O'CONNOR SUTTON CRONIN

TECHNICAL SPECIFICATIONS MANUAL

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CONTROLLED DOCUMENTATION

DEMOLITION SPECIFICATION

OCSC

O'CONNOR · SUTTON · CRONIN

MULTIDISCIPLINARY CONSULTING ENGINEERS

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1. General Issues

1.1. Contents

1.1.1. THIS DOCUMENT — This specification includes

1) General Issues
2) Quality Assurance
3) Contractor Responsibilities
4) Services Affected by Demolition
5) Environmental Considerations
6) Demolition Work
7) Dimensions
8) Repairs & Defective Work

1.2. Design Information & Related Documents

1.2.1. GENERAL — Drawings and general provisions of the contract, including general and supplementary conditions apply to this specification.

1.2.2. EXTENT OF DEMOLITION — Subject to the retention of features, structures, retaining walls, etc. specified elsewhere, structures shall be demolished to the extent shown on the drawings.

1.2.3. STANDARDS & CODES — All work will comply with BS 6187. Notwithstanding this all work shall comply with the relevant Irish standards. If no such Irish standards exist then compliance shall be with the relevant British Standards or good industry practice. In each case the standards which are most current and appropriate at the relevant obligation shall apply

1.2.4. SETTING OUT — Setting out and shall be in compliance with the architectural drawings.

1.2.5. SURVEY — Before starting work, the Contractor shall examine all available site information, carry out a survey of the structures, site and surrounding area, and submit a survey report covering all relevant matters to the Engineer.

1.3. Definitions

1.3.1. ENGINEER — Defined as the individual or company responsible for the procedure or algorithm for determination

of action effects in a structure. Notwithstanding any setting out or dimensional information given on architects drawings, the Engineer is the primary source of information transfer to the Contractor. While another party may have qualified engineers in their organisation, this specification refers only to the individual/organisation described (i.e. OCSC).

1.3.2. CONTRACTOR — The company responsible for the co-ordination of all construction activities on site.

1.3.3. EXECUTION — Execution refers to all activities carried out for the physical completion of the work including procurement, the inspection and documentation thereof. It may refer to the overall project or to an individual demolition activity within the project.

1.3.4. STRUCTURE — The organized combination of connected parts designed to carry loads and provide adequate rigidity.

1.3.5. PPV — Particle Peak Velocity measured in mm/s.

1.4. References

1.4.1. CODES

EN 1991 – Actions on Structures

BS 6187 – Code of practice for full and partial demolition

BS 5228 – Code of practice for noise and vibration control on construction and open sites

BS 61672 – Electroacoustics. Sound level meters.

BS 5607 – Code of practice for the safe use of explosives in the construction industry.

BS 7121 – Safe use of cranes.

1.4.2. OTHER REFERENCES — Construction Health & Safety Manual Volume 1 Section 8A – Demolition (Construction Industry Publications limited).

1.5. General Conditions

1.5.1. SITE BOUNDARIES — The site boundary is limited to the area of work and the immediate surrounding environs, not to exceed 10m beyond the perimeter of the property to be demolished.

1.5.2. TRAFFIC MANAGEMENT

All traffic management is to be in accordance with Chapter 8 of the Traffic Signals Manual.

2. Quality Assurance

2.1. General

2.1.1. CONTRACTOR

The work related to this specification shall be carried out by a company which has successfully completed projects of similar size and complexity, and has competent and experienced staff and appropriate public and/or professional indemnity insurance cover.

The Contractor shall submit satisfactory evidence of compliance with these requirements, including any additional information requested, such as, financial status, volume of work, and details on individuals and qualifications. The Contractor shall provide a full time, senior, experienced and qualified representative to direct work on site.

2.1.2. CONTRACTOR RESPONSIBILITY

Works associated with any instruction or requirement of the Engineer or Architect which the Contractor considers to be a variation to the contract shall be so stated in writing to the Engineer and such work shall not proceed until a confirmatory instruction is subsequently issued. Claims for extra cost of such work, if made after it has been carried out will not be allowed.

Notwithstanding the review of drawings or proposals by the Engineer, the Contractor shall remain solely responsible for the accuracy and correctness of work.

2.1.3. ENGINEER'S COMMENTS

Comments, approval, and inspection by the Engineer shall not relieve the Contractor of liability for rectifying any defects which may subsequently appear or be found after execution.

3. Contractor Responsibilities

3.1. General

3.1.1. SUPERVISION

Demolition work to be carried out under the supervision of a responsible person, experienced in demolition work, who shall ensure the adequate safety precautions are taken at all times.

3.1.2. WORKING HOURS

Working hours are to be in accordance with local authority requirements. Notwithstanding these restrictions the work shall be limited to:

Monday – Friday	08:00 – 18:00
Saturday	09:00 – 14:00
Sunday	No allowed working time.

3.1.3. SITE ACCESS

The contractor shall afford free access to, and free movement in, the site to all other contractors employed by the Client or Client's representative.

3.1.4. EXISTING SERVICES

The contractor will not damage or cause any interference to live services. Where existing services are to be relocated, renewed, or replaced the existing systems are to remain operational until such a time as the relocated, renewed, or replaced services have been made operational, tested and have been commissioned.

3.1.5. METHOD STATEMENT

A detailed method statement, including calculations, will be submitted to the Engineer for approval prior to commencement. This is to include proposed methods of propping, shoring protection of adjoining buildings, roads etc, and must include temporary weathering of adjoining exposed property etc.

3.2. Specific Conditions

3.2.1. NEIGHBOURING PROPERTY OWNERS

The Contractor shall contact all neighbouring building owners prior to commencement of work on site and shall carry out a full condition survey of all adjoining buildings.

3.2.2. NUISANCE

Demolition work to be carried out in such a manner as to cause the minimum inconvenience to the public and to nuisance arising from the demolition work.

3.2.3. SERVICES

Any work carried out to or which affects new or existing services, must be in accordance with the byelaws or regulations of the relevant statutory authority and all local authority requirements.

3.2.4. TEMPORARY SUPPORTS

The contractor shall provide and maintain all necessary temporary support work. The Contractor shall be responsible for the design of temporary support for work.

3.2.5. STABILISING ELEMENT DEMOLITION

Prior to the demolition of any portion of a structure/stabilising element, it shall be examined by the contractor in conjunction with

		the Engineer to determine the form of construction and the extent and sequence of propping and demolition shall be agreed. If required, small trial holes shall be cut out to determine the direction of the main reinforcement. The method to be used for breaking out the element shall be agreed with the Engineer.
3.2.6.	GROUND BEARING SLABS	The demolition of ground bearing concrete slabs adjacent to adjoining property shall be agreed with the Engineer prior to the commencement of work, so as to agree the principle of the minimum ground-bourne vibration transmitted into adjoining property.
3.2.7.	RETAINED PROPERTY	A conditions survey of retained property to be carried out by the Contractor and must be agreed with the Engineer prior to commencement of work.
3.2.8.	PLANT	The contractor shall provide all requisite plant, scaffolding and hoists, and any cartage, and materials which, although not specifically mentioned, may be necessary for the proper completion of the work. The use of cranes shall be in compliance with the requirements of BS 7121.

3.3. **Health & Safety**

3.3.1.	RESPONSIBILITY	Notwithstanding directions received from the Engineer, the contractor is solely responsible for the safety of the works and must be satisfied that the procedure directed will enable the work to be completed without the damage to property or persons.
3.3.2.	GENERAL SAFETY REQUIREMENT	All work to be performed in such a manner as to ensure the safety of the workers and the public.
3.3.3.	RISK ASSESSMENT	The contractor to issue a full risk assessment report to cover all aspects of the demolition works together with a health and safety plan. The above is to be issued to the Engineer at least 4 weeks prior to commencement of works.
3.3.4.	HAZARDOUS MATERIAL	Any hazardous materials uncovered on site to be immediately reported to the Engineer and work to

cease in this area until examined and reported on by the particular specialist.

3.3.5. RECONSTRUCTION — After demolition has been completed, and the area cleared of debris, reconstruction work should proceed in the normal manner except in those areas requiring special treatment such as fixing of new holding down bolts to external bases, and specialist treatment of ground floor slab area.

3.3.6. PARTLY DEMOLISHED STRUCTURES — Prevent access of unauthorised persons to partly demolished structures.

3.3.7. ASBESTOS — The Engineer shall be notified immediately of any suspected asbestos-based materials discovered during demolition work. Avoid disturbing such materials. The Contractor shall submit a proposal for their safe removal to the Engineer for comment.

4. Services Affected by Demolition

4.1. General

4.1.1. LOCATION OF EXISTING SERVICES — Before work starts, locate and mark the positions of services affected by the work. Arrange with the appropriate stakeholders for the location and marking of the positions of mains services.

4.1.2. PRIOR TO COMMENCEMENT — Before starting demolition work, arrangements to be made with the appropriate authorities to disconnect any services adjacent to that part of the building scheduled for demolition.

4.1.3. DISCONNECTION CHARGES — The contractor shall be responsible for the payment of all charges for disconnection of services.

4.1.4. SERVICES DECOMMISSION — The procedures in Figure 6 of BS 6187 in relation to decommissioning of services on site shall be followed.

Reference should be made to existing services drawings and a comprehensive desk top study should be carried out to establish any services or hazards on site.

4.2. Underground Services for Fluids

4.2.1. TANKS & SERVICE PIPES — All tanks and pipes which may have contained inflammable liquids and gases shall be removed in accordance with BS 6187.

4.2.2. DISCONNECTION OF DRAINS

The Contractor shall locate and disconnect all disused drain connections. Seal all disconnected drains within the site.

4.2.3. DRAINS IN USE

The Contractor shall protect drains, manholes, gullies, vent pipes and fittings still in use and ensure that they are kept free from debris at all times.

Any damage arising from demolition works shall be made good and left clean and in working order at completion.

5. Environmental Considerations

5.1. General

5.1.1. CONTRACTOR RESPONSIBILITY

The Contractor shall be fully responsible for environmental management, especially waste management, pollution control, protection of wildlife and minimization of nuisances to the site's neighbours.

5.1.2. ENVIRONMENTAL PLAN

The Contractor shall employ sound environmental management practices, including the use of a site environmental management plan, or an environmental section of the project plan.

This plan may be part of a BS EN ISO 14001-compliant management system or equivalent, but sound environmental management practices should be adopted as set out in guidance available from CIRIA, BRE and others.

5.1.3. HAZARDS

The Contractor's environmental plan shall take account of, but not be limited to the following hazards:

1. Waste generation, for disposal in landfill or energy-from-waste plants.
2. Dust, smoke, noise and other nuisances to neighbours of the site.
3. Air overpressure from demolition that uses explosive charges.
4. Pollution of the air, land or the water environment.

5.1.4. TRAINING & COMPETENCY

Contractor's employees involved in refurbishment, demolition or dismantling should be appropriately briefed and trained on the environmental aspects of the work and their role

in delivering the site environmental management requirements.

5.2. Specific Conditions

5.2.1. DUST

Debris shall be watered to prevent the rising dust. It should be noted that some dusts are flammable particularly if there are residues contained within silos, plant etc.

The Contractor shall arrange for a supply of water or temporary standpipes near the area being cleared and pay all charges for temporary water supplies and hoses.

Lorries or plant shall not be permitted to deposit mud on the roads. The surfaces of adjoining roads shall be kept clean at all times during the woks.

Measures shall be taken to minimise spread of dust/debris from the area of demolition.
Dust control measures are to be in accordance with local authority requirements.

5.2.2. BURNING

The burning of materials arising from demolition is not permitted.

5.2.3. VIBRATION MONITORING

Vibration monitor positioning and levels are to be agreed with Engineer prior to commencement of work.

5.2.4. NOISE

All practicably reasonable preventative measures shall be taken to reduce the level of noise, including the use of silencers as far as possible. The recommendations on noise given in BS5228 should be complied with, or the requirements stated in the planning permission approval (whichever is more onerous).

(Note: It is recommended that a responsible person acting on behalf of the demolition contractor is present at all times on site to deal with any complaints from neighbouring buildings)

5.2.5. NOISE TESTING

All measurements shall be made on a sound level meter complying with BS EN 61672.

5.2.6. VIBRATION

The vibration received at neighbouring structures hall be limited to (ref: BS 5228-2):

Residential	1 mm/s (ppv)
Commercial	3 mm/s (ppv)

5.2.7.	VIBRATION MONITORING	Where vibration monitoring is required, the positioning and levels of monitoring equipment shall be agreed with Engineer prior to commencement of testing.
5.2.8.	GAS OR VAPOUR RISKS	Adequate precautions shall be taken to prevent fire or explosion caused by gas or vapour.
5.2.9.	WORKING HOURS	Demolition activities shall only take place during hours allowed within the contract.

6. Demolition Work

6.1. General

6.1.1.	EXPLOSIVES	The use of explosives for demolition work shall not be permitted without written approval received from the Engineer. If such approval is granted the work shall be accrued out in compliance with the requirements of BS 5607.
6.1.2.	ADJOINING PROPERTY	All reasonable precautions shall be taken to protect adjoining property from damage during demolition work and temporary screens and coverings are to be provided as required. In addition sufficient measures shall be taken to protect the public and workforce from falling debris.
6.1.3.	DEFECTS	The Engineer shall be notified of any apparent structural defects uncovered during the demolition work.
6.1.4.	OVERLOADING	To avoid overloading on any part of the building, debris or materials shall not be piled to a depth greater than 300mm.
6.1.5.	RETAINED PROPERTY	Existing structures which are to be kept in place shall be protected. Debris shall be prevented from overloading any part of the structure to be retained. Windows to retained structures are to be fully braced.
6.1.6.	PARTLY DEMOLISHED STRUCTURES	Maintain and leave partly demolished structures in a stable condition, with adequate temporary support at all times.
6.1.7.	GROUND WORKS	All old foundations, slabs etc. are to be broken out to the extent stated on the drawings.

The location of any piles shall be recorded.

Any major obstructions found during the demolition of the basement slab are to be brought to the attention of the Engineer with the location, size and depth being accurately recorded.

6.1.8. BENCH MARKS

Any bench marks and other survey information found on structures to be demolished shall be reported to the Engineer. Do not remove or destroy any unless instructed.

6.1.9. UNFORSEEN HAZARDS

The Contractor shall inform the Engineer of any unrecorded voids, tanks, chemicals etc. discovered during demolition work. A proposal for safe removal/filling of such structures shall be submitted to the Engineer for comment.

6.1.10. FILLING OF BASEMENTS

When instructed on the drawings, remove all organic material and soil from basement. Backfill and consolidate in maximum 300mm layers with free draining crushed demolition spoil free from old plaster, timber, organic matter, rubbish, contamination and having a low sulphate content.

The water-soluble the water-soluble content shall not exceed 1500 mg of sulphate (as SO_4) per litre of fill, nor 0.38% of sulphate (as SO_3) when tested in accordance with BS EN 1744-1, clause 10.

6.1.11. COMPLETION

Clear away all debris and leave the site in a tidy condition on completion.

7. Dimensions

7.1. Correctness

7.1.1. CHECKING

The Contractor shall be responsible for checking all site dimensions and dimensions on drawings.

7.1.2. CORRECTNESS OF DIMENSIONS

The dimensions should be confirmed from architects drawings and other stated contract documents.

8. Repairs and Defective Work

8.1. General

8.1.1. DEFINITION

Variations in excess of specified tolerances, and failure of materials or workmanship to meet requirements of this specification, and which

cannot be repaired by approved methods, will be considered defective work performed for the purpose of this specification.

8.1.2. RECOURSE

Defective work shall be replaced or corrected as directed by Engineer at the expense of the Contractor.

8.1.3. RESPONSIBILITY

The Contractor shall pay for additional inspection and testing and related expenses if work has proven to be deficient.

8.1.4. CORRECTIVE ACTIONS

In the event of any part of the work being found unsatisfactory, the Contractor shall submit to the Engineer his proposals as to the method to be adopted to correct the issue. The Contractor shall abide by the Engineer's decision and, in the event of remediation or replacements being required, for all costs involved.

8.2. **Specific Items**

8.2.1. RETAINED PROPERTY

The Contractor will be held responsible for all the damage to retained property or adjoining areas. Any damage shall be repaired at the Contractor's expense.

Where the demarcation lines shown on the drawings have been exceeded, any additional new work or making good will be carried out at the demolition contractor's expense.

8.2.2. DAMAGE TO EXISTING PROPERTY

Any damage to existing structures during the works shall be at the Contractor's expense.

8.2.3. DAMAGE TO SERVICES TO BE RETAINED

The Contractor shall notify the Engineer and service authority or owner of any damage, and make all arrangements for repair to the satisfaction of the Engineer and service authority or owner. The Contractor shall be responsible for the costs of such action.