use (maximum): 7 days.

Z22 SEALANTS

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

PRODUCTS

Joints

Design: To BS 6093.

Sealants

Classification and requirements: To BS EN ISO 11600.

Non-cellular gaskets

Standard: To BS 4255-1.

Components

Backing strips, bond breakers, primers: Types recommended by sealant manufacturer.

EXECUTION

Suitability of joints

Presealing checks:

- Joint dimensions: Within limits specified for the sealant.
- Substrate quality: Surfaces regular, undamaged and stable.

Joints not fit to receive sealant: Submit proposals for rectification.

Preparing joints

Surfaces to which sealant must adhere:

- Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
- Clean using materials and methods recommended by sealant manufacturer.

Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

- Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.

Protection: Keep joints clean and protect from damage until sealant is applied.

Applying sealants

Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
Environmental conditions: Mix and apply primers and sealants within temperature and humidity ranges recommended by manufacturers. Do not dry or raise temperature of joints by heating.
Sealant application: Unless specified otherwise, fill joints completely and neatly, ensuring firm adhesion to substrates.
Sealant profiles:

- Butt and lap joints: Slightly concave.
- Fillet joints: Flat or slightly convex.

Protection: Protect finished joints from contamination or damage until sealant has cured.

TENDER DRAWINGS

for

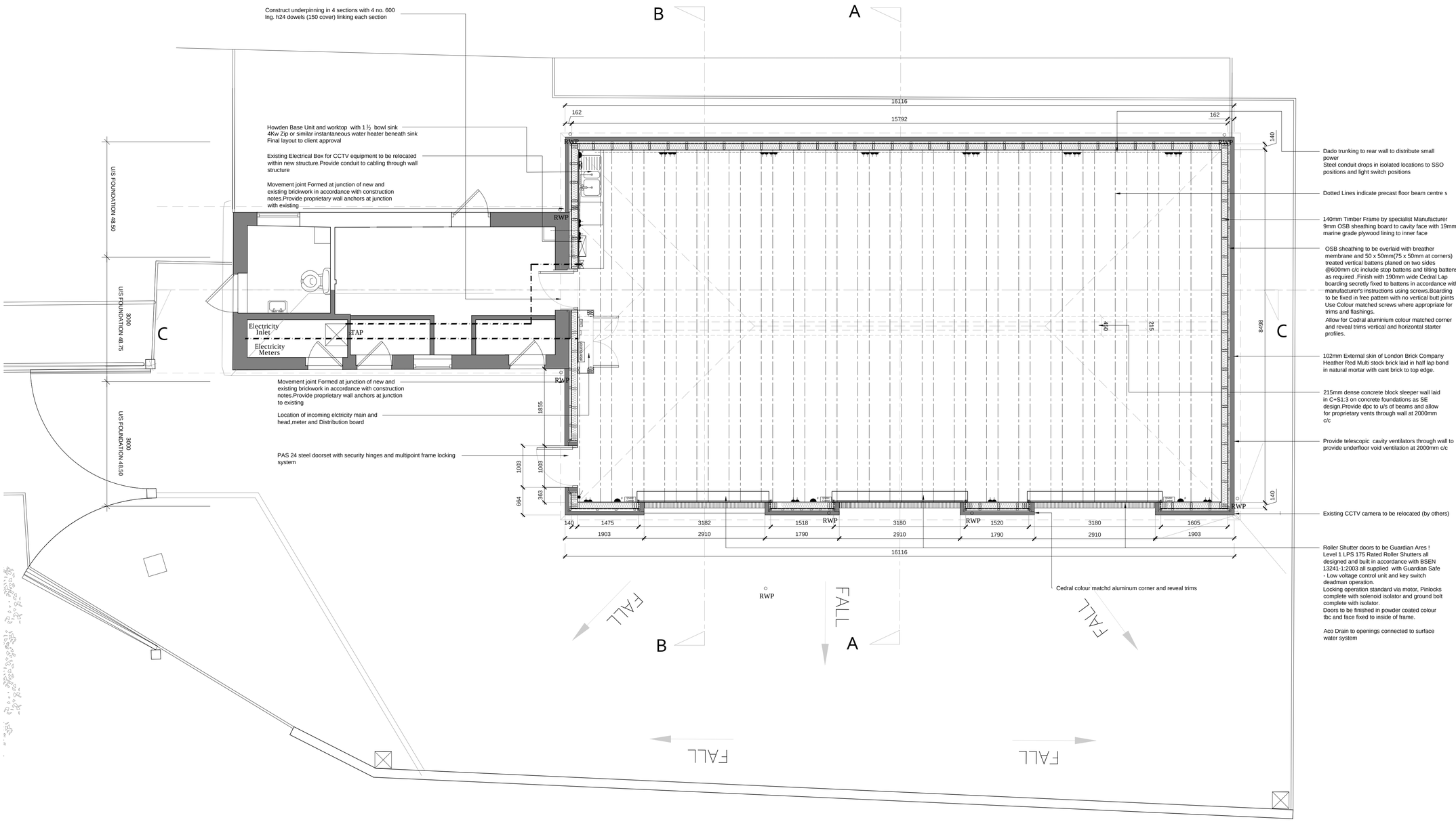
ERECTION of MAINTENANCE FACILITY
St MICHAELS RECREATION GROUND
ASHFORD ROAD
TENTERDEN

TENTERDEN TOWN COUNCIL

GPM2 DESIGN LTD
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

Tel: 01843 268010

Prepared July 2019



Notes

- Do not scale from this drawing
- Verify all dimensions on site before commencing work or preparing shop drawings
- All errors or discrepancies must be reported to the designer or contract administrator immediately on discovery
- This drawing remains the sole copyright of GPM2 Design Ltd. until such time as an assignable licence is granted
- All materials, workmanship and components must comply with the relevant British Standards, codes of practice and any manufacturers instructions

Contractors should make themselves aware of accredited details and use as appropriate to ensure continuity of insulation and air barrier. Any divergence from accredited details should be noted and continuity of insulation and air barrier maintained.
Positions of Accredited details shown on drgs. marked thus.

Note (not all positions marked similar positions should use Accredited Detail .Check with Contract Administartor , designer or surveyor if in doubt)

Rev.	Date	Details

GPM DESIGN
ARCHITECTURE & DESIGN ● CHARTERED BUILDING SURVEYORS ● PROJECT MANAGEMENT ● PLANNING & DEVELOPMENT

5 - 7 OZENGELL PLACE | EUROKENT BUSINESS PARK | RAMSGATE | KENT | CT12 6PB

T (01843) 853443 F (01843) 597404 E info@gpm-partnership.co.uk

PROJECT:
New Extension St Michaels Recreation Ground Tenterden

CLIENT:
Tenterden Town Council

TITLE:
Floor Plan

DRAWN:	DATE:	SCALE:
DJ	170519	1:50

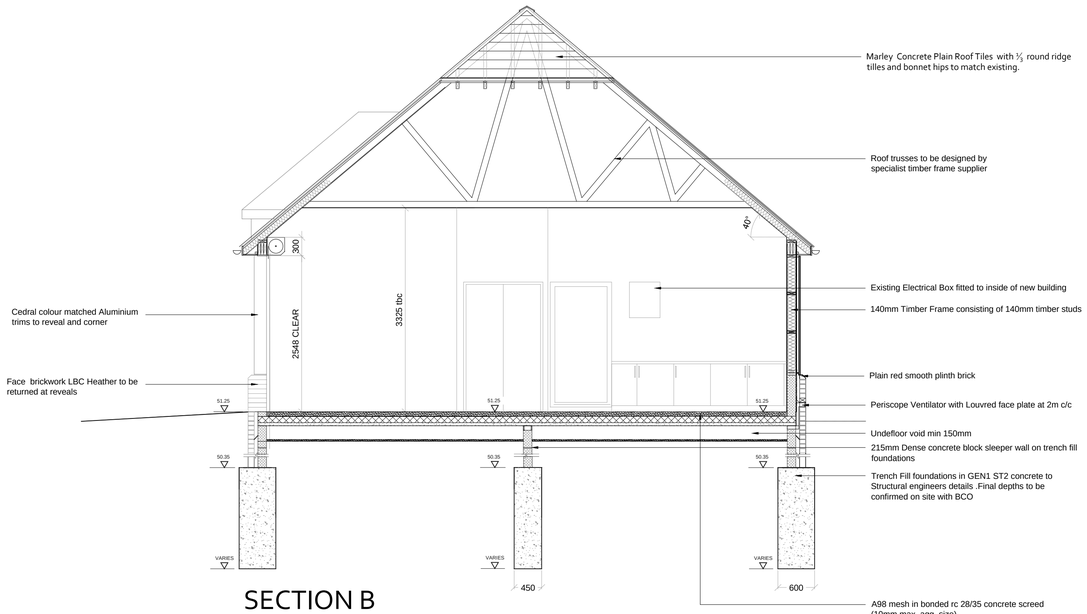
ISSUED FOR:
TENDER

CHECKED:

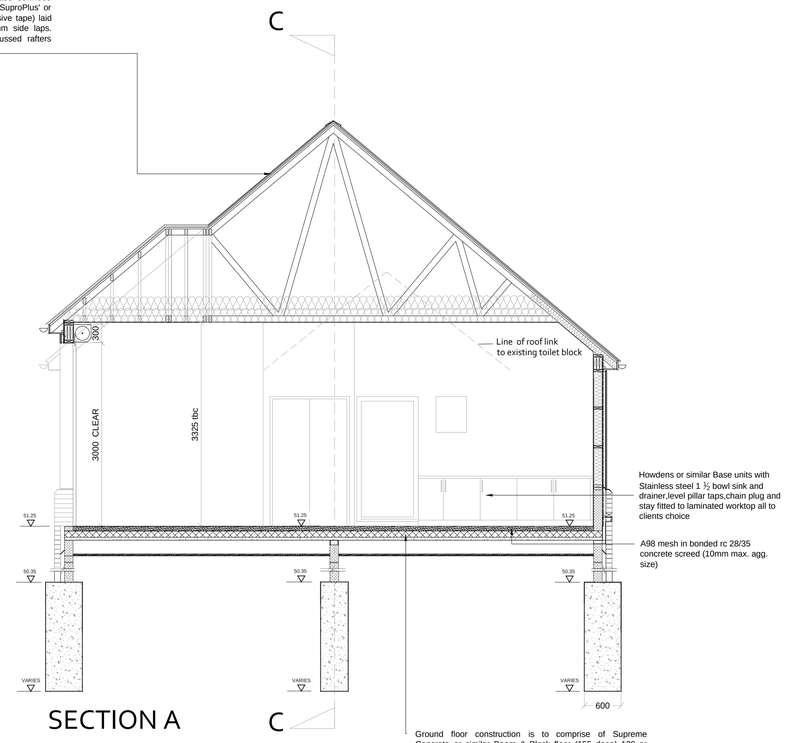
DRAWING NO:
307-101

REV:
A

Marley Concrete Plain tiles to match existing) - All tiles are to be secured in strict accordance with the manufacturers' recommendations and details. Tiles must be laid and fixed to comply with BS 5534: the British Standard Code of practice for slating and tiling, and BS 8000: Part 6: the British Standard Code of practice for workmanship on building sites.Plain tiles laid @40 degree pitch with min 67 mm headlap fixed with 38mm x 2.65m 500g plain nails, twice nailed every course at perimeters and every fifth course elsewhere.Fix to 50x25mm treated softwood battens at gauge to suit slate on vapour permeable underlay 'Tyvek SuproPlus' or similar (The Pd value to be greater than 704.6)(with integral adhesive tape) laid unsupported with 150mm horizontal (300mm at ridge) and 150mm side laps. Underlay must be laid with drapes 10-15mm over rafters, on trussed rafters @600mmc/c max length 6.16m



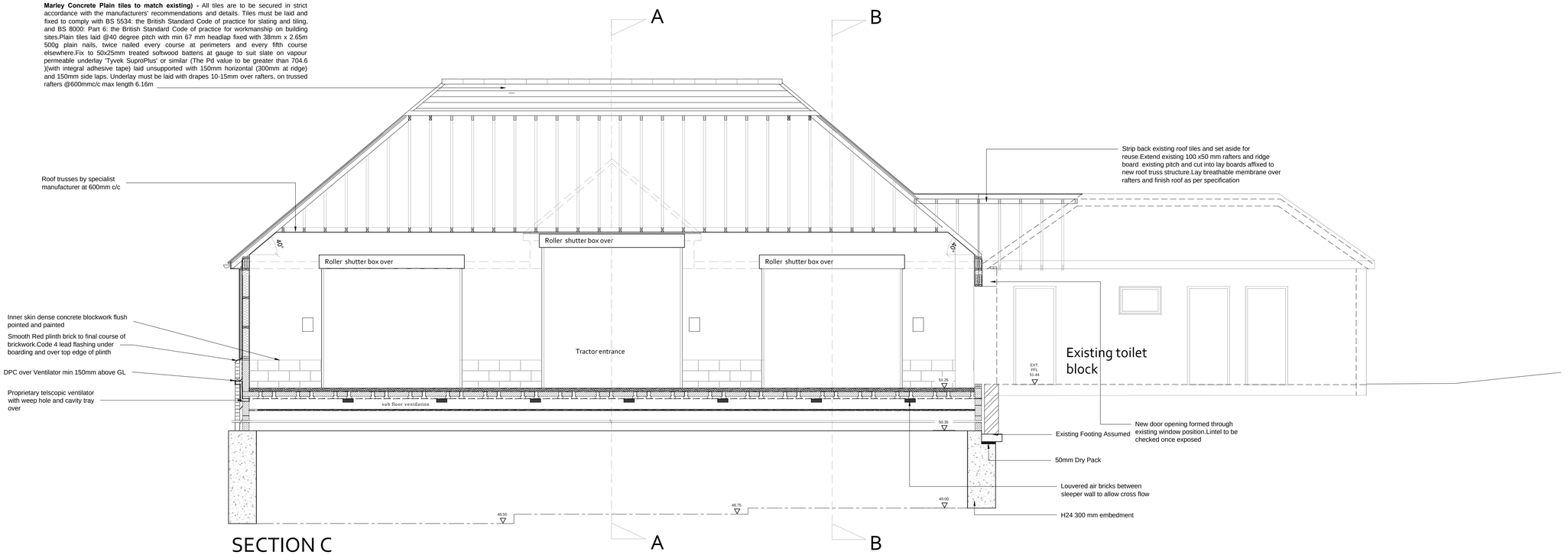
SECTION B



SECTION A

Ground floor construction is to comprise of Supreme Concrete or similar Beam & Block floor (155 deep) 120 or 170mm wide with 75mm 28/35 reinforced concrete floor screed bonded directly to infill blocks. Use brickslips for finishing the floor onto loadbearing walls in accordance with manufacturers instructions

Marley Concrete Plain tiles to match existing) - All tiles are to be secured in strict accordance with the manufacturers' recommendations and details. Tiles must be laid and fixed to comply with BS 5534: the British Standard Code of practice for slating and tiling, and BS 8000: Part 6: the British Standard Code of practice for workmanship on building sites.Plain tiles laid @40 degree pitch with min 67 mm headlap fixed with 38mm x 2.65m 500g plain nails, twice nailed every course at perimeters and every fifth course elsewhere.Fix to 50x25mm treated softwood battens at gauge to suit slate on vapour permeable underlay 'Tyvek SuproPlus' or similar (The Pd value to be greater than 704.6)(with integral adhesive tape) laid unsupported with 150mm horizontal (300mm at ridge) and 150mm side laps. Underlay must be laid with drapes 10-15mm over rafters, on trussed rafters @600mmc/c max length 6.16m



SECTION C

Notes

- Do not scale from this drawing
- Verify all dimensions on site before commencing work or preparing shop drawings
- All errors or discrepancies must be reported to the designer or contract administrator immediately on discovery
- This drawing remains the sole copyright of GPM2 Design Ltd. until such time as an assignable licence is granted
- All materials, workmanship and components must comply with the relevant British Standards, codes of practice and any manufacturers instructions

Contractors should make themselves aware of accredited details and use as appropriate to ensure continuity of insulation and air barrier. Any divergence from accredited details should be noted and continuity of insulation and air barrier maintained.
Positions of Accredited details shown on drgs. marked thus.

Note (not all positions marked similar positions should use Accredited Detail .Check with Contract Administartor , designer or surveyor if in doubt)

Rev.	Date	Details

GPM DESIGN
ARCHITECTURE & DESIGN ● CHARTERED BUILDING SURVEYORS ● PROJECT MANAGEMENT ● PLANNING & DEVELOPMENT
5 - 7 OZENGELL PLACE | EUROKENT BUSINESS PARK | RAMSGATE | KENT | CT12 6PB
T (01843) 853443 F (01843) 597404 E info@gpm-partnership.co.uk

PROJECT:
New Extension St Michaels Recreation Ground Tenterden

CLIENT:
Tentrerden Town Council

TITLE:
Sections A-A ,B-B ,C-C

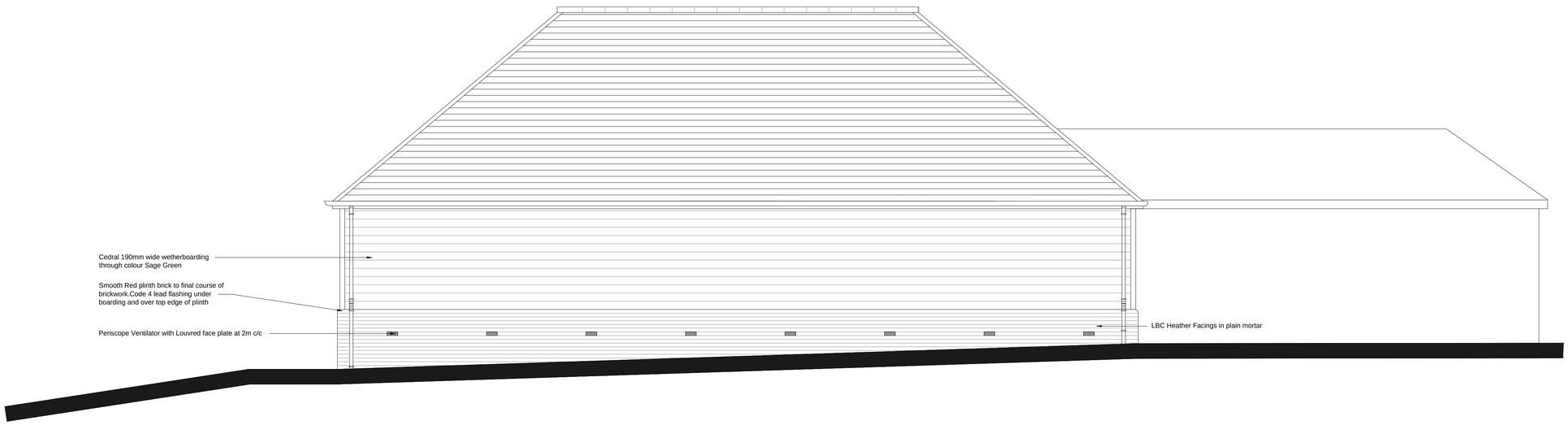
DRAWN:	DATE:	SCALE:
DJ	0519	

ISSUED FOR: TENDER

CHECKED:

DRAWING NO: 307-102

REV: A



Notes

- Do not scale from this drawing
- Verify all dimensions on site before commencing work or preparing shop drawings
- All errors or discrepancies must be reported to the designer or contract administrator immediately on discovery
- This drawing remains the sole copyright of GPM2 Design Ltd. until such time as an assignable licence is granted
- All materials, workmanship and components must comply with the relevant British Standards, codes of practice and any manufacturers instructions

Contractors should make themselves aware of accredited details and use as appropriate to ensure continuity of insulation and air barrier. Any divergence from accredited details should be noted and continuity of insulation and air barrier maintained.
Positions of Accredited details shown on drgs. marked thus.

Note (not all positions marked similar positions should use Accredited Detail .Check with Contract Administartor , designer or surveyor if in doubt)

Rev.	Date	Details

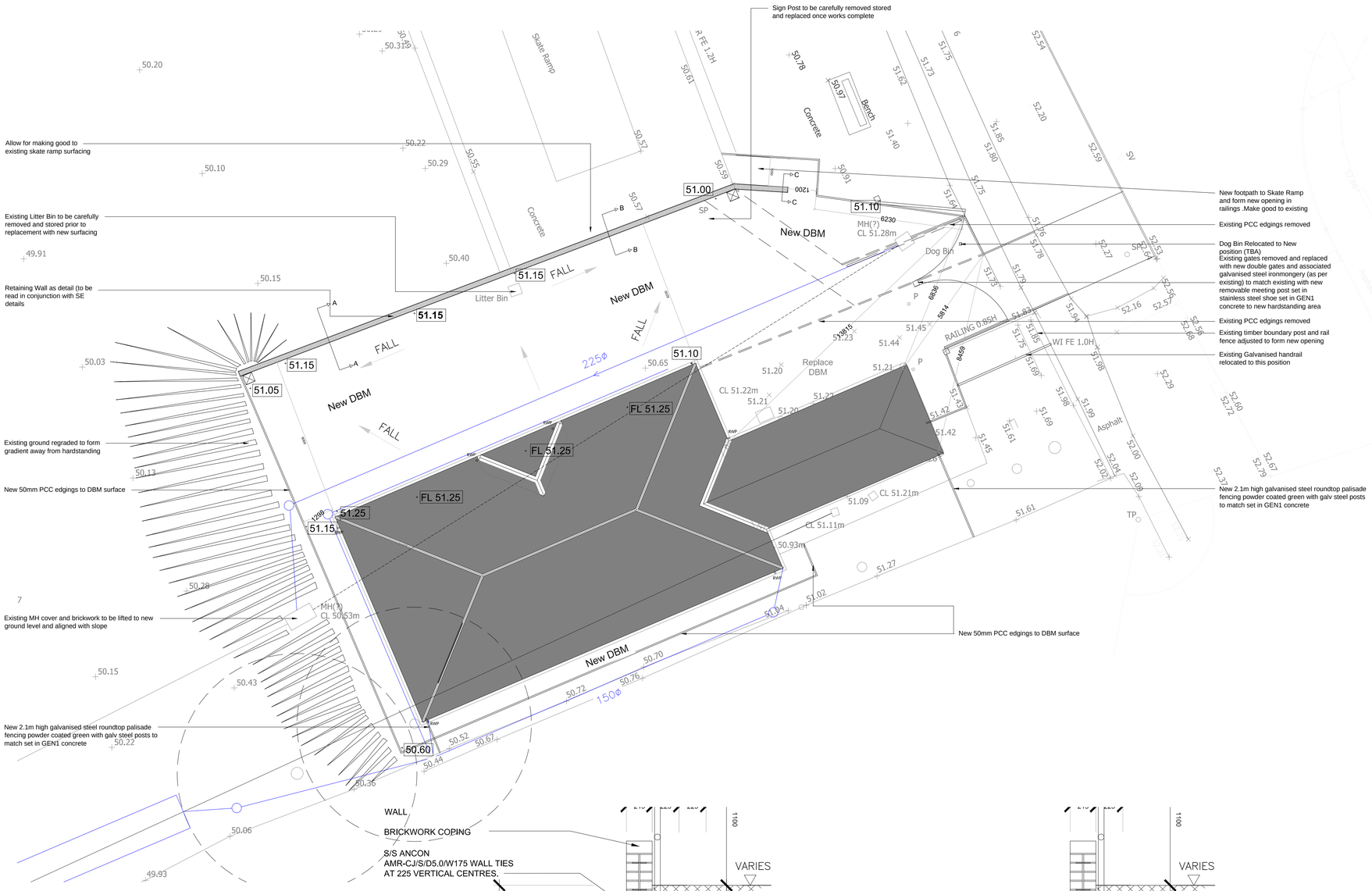
GPM DESIGN
ARCHITECTURE & DESIGN ● CHARTERED BUILDING SURVEYORS ● PROJECT MANAGEMENT ● PLANNING & DEVELOPMENT
5 - 7 OZENGELL PLACE | EUROKENT BUSINESS PARK | RAMSGATE | KENT | CT12 6PB
T (01843) 853443 F (01843) 597404 E info@gpm-partnership.co.uk

PROJECT:
New Extension St Michaels Recreation Ground Tenterden

CLIENT:
Tentrerden Town Council

TITLE:
Sections A-A ,B-B ,C-C

DRAWN: DJ
DATE: 0519
SCALE:
ISSUED FOR: TENDER
CHECKED:
DRAWING NO: 307-103
REV: A



RETAINING WALL SECTIONS
SCALE 1:20

Notes

- Do not scale from this drawing
- Verify all dimensions on site before commencing work or preparing shop drawings
- All errors or discrepancies must be reported to the designer or contract administrator immediately on discovery
- This drawing remains the sole copyright of GPM2 Design Ltd. until such time as an assignable licence is granted
- All materials, workmanship and components must comply with the relevant British Standards, codes of practice and any manufacturers instructions

Contractors should make themselves aware of accredited details and use as appropriate to ensure continuity of insulation and air barrier. Any divergence from accredited details should be noted and continuity of insulation and air barrier maintained.
Positions of Accredited details shown on drgs. marked thus.

Note (not all positions marked similar positions should use Accredited Detail .Check with Contract Administartor , designer or surveyor if in doubt)

Rev.	Date	Details

GPM DESIGN
ARCHITECTURE & DESIGN ● CHARTERED BUILDING SURVEYORS ● PROJECT MANAGEMENT ● PLANNING & DEVELOPMENT
5 - 7 OZENGELL PLACE | EUROKENT BUSINESS PARK | RAMSGATE | KENT | CT12 6PB
T (01843) 853443 F (01843) 597404 E info@gpm-partnership.co.uk

PROJECT:
New Extension Recreation Ground Tenterden

CLIENT:
Tenterden Town Council

TITLE:
External Works

DRAWN:	DATE:	SCALE:
CC	July19	As Shown

ISSUED FOR:
CONSTRUCTION

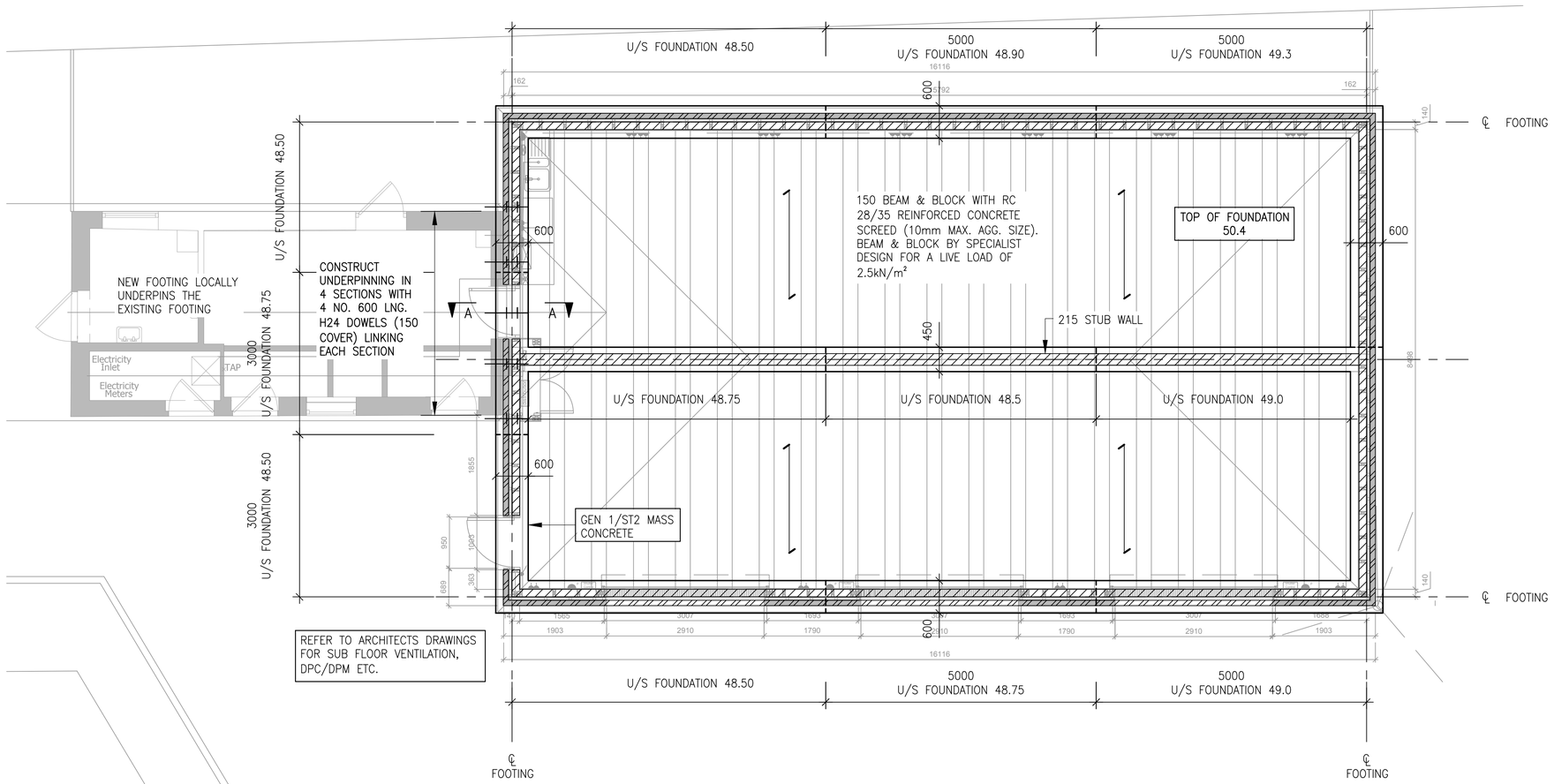
CHECKED:

DRAWING NO:
307-104

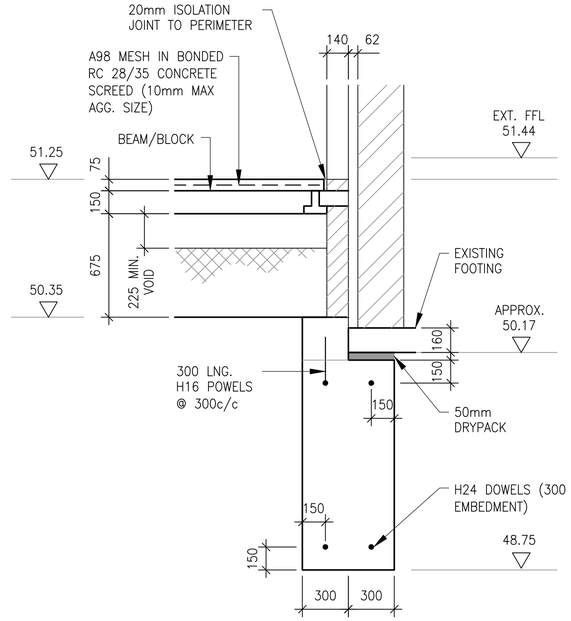
REV:
A

DO NOT SCALE Original Drawing size A1

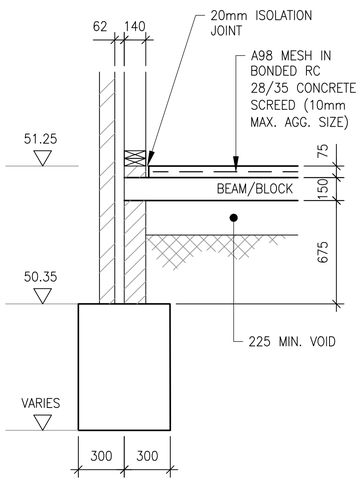
NOTES



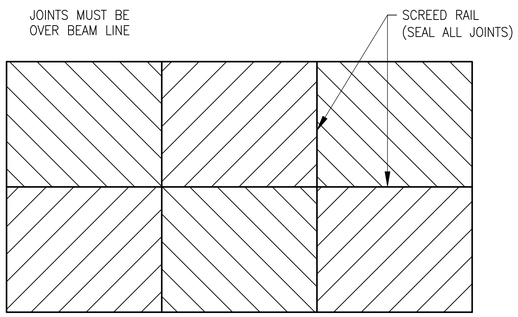
REFER TO ARCHITECTS DRAWINGS FOR SUB FLOOR VENTILATION, DPC/DPM ETC.



A–A
SCALE 1:20



TYPICAL FOUNDATION DETAIL
SCALE 1:20



SUGGESTED PATTERN FOR LAYING OF SCREED
SCALE 1:100

Rev.	Description	Date	By	Auth.
A	LEVELS CHANGED	09.08.19	LS	ES

Client
TENTERDEN TOWN COUNCIL

Project
NEW EXTENSION
ST. MICHAELS RECREATION GROUND

SALLUZ Ltd
Structural & Civil Engineers
Project Managers
Contract Administrators
3 Oakridge Broadstairs Kent CT10 3QE
www.salluz.co.uk - estafford@salluz.co.uk
Tel: 01843 601399 - Mob: 07392 295136

Title
FOUNDATIONS & GROUND FLOOR

Drawing Status
PRELIMINARY

Scale (at A1)	Drawn: LS	Checked: ES
1:50 1:20	Authorised: ES	Date: 07.08.19

Drawing Number
0294-01

Rev.
A

DO NOT SCALE Original Drawing size A1

NOTES

ALL NEW CHAMBERS TO HAVE D400 COVERS/FRAMES/CONSTRUCTION

NEW PUBLIC SW DRAINAGE
NEW CHAMBER & DRAINAGE RUN CONSTRUCTIONS TO COMPLY WITH 'SEWERS FOR ADOPTION'

TRAPPED ROAD GULLEY 51.05

RETAINING WALL

TRAPPED ROAD GULLEY 51.05

FALL

FALL

150ø 1:100 MIN.

900ø CATCHPIT IL 50.16

DIVERTED PUBLIC SEWER

225ø

150ø

150ø 1:100

DIVERT EXISTING PUBLIC SW DRAINAGE

EXISTING 225ø PUBLIC SW DRAIN

S185 APPROVAL & CONSENT REQUIRED FROM SOUTHERN WATER FOR DIVERSION OF SEWER

DIVERT EXISTING PRIVATE FW DRAIN RUN

EXT. FW DRAIN

1500 WIDE, 1500 DP x 20m LONG, SHINGLE FILLED TRENCH (300 COVER) OVERSPILL ONTO GROUND

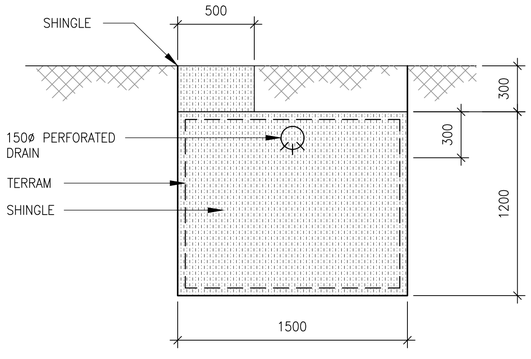
FORM NEW CHAMBER ON EXT. FW DRAIN RUN

FFL 51.25

PLUG REDUNDANT PIPEWORK

INVESTIGATE EXISTING FW & SW DRAINAGE TO BE DIVERTED ESTABLISHING EXISTING INVERT LEVELS. NEW DRAINAGE TO BE INSTALLED WITH CONSISTENT GRADIENT

ALL PUBLIC STORM WATER SEWER DIVERSION WORKS TO COMPLY WITH 'SEWERS FOR ADOPTION' DESIGN & CONSTRUCTION GUIDE & BE CARRIED OUT BY A SOUTHERN WATER APPROVED CONTRACTOR & INSPECTED BY SOUTHERN WATER FOR COMPLIANCE



DRAINAGE TRENCH
SCALE 1:20

Rev.	Description	Date	By	Auth
C	GENERAL UPDATE	04.09.19	LS	ES
B	GENERAL UPDATE	16.08.19	LS	ES
A	GENERAL UPDATE	09.08.19	LS	ES

Client
TENTERDEN TOWN COUNCIL

Project
NEW EXTENSION
ST. MICHAELS RECREATION GROUND

SALLUZ
CONSTRUCTION CONSULTANTS
3 Oakridge Broadstairs Kent CT10 3QE
www.salluz.co.uk - estafford@salluz.co.uk
Tel: 01843 601399 - Mob: 07392 295136

Title
DRAINAGE PLAN & DETAILS

Drawing Status
CONSTRUCTION

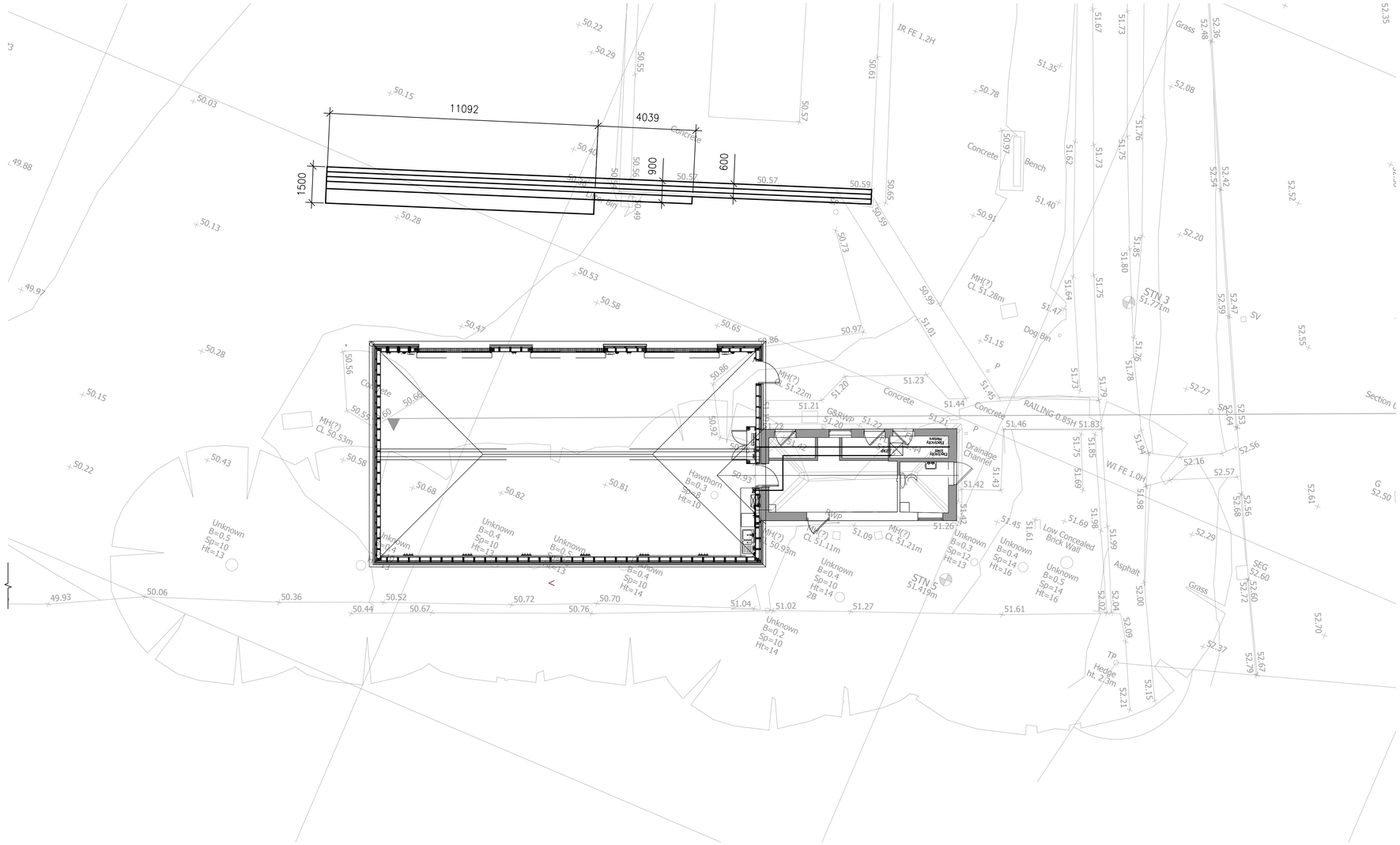
Scale (at A1)	Drawn: LS	Checked: ES
1:100 1:20	Authorised: ES	Date: 07.08.19

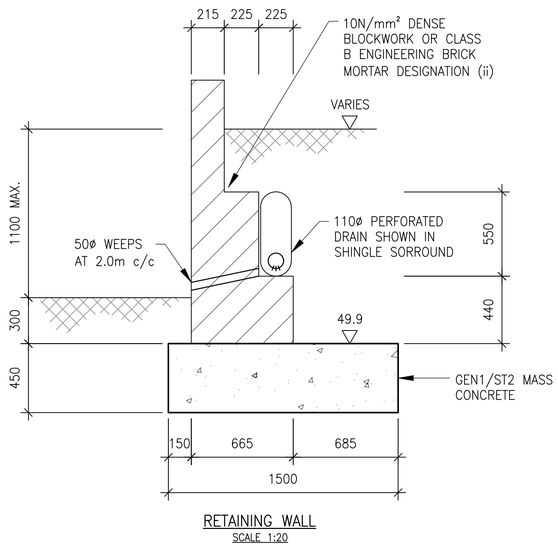
Drawing Number
0294-02

Rev.
C

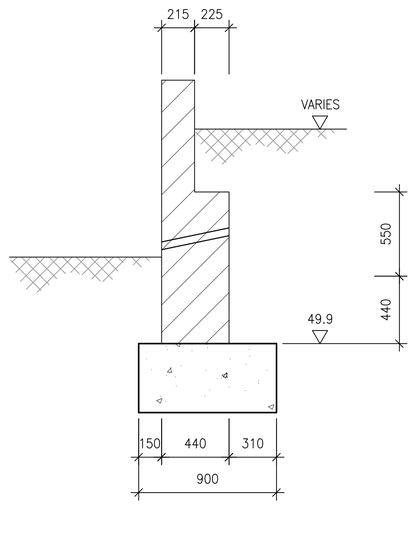
DO NOT SCALE Original Drawing size A1

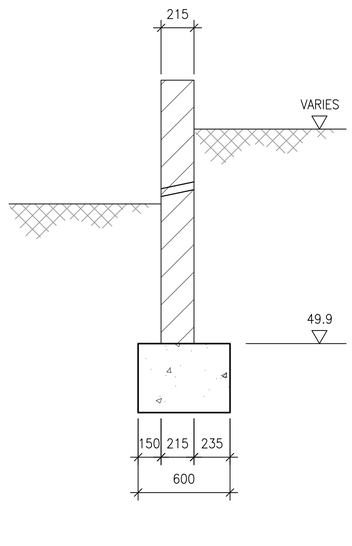
NOTES





RETAINING WALL
SCALE 1:20





Rev.	Description	Date	By	Auth.
A	GENERAL UPDATE	16.08.19	LS	ES

Client
TENTERDEN TOWN COUNCIL

Project
NEW EXTENSION
ST. MICHAELS RECREATION GROUND

SALLUZ
CONSTRUCTION CONSULTANTS
3 Oakridge Broadstairs Kent CT10 3QE
www.salluz.co.uk - estafford@salluz.co.uk
Tel: 01843 601399 - Mob: 07392 295136

Title
RETAINING WALL

Drawing Status
PRELIMINARY

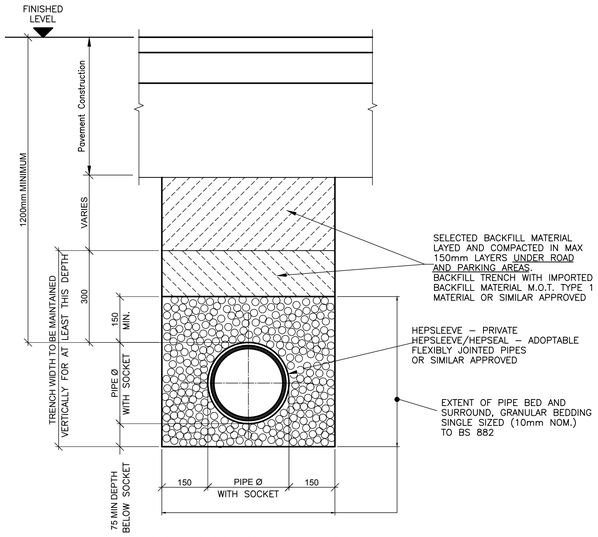
Scale (at A1)	Drawn:	Checked:
1:100 1:20	LS	ES
	Authorised: ES	Date: 09.08.19

Drawing Number
0294-03

Rev.
A

DO NOT SCALE Original Drawing size A1

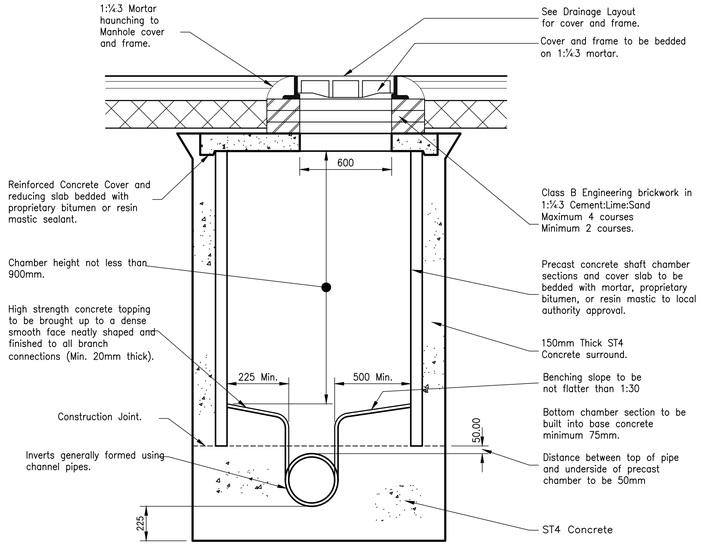
NOTES



PIPE PROTECTION DETAIL

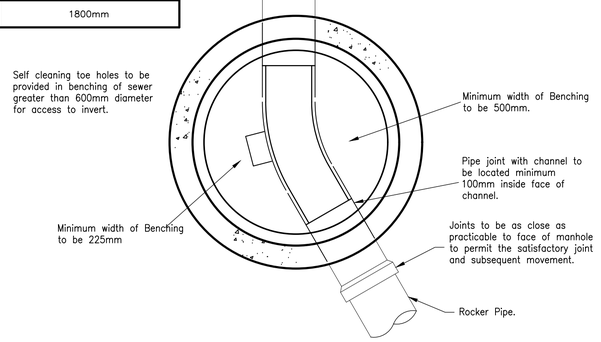
SELECTED FILL: FOR USE OTHER THAN UNDER ROADS AND PARKING AREAS.
UNIFORM READILY COMPACTIBLE MATERIAL FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDERS DEBRIS, FROZEN SOIL, CLAY LUMPS RETAINED ON 75mm SIEVE AND STONES RETAINED ON A 40mm SIEVE.
ALL IN ACCORDANCE WITH CLAUSES 601, 608 AND 612 OF THE D.O.T. SPECIFICATION FOR HIGHWAY WORK, VOL. 1 DEC. 1991.

PIPES WITH LESS THAN 1200mm OF COVER UNDER CARRIAGEWAY TO HAVE CONCRETE BED AND SURROUND CLASS Z.
TEMPORARY CONDITION PIPES TO HAVE CONCRETE BED AND SURROUND CLASS Z WHERE COVER AT ANY TIME IS LESS THAN 600mm.



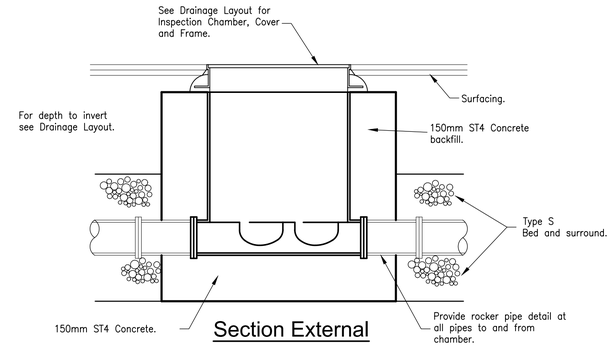
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	CHAMBER SECTION DIAMETER (mm)
LESS THAN 375mm	1200mm (1050mm WHERE DEPTH TO SOFFIT IS 1.35m – 1.50m)
375mm – 450mm	1350mm
500mm – 700mm	1500mm
750mm – 900mm	1800mm

PIPE DIA.	ROCKER PIPE LENGTH
150 – 450	0.5 – 0.75
451 – 750	0.75 – 1.0
> 750	SEEK GUIDANCE

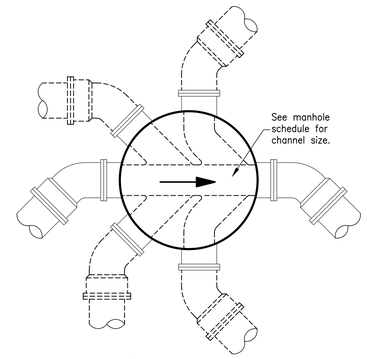


Manhole Type B

(Depth to Soffit 1.35 - 3.0m)



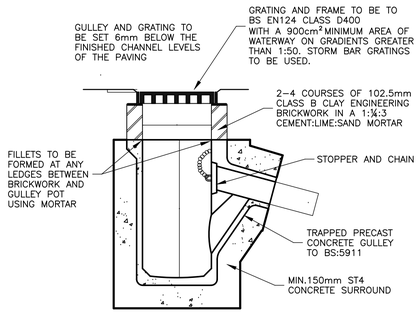
Section External



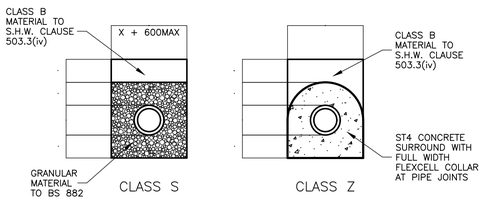
Plan

Universal Inspection Chamber Type K
Osma Drain 450mmØ

PUBLIC SEWER DRAINAGE CONSTRUCTION TO COMPLY WITH 'SEWERS FOR ADOPTION' GUIDANCE



ROAD GULLEY



BEDDING TYPES

B	GENERAL UPDATE	04.09.19	LS	ES
A	GENERAL UPDATE	16.08.19	LS	ES
Rev.	Description	Date	By	Auth.

Client
TENTERDEN TOWN COUNCIL

Project
NEW EXTENSION
ST. MICHAELS RECREATION GROUND

SALLUZ
CONSTRUCTION CONSULTANTS
3 Oakridge Broadstairs Kent CT10 3QE
www.salluz.co.uk - estafford@salluz.co.uk
Tel: 01843 601399 - Mob: 07392 295136

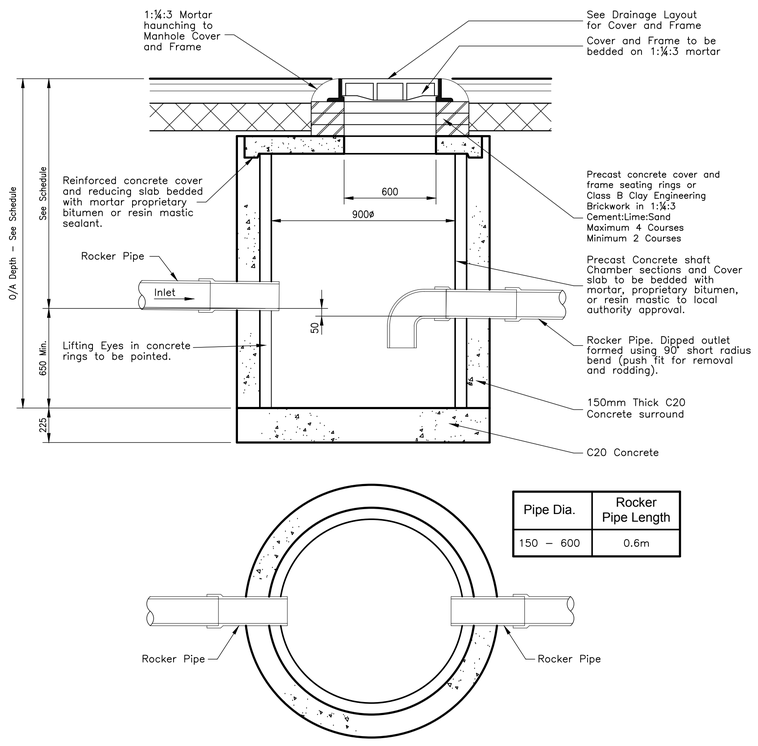
Title
DRAINAGE DETAILS SHEET 1 OF 2

Drawing Status
CONSTRUCTION

Scale (at A1)	Drawn: LS	Checked: ES
	Authorised: ES	Date: 16.08.19

Drawing Number
0294-04

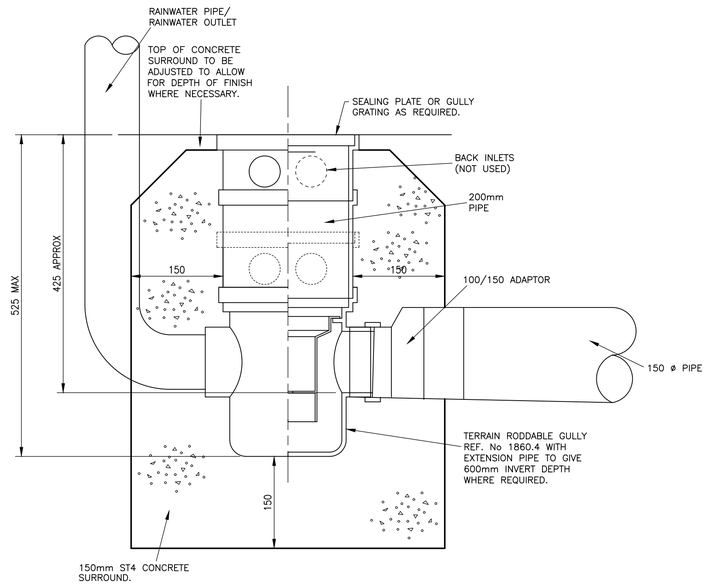
Rev.
B



Pipe Dia.	Rocker Pipe Length
150 – 600	0.6m

Catchpit Detail

Scale 1:20



RAINWATER PIPE/OUTLET OVER RODDABLE GULLY DETAIL

Scale 1:10

DO NOT SCALE Original Drawing size A1

NOTES

Rev.	Description	Date	By	Auth.
A	GENERAL UPDATE	16.08.19	LS	ES

Client

TENTERDEN TOWN COUNCIL

Project

NEW EXTENSION
ST. MICHAELS RECREATION GROUND

SALLUZ
CONSTRUCTION CONSULTANTS
3 Oakridge Broadstairs Kent CT10 3QE
www.salluz.co.uk - estafford@salluz.co.uk
Tel: 01843 601399 - Mob: 07392 295136

Title

DRAINAGE DETAILS SHEET 2 OF 2

Drawing Status

CONSTRUCTION

Scale (at A1)	Drawn: LS	Checked: ES
	Authorised: ES	Date: 16.08.19

Drawing Number

0294-05

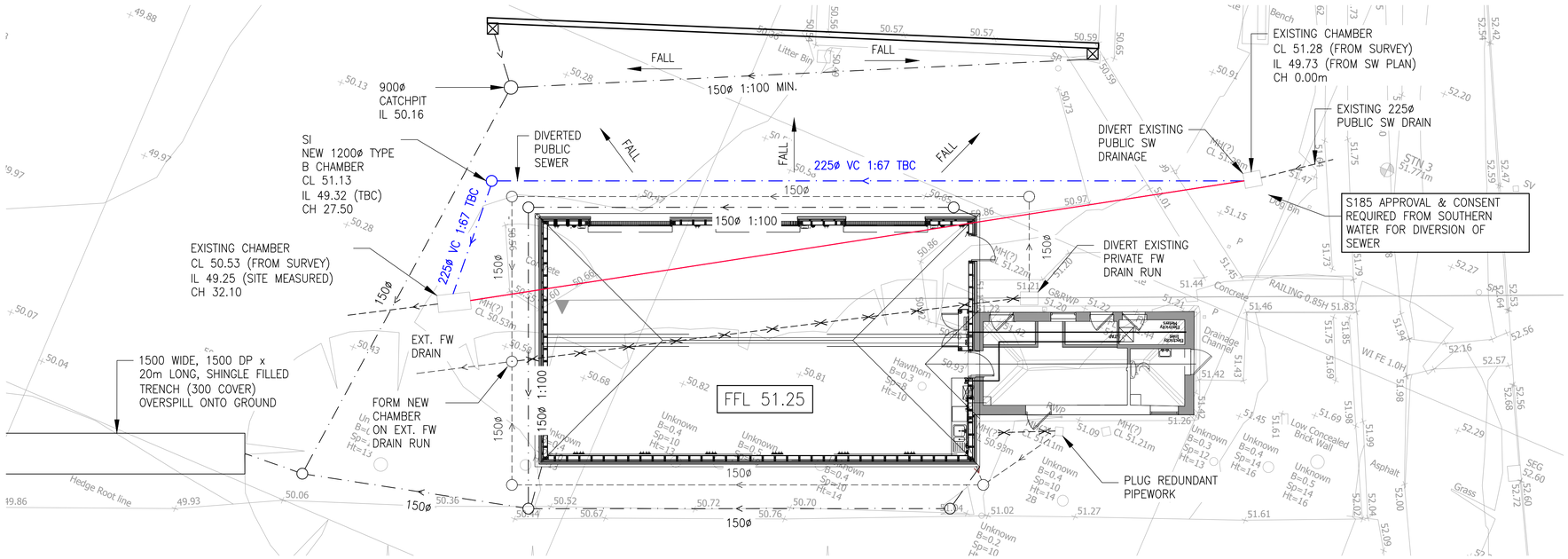
Rev.

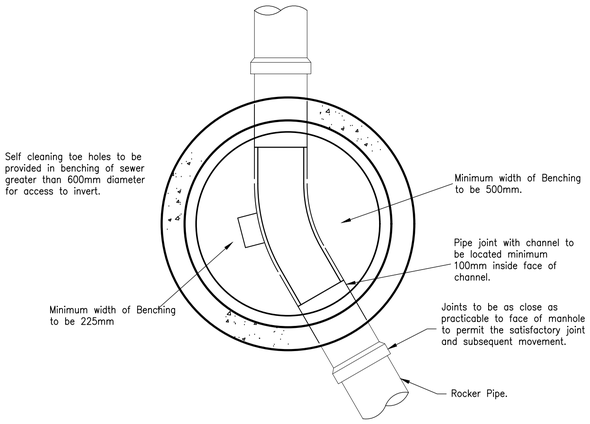
DO NOT SCALE Original Drawing size A1

NOTES

VC - VITRIFIED CLAY

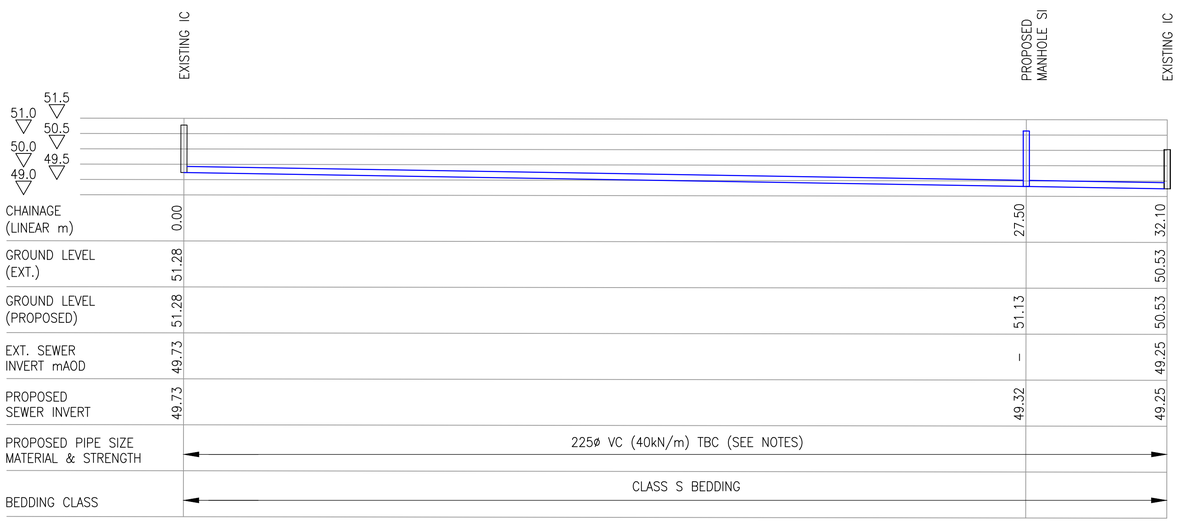
EXISTING SW PIPE IS SHOWN AS 150Ø ON SW PLAN BUT APPEARED TO BE 225Ø FROM SITE INSPECTION: PIPE SIZE TO BE CONFIRMED PRIOR TO WORKS & IF 150Ø, NEW PIPEWORK TO BE 150Ø VC

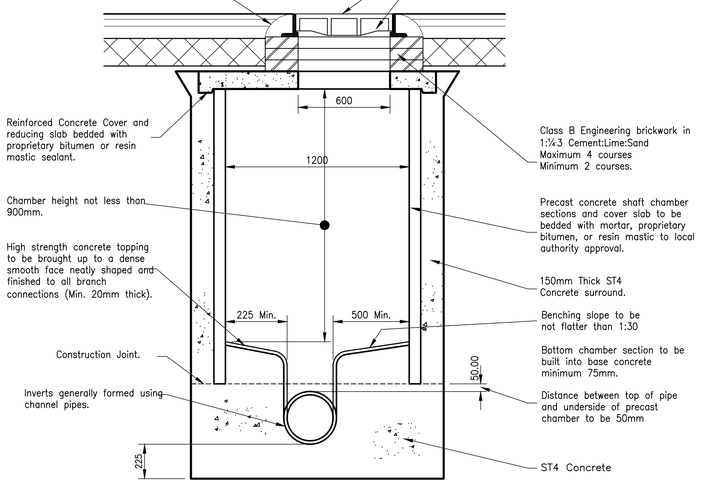




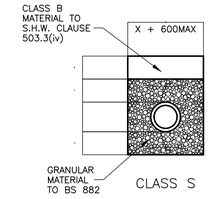
Manhole Type B

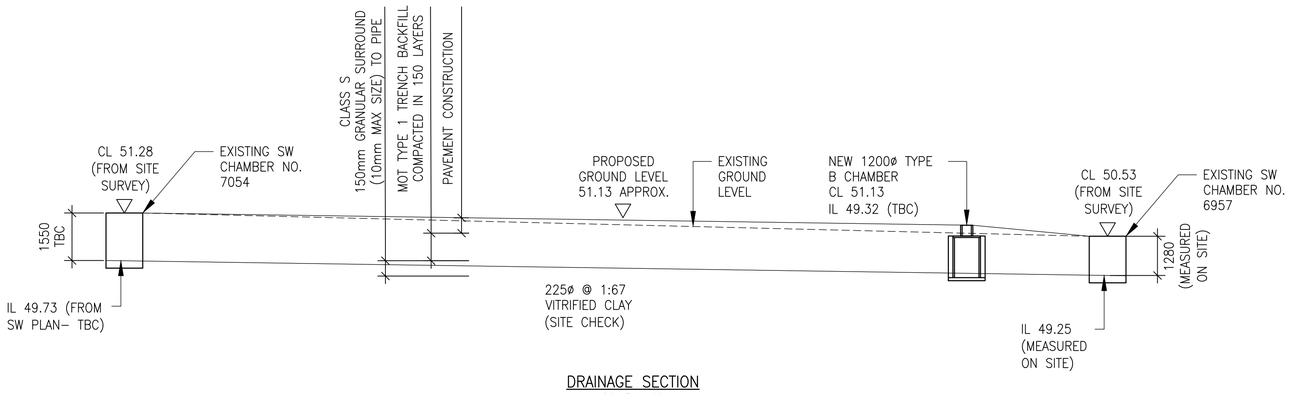
(Depth to Soffit 1.35 - 3.0m)





PIPE DIA.	ROCKER PIPE LENGTH
150 – 450	0.5 – 0.75
451 – 750	0.75 – 1.0
> 750	SEEK GUIDANCE





DRAINAGE SECTION

SCALE 1:100

Rev.	Description	Date	By	Auth

Client

TENTERDEN TOWN COUNCIL

Project

NEW EXTENSION
ST. MICHAELS RECREATION GROUND

SALLUZ
CONSTRUCTION CONSULTANTS
3 Oakridge Broadstairs Kent CT10 3QE
www.salluz.co.uk - estafford@salluz.co.uk
Tel: 01843 601399 - Mob: 07392 295136

Title

PUBLIC SW SEWER DIVERSION

Drawing Status

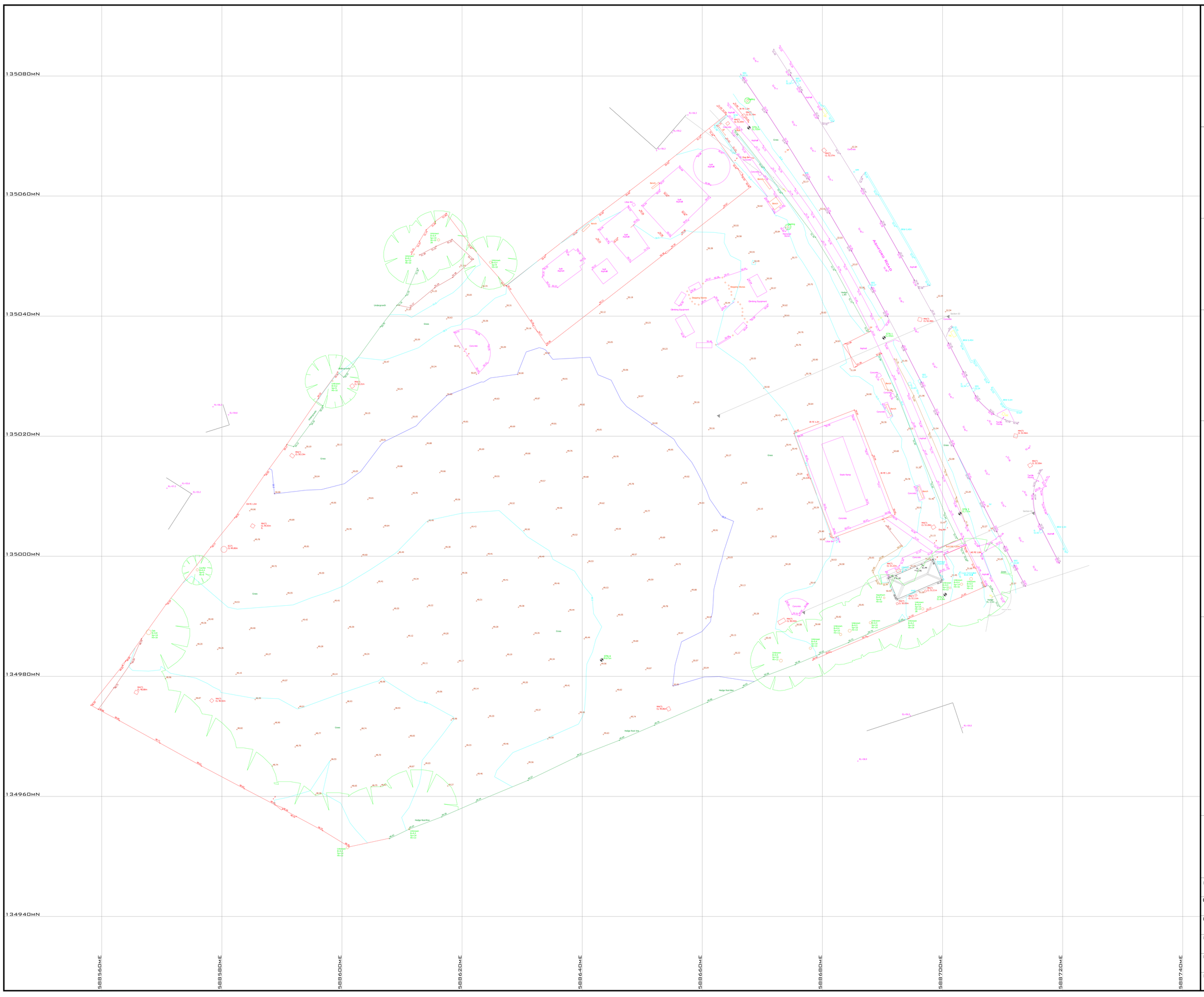
CONSTRUCTION

Scale (at A1)	Drawn: LS	Checked: ES
1:100 1:20	Authorised: ES	Date: 27.09.19

Drawing Number

0294-06

Rev.



SETTING THE BENCHMARK IN GEOMATICS

- TOPOGRAPHICAL SURVEYS
- MEASURED BUILDING SURVEYS
- 3D LASER SCANNING
- BOUNDARY DEMARCATION & SUB-DIVISION
- BOUNDARY DISPUTES
- GPS SURVEYS
- VOLUMETRIC SURVEYS
- SETTING OUT

LEGEND

A - ASPHALT
A/C - AIR CONDITIONING
B - BOLLARD
BIN - LITTER BIN
BL - BED LEVEL
BM - BENCH MARK
BN - BENCH / SEAT
BP - BLOCK PAVIORS
BT - TELECOM MH
C - CENTRE LINE
C - CONCRETE
CH - CHAIN LINK
CIP - CABLE INSPECTION POINT
CL - COVER LEVEL
CP - CONCRETE
CPT - CABLE TELEVISION POINT
CS - CABLE STAY
CT - CABLE TELEVISION IC
D - DOWN
DP - ELECTRICITY IC
EL - EAVES LEVEL
EP - ELECTRICITY POLE
ER - EARTHING ROD
FB - FLOWER BED
FE - FENCE
FH - FIRE HYDRANT
GA - GATE
GP - GAS POST
GR - GRATING
GV - GAS VALVE
H - HEDGE
H - HIGH/WEIGHT
IC - INSPECTION COVER
IR - IRON RAILING
KO - KERB OUTLET
LP - LAMP POST
MB - MULTI BOLE
MH - MANHOLE
MP - MARKER POST
P - POST & WIRE
PW - POST & WIRE
RE - ROGGING EYE
RL - RIDGE LEVEL
RU - RAMP UP
RWP - RAIN WATER PIPE
SC - STOP COCK
STG - SUB-STRY GULLY
STN - SUB-STRY MAN
SGY - STRIP SULLY
SP - SIGN POST
SS - SOIL STATION
SU - STEPS UP
TJB - TELECOM JUNCTION BOX
TK - TANK
TOW - TOP OF WALL
TP - TELEGRAPH POLE
TS - TRAFFIC SIGNAL
VP - VENT PIPE
WI - WIRE MESH
WL - WATER LEVEL
WM - WATER METER
WO - WASH OUT
WV - WATER VALVE

FEATURES

TREE (SPECIES, D=BOLE DIAMETER, SP=SPREAD, HT = HEIGHT)

- GATE / GATES
- FENCE
- BUILDING
- OVERHEAD BUILDING LINE
- FACE OF WALL
- RETAINING WALL
- CHANGE OF SURFACE
- CHANNEL
- DROP KERB
- TOP OF BANK
- BOTTOM OF BANK
- TREE LINE
- OHW - OVERHEAD WIRE
- EDGE OF UNDERGROWTH

SURVEY NOTES

CONTROL
- ALL LEVELS ARE STATED IN METRES.
- ALL LEVELS ARE RELATED TO ORDNANCE SURVEY DATUM USING THE ACTIVE GPS NETWORK.
- ALL COORDINATES ARE RELATED TO NATIONAL GRID USING THE ACTIVE GPS NETWORK.

SERVICES
- PIPE DIAMETERS, INVERT LEVELS, & DRAINAGE TYPES HAVE ALL BEEN SUADED FROM THE SURFACE, AS SUCH WE CANNOT GUARANTEE THE ADDURACY OF THIS INFORMATION, PRIOR TO ANY GROUNDWORKS WE RECOMMEND THAT ALL SERVICES ARE ACCURATELY LOCATED.
- NO RESPONSIBILITY CAN BE TAKEN FOR THE ACCURACY OF PLANS SUPPLIED BY STATUTORY AUTHORITIES.
- UNLESS OTHERWISE SHOWN, NO UNDERGROUND SERVICE TRAGING HAS BEEN CARRIED OUT.

TREES
- EVERY EFFORT HAS BEEN TAKEN TO IDENTIFY TREE SPECIES, BUT WE TAKE NO RESPONSIBILITY AS TO THE ACCURACY OF THIS INFORMATION.
- TREE CANOPIES & BOLE ARE SHOWN TO SCALE WITH MEAN DIMENSIONS.

FEATURES
- UNLESS OTHERWISE INDICATED LEVELS TAKEN AT KERB LINES ARE CHANNEL LEVELS.

LEGAL
- WHILST THIS IS A DIGITAL SCALE, THE INFORMATION PROVIDED HAS ONLY BEEN SURVEYED TO AN ACCURACY COMMENSURATE WITH THE STATED SCALE.
- IT IS SUGGESTED THAT ONLY R L SURVEYS ESTABLISHED CONTROL IS USED FOR DENSIFYING THE CONTROL NETWORK. SURVEY DETAIL SHOULD ONLY BE USED AS A CHECK ON THIS ADDITIONAL CONTROL.

SURVEY INFORMATION

ACCREDITATIONS

RICS

chartered ICES

SURVEYED & DRAWN BY

RL SURVEYS LTD

T: 01233 800109
E: OFFICE@RLSURVEYS.CO.UK
W: WWW.RLSURVEYS.CO.UK

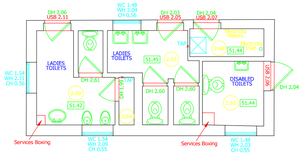
WORKING ON BEHALF OF

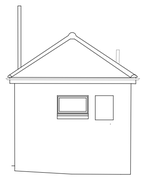
TENTERDEN TOWN COUNCIL

PROJECT TITLE: ST MICHAELS RECREATION GROUND, ASHFORD ROAD, ST MICHAELS, KENT.

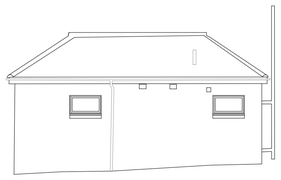
DRAWING DESCRIPTION: TOPOGRAPHICAL SURVEY

PROJECT REFERENCE: T14/027		
DRAWING REFERENCE: T14027_TENT_02_3D.dwg		
DRAWING SCALE: 1:200		
SURVEY DATE: 03/2014	SHEET: A0	REVISION: -

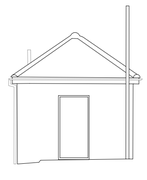




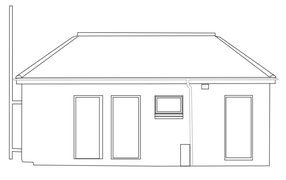
Datum 50.00m
Elevation A



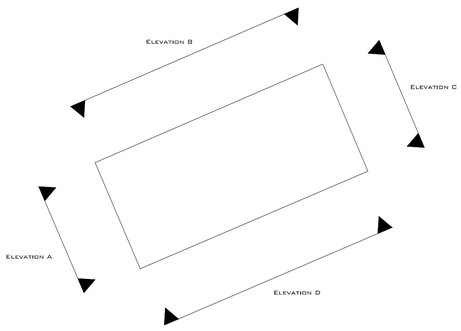
Datum 50.00m
Elevation B



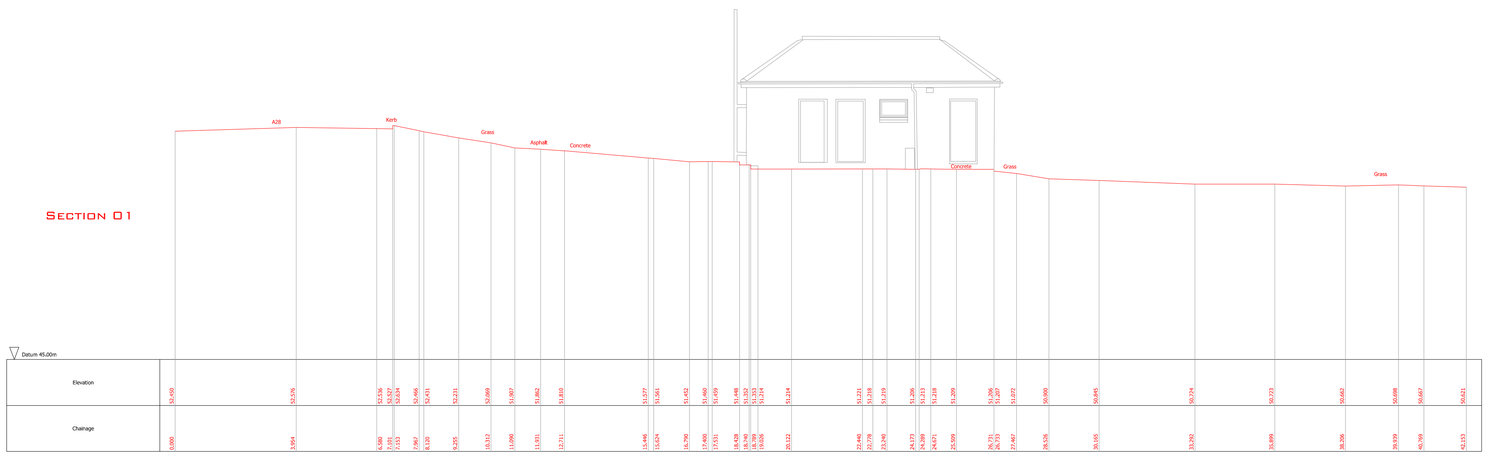
Datum 50.00m
Elevation C



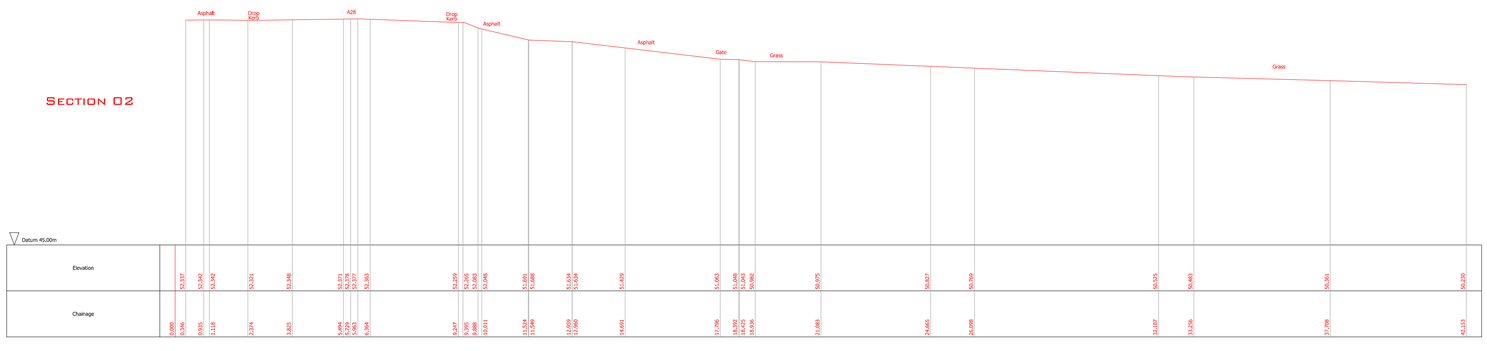
Datum 50.00m
Elevation D



Section 01



Section 02



SETTING THE BENCHMARK IN GEOMATICS

- TOPOGRAPHICAL SURVEYS
- MEASURED BUILDING SURVEYS
- 3D LASER SCANNING
- BOUNDARY DEMARCATION & SUB-DIVISION
- BOUNDARY DISPUTES
- GPS SURVEYS
- VOLUMETRIC SURVEYS
- SETTING OUT

LEGEND

A - ASPHALT
A/C - AIR CONDITIONING
B - BOLLARD
BIN - LITTER BIN
BL - BED LEVEL
BM - BENCH-MARK
BN - BENCH / SEAT
BP - BLOCK PAVIORS
BT - TELECOM MH
T - TELECOM IC
C - CONCRETE
CH - CHAIN LINK
CIP - CABLE INSPECTION POINT
CL - COVER LEVEL
COL - COLUMN
CP - CABLE TELEVISION POINT
CS - CABLE STAY
CT - CABLE TELEVISION IC
DP - DOWN PIPE
E - ELECTRICITY IC
EL - EAVES LEVEL
TP - ELECTRICITY POLE

ER - EARTHING ROD
F - FOUL WATER MH
FB - FLOWER BED
FE - FENCE
FH - FIRE HYDRANT
G - GAS IC
GP - GATE POST
GR - GRATING
GV - GAS VALVE
GY - GULLY
H - HIGH/HEIGHT
IC - INSPECTION COVER
IR - IRON RAILING
KO - KERB OUTLET
LB - LETTER BOX
LP - LAMP POST
MB - MULTI BOLE
MH - MANHOLE
MP - MARKER POST
P - POST / POLE
PW - POST & WIRE

RE - RODDING EYE
RL - RIDGE LEVEL
RU - RAMP UP
RWP - RAIN WATER PIPE
SC - STOP COCK
SEG - SIDE ENTRY GULLY
STN - SURVEY STATION
SGY - STRIP GULLY
SP - SIGN POST
STN - SURVEY STATION
SU - STEPS UP
TJB - TELECOM JUNCTION BOX
TK - TANK
TOW - TOP OF WALL
TP - TELEGRAPH POLE
TS - TRAFFIC SIGNAL
VP - VENT PIPE
WI - WIRE MESH
WL - WATER LEVEL
WM - WATER METER
WO - WASH OUT
WV - WATER VALVE

FEATURES

TREE (SPECIES, D=BOLE DIAMETER, SP=SPREAD, HT = HEIGHT)

GATE - GATES
FENCE
BUILDING
OVERHEAD BUILDING LINE
FACE OF WALL
RETAINING WALL
CHANGE OF SURFACE

CHANNEL
DROP KERB
TOP OF BANK
BOTTOM OF BANK
TREE LINE
OHW — E — T — OVER HEAD WIRE
EDGE OF UNDERGROWTH

SURVEY NOTES

CONTROL
- ALL LEVELS ARE STATED IN METRES.
- ALL LEVELS ARE RELATED TO ORDNANCE SURVEY DATUM USING THE ACTIVE GPS NETWORK.
- ALL COORDINATES ARE RELATED TO NATIONAL GRID USING THE ACTIVE GPS NETWORK.

SERVICES
- PIPE DIAMETERS, INVERT LEVELS, & DRAINAGE TYPES HAVE ALL BEEN GUAGED FROM THE SURFACE, AS SUCH WE CANNOT GUARANTEE THE ACCURACY OF THIS INFORMATION, PRIOR TO ANY GROUNDWORKS WE WOULD ADVISE CONFIRMING THE INFORMATION PROVIDED.
- NO RESPONSIBILITY CAN BE TAKEN FOR THE ACCURACY OF PLANS SUPPLIED BY STATUTORY AUTHORITIES.
- UNLESS OTHERWISE SHOWN, NO UNDERGROUND SERVICE TRACING HAS BEEN CARRIED OUT.

TREES
- EVERY EFFORT HAS BEEN TAKEN TO IDENTIFY TREE SPECIES, BUT WE TAKE NO RESPONSIBILTY AS TO THE ACCURACY OF THIS INFORMATION.
- TREE CANOPIES & BOLE ARE SHOWN TO SCALE WITH MEAN DIMENSIONS.

FEATURES
- UNLESS OTHERWISE INDICATED LEVELS TAKEN AT KERB LINES ARE CHANNEL LEVELS.

LEGAL
- WHILST THIS IS A DIGITAL SCALE, THE INFORMATION PROVIDED HAS ONLY BEEN SURVEYED TO AN ACCURACY COMMENSURATE WITH THE STATED SCALE.
- IT IS SUGGESTED THAT ONLY R L SURVEYS ESTABLISHED CONTROL IS USED FOR DENSIFIYING THE CONTROL NETWORK. SURVEY DETAIL SHOULD ONLY BE USED AS A CHECK ON THIS ADDITIONAL CONTROL.

SURVEYED & DRAWN BY

RL SURVEYS LTD

T: 01233 800109
E: OFFICE@RLSURVEYS.CO.UK
W: WWW.RLSURVEYS.CO.UK

WORKING ON BEHALF OF

TENTERDEN TOWN COUNCIL

PROJECT TITLE: ST MICHAELS RECREATION GROUND, ASHFORD ROAD, ST MICHAELS, KENT.

DRAWING DESCRIPTION: FLOOR PLANS, SECTIONS & ELEVATIONS

PROJECT REFERENCE: T14/027

DRAWING REFERENCE: T14027_TENT_02_3D.DWG

DRAWING SCALE: 1:100

SURVEY DATE: 03/2014

SHEET: A0

REVISION: -

CONSTRUCTION NOTES

for

ERECTION of MAINTENANCE FACILITY
St MICHAELS RECREATION GROUND
ASHFORD ROAD
TENTERDEN

TENTERDEN TOWN COUNCIL

GPM2 DESIGN LTD
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

Tel: 01843 268010

Prepared July 2019

Construction Notes

GENERAL

All dimensions are to be structural and exclude finishes unless otherwise noted. Drawings if necessary to be read in conjunction with Structural Engineers details.

All work is to be carried out in accordance with the building regulations and to building control approval.

All workmanship and material to be in accordance with current British standards code of practice and Agreement Certificates.

Sewers local to this development may have a bearing on the foundation depth/design. It is not the responsibility of the architect to ensure that all sewers are located. Building control / Southern Water will have records and may enforce additional information/constraints. If a CCTV survey and/or a structural engineered designed foundation is requested then the client will be responsible for the extra associated fees. Results of a CCTV survey and/or the structural engineered designed foundation may result in additional un-expected build costs which will be required to be covered by the client and not the architect/structural engineer.

The location of below / above ground services i.e. water / gas / electric and any associated meters, has not been ascertained by the architect. It is the responsibility of the appointed contractor to contact the relevant service providers prior to construction works taking place in order to submit the relevant applications if required. The service providers may need to re-route services due to the proposed works and if required, any associated fees are to be covered by the client. If an engineer is required to visit site, the lead time for the site visit is normally in the region of 4-12 weeks, on this basis in order to avoid lengthy delays we would advise that this is investigated at the earliest possible convenience. The contractor is to carry out a CAT scan prior to commencement to identify locations of buried services

EXCAVATIONS

Excavate all vegetation and root containing topsoil minimum 150mm.
All excavations are to be carried out in accordance with the Structural Engineer's details and to the satisfaction of Building Control.

FOUNDATIONS

Mass concrete trench fill foundations to Structural Engineer's details and drawings and to the minimum depths shown .Actual depths may vary due to ground conditions.

GROUND FLOOR CONSTRUCTION

Ground floor construction is to comprise of Supreme Concrete or similar Beam & Block floor (155 deep) 120 or 170mm wide with 75mm reinforced sand cement floor Screed bonded directly to infill blocks. Use brick slips for finishing the floor onto loadbearing walls in accordance with manufacturer's instructions

EXTERNAL WALLS - TIMBER FRAME

Below DPC

Cavity wall width below DPC to be 302.5mm thick with the outer leaf of 102.5mm face brickwork, 60mm wide cavity and 140mm masonry below DPC level is to be laid using Class 2 mortar using sulphate resisting cement. Facing brickwork to external walls to start below ground level with pre stressed concrete lintels to all leaves in substructure brick/block work where drains and services pass through wall. A 50mm clearance is to be allowed for all around entrance ducting, with both sides of opening protected with a suitable rigid sheet material to prevent vermin entry. Base of cavity to be filled with lean mix concrete 225mm below the lowest level of any DPC and external wall insulation (whichever the greater), tilting to outer leaf to facilitate drainage with ground weep holes.

Damp proof course to be Hyload pitch polymer system or similar approved, fitted in strict accordance with the manufactures recommendations, to full width of skins with external horizontal DPC 150mm minimum above ground level. DPC to be laid wet on same mortar mixes for masonry, installed as work proceeds, sandwiched between wet mortars.

Below ground service entry - Any pipe or duct passing through walls to be lintelled using 100/150 x 65mm prestressed concrete lintels with a minimum 150mm end bearing. The pipe passing through an external wall shall have a clearance of 50mm and the opening masked both sides with rigid sheet material to prevent entry of fill or vermin.

Above DPC
140mm Timber Frame @600mm centres – LBC Heather Facing Brickwork Finish , 50mm cavity and proprietary 140mm timber stud frame inner leaf with 9mm OSB to cavity side with breather membrane with 100mm horizontal and 150mm vertical laps. The total timber frame system is to be constructed in strict accordance with the specialist manufacturer's recommendations and details.

OSB sheathing to be overlaid with breather membrane and 50 x 50mm(75 x 50mm at corners) treated vertical battens planed on two sides @600mm c/c include stop battens and tilting battens as required .Finish with 190mm wide Cedral Lap boarding secretly fixed to battens in accordance with manufacturer's instructions using screws. Boarding to be fixed in free pattern with no vertical butt joints Use Colour matched screws where appropriate for trims and flashings. Cedral aluminium corner and reveal trims colour to match boards Allow for Cedral aluminium colour matched corner and reveal trims vertical and horizontal starter profiles.

See attached link for fixing guide and junction details
Cedral fixing guide low res.pdf
To be internally lined using one layer of 19mm exterior grade ply fixed to timber frame.

LINTELS
Lintels External Timber Frame Walls – All lintels to openings in external walls are to be by the specialist timber frame manufacturer to suit timber frame inner leaf installed strictly in accordance with manufacturer's recommendations.

CAVITY WALL TIES
Wall Ties**-**
Ancon or similar HT to suit cavity width embedded min 50mm.

CAVITY CLOSERS
Cavity Closers – To be **Pinch Battens**
Note: Provide minimum 30mm overlap with back of window/door frame.

MORTAR
BS EN 998-1: Specification for mortar for masonry: Part 1: Rendering and plastering mortar. BS EN 998-2: Specification for mortar for masonry-Part 2: Masonry mortar.
PD 6678: Guide to the selection and specification of masonry mortar.
These documents are applicable to all mortars; however, when applied to site mixed mortars they must be used in conjunction with the National Standard Code of Practice BS 5628 Pt 3.
Mortar mixes using ordinary Portland or sulphate-resisting cements where required.

Masonry below dpc- The preferred mortar mix is to be **Class 2** Cement: Lime: Sand 1:½:4½ using sulphate-resistant cement.

Brickwork above dpc- Under ***normal*** site conditions the preferred mortar mix is to be **Class 3** Cement:Lime:Sand 1:1:5½.

Blockwork above dpc- Mortar mix is to be **Class 3** Cement:Lime:Sand 1:1:5to6.

Note: Where applicable, the Structural Engineers specific requirements for loadbearing elements will supersede the above mortar mixes to achieve the required design strength.

ADDITIONAL STRUCTURAL NOTES
Movement Joints in brickwork- generally to be located in corners and behind rainwater pipes are to be formed to create a 12mm joint filled with 'Expand foam' joint filler with 'Thioflex One' Polysulphide sealant or equivalent and with debonding flat metal 200x25x3mm slip ties positioned in the bead joint @ 225mm vertical centres debonded to one side. Wall ties to be at 225mm centres either side of joint and within 225mm of the joint.

Movement Joints in blockwork- generally to be located in corners and are to be formed to create a 12mm joint to be formed using dense flexible bitumen impregnated board minimum mass 4kg/m^2 and 20mm minimum deep flexible Polysulphide sealant. In accordance with Appendix A of robust details handbook. Provide debonding flat metal 200x25x3mm slip ties @ 450mm vertical centres.

DAMP PROOF COURSES ETC
Damp Proof Courses/Trays – To be proprietary approved black polythene min. 2000 gauge to BS 6515 and provided at slab level and 150mm above external ground level, as indicated. Also to be provided as cavity head closer and cavity trays, as indicated on the general arrangement and detail drawings.

Guide to BSEN 12588 Codes and Thicknesses

Codes	Thickness (mm)	Weight kg/m^2	Use for
3	1.32	14.97	(A)
4	1.80	20.41	(ABF)
5	2.24	25.40	(BCDEFGH)
6	2.65	30.05	(BCDEFGH)
7	3.15	35.72	(CDEGH)
8	3.55	40.26	(CDGH)

Key to uses

A) Soakers	E) Pitched Roofs
B) Flashings	F) Vertical Cladding
C) Flat Roofing	G) Dormers
D) Parapet, Box and Tapered Valley Gutters	H) Bay Roofs and Canopies

Lead Flashings etc.
All leadwork to be in accordance with the requirements of the Lead Sheet Association.
Unless stated otherwise in the details lead Code to be in accordance with the following recommendations:

TIMBER TREATMENT REQUIREMENTS

Structural Softwood & joinery– All structural softwood for dry applications (rafters, joists and studwork) must be minimum of C16 stressed graded when dry and include the grading mark “DRY” or “KD” in all structural locations as per BS 4978.

Maximum moisture content of timber to be 19%. All structural timbers and timbers exposed to external structure to be double vacuum pressure treated using a water based preservative based on copper triazole technology **‘Tanalised’** or similar approved, applied under high pressure.

All site end cutting, notching or drilling following pressure treatment must be liberally swabbed with **‘Ensele’** or similar approved compatible preservative to maintain the integrity of the treatment.

The table below explains the main Use Classes as defined in BS EN 335-1 to which timber can be subjected. *Note: Class 1 treatment shall not be specified*

USE CLASS	USE SITUATIONS	PRINCIPAL BIOLOGICAL SITUATIONS	TYPICAL SERVICE SITUATION	TYPICAL EXAMPLES
1	Above ground, covered. Permanently dry. Permanently less than 18% moisture content	Insects	Internal with no risk of wetting or condensation.	All timbers in normal pitched roofs except tiling battens and valley gutter timbers. Floor boards, architraves, internal joinery, skirtings. All timbers in upper floors not built into solid external walls.
2	Above ground, covered. Occasional risk of wetting. Occasionally more than 20% moisture content.	Fungi Insects	Internal with risk of wetting or condensation.	Tiling battens, structural timbers in timber frame houses†, timber in pitched roofs with high condensation risk, timbers in flat roofs, valley gutter timbers, ground floor joists†, sole plates (above dpc), timber joists in upper floors built into external walls.
3.1	Above ground, not covered. Exposed to frequent wetting.	Fungi	External, above damp proof course (dpc) – **coated**.	External joinery including roof soffits and fascias, bargeboards, cladding.
3.2	Often greater than 20% moisture content.		External, above damp proof course (dpc) – **uncoated**.	Fence rails, gates, fence boards, garden timbers, cladding, deck boards and balustrades, agricultural timbers not in soil/manure contact.
4	In contact with ground or fresh water. Permanently exposed to wetting. Permanently above 20% moisture content.	Fungi	Soil contact. Timbers in permanent contact with the ground or below dpc.	Fence posts, gravel boards, deck support timbers, agricultural timbers in soil/manure contact, poles, sleepers, garden timbers.
			Fresh water contact. Timbers in permanent contact with fresh water.	Lock gates, revetments.
			Cooling tower timbers	Cooling tower packing (fresh water).

† These timbers are assigned to a higher Use Class than suggested by their location in the structure of a building, owing to the potential consequences of failure based on experience within the UK.

ROOF CONSTRUCTION

Roof Structure – To be purpose made roof trusses as part of the timber frame system to manufacturers design.

ROOF FINISHES

Marley Concrete Plain tiles to match existing) - All tiles are to be secured in strict accordance with the manufacturers' recommendations and details. Tiles must be laid and fixed to comply with BS 5534: the British Standard Code of practice for slating and tiling, and BS 8000: Part 6: the British Standard Code of practice for workmanship on building sites. Plain tiles laid @40 degree pitch with min 67 mm headlap fixed with 38mm x 2.65m 500g plain nails, twice nailed every course at perimeters and every fifth course elsewhere. Fix to 50x25mm treated softwood battens at gauge to suit slate on vapour permeable underlay 'Tyvek SuproPlus' or similar (The Pd value to be greater than 704.6)(with integral adhesive tape) laid unsupported with 150mm horizontal (300mm at ridge) and 150mm side laps. Underlay must be laid with drapes 10-15mm over rafters, on trussed rafters @600mmc/c max length 6.16m

Eaves, Fascia + Soffit Finish

UPVC white finish.

Roof Ventilation

All roof ventilation will be achieved through the permeable roofing membranes and open structure no requirement for additional ventilation.

EXTERNAL RAINWATER GOODS

Rainwater Goods – Rainwater to be round uPVC black coloured 112mm gutters with 68mm downpipes.

WINDOW / DOOR SPECIFICATION

Personnel doors to conform to PAS24:2012

ROLLER SHUTTER DOORS

Roller Shutter doors to be Guardian Ares Level 1 LPS 175 Rated Roller Shutters all designed and built in accordance with BSEN 13241-1:2003 all supplied with Guardian Safe – Low voltage control unit and key switch deadman operation.

Locking operation standard via motor, Pinlocks complete with solenoid isolator and ground bolt complete with isolator.

Doors to be finished in powder coated colour tbc and face fixed to inside of frame.

HOT AND COLD WATER INSTALLATION

To be contractor designed element Contractor to design and detail the water supply installation to BS EN 806-2 and BS 8558. Hot water to be provided by instantaneous heater at point of use .Contractor to propose make and model to suit situation. Supplies to be taken from existing WCs incoming mains

PLUMBING

Plumbing – Sink, waste to be min. 40mm diameter PVCu with 75mm deep seal traps. Washbasin wastes to be min. 32mm diameter PVCu with 75mm deep seal trap. Waste sizes to be increased in diameter where maximum pipe lengths are exceeded. All waste branch pipes taken to existing soil and vent pipe or standing waste. Rodding points to be provided at change of direction of all branch pipes.

Soil and vent pipes to be 100mm diameter PVCu taking all branch waste connection to main drain. Roof termination of soil stack to be min. 900mm above the head of any opening into the building within 3m of vent. Proprietary Air Admittance Valve fitted to head of stack (to terminate just above level of main roof insulation) if not at the head of a drain run. See Site Engineering Layout for final locations. All AAV's to be BBA certified. All SVP terminations to be via a proprietary tile vent or ridge vent terminal, as shown on HT Working Drawings. All SVP's to have slow radius bend at base of stack.

ELECTRICAL INSTALLATION

The complete Electrical Installation to be contractor design element including lighting and power and all components .Contractor to submit proposals for installation prior to commencement. Design to follow outline positioning shown on drawings.

Supplies to be taken from existing incoming mains to existing WC's.

Contractor to provide the design in accordance with BS 7671 and schedule of fittings. Also complete detailing, selection, installation and testing and commissioning of the electrical systems. Submit computer generated calculations showing types and sizes of devices, cables, and cpcs. Include rating factors, diversity, disconnection times and values of fault current and impedance.

Contractor designed and detailing of lighting layout: Submit layout drawings together with luminaire and lamp technical information indicating luminaire photometric data; maintenance factor calculations (showing proposals for luminaire maintenance and lamp replacement); computer generated point lighting calculations (showing calculated maintained average illuminance values and uniformity values); and isolux contour plots for the working plane.

Design And Detailing Of Internal Lighting Installation: Contractor to design the general internal lighting installation in accordance with SLL 'Code for lighting' and schedule of fittings. Arrangement of power circuits: Submit proposals for the arrangement and separation of circuits.

Arrangement of Lighting Circuits: Submit proposals for the arrangement and separation of circuits.
The complete Electrical Installation is to be carried out in strict accordance with all relevant current British Standards & Codes of Practice and also to be in accordance with the requirements of 'Approved Document P'.

Builders work in connection

Allow for all builders work in connection with installation including but not exclusively, cutting
Chases in, masonry and stud partitions and reinstatement upon completion

Inspection and Testing Of Electrical Installation

Inspection and Testing Certification: Submit two copies of electrical installation certificate completed in Accordance with BS 7671.

Documentation for Electrical Installation

Contents to include as built information, layouts and calculations, certificates

Socket Outlets & Light Switches

All socket outlets and light switches are to be located between 450mm minimum and 1200mm maximum above finished floor level.

Fixed External Lighting

Fixed External Lighting should have automated controls and/or efficient lamps such that:

EITHER: Lamp capacity does not exceed 150W per light fitting and the lighting automatically switches off:

i) When there is enough daylight AND
ii) When it is not required at night.

a. OR: the light fittings have sockets that can only be used with lamps having an efficiency greater than 40 lumens per circuit watt.

EXTERNAL WORKS – SUBJECT TO ENGINEERS DESIGNS / DRAINAGE DESIGNS AND MADE GROUND FINISHED LEVELS

Pathways / Patios – 600x600mm paving slabs laid on 50mm well compacted grit / sand base on a 100mm min. deep type 1 sub-base prepared over a geotex membrane. Pathways to be edged with a timber board + post when junctioning with soft landscaped edges.

Parking Areas – 65xx100x200mm paviors laid in herringbone pattern with perimeter boarder on 50mm well compacted grit / sand base with concrete haunching to perimeters. Driveway to be set on 150mm min. deep type 1 sub-base prepared over a geotex membrane on a well compact hardcore base.

LANDSCAPING

To be confirmed.

DRAINAGE

a. Before commencing any construction the contractor must check the condition, line and invert of the existing foul drain indicted on the drawing. Any discrepancies between actual invert and interpolated levels must be reported to the Architect. The existing pipe is to be examined for its entire length and cleared / repaired as required.

b. If any existing drainage pipes are intercepted during the course of the works they shall be investigated and re-connected as necessary.

c. All building drainage works to be in accordance with BS EN 752 Building Drainage and the current Building Regulations

d. Cover levels shown are for guidance only. Final levels are to be determined on site. Where affected by the works existing covers are to be adjusted as necessary.

e. Private drainage both foul and surface water 'Marley' Shallow Access system or similar approved construction in accordance with BS 8301; 1985 and Approved Document 'H' of the Building Regulations.

f. Drains passing beneath footings or through walls are to be bridged by pre-cast concrete lintels of adequate strength where necessary. Minimum clearance below lintel or ground beam to be 50mm. Opening each side of footing to be closed with rigid sheet material.

g. UPVC pipe-work is to comply with BS 4660 or if clay-ware is used it shall comply with BS 65.

h. All pipe bedding and protection to be in accordance with manufactures recommendations and Approval Document 'H' of the Building Regulations.

i. Inspection chambers more than 1500mm deep to invert are to be either 1200mm diameter or rectangular 1200 x 750mm minimum.

j. Chambers 1500mm deep or less to invert may be 1050mm diameter or rectangular 1200 x 750mm minimum.

k. Chambers 1200mm deep or less to invert may be 450mm diameter performed chambers. These should not be used to change direction on runs where falls are critical.

l. Access points which are no deeper than 600mm may be 250mm diameter.

m. No inspection chambers or covers are to be located within footpaths, driveways or patios unless specifically shown on this layout.

n. All gullies shown are to be trapped and roddable.

o. All drainage is to be 100mm diameter unless shown otherwise.

p. Manhole covers to be ductile iron class D400 in carriageways, class B125 in car parking areas and class A15 only in pedestrian areas and footways all to BS EN 124:1994

q. PPIC's cast iron cover and plastic frame is suitable where wheel loads do not exceed 1.5 Tonnes. For heavier loading installations, chamber to be surrounded with 150mm thick concrete and cover replaced with appropriate type.

r. All pipe bedding and protection to be in accordance with manufactures recommendations and Approval Document 'H' of the Building Regulations.
Bedding shall be 150mm granular bed surround where cover:
i) Greater than 450mm for 100mm diameter rigid pipes in soft landscaping areas.
ii) Greater than 600mm for all pipe diameters greater than 100mm in soft landscape areas.
iii) Greater than 900mm for pipes in trafficked areas.
iv) Greater than 1200mm for pipes in adopted areas. In all other cases including gulley connections use 150mm (min) concrete protection.

s. Access to be provided at the base of all RWP's using trapped access gullies bedded and surrounded in 150mm ST4 Concrete. Gullies to be Hepworth Ref SG3/1.

t. Pipes shall be laid at a minimum gradient of 1:40 unless inverts indicate otherwise.

u. Any existing pipework becoming redundant shall be excavated or sealed with a cement grout.

v. All mortar shall be 3:1 sand:cement unless stated otherwise.

w. All concrete shall be in accordance with BS 5328:1991 with Sulphate resistance to suit ground conditions.

x. THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONNECTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT.

(a) The works might entail deep excavation for which appropriate support and safety measures must be provided.

(b) Works in the vicinity of live services including gas and electricity (underground and overhead) will be necessary and the advice of all statutory service companies must be sought before any works commence.

(c) In making connections to existing sewers and drainage installations, man entry to confined spaces will be required and all appropriate safety precautions must be followed including the use of gas detection apparatus. The same precautions must be followed during future inspection and/or maintenance of any part of the drainage system.

(d) Works in existing highway will involve conflict with traffic and all due precautions including traffic controls and signing must be taken to ensure the safety of operatives and the general public.

.
.

Construction Notes

GENERAL

All dimensions are to be structural and exclude finishes unless otherwise noted. Drawings if necessary to be read in conjunction with Structural Engineers details.

All work is to be carried out in accordance with the building regulations and to building control approval.

All workmanship and material to be in accordance with current British standards code of practice and Agreement Certificates.

Sewers local to this development may have a bearing on the foundation depth/design. It is not the responsibility of the architect to ensure that all sewers are located. Building control / Southern Water will have records and may enforce additional information/constraints. If a CCTV survey and/or a structural engineered designed foundation is requested then the client will be responsible for the extra associated fees. Results of a CCTV survey and/or the structural engineered designed foundation may result in additional un-expected build costs which will be required to be covered by the client and not the architect/structural engineer.

The location of below / above ground services i.e. water / gas / electric and any associated meters, has not been ascertained by the architect. It is the responsibility of the appointed contractor to contact the relevant service providers prior to construction works taking place in order to submit the relevant applications if required. The service providers may need to re-route services due to the proposed works and if required, any associated fees are to be covered by the client. If an engineer is required to visit site, the lead time for the site visit is normally in the region of 4-12 weeks, on this basis in order to avoid lengthy delays we would advise that this is investigated at the earliest possible convenience.The contractor is to carry out a CAT scan prior to commencement to identify locations of buried services

EXCAVATIONS

Excavate all vegetation and root containing topsoil.
All excavations are to be carried out in accordance with the Structural Engineer's details and to the satisfaction of Building Control.

FOUNDATIONS

Mass concrete trench fill foundations to Structural Engineer's details and drawings and to the minimum depths shown .Actual depths may vary due to ground conditions.

GROUND FLOOR CONSTRUCTION

Ground floor construction is to comprise of Supreme Concrete or similar Beam & Block floor (155 deep) 120 or 170mm wide with 75mm reinforced sand cement floor Screed bonded directly to infill blocks. Use brickslips for finishing the floor onto loadbearing walls in accordance with manufacturers instructions

EXTERNAL WALLS - TIMBER FRAME

Below DPC

Cavity wall width below DPC to be 302.5mm thick with the outer leaf of 102.5mm face brickwork, 60mm wide cavity and 140mm masonry below DPC level is to be laid using Class 2 mortar using sulphate resisting cement. Facing brickwork to external walls to start below ground level with pre stressed concrete lintels to all leaves in substructure brick/block work where drains and services pass through wall. A 50mm clearance is to be allowed for all around entrance ducting, with both sides of opening protected with a suitable rigid sheet material to prevent vermin entry. Base of cavity to be filled with lean mix concrete 225mm below the lowest level of any DPC and external wall insulation (whichever the greater), tilting to outer leaf to facilitate drainage with ground weep holes.

Damp proof course to be Hyload pitch polymer system or similar approved, fitted in strict accordance with the manufactures recommendations, to full width of skins with external horizontal DPC 150mm minimum above ground level. DPC to be laid wet on same mortar mixes for masonry, installed as work proceeds, sandwiched between wet mortars.

Below ground service entry - Any pipe or duct passing through walls to be lintelled using 100/150 x 65mm pre stressed concrete lintels with a minimum 150mm end bearing. The pipe passing through an external wall shall have a clearance of 50mm and the opening masked both sides with rigid sheet material to prevent entry of fill or vermin.

Above DPC
140mm Timber Frame @600mm centres – LBC Heather Facing Brickwork Finish , 50mm cavity and proprietary 140mm timber stud frame inner leaf with 18mm OSB to cavity side with breather membrane with 100mm horizontal and 150mm vertical laps. The total timber frame system is to be constructed in strict accordance with the specialist manufacturer's recommendations and details.

OSB sheathing to be overlaid with breather membrane and 50 x 50mm(75 x 50mm at corners) treated vertical battens planed on two sides @600mm c/c include stop battens and tilting battens as required .Finish with 190mm wide Cedral Lap boarding secretly fixed to battens in accordance with manufacturer's instructions using screws. Boarding to be fixed in free pattern with no vertical butt joints Use Colour matched screws where appropriate for trims and flashings.
Allow for Cedral aluminium colour matched corner and reveal trims vertical and horizontal starter profiles.

See attached link for fixing guide and junction details
Cedral fixing guide low res.pdf

To be internally lined using one layer of 19mm exterior grade ply fixed to timber frame.

LINTELS
Lintels External Timber Frame Walls – All lintels to openings in external walls are to be by the specialist timber frame manufacturer to suit timber frame inner leaf installed strictly in accordance with manufacturer's recommendations..

CAVITY WALL TIES
Wall Ties**-**
Ancon StaFix 50 wall to suit timber frame construction.

CAVITY CLOSERS
Cavity Closers – To be **Pinch Battens**
Note: Provide minimum 30mm overlap with back of window/door frame.

MORTAR
BS EN 998-1: Specification for mortar for masonry: Part 1: Rendering and plastering mortar.
BS EN 998-2: Specification for mortar for masonry-Part 2: Masonry mortar.
PD 6678: Guide to the selection and specification of masonry mortar.
These documents are applicable to all mortars; however, when applied to site mixed mortars they must be used in conjunction with the National Standard Code of Practice BS 5628 Pt 3.
Mortar mixes using ordinary Portland or sulphate-resisting cements where required.

Masonry below dpc- The preferred mortar mix is to be **Class 2** Cement:Lime:Sand 1:½:4½ using sulphate-resistant cement.

Brickwork above dpc- Under ***normal*** site conditions the preferred mortar mix is to be **Class 3** Cement:Lime:Sand 1:1:5½.

Blockwork above dpc- Mortar mix is to be **Class 3** Cement:Lime:Sand 1:1:5to6.

Note: Where applicable, the Structural Engineers specific requirements for loadbearing elements will supersede the above mortar mixes to achieve the required design strength.

ADDITIONAL STRUCTURAL NOTES
Movement Joints in brickwork- generally to be located in corners and behind rainwater pipes are to be formed to create a 12mm joint filled with 'Expandafoam' joint filler with 'Thioflex One' Polysulphide sealant or equivalent and with debonding flat metal 200x25x3mm slip ties positioned in the bead joint @ 225mm vertical centres debonded to one side. Wall ties to be at 225mm centres either side of joint and within 225mm of the joint.

Movement Joints in blockwork- generally to be located in corners and are to be formed to create a 12mm joint to be formed using dense flexible bitumen impregnated board minimum mass 4kg/m^2 and 20mm minimum deep flexible Polysulphide sealant. In accordance with Appendix A of robust details handbook. Provide debonding flat metal 200x25x3mm slip ties @ 450mm vertical centres.

DAMP PROOF COURSES ETC
Damp Proof Courses/Trays – To be proprietary approved black polythene min. 2000 gauge to BS 6515 and provided at slab level and 150mm above external ground level, as indicated. Also to be provided as cavity head closer and cavity trays, as indicated on the general arrangement and detail drawings.

Lead Flashings etc.
All leadwork to be in accordance with the requirements of the Lead Sheet Association.
Unless stated otherwise in the details lead Code to be in accordance with the following recommendations:

Guide to BSEN 12588 Codes and Thicknesses

Codes	Thickness (mm)	Weight kg/m^2	Use for
3	1.32	14.97	(A)
4	1.80	20.41	(ABF)
5	2.24	25.40	(BCDEFGH)
6	2.65	30.05	(BCDEFGH)
7	3.15	35.72	(CDEGH)
8	3.55	40.26	(CDGH)

Key to uses

A) Soakers	E) Pitched Roofs
B) Flashings	F) Vertical Cladding
C) Flat Roofing	G) Dormers
D) Parapet, Box and Tapered Valley Gutters	H) Bay Roofs and Canopies

TIMBER TREATMENT REQUIREMENTS

Structural Softwood & joinery– All structural softwood for dry applications (rafters, joists and studwork) must be minimum of C16 stressed graded when dry and include the grading mark “DRY” or “KD” in all structural locations as per BS 4978.

Maximum moisture content of timber to be 19%. All structural timbers and timbers exposed to external structure to be double vacuum pressure treated using a water based preservative based on copper triazole technology **‘Tanalised’** or similar approved, applied under high pressure.

All site end cutting, notching or drilling following pressure treatment must be liberally swabbed with **‘Ensele’** or similar approved compatible preservative to maintain the integrity of the treatment.

The table below explains the main Use Classes as defined in BS EN 335-1 to which timber can be subjected. *Note: Class 1 treatment shall not be specified*

USE CLASS	USE SITUATIONS	PRINCIPAL BIOLOGICAL SITUATIONS	TYPICAL SERVICE SITUATION	TYPICAL EXAMPLES
1	Above ground, covered. Permanently dry. Permanently less than 18% moisture content	Insects	Internal with no risk of wetting or condensation.	All timbers in normal pitched roofs except tiling battens and valley gutter timbers. Floor boards, architraves, internal joinery, skirtings. All timbers in upper floors not built into solid external walls.
2	Above ground, covered. Occasional risk of wetting. Occasionally more than 20% moisture content.	Fungi Insects	Internal with risk of wetting or condensation.	Tiling battens, structural timbers in timber frame houses†, timber in pitched roofs with high condensation risk, timbers in flat roofs, valley gutter timbers, ground floor joists†, sole plates (above dpc), timber joists in upper floors built into external walls.
3.1	Above ground, not covered. Exposed to frequent wetting.	Fungi	External, above damp proof course (dpc) – **coated**.	External joinery including roof soffits and fascias, bargeboards, cladding.
3.2	Often greater than 20% moisture content.		External, above damp proof course (dpc) – **uncoated**.	Fence rails, gates, fence boards, garden timbers, cladding, deck boards and balustrades, agricultural timbers not in soil/manure contact.
4	In contact with ground or fresh water. Permanently exposed to wetting. Permanently above 20% moisture content.	Fungi	Soil contact. Timbers in permanent contact with the ground or below dpc.	Fence posts, gravel boards, deck support timbers, agricultural timbers in soil/manure contact, poles, sleepers, garden timbers.
			Fresh water contact. Timbers in permanent contact with fresh water.	Lock gates, revetments.
			Cooling tower timbers	Cooling tower packing (fresh water).

† These timbers are assigned to a higher Use Class than suggested by their location in the structure of a building, owing to the potential consequences of failure based on experience within the UK.

ROOF CONSTRUCTION

Roof Structure – To be purpose made roof trusses as part of the timber frame system to manufacturers design.

ROOF FINISHES

Marley Concrete Plain tiles to match existing) - All tiles are to be secured in strict accordance with the manufacturers' recommendations and details. Tiles must be laid and fixed to comply with BS 5534: the British Standard Code of practice for slating and tiling, and BS 8000: Part 6: the British Standard Code of practice for workmanship on building sites.Plain tiles laid @40 degree pitch with min 67 mm headlap fixed with 38mm x 2.65m 500g plain nails, twice nailed every course at perimeters and every fifth course elsewhere.Fix to 50x25mm treated softwood battens at gauge to suit slate on vapour permeable underlay 'Tyvek SuproPlus' or similar (The Pd value to be greater than 704.6)(with integral adhesive tape) laid unsupported with 150mm horizontal (300mm at ridge) and 150mm side laps. Underlay must be laid with drapes 10-15mm over rafters, on trussed rafters @600mmc/c max length 6.16m

Eaves, Fascia + Soffit Finish

uPVC white finish.

Roof Ventilation

All roof ventilation will be achieved through the permeable roofing membranes and open structure no requirement for additional ventilation.

WINDOW / DOOR SPECIFICATION

Personnel doors to conform to PAS24:2012

ROLLER SHUTTER DOORS

Roller Shutter doors to be Guardian Ares ! Level 1 LPS 175 Rated Roller Shutters all designed and built in accordance with BSEN 13241-1:2003 all supplied with Guardian Safe – Low voltage control unit and key switch deadman operation.
Locking operation standard via motor, Pinlocks complete with solenoid isolator and ground bolt complete with isolator.
Doors to be finished in powder coated colour tbc and face fixed to inside of frame.

EXTERNAL RAINWATER GOODS

Rainwater Goods – Rainwater to be squareline uPVC coloured gutters with downpipes.

HOT AND COLD WATER INSTALLATION

To be contractor designed element Contractor to design and detail the water supply installation to BS EN 806-2 and BS 8558. Hot water to be provided by instantaneous heater at point of use .Contractor to propose make and model to suit situation. Supplies to be taken from existing WCs incoming mains

PLUMBING

Plumbing – Sink, waste to be min. 40mm diameter PVCu with 75mm deep seal traps. Washbasin wastes to be min. 32mm diameter PVCu with 75mm deep seal trap. Waste sizes to be increased in diameter where maximum pipe lengths are exceeded. All waste branch pipes taken to existing soil and vent pipe or standing waste. Rodding points to be provided at change of direction of all branch pipes.

Soil and vent pipes to be 100mm diameter PVCu taking all branch waste connection to main drain. Roof termination of soil stack to be min. 900mm above the head of any opening into the building within 3m of vent. Proprietary Air Admittance Valve fitted to head of stack (to terminate just above level of main roof insulation) if not at the head of a drain run. See Site Engineering Layout for final locations. All AAV's to be BBA certified. All SVP terminations to be via a proprietary tile vent or ridge vent terminal, as shown on HT Working Drawings. All SVP's to have slow radius bend at base of stack.

ELECTRICAL INSTALLATION

The complete Electrical Installation to be contractor design element including lighting and power and all components .Contractor to submit proposals for installation prior to commencement. Design to follow outline positioning shown on drawings.

Supplies to be taken from existing incoming mains to existing WC's

Contractor to provide the design in accordance with BS 7671 and schedule of fittings. Also complete detailing, selection, installation and testing and commissioning of the electrical systems. Submit computer generated calculations showing types and sizes of devices, cables, and cpcs. Include rating factors, diversity, disconnection times and values of fault current and impedance.

Contractor designed and detailing of lighting layout: Submit layout drawings together with luminaire and lamp technical information indicating luminaire photometric data; maintenance factor calculations (showing proposals for luminaire maintenance and lamp replacement); computer generated point lighting calculations (showing calculated maintained average illuminance values and uniformity values); and isolux contour plots for the working plane.

Design And Detailing Of Internal Lighting Installation : Contractor to design the general internal lighting installation in accordance with SLL 'Code for lighting' and schedule of fittings. Arrangement of power circuits: Submit proposals for the arrangement and separation of circuits.

Arrangement Of Lighting Circuits: Submit proposals for the arrangement and separation of circuits.
The complete Electrical Installation is to be carried out in strict accordance with all relevant current British Standards & Codes of Practice and also to be in accordance with the requirements of 'Approved Document P'.

Builders work in connection

Allow for all builders work in connection with installation including but not exclusively, cutting chases in , masonry and stud partitions and reinstatement upon completion

Inspection And Testing Of Electrical Installation

Inspection and Testing Certification: Submit two copies of electrical installation certificate completed in accordance with BS 7671.

Documentation For Electrical Installation
Contents to include as built information, layouts and calculations ,certificates

Socket Outlets & Light Switches
All socket outlets and light switches are to be located between 450mm minimum and 1200mm maximum above finished floor level.

Fixed External Lighting
Fixed External Lighting should have automated controls and/or efficient lamps such that:

EITHER: Lamp capacity does not exceed 150W per light fitting and the lighting automatically switches off:
i) When there is enough daylight AND
ii) When it is not required at night.

a. OR: the light fittings have sockets that can only be used with lamps having an efficiency greater than 40 lumens per circuit watt.

EXTERNAL WORKS – SUBJECT TO ENGINEERS DESIGNS / DRAINAGE DESIGNS AND MADE GROUND FINISHED LEVELS

Hardstanding to be in dense bitumen macadam to engineers detail with 30mm surface course AC10 dense 100/150 in accordance with clause 909 of SHW and 75mm AC20 dense binder course 40/60 in accordance with clause 929 of SHW on min 225mm type 1 sub base material assuming CBR of sub grade of 3% Contractor to verify sub base value on site.

LANDSCAPING

Place and adjust site won sub-soil material to produce a smooth surface with regular gradients to meet those shown on the plan. Fill should be placed in layers no greater than 225mm.Trim to uniform surface. On finalised sub-soil layer, replace site-won topsoil to a uniform surface layer in layers of 100mm or less, using the lightest possible equipment to reduce decompaction.

Sub-soil cultivate the whole area, using a low ground pressure tyre Tractor-mounted sub-soiler fitted with an appropriate shoe to a depth of 450mm, ensuring no subsoil is brought to the surface.

Plough the site to the depth of the topsoil and cultivate with tine cultivators or heavy disc harrows to break down any remaining furrows; min. 4 passes in traverse directions.

Produce a fine tilth suitable for sowing, undertake blade grading of whole site using a laser guided blade grader as many times as required to produce required levels.Topsoil levels should be maintained during grading.Roll the final surface prior seeding to produce a suitable seed-bed.The surface should be fine, smooth and evenly firm but not compacted. NB:- All cultivation works should be undertaken during appropriate weather conditions to maintain quality and structure of the soil.

Seeding should be carried-out during suitable weather conditions, probably programmed for the autumn when the soil is warm.NB:- Sowing in the summer months will require additional provision for irrigation.

Seed should be divided into half an each half sown in traverse directions using proprietary seeding equipment to meet the desired sowing rate.Lightly chain harrow seed into the immediate surface and roll if required.

DRAINAGE

To be undertaken in accordance with Structural /Civil Engineers details and to the satisfaction of Southern Water Services

General provisions

a. Before commencing any construction the contractor must check the condition, line and invert of the existing foul drain indicted on the drawing. Any discrepancies between actual invert and interpolated levels must be reported to the Architect. The existing pipe is to be examined for its entire length and cleared / repaired as required.

b. If any existing drainage pipes are intercepted during the course of the works they shall be investigated and re-connected as necessary.

c. All building drainage works to be in accordance with BS EN 752 Building Drainage and the current Building Regulations

d. Cover levels shown are for guidance only. Final levels are to be determined on site. Where affected by the works existing covers are to be adjusted as necessary.

e. Private drainage both foul and surface water 'Marley' Shallow Access system or similar approved construction in accordance with BS 8301; 1985 and Approved Document 'H' of the Building Regulations.

f. Drains passing beneath footings or through walls are to be bridged by pre-cast concrete lintels of adequate strength where necessary. Minimum clearance below lintel or ground beam to be 50mm. Opening each side of footing to be closed with rigid sheet material.

g. UPVC pipe-work is to comply with BS 4660 or if clay-ware is used it shall comply with BS 65.

h. All pipe bedding and protection to be in accordance with manufactures recommendations and Approval Document 'H' of the Building Regulations.

i. Inspection chambers more than 1500mm deep to invert are to be either 1200mm diameter or rectangular 1200 x 750mm minimum.

j. Chambers 1500mm deep or less to invert may be 1050mm diameter or rectangular 1200 x 750mm minimum.

k. Chambers 1200mm deep or less to invert may be 450mm diameter performed chambers. These should not be used to change direction on runs where falls are critical.

l. Access points which are no deeper than 600mm may be 250mm diameter.

m. No inspection chambers or covers are to be located within footpaths, driveways or patios unless specifically shown on this layout.

n. All gullies shown are to be trapped and roddable.

o. All drainage is to be 100mm diameter unless shown otherwise.

p. Manhole covers to be ductile iron class D400 in carriageways, class B125 in car parking areas and class A15 only in pedestrian areas and footways all to BS EN 124:1994

q. PPIC's cast iron cover and plastic frame is suitable where wheel loads do not exceed 1.5 Tonnes. For heavier loading installations, chamber to be surrounded with 150mm thick concrete and cover replaced with appropriate type.

r. All pipe bedding and protection to be in accordance with manufactures recommendations and Approval Document 'H' of the Building Regulations.
Bedding shall be 150mm granular bed surround where cover:
i) Greater than 450mm for 100mm diameter rigid pipes in soft landscaping areas.
ii) Greater than 600mm for all pipe diameters greater than 100mm in soft landscape areas.
iii) Greater than 900mm for pipes in trafficked areas.
iv) Greater than 1200mm for pipes in adopted areas. In all other cases including gulley connections use 150mm (min) concrete protection.

s. Access to be provided at the base of all RWP's using trapped access gullies bedded and surrounded in 150mm ST4 Concrete. Gullies to be Hepworth Ref SG3/1.

t. Pipes shall be laid at a minimum gradient of 1:40 unless inverts indicate otherwise.

u. Any existing pipework becoming redundant shall be excavated or sealed with a cement grout.

v. All mortar shall be 3:1 sand:cement unless stated otherwise.

w. All concrete shall be in accordance with BS 5328:1991 with Sulphate resistance to suit ground conditions.

x. THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONNECTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT.

(a) The works might entail deep excavation for which appropriate support and safety measures must be provided.

(b) Works in the vicinity of live services including gas and electricity (underground and overhead) will be necessary and the advice of all statutory service companies must be sought before any works commence.

(c) In making connections to existing sewers and drainage installations, man entry to confined spaces will be required and all appropriate safety precautions must be followed including the use of gas detection apparatus. The same precautions must be followed during future inspection and/or maintenance of any part of the drainage system.

(d) Works in existing highway will involve conflict with traffic and all due precautions including traffic controls and signing must be taken to ensure the safety of operatives and the general public.

PLANNING INFORMATION

for

ERECTION of MAINTENANCE FACILITY
St MICHAELS RECREATION GROUND
ASHFORD ROAD
TENTERDEN

TENTERDEN TOWN COUNCIL

GPM2 DESIGN LTD
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

Tel: 01843 268010

Prepared July 2019

ASHFORD BOROUGH COUNCIL

GRANT OF PLANNING PERMISSION

IMPORTANT NOTES

Notification of permission under the Planning Acts does **NOT** convey consent under The Building Regulations

1. The development to which the attached planning permission relates may also require a separate approval under the Building Regulations.

2. If the planning permission refers to amended plans, any necessary Building Regulations approval should also cover those amendments.

3. If the development involves any demolition work, notice of this is required under the Building Act 1984.

ADVICE ON EACH OF THE ABOVE IS AVAILABLE FROM THE BUILDING CONTROL SECTION – CONTACT 01233 330282 OR ALTERNATIVELY EMAIL building.control@ashford.gov.uk

4. Where plans for the erection or extension of a building are submitted for Building Regulations approval, Section 53 of the County of Kent Act 1981 requires that the Plans are rejected unless they show;

    a) adequate means of access for the Fire Brigade to the building or buildings as extended and;

    b) that the building and extension will not render inadequate, existing means of access for the Fire Brigade to a neighbouring building.

ADVICE ON THIS MATTER IS AVAILABLE FROM THE FIRE PREVENTION OFFICER, ASHFORD FIRE STATION, HENWOOD, ASHFORD, KENT TN24 8YF

ASHFORD BOROUGH COUNCIL

GRANT OF PLANNING PERMISSION WITH CONDITIONS

Notes for the Applicant

Appeals

1. If you are unhappy with the disclosed Decision to grant permission subject to conditions, you may appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990. **Any appeal must be made within 6 months of the date of decision**.

The necessary form is obtainable from the Planning Inspectorate, Customer Support Unit, Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN or via their website: www.planning-inspectorate.gov.uk/pins/index.htm

A longer period for the giving of notice of an appeal may be allowed by the Planning Inspectorate but normally asks what special circumstances there are which excuse the delay in giving notice of an appeal.

The Secretary of State is not required to entertain an appeal if it appears to him that permission for the proposed development could not have been granted by the Borough Council.

Beneficial Use

2. If permission to develop land is granted subject to conditions, whether by the Borough Council or by the Secretary of State and you, as owner of the land, claim that it has become incapable of reasonable beneficial use, you may serve on the Borough Council a Purchase Notice requiring the Borough Council to purchase your interest in the land in accordance with the provision of Part IV of the Town and Country Planning Act 1990.

Before following this course of action it is suggested that you seek the advice of a Planning Consultant or a Solicitor.

Discharging of Conditions

3. Some conditions attached to the grant of permission may require you to submit details and/or information before you start work.

4. A national fee is set by Government to discharge conditions. These charges are as follows:

- Where the request relates to a permission relating to an enlargement, improvement or other alteration of existing dwelling houses or the erection of a building within the curtilage of an existing dwelling house for purposes ancillary to the enjoyment of the dwelling house the fee will be **£34** per submission.
- Where the request relates to permission for development which falls within any other category the fee will be **£116** per submission.
- **Together with the fee, you are also required to complete an application form for this process. The forms are available on our website.**

Please note that we aim to deal with these requests within 8 weeks.

NOTIFICATION OF DECISION
OF THE LOCAL PLANNING AUTHORITY

Date of Decision **07 November 2018**

ASHFORD BOROUGH COUNCIL

Civic Centre
Tannery Lane
Ashford
Kent TN23 1PL
01233 331111

www.ashford.gov.uk

Mr Robert Filmer
Maylands Consulting
Milroy House
Sayers Lane
Tenterden
Kent
TN30 6BW

Town and Country Planning Act 1990 (as amended)
Application for Full Planning Permission

APPLICATION NO:	**18/01153/AS**
PROPOSAL:	**Extension to existing public convenience to provide vehicle maintenance facility with footpath**
LOCATION:	**Public Convenience at St Michaels Recreation Ground, Ashford Road, St Michaels, Tenterden, Kent**
APPLICANT:	**Tenterden Town Council c/o Agent**

DECISION: PLANNING PERMISSION IS GRANTED in accordance with the application and plans

Subject to the following conditions:

1 The development hereby permitted shall be begun before the expiration of 3 years from the date of this decision.

Reason: To comply with the requirements of Section 91 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.

2 The development shall be carried out in accordance with the plans listed in the section of this decision notice headed Plans/Documents Approved by this decision, unless otherwise agreed by the Local Planning Authority.

Reason: To ensure the development is carried out in accordance with the approval and to ensure the quality of development indicated on the approved plans is achieved in practice.

3 Written details including source/ manufacturer, and samples of bricks, tiles and cladding materials to be used externally shall be submitted to and approved in writing by the Local Planning Authority prior to any works above foundation level and the development shall be carried out using the approved external materials.

Reason: In the interests of visual amenity.

4 Prior to the commencement of the development details of drainage works, designed in accordance with the principles of sustainable urban drainage, shall been submitted to and approved in writing by the Local Planning Authority and the works shall be carried out and maintained in accordance with these details.

Reason: In order to reduce the impact of the development on flooding, manage run-off flow rates, protect water quality and improve biodiversity and the appearance of the development pursuant to Core Strategy Policy CS20

5 The development approved shall be made available for inspection, at a reasonable time, by the local Planning authority to ascertain whether a breach of planning control may have occurred on the land (as a result of departure from the plans hereby approved and the specific terms of this permission/consent/approval).

Reason: In the interests of ensuring the proper planning of the locality, the protection of amenity and the environment, securing high quality development through adherence to the terms of planning approvals and to ensure community confidence in the operation of the planning system.

Notes to Applicant

This grant of planning permission does not give any legal right to carry out the development on over or under the land of another person or contrary to the rights of any such person. If there is any doubt the applicant should seek his/her own independent legal advice before implementing the planning permission.

Working with the Applicant

In accordance with paragraph 38 of the NPPF Ashford Borough Council (ABC) takes a positive and proactive approach to development proposals focused on solutions. ABC works with applicants/agents in a positive and proactive manner by;

- offering a pre-application advice service,
- as appropriate updating applicants/agents of any issues that may arise in the processing of their application
- where possible suggesting solutions to secure a successful outcome,
- informing applicants/agents of any likely recommendation of refusal prior to a decision and,
- by adhering to the requirements of the Development Management Customer Charter.

In this instance

- the application was acceptable as submitted and no further assistance was required.
- The application was dealt with/approved without delay.

Plans/Documents approved by this decision

Location plan, block plan and existing elevations 001
Proposed block plan and elevations 002 C
Proposed layout plan 003D
Existin and proposed block plan 004

The Council as Local Planning Authority expects the above Conditions to be complied with promptly. Where Conditions require details or other matters to be approved by the Council prior to commencement or occupation of the development, these must be submitted to the Council for its consideration well in advance, to ensure that there is no delay or loss to your project. Failure to observe the Conditions may result in enforcement action by the Council.

Head of Development Management and Strategic Sites
Please refer to the statement of the Applicants rights following this decision and the general information enclosed with this notice.

Planning and Development

Ask for: Katy Magnall
Email: katy.magnall@ashford.gov.uk
Direct Line: (01233) 330259
Fax No: (01233) 330682

ASHFORD
BOROUGH COUNCIL
Civic Centre
Tannery Lane
Ashford
Kent TN23 1PL
(01233) 331111
Typetalk (01233) 330744
www.ashford.gov.uk
DX 151140 Ashford (Kent) 7

Mr Chambers
GPM2 Design Ltd
Coach House Mews
Quex Park
Birchington
Kent
CT7 0BH

Our Ref: 18/01153/CONA/AS
Your Ref:
Date: 05 September 2019

Dear Mr Chambers,

APPLICATION FOR CONSENT REQUIRED BY CONDITION(S)

NOTICE OF CONSENT (for part of the application)

Location: **Public Convenience at St Michaels Recreation Ground, Ashford Road, St Michaels, Tenterden, Kent**

Proposal: **Discharge of conditions 3 & 4**

The details set out in application dated: **19/08/2019**

and accompanying plans or details listed opposite are APPROVED.

Walls - Brick – Forterra (LBC) Heather to match existing

Cladding Cedral 190mm wide weatherboarding through colour sage green

Roof - Marley Concrete Plain Tiles- Natural red

Doors – Guardian Ares Level 1 LPS 175 Rated

	Roller Shutters RAL 7015 Grey Rainwater goods - marley Classic Black PVCu half round Soffits and fascias - white PVCu
The conditions listed opposite as attached to the decision relating to this application are hereby complied with as far as the above details are concerned.	Condition : 3 (materials)

Notes to applicant

Outstanding conditions on original permission / consent requiring submission of information.	None

Outstanding conditions from this submission awaiting decision.	4(drainage works)

You are reminded of the continuing requirements of conditions:- 1 - 5

Head of Development Management and Strategic Sites

NOTIFICATION OF CONSENT
OF THE LOCAL PLANNING AUTHORITY

Date of Consent **09 October 2019**

ASHFORD
BOROUGH COUNCIL
Civic Centre
Tannery Lane
Ashford
Kent TN23 1PL
(01233) 331111
Typetalk (01233) 330744
www.ashford.gov.uk
DX 151140 Ashford (Kent) 7

Mr C Chambers
GPM2 Design Ltd
Coach House Mews
Quex Park
Birchington
Kent
CT7 0BH

APPLICATION NO: **18/01153/CONA/AS**

PROPOSAL: **Discharge of conditions 3 & 4**

LOCATION: **Public Convenience at St Michaels Recreation Ground, Ashford Road, St Michaels, Tenterden, Kent**

APPLICANT: **Tenterden Town Council Town hall 24 High Street Tenterden TN30 6AN**

DECISION: DISCHARGE CONDITION of permission reference 18/01153/AS listed below

Condition : 4 (Drainage)

in accordance with the accompanying plans and/or details as follows:-

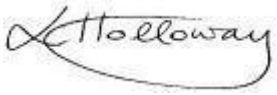
Report on site investigation, Knapp Hicks and Partners Ltd, June 2019

Drainage plan and details 0294 - 02 A

Notes to Applicant

This grant of planning permission does not give any legal right to carry out the development on over or under the land of another person or contrary to the rights of any such person. If there is any doubt the applicant should seek his/her own independent legal advice before implementing the planning permission.

You are reminded of the continuing requirements of conditions:- 1 - 5	The following conditions require the approval of details :- NONE



Development Management Manager

Construction of Maintenance Facility

at

St Michaels Recreation Ground ,St Michaels, Ashford Road, Tenterden, Kent

Form of Tender

Tender to be returned by 12 noon on 20th November 2019 and addressed to

Tenterden Town Council
C/O GPM 2 Design Ltd
Coach House Mews
Quex Park
Birchington
Kent CT7 0BH

I/We the undersigned do hereby tender and undertake to execute the various works in accordance with the Tender Documents namely The Preliminaries, Schedule of Work ,Pre Construction Information and attachments listed within these documents for the sum of:-

£ _____ V.A.T exclusive

And in words _____

_____

This is a fixed price tender subject to the following and will hold for acceptance for a period of three months from the date hereof:-

I/We further undertake to complete the whole of the works, including design, tendered for within programme period defined within our submission

Tenders received after the date for submission shall be invalid.

I/We confirm that I/we act as Principal Contractor as defined under Clause 14.2 of the Construction (Design and Management) Regulations 2015 and that under Clause 4 and Clause 9.1 of the aforesaid Regulations I/we are competent to carry out and manage the Works and have allowed and allocated adequate resources so to do.

Signed _____

In the capacity of _____

duly authorised to sign tenders for and on behalf of _____

_____

Address _____

_____

Date _____

The Employer does not bind himself to accept this tender nor to remunerate the tenderer for the trouble and expense incurred in tendering.

Tenders which are not supported by satisfactory details with regard to health and safety matters will not be considered.