

# Claycastle Watersports Facility

**New Development**

## ELECTRICAL TENDER SPECIFICATION

ELECTRICAL INSTALLATIONS

Claycastle  
Youghal  
Co. Cork

Cork County Council

DKP document no  
**9010**

Issue / Status  
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Appendix:

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| 1-Light specifications and switching arrangement |                        |
| Electrical installation pricing document .....   | Separately attached... |

## 1 - Introduction

### 1.1 Introduction / scope of project

This specification together with the project layout drawings & equipment schedules is in respect of the [ electrical ] services installations in the project.

### 1.2 The project

The project represents the new proposed Waterports activity facility at Claycastle, Youghal, Co. Cork.

### 1.3 Limitations to use of site

The area of the works may be in a location where specific regulations/standards /requirements apply.

The area may not be used for any purpose other than the works.

Agreement must be reached with the architect / client on access, deliveries, location of crane, location of compound on or adjacent to the site.

### 1.4 Adjacent Buildings, Etc.

The site shares a boundary with existing buildings / services.

### 1.5 Existing Services

The site or in the close proximity of the site has existing live services present.

### 1.6 Program

Anticipated building program

| Description             | Start                        | Duration                     |
|-------------------------|------------------------------|------------------------------|
| <i>Building program</i> | As per main contract program | As per main contract program |

### 1.7 Definition of meanings herein assigned.

|                                 |       |                                            |
|---------------------------------|-------|--------------------------------------------|
| The client                      | means | Cork County Council                        |
| The architect                   | means | Cork County Council                        |
| The structural engineer         | means | RKA Consulting Engineers                   |
| The quantity surveyor           | means | Karl Slyne QS                              |
| The engineers                   | means | <b>DKPartnership</b>                       |
| The contractor / sub-contractor | means | The <b>ELECTRICAL CONTRACTOR</b>           |
| The main contractor             | means | The nominated main contractor – <b>TBA</b> |
| Approved                        | means | Approved by the engineers in writing       |
| Provisional sum / PS/PC sum     | means | Provisional sum                            |

### 1.8 Tender note.

There as the specification / layout drawings / equipment schedules are compiled in good faith and checked on departure it is the tendering contractors responsibility to indicate to the engineer in writing if documents listed in the tender schedules are missing from the package on receipt of the package. Late notification will not immunize the tendering contractor from the set tender return date. Each and every item requires to be priced individually in each section. An incomplete schedule of prices may not be considered.

The lowest tender may not necessarily be successful.

## 1.9 General scope of works.

Electrical installations as to enclosed drawings and specifications briefly defined as ;

| All area's                                                    |
|---------------------------------------------------------------|
| Main and sub distribution board installation                  |
| General purpose socket installation                           |
| 230V single phase power installation                          |
| 400V three phase power installation                           |
| General lighting & emergency lighting installation            |
| External lighting installation including Public Light         |
| Fire alarm & detection installation                           |
| Data / telecommunication installation                         |
| Access Control installation                                   |
| Mechanical installation Power & control wiring control wiring |
| Cable containment installation                                |
| Earth/bonding installation                                    |

## 1.10 Party walls

Where services are to be mounted or recessed on/in a party wall or fire rated wall the fire rating and noise transfer integrity is to be maintained to the required standards. The contractor, prior to working on party walls, shall ensure that whatever works are to be executed in/on the party / fire rated wall that the contractor has the express written confirmation from the main contractor to proceed with such works.

## 1.11 Fire seals, fire sealing, fire stopping.

Each and any service penetrating a fire rated wall, partition, façade, floor, ceiling etc construction element is to be fire sealed using fire wraps, seals, stops, foam to comply to BS 476 Part 22 / 23, Section 6, 60 minutes. Fire and sound integrity is to be maintained on all party walls between units meaning that no services can be recessed into the party walls unless a certified body certifies the construction method to comply to the fire and sound regulations and or specifications set and agreed in writing by the fire consultant or fire officer.

## 1.12 Auxiliary certification.

This project is subject to the BCaR compliance procedures and as a result the contractor shall, as part of the contract works, issue auxiliary BCaR certification where the contractors works have no design input or design BCaR certification where the contractors works have a design input. The relevant form shall be issued by the main contractor.

## 1.13 Air tightness.

Airtightness of the building is critical to the energy rating (BER) targeted hence each and any service penetrating the air tightness barrier on the envelope of the building i.e. external wall, façade, floor, ceiling to attic or roof etc is to be sealed using flexible mastic or similar product to maintain the airtightness of the said construction element. Any service penetration to be made through the envelope shall be identified and notified to the main contractor prior to executing same.

## 1.14 Particular works note.

As the building is to be constructed without any ceilings/ceiling voids the building services installations are all installed exposed and therefore require particular attention to neatness and workmanship. Any exposed external and internal metallic parts are to be made of marine 316 stainless steel or any other in writing confirmed to be approved for sea side locations materials (Marine-Grade)  
There are no surface mounted cabling or pipe work apart from the plant rooms. All services are to be installed prior to pouring concrete walls/slabs. All conduits, pipes, ducting to be securely capped in order to prevent concrete entering and blocking same.

## 2 – General specification

### 2.1 Codes and Standards.

This contract shall be subject to and in accordance with the following : :

- A) The relevant Irish, British and European Standard Specifications for materials and equipment.
- B) The Factories Act current edition.
- C) The Safety, Health and Welfare at Work Act current edition.
- D) Any Standard or Code of Practice referred to in the Contract Documents or any other Standard or Code of Practice that may be substituted therefore, shall be held to be the latest edition published three months prior to the last date for submission of tender.
- E) Any special regulations issued by the local electricity, gas or water authority.
- F) Manufacturer's recommendations and requirements.
- G) National Rules ( IEE / ECTI ) wiring for Electrical Installations, Latest Edition.
- H) The Local Authority and relevant Local Government Bye Laws.
- I) Local Utility supply companies
- J) CE approved.
- K) The approval and satisfaction of the Engineer.

### 2.2 SI Units.

The International System of Units (SI) shall be used for all designs, specifications, drawings, submissions and tenders.

### 2.3 Good Practice.

Where, and to the extent that materials, products and workmanship are not fully specified, they shall be

- a) The best quality and suitable for the purpose of the works stated in, or reasonably to be inferred from, the Contract Documents.
- b) In accordance with good engineering practice.

### 2.4 Nominated Suppliers/Supplies.

Where any item of plant, equipment or works is specified to be from a nominated supplier or manufacturer, it is intended that the particular supplier or manufacturer is be used in order to ensure a certain quality of supply.

### 2.5 Free issue Suppliers/Supplies..

Where the client decides to supply his or her own fittings/equipment/Suppliers prior or during the execution of the contract the contractor shall credit the client with the appropriate amount.

The contractor shall fit/install/connect the goods as per contract but is entitled to a re-stocking charge if any fittings/equipment has been purchased and delivered to site.

### 2.6 Single Sources.

Where a choice in manufacturer or source of supply is allowed for any particular product or material, the whole quantity required to complete the work must be of the same type, manufacture and source. Changes must be approved by the Engineer. The Contractor shall provide written evidence of sources of supply when requested by the Engineer.

### 2.7 Samples.

Where approval of products or materials is specified, the Contractor shall submit samples or other evidence of suitability. Order shall not be confirmed or materials used until approval has been obtained. Approved samples shall be retained on site for comparison with products and materials used in the works and the samples shall be removed when no longer required.

## 2.8 Approvals.

Where, and to the extent that products, materials or work are specified to be approved, or the engineer instructs or requires that they are to be approved, the approval must be in writing from the engineers, and the same must be supplied and executed to comply with all other requirements and, in respect of the stated or implied characteristics.

Inspection or other action by the Engineer other than the written approval must not be taken as approval of materials, products or work, unless the Engineer so confirms in writing in express terms, referring to:

## 2.9 Variations (changes).

There, and to the extent that designs, installations, products, materials or work as outlined in the project specifications, equipment schedules and layout drawings are to be revised or that additions/omissions to the works are to be executed, they are only to be executed on receipt of a DKP Engineers Instruction.

Where it is absolute necessary to execute a variation forthwith and the afore mentioned procedure would prolong this execution and would therefore be subject to claims from other trades/main contractor/client etc., the contractor shall use a DKP Day Works / Variation Approval Certificate which are issued to the contractor on commencement of works or during the execution of the contract works.

DKP Day Works / Variation Approval Certificates are to be fully completed and duly signed prior to execution of any variations by the engineer, architect, client or other appointed design team member with the authority to sign such document.

The contractor shall forward a copy of the signed DKP Day Works / Variation Approval Certificate(s) or DKP Engineers Instruction(s) with his/her variation claim.

All variation claims shall list separately the material and labour costs with the number and type of man hours included for each and every item.

Variation claims forwarded for payment without a DKP Engineers Instruction or signed DKP Day Works / Variation Approval Certificate and not properly illustrated will NOT be entertained.

## 2.10 Day works.

There, and to the extent that designs, installations, products, materials or work as outlined in the project specifications, equipment schedules and layout drawings are to be revised or that unscheduled day works to the works are to be executed, they are only to be executed on receipt of a DKP Engineers Instruction.

Where it is absolute necessary to execute day works forthwith and the afore mentioned procedure would prolong this execution and would therefore be subject to claims from other trades/main contractor/client etc., the contractor shall use a DKP Day Works / Variation Approval Certificate which are issued to the contractor on commencement of works or during the execution of the contract works.

DKP Day Works / Variation Approval Certificates are to be fully completed and duly signed prior to execution of any day works by the engineer, architect, client or other appointed design team member with the authority to sign such document.

The contractor shall forward a copy of the signed DKP Day Works / Variation Approval Certificate(s) or DKP Engineers Instruction(s) with his/her day works claim.

All day works claims shall list separately the material and labour costs with the number and type of man hours included for each and every item.

Day works claims forwarded for payment without a DKP Engineers Instruction or signed DKP Day Works / Variation Approval Certificate and not properly illustrated will NOT be entertained.

## 2.11 Layout drawings & schematics.

The layout drawings & layout schematics issued as part of this specification are prepared in good faith to indicate the general positions, routes, runs etc. of all services & fittings however the actual positions, routes, runs etc of the services & fittings maybe different and determined by the building structure or other reasons.

The contractor, prior to submitting the tender, is to visit the project site and must familiarise him/herself with the project and determine/identify all positions, routes, runs etc. of all services & fittings or seek clarification from the engineer in writing as no claims for additional materials will be entertained.

## 2.12 Materials and Equipment Supplied.

Materials and equipment supplied shall be new, unless otherwise specified. Materials and equipment shall be handled, stored and fixed with care to ensure that they are not damaged when incorporated into the works.

### 2.13 Sub-contracts

Sub-contracts or sub-contracting of any part of the contractors works other than nominated sub-contracts specified by the engineer are **not** permitted unless the proposed sub-contractor is approved in writing by the engineer. When specialist works are to be carried out on specialist installations as part of the contractors work not being nominated under the contract works the contractor shall seek written confirmation and approval from the engineer prior to engaging/appointing such specialist works sub-contractors.

### 2.14 Manufacturer's Recommendations.

All materials and equipment supplied shall be handled, stored, prepared and used or fixed in accordance with the manufacturer's recommendations. The Engineer shall be informed if these conflict with any other specified requirement. Copies of manufacturer's recommendations shall be provided for the Engineer when requested.

### 2.15 Products.

Products shall be new unless otherwise specified. Products shall be handled, stored and fixed with care to ensure they are not damaged when incorporated into the works.

### 2.16 Storage on site.

The contractor shall be responsible for the provision of suitable storage for the plant or materials to be supplied to the works in accordance to the building program.

### 2.17 Waste on site.

The contractor is responsible for the removal of any waste materials from the existing / new services installations from the work place to the waste skip or waste area.

The actual waste skip or other equipment will be supplied by others..

### 2.18 Power supplies.

If a power supply is not available on site for the carrying out of all required contract or other works, the contractor shall be responsible for his own power supply.

### 2.19 Give notice prime cost or provisional sums

Where provisional PV/PS/PC sums are provided for the execution of installations the Contractor shall give due notice in writing to the Engineer, in order that such installations may be resolved before the trades men whose attendance is required have completed their work elsewhere in the building and that the lead-in time of such installations/equipment does not affect the program in any way.

No claim for extra remuneration on account of their NONE-completion before such date shall be made.

### 2.20 Tools & equipment.

Contractors tendering for the work will be deemed to have satisfied themselves as to the conditions of the site and structure regarding the requirement of all tools & equipment necessary to execute the proposed works.

They shall include in their tenders if and as necessary for all tools, equipment, special equipment, ladders, scaffolding, hire of special tools that may be required for execution of the Contract.

Claims for additional costs for this section will NOT be entertained.

### 2.21 Health & Safety statement.

The contractor shall issue prior to commencement a health & safety statement to the Main contractor and same shall be of an acceptable standard to the Project Supervisor Construction Stage (PSCS) satisfaction.

### 2.22 Quality statement.

The contractor shall issue prior to commencement a quality statement to the Main contractor and same shall be



of an acceptable standard to the Project Quality coordinators satisfaction.

2.23 Labour and labour cost.

The contractor shall allow in the tender the cost of ALL labour required to execute the works up to and including completion and maintenance period.

The work may involve working outside standard daytime hours and night time and the contractor shall allow for all costs associated with this.

2.24 Changes.

Any work which is not inferred by this specification, equipment schedules and drawings and is deemed necessary or not necessary for the satisfactory completion of the contract shall be termed "variations" (changes) or "day works". No variations / changes are to be carried out without the written approval of the engineer.

2.25 Award of Contract.

The Clients do not bind themselves to accept the lowest or any tender.

The tender submitted by the contractor shall remain open for a period of 90 calendar days from the date of receipt of tender.

The award of contract will be made to the Contractor whose tender has been determined to be the lowest evaluated tender and who meets the required standard of capability and financial responsibility. costs for this section will NOT be entertained.

2.26 Labour.

Non but fully qualified and competent tradesmen together with their necessary labourers or helpers shall be employed by the Contractor on the works and the whole of the same shall be carried out and completed in the best and most substantial manner.

Contractors tendering for the work will be deemed to have satisfied themselves as to the conditions obtaining in the district regarding the recruitment of labour, both skilled and unskilled.

They shall include in their tenders for all labour and related cost including travelling time, overnight, overtime, holidays or any demanded or any other special conditions that may affect the cost of labour during the execution of the Contract. Claims for increased costs of labour will NOT be allowed as the wage and price variation clause has been abolished for the purpose of this contract.

2.27 Bill of quantities.

The successful contractor shall provide the engineer with a priced Bill of Quantities prior to signing the contract. The Bill shall list separately the material and labour costs with the number of man hours included for the tender of all items.

The complete Bill shall be forwarded to the engineer within three (3) weeks of acceptance of his tender.

2.28 Tender sum.

The tender sum as submitted in the tender form is a fixed price for the duration of the building program as outlined in this specification.

2.29 O&M manuals.

The contractor shall operate the complete works under 100% load and issue full operating and maintenance manual / instructions of all equipment, systems and installations to the project safety file coordinator prior to practical completion as issued by the engineer.

2.30 Certificates and retention.

The engineer shall issue completion / progress certificates for work carried out and materials supplied as estimated by the engineer at set intervals as outlined under periods of measurement.

Full retention will be certified up to and including practical completion, half of the retention will be certified on virtual completion and the balance will be certified on final completion at the end of the maintenance period

subject to clause "Maintenance / defects liability period".

2.31 Periods of progress/valuation measurement.  
As per main contract

2.32 Lead in time progress/valuation certification.  
As per main contract

2.33 Time for honouring progress/valuation certification.  
As per main contract.

2.34 Practical completion.  
Practical completion means when the installation is deemed completed by the engineer at the start of the maintenance period.

2.35 Maintenance / defects liability period.  
The work is to be maintained in good running order for a period of "as per main contract" after completion of the contract. Any defect developing in the system during this period is to be rectified and made good at the contractors own expense. This clause is for defects arising out of faulty manufacture, workmanship and failure to meet the requirements of this specification and the relevant Standards and Codes of Practice. In the event that the Contractor refuses to rectify the defect within a reasonable period the engineer has the power to have the work done by a competent third party and to deduct the total costs of such work from the contractors own account, without prejudice, to any other claim which may arise out of the refusal of the contractor to make good the defects.

2.36 Period of final progress/valuation measurement.  
As per main contract

2.37 Percentage of certified value retained.  
As per main contract.

2.38 Contractual requirements.  
The contractor is to engage in the following contracts prior to the commencement of any works.  
As per main contract.

2.39 Insurances.  
The contractor must have adequate insurance to cover Employers, Public, Fire & Explosion and Theft liabilities and produce these to the engineers when awarded the contract.  
The contractor shall maintain the following minimum insurance cover for the duration of the installation contract and full building warranty period.  
Employer liability : € **6,500,000**  
Public liability : € **13,000,000**  
Where the contractor is to have design responsibility and is to submit auxiliary design certification the contractor must have the following additional insurance cover.  
Professional indemnity : € **3,000,000**

2.40 Building & existing services Protection.  
The contractor shall ensure that no damage is caused to the existing services , structure, fabric or finishes of buildings where electrical work is undertaken. The contractor shall prepare/project existing area/equipment/services where possibly damage can occur and shall make good all openings, finishes and damage which has occurred as a result of this work.

#### 2.41 Builders Work.

All builders work deemed necessary to install the installations as per this specification, equipment schedules and layout drawings defined as chasing, make openings >50mm, coring >50mm is the responsibility of the main contractor.

Cores / openings of 50mm or less in walls, partitions, ceilings, floors, beams or other timber/steel/concrete structures and any other minor builders work items are the responsibility of the contractor.

Excavations, concrete channelling, concrete ducts, external supply & service ducts and tank supports are to be carried out by the main contractor unless stated otherwise.

The contractor shall issue a builders work drawing or listing/schedule within 4 weeks of acceptance of his/his tender. All setting out of cable & tray runs, etc., shall be agreed with the project M&E coordinator before any work commences and to facilitate this agreement the Contractor shall give full particulars to the project M&E coordinator with regard to required chases, recesses, holes and any other builders works which the contractor intends to undertake as part of his works, so that subsequent delays and alterations can be avoided.

The contractor's tender sum is to include for such builders work as defined in this specification and the setting out or relevant documentation for builders works to be executed by others.

#### 2.42 Setting Out.

The Contractor shall set out the whole of the works and be responsible for the correct positioning of all equipment and fittings including all builders work to be executed by the contractor and main contractor which will be necessary for the contract.

The exact courses and routes of all electrical services and related containment and locations of appliances, equipment, fittings shall be approved by the project coordinator, architects and engineer before the installation commences.

#### 2.43 Decoration.

The contractor shall allow in the tender for the once loosening, removing (if required) & retightening of equipment/fittings mounted on/against walls, ceilings etc required to be removed for painting/decorating the surface on which it is affixed too.

#### 2.44 Mechanical Protection.

In all cases where wiring systems emerge from floors, the Contractor shall provide supplementary mechanical protection within a vertical distance of 1.8 meters from the finished floor level where these systems remain to be exposed.

#### 2.45 Terminations.

All cables shall terminate in adequately sized terminals.

The terminals shall be screw clamp/screw clamp insertion type terminals which compress the terminations between two plates by means of terminal screws.

An allowance shall be made on the length of each wire at the point of connection to the terminal in order to permit the wire to be cut off and remade at least once without disturbing the main cable run.

Wires shall not be jointed or tied between terminals and not more than two wires shall be connected to any one screw terminal.

All spare cores on cables shall be terminated on spare terminals on terminal blocks.

#### 2.46 Fire Protection.

The contractor is to allow in the tender for fire protection where electrical systems pass through / penetrate fire rated elements of the building construction such as walls, floors, roofs, ceilings, partitions etc.

Any openings remaining after the passage of the electrical systems shall be fire sealed in accordance with the fire regulations, current edition.

The contractor shall supply & install a suitable intumescent wrapping or seals to all services where they penetrate a fire barrier or fire rated construction whether or not indicated on the layout drawings.

Fire protection shall be to BS 476 Part 22 / 23, 60 minutes.

The contractor shall issue the certification of the proposed products to the main contractor for approval prior to commencing the relevant works.

#### 2.47 Bonding of Metalwork.

All metalwork adjacent to or pertaining to electrical equipment shall be earthed to the main earth system as per national rules / MC Rules. In all such cases, metal surfaces must be carefully cleaned and scraped before making joints. All flexible conduits shall be provided with external earth bonds.

All earth conductors shall terminate at a common earth rail at the main distribution board.

#### 2.48 Bonding.

Metallic services, including fuel, heating/plumbing, ventilation & water pipe work, metal tanks, baths, basins, sinks and trays shall be effectively bonded to the main common earth rail. Connections shall be made with purpose made earth clamps to B.S.951.

Where a building comprises a steel frame structure or has metallic cladding, catwalks, stairways, ladders or hand railing, these shall be effectively bonded to the main common earth rail also.

#### 2.49 Cabling standards.

All cables, cabling systems shall be neatly installed and properly supported throughout.

All general LV and ELV cabling shall be RATED to the latest IS10101 standards, all fire or life saving systems cabling shall be LSOH - PH120 to the required IS10101 standards. Cables buried under ground or installed in under ground ducts shall be cables suitable for continuous submersion in / under water and must have suitable mechanical protection.

#### 2.50 Earth/bonding.

A complete and effective earth system shall be provided for the earth of the electrical installation.

The earth system and the system of wiring shall comply with the National Rules / MC for Electrical Installations. The earth system shall terminate at a suitably sized wall mounted common earth rail at the main distribution board. Single core cables forming part of the earth system shall be of stranded copper, insulated to 450/750V. standards with green/yellow PVC covering. These cables shall comply with the relevant standards. The maximum resistance of earth continuity conductor measured with a 500 Volt Ohmmeter, between the most distant sub circuit and the earth rail at the local area power distribution board shall not exceed 0.5 Ohm.

#### 2.51 Commissioning / testing - general.

The contractor shall commission all systems/appliances/equipment at 100% load and issued the relevant test results and commissioning reports to the engineer prior to practical completion.

#### 2.52 Testing.

All testing on installed equipment, wiring and earth systems shall be carried out in accordance with the National Body / Rules / MC for Electrical Installations, current edition..

The following tests but not shall be carried out by the Contractor at the completion of the works and at the end of the maintenance period :

- a) Insulation Resistance Tests
- b) Insulation resistance at 500 V. and 1,000 V. impulse
- c) Regulation.
- d) Continuity Tests

Tests of the earth continuity resistance which, between any point of the installation and earth, shall not exceed 0.5 Ohm where screwed steel conduit forms part or all of the installation or 1.0 Ohm. where the earth continuity conductor is composed entirely of copper.

- e) Earth Loop Impedance

Measurement of line earth loop impedance of all circuits, whose values shall not exceed given maximum levels.

- f) Resistance of Protective Conductor

g) Resistance of protective conductors on all circuits shall be measured and not exceed given maximum value's.

h) Polarity. All fuses, mcb's, single pole switches and single pole control devices shall be checked for polarity to ensure that they have been installed on the live conductor. Socket outlets shall be checked to ensure that the live conductor is connected to the right hand terminal, when viewed from the front.

i) Ring Circuit Continuity

All ring circuits including the protective conductor shall be tested for full continuity.

j) Mechanical Operation

All functions of each piece of electrical apparatus shall be demonstrated to operate satisfactorily, as specified.

k) Certification

On completion of the above tests the Contractor shall complete and sign a "Completion Certificate" and shall furnish 1 No. copy to the Engineer prior to penultimate account submission.

Where connection to a public grid supply service is required, the Contractor shall provide the relevant grid provider with an identical original Certificate, together with any relevant information or documentation as requested, in order to comply fully with the national grid supply providers pre-connection requirements.

2.53 Submittals.

In due time and prior to commencement of any MEP/building services construction works the contractor shall submit all proposed materials, equipment, appliances, for the works for approval of the engineer.

2.54 Sub-contracts or other installations not executed by the contractor but part of the project works.

Where work is executed by others in particular area's of the project and are deemed fall under the project electrical installation works and could effect the integrity of the contractors overall installation certification it is the responsibility of the contractor to ensure that this work is covered by a sub-completion / compliance certificate issued by others and is satisfied that that work is carried correctly and according to the required standards and project requirements.

The contractor is responsible for the complete installation, not having sub-completion / compliance certificates for work carried out in area's/items not executed by the contractor will put the responsibility on the contractor



### 3 – Particular specification.

#### 3.1 Note to drawings

Layout drawings as part of this specification representing risers, runs, routes & locations of cable, trunking, conduit, ducts, fittings and equipment are indicative and may not include all details of such risers, runs, routes & locations of cable, trunking, conduit, ducts, fittings and equipment required to comply to the relevant mechanical, electrical & fire regulations. It is the responsibility of the contractor to ensure that all cable, trunking, conduit, ducts, fittings and equipment required to comply to the relevant mechanical, electrical & fire regulations have been included in the tender submission. No claims will be entertained for additional cable, trunking, conduit, ducts, fittings and equipment relating to this issue.

#### 3.2 Local Authority & Local Government Bye Laws notice.

All relevant DKP specifications, equipment schedules & drawings are prepared in good faith to the required standards however it is the contractors responsibility to ensure compliance of all work carried out under this tender & contract to any Local Authority regulations and Local Government Bye Laws as part of this tender & contract. The contractor shall ensure that prior to executing any works that these Local Authority regulations and Local Government Bye Laws have been complied to and confirm same to the engineer in writing.

#### 3.3 Determination of area's.

The installations are to be executed in the classified area's as listed below indicating the services to be recessed or exposed into/to any walls, floors, partitions, roofs, ceiling voids or any other construction elements and what to what classification, extend or type the containment of such services shall be.

| Area                                   | Recessed | Exposed | Classification | Extent      | Type        |
|----------------------------------------|----------|---------|----------------|-------------|-------------|
| Showers / Toilets / Changing room area | Yes      | No      | As required    | As required | As required |
| Plant rooms                            | No       | Yes     | As required    | As required | As required |

#### 3.4 Services routes.

All horizontal services are exposed in all areas in the absence of any ceiling voids. Horizontal services can be bracketed securely to the ceiling soffit or steel frame but only with the approval of the structural engineers. All horizontal cabling shall be on containment or in suitable conduits as indicated for guidance on the DKP drawings.. See note 3.1.

#### 3.5 Conduit / trunking.

All tray, conduits and trunking shall be of the marine-grade type and installed in horizontal or vertical runs only as indicated in the layout & detail drawings and be of adequate size properly fixed.

The contractor shall ensure earth continuity at all sections.

All conduit / trunking where installed in concrete/plaster shall be protected by PVC trunking or coating and installed in horizontal or vertical runs only as shown in the layout & detail drawings and be of adequate size properly fixed. **There are to be no surface mounted services in the public rooms. All cabling is to be recessed in the concrete ceiling slab and coordination is required before the slab is poured. Conduit is to be of the pvc type and cables are to be fitted in such a manner that they are able to be replaced in case of failure. Same rules apply for the vertical runs in concrete walls.**

#### 3.6 Electrical switches, outlets, light point sockets, data points, isolators,

The contractor is to allow for the following type :

a Internally where visually exposed Metal-clad

b Internal where hidden : N/A,

c Externally : IP56 minimum

### 3.7 Metering

The building has a single utility meter which will be the responsibility of the national grid electricity provider however the client or sub-meters are part of the contractors works and inline with the project power main, sub-main and sub distribution board and metering cabinet schematics.

The external meter and main distribution board are fitted in an external cabinet as per ESNB regulations.

For cabinet type see appendix 1

### 3.8 Fixing height – General

All heights as per schedule unless indicated on layout drawings.

| Item                                                    | AFFL mm | Comments                       |
|---------------------------------------------------------|---------|--------------------------------|
| Light switches                                          | 1100    |                                |
| Wall mounted light fittings                             | 2000*   | *To be confirmed by architects |
| Sockets/TV/Telcoms/Power isolators –Over counter top    | 1100    |                                |
| Sockets general purpose/low level power isolators       | 500     |                                |
| Date Telcoms - general                                  | 500     |                                |
| High level TV/AV sockets/coax/HDMI point                | 1550*   | *To be confirmed by architects |
| Access control key pads                                 | 1100    |                                |
| Fire, gas, refuge, disabled other alarm panel, switches | 1100    |                                |
| High level isolators                                    | 2000    |                                |

### 3.9 Voltages & segregation of services.

Low voltage ( 500V ) & extra low voltage ( 50V ) cabling shall not be run in the same conduit or trunking but can be ran using the same tray providing the minimum distances as set out in the national rules/standards are being maintained.

### 3.10 Coordination of ALL services.

The contractor shall liaise with the project building services coordinator or main contractor's building services coordinator before ANY installation works is carried out. The electrical services routes and locations of equipment shall be designed in conjunction with the mechanical installations and other building services / construction works. The contractors shall submit a layout drawing prior to commencement of installation work, detailing the proposed main services routes to the coordinator and ensure that there are no clashes or cross over's effecting other services, structure, ceiling voids, ceiling, joists, beams etc. All works shall be coordinated in an agreed time scale to avoid any works to be taken down / re-installed and to avoid trade clashes on the contract works site. Only when agreement and approval with the coordinator is achieved installation work can commence.

### 3.11 Maintaining construction drawings.

It is the contractors responsibility to maintain and update the construction drawings issued by the engineers at commencement and to include all changes to the electrical installations post initial construction issue for the full construction period up to and including completion. This is executed electronically in Autocad format and by hard copy generally on a monthly basis unless the changes are substantial and effecting other designs and or other trades Before any changes are to be engaged they require to follow the "changes" protocol.

3.12 Particular items to be sub-mitted by the contractor.

- 01 Electrical installations statutory national test & completion certification.
- 02 Fire detection & alarm installation certification
- 03 Emergency lighting installation certification
- 04 CE certification all services, materials, appliance/equipment.
- 05 CE & BS certification all switches, socket outlets, spurs, isolators, distribution board and light fittings.
- 06 BCAR ancillary or design national compliance certification : Commencement, design & inspection.
- 07 As-build/constructed electrical plan drawings
- 08 Maintenance & operation manuals of system and major appliances/equipment.
- 09 Simple 1 page electrical system operation principle and 1 page distribution board layout.
- 10 Submittals for approval for all equipment and materials
- 11 Compliance certification for all fire spread stopping materials applied.
- 12 Cork County Council TIK form for handing over of Public Lighting



## 4 – Electrical installations.

THE FOLLOWING SECTIONS ARE TO BE INDIVIDUALLY PRICED IN THE TENDER PRICING SCHEDULE(S)

### E.00 Preliminaries.

This section shall allow for the general contract preliminaries and cover all the contractors preliminaries including but not limited to the following :

- a) All general preliminaries and obligations covered under this specification including site attendance etc.
- b) **3** no. copies of : Record documentation, Maintenance & operation manuals of all equipment, systems, installations, as build / installed / constructed installation drawings, test results and certification, completion certification and compliance certification.
- c) Spares - allow for the supply of 5% consumables (light bulbs/tubes).
- d) Main-contractors preliminaries
- e) Insurances, warranties, contract requirements
- f) Maintaining the construction drawings and services coordination.
- g) Construction meeting attendances.
- h) Commissioning.
- i) BCaR certification.
- k) All other sub-contractors requirements as stipulated under this specification and the main contract.

### E.01 Main intake & LV distribution board. MDB

a - Extend of work.

This section shall allow for the supply, installation, connection and commissioning of the main LV distribution board installation as shown in the drawings and specifications. The installation comprises the complete board installation including the board, main switch fuses / isolators, ACB's, MCCB's, MCB's, internal panel control & signal cabling, equipment, bus-bars, and all other items/requirements deemed necessary to provide a complete works.

b - Additional information.

See distribution board schematic. The main contractor shall ensure the proposed external cabinet is acceptable to the ESN prior to ordering the cabinet. The metered cabinet, vault and ducting are to be supplied and installed by the main contractor. 3 Phase supply. MIC

### E.02 SDB-Plant room

a - Extend of work.

This section shall allow for the supply, installation, connection and commissioning of the sub distribution board installation as shown in the drawings and specifications. The installation comprises the complete board installation including the board, main switch fuses / isolators, ACB's, MCCB's, MCB's, internal panel control & signal cabling, equipment, bus-bars, and all other items/requirements deemed necessary to provide a complete works.

b - Additional information. See distribution board schematic.

All sub-mains supply cabling shall be **PVC XLPE/SWA LSOH** and all terminations shall be in copper alloy glands to metal surface ensuring earth continuity.

### E.03 General & emergency lighting installation.

a - Extend of work.

This section shall allow for the handling, fitting, connecting and commissioning of the complete general and emergency lighting installation as detailed in the drawings, equipment schedules and specifications. The installation comprises the complete installation including equipment, cable/wiring, back boxes, switches, switch/dimming panels, conduit, outlets and all other items/requirements deemed necessary. The supply / delivery of the general light fittings and emergency light fittings are taken for in a different section however the contractor shall allow for the handling, installation and connection in this section. This section also includes for external lighting fittings, circuit affixed to the building. Light fittings, circuits NOT affixed to the

building form part of the external lighting installation.

**b - Additional information.**

Outlets/lights shall be wired with a **3 x 1.5mm<sup>2</sup> LSOH LSF** cable as a minimum standard or where otherwise indicated / permissible to the relevant distribution / switch point. The emergency lighting installations shall be self contained and fully in accordance to BS EN 5266 / BS EN 50171 regulations latest edition. All light fittings shall be earthed and securely fixed to the surface using the correct fixings to the architect / engineers satisfaction.

**c-Particular information.**

All internal lighting in the rooms are controlled through their build in microwave sensors. Lights are to remain lit for at least 10 minutes after movement has seized. Plant room lights are switched manually. Lights marked with letter A are switched through built in m/wave sensors. Lights with the letter B and the led strips along the glazing and along the external seating are to be controlled by time clock and photocell. The emergency lighting installation shall be IS 3217, BS 5266. Emergency and exit luminaries shall be in accordance to BS EN 60598-2-22 .

**E.04 General and Emergency light fittings supply only.**

**a - Extent of work.**

This section shall allow for the supply and delivery only of the complete general & emergency light fittings as detailed in the drawings and specifications. The handling, installation & connection of these light fittings is taken for in a different section.

**b - Additional information.**

All light fittings shall be earthed and securely fixed to the surface using the correct fixings to the architect / engineers satisfaction. External lighting / light fittings not affixed to the building are taken for in other section(s). Where additional grounds are required it is the responsibility of the contractor to arrange for such items with the main contractor. The emergency lighting installation shall be IS 3217, BS 5266. Emergency and exit luminaries shall be in accordance to BS EN 60598-2-22 .

**E.05 External lighting installation.**

**a - Extent of work.**

This section shall allow for the supply, delivery, installation and commissioning of the complete external lighting installation including all external light fittings, cable, connections, cable/wiring, back boxes, isolators, conduit, outlets and all other items/requirements deemed necessary.

The public light at the car park is to be installed as per Cork County Council Public Lighting manual 2025. Lighting pillar, chamber, 6 mtr column and ducting is to be supplied and installed by the main contractor but cabling, fuseboards, earth bars, light fitting etc are to be supplied, installed and commissioned by the electrical contractor.

**b - Additional information.**

Public lighting columns shall be wired using, as a minimum, a **3 x 6.0mm<sup>2</sup> PVC/SWA/PVC LSOH** cable or where otherwise indicated / required by the relevant equipment. Non public lighting columns / bollards shall be wired using, as a minimum, a **3 x 1.5mm<sup>2</sup> PVC/SWA/PVC LSOH** cable or where otherwise indicated / required by the relevant equipment. All final circuits shall be protected by a suitable separate residual circuit (current) devices. (RCBO's).

**E.06 Fire detection & alarm wiring installation.**

**a - Extent of work.**

This section shall allow for the supply, delivery, installation, connection and commissioning of the complete fire detection & alarm installation as detailed in the drawings and specifications and as per standard I.S.3218 2024

The installation comprises the new complete installation including control panels, slave panels, repeater panels, detectors, sirens, strobes, call points, break glass units, line isolators, equipment, cable/wiring, back boxes, isolators, conduit, outlets and all other items/requirements deemed necessary.

b - Additional information.

The fire alarm system shall be addressable L2/L3 using alarm devices with a visual display for hearing impaired persons. Detectors / outlets / links / interfaces / BGU / call points shall be wired with an enhanced **PH120 fire rated - LSOH** cables to BS 8519 as a minimum standard to all fire installation points. The fire alarm installation shall be in accordance to IS 3218, BS EN 5839, EN54-2 and EN54-5. The contractor shall allow for an independent **4 x 1.5 PH120 fire rated - LSOH** link cable to the following : other fire alarm panels, gas alarm panel, access control system panel(s) and each access controlled point (I/O), each hold open door device (I/O) , each refuge alarm panel, each AOV panel, major mechanical ventilation equipment and as indicated on the drawings. The drawings do not necessarily indicate ceiling voids, ceiling void requirements or detection equipment in ceiling voids however the contractor shall include in the tender for fire detection for any voids or smoke pockets with a depth of  $\geq 800\text{mm}$  or where the fire risk in the void is deemed to require fire/smoke detection. The drawings do not necessarily indicate attics and attic requirements and the contractor shall include in the tender for fire detection for any attic requirements. External cabling, cabling in external ducts or cabling in under ground ducts are to be rated and suitable for permanent submersion in water and have adequate mechanical protection.

A DIGI-LAN IP network communicator has to be included for dialling out in case of an activation.

E.07 **Internal telecommunications/data/computer/signal/instrumentation point distribution wiring installation.**

a - Extent of work.

This section shall allow for the supply, delivery, installation, connection, testing, certifying and commissioning of the complete internal telecommunications/data/computer/instrumentation/signal point distribution wiring installation as detailed in the drawings and specifications. The installation comprises of the complete telecommunication wiring installation including all cabling, main termination/junction box, core termination/junction boxes, RJ45 outlets, **patch panel** and all other items/requirements deemed necessary.

b - Additional information.

All telecoms/data wiring shall be routed to the server / patch panel enclosure. Each single RJ45 outlet shall be wired from the **1 no. Category 6A UTP LSOH** as indicated on the drawings. All cables are to be clearly marked and labelled at each end for identification purposes to the engineers /architects satisfaction. The contractor shall terminate both ends of each cable to TIA/EIA- 568-B cabling standards utilising RJ45 Cat 6 modular sockets. External cabling, cabling in external ducts or cabling in under ground ducts are to be rated and suitable for permanent submersion in water and have adequate mechanical protection. The complete telecommunications/data/computer point wiring installation shall be tested and certified by the contractor.

E.08 **Access Control installation.**

a - Extent of work.

The access control will be executed on a separate contract by DANFO. Danfo will supply the back boxes for the access panels. Fitting of backboxes and conduits etc is to be done by the contractor. All the wiring, door electric locks, for the access control is to be supplied and installed by the contractor as per access control schematic, drawing number 3401. The installation comprises the complete installation including single/multi door controllers, key pads, pay card points, receivers, break glass units, manual open switches, power supply units, magnetic door locks, cable/wiring, conduit and all other items/requirements deemed necessary.

b - Additional information.

All security access control wiring shall be routed to the Danfo BMS cabinets. Each and all Security Access point(s) shall be independently wired as indicated on the drawings and/or using **Belden 9504 LSOH cables**. The system must be programmable by the management company in order to isolate individual fobs and to be able to give access / deny access of any fob to any access controlled point. The equipment shall included for :

- a. Security access work station (PC) and accredited software.
- b. Proximity fob access control point at main entrance and Mews as indicated on the drawings.
- c. 25 no. programmable Fobs
- d. Fail safe electrical door lock in no power fire alarm situation.
- e. 8 Hour battery back-up

Each access control point shall be connected through an IO contact supplied under the fire alarm &

detection section to allow for deactivation in a life safety situation. All cables are to be clearly marked, showing it's origin for identification purposes to the engineers/architects satisfaction.

**E.09 General 230V power installation.**

**a - Extent of work.**

This section shall allow for the supply, delivery, installation, connection and commissioning of the complete 240V power installation as detailed in the drawings and specifications. The works comprises ALL power supplies to internal and external located 230V equipment /panels / systems including all cable terminations to/from equipment supplied or not supplied by the contractor and not accounted for in any separate power supply sections for mechanical / ventilation / HVAC / AC or other equipment / panels / systems and includes cable/wiring, back boxes, isolators, spur outlets, appliance outlets, conduit, outlets and all other items/requirements deemed necessary.

**b - Additional information.**

Outlets shall be independently wired using, as a minimum, a **3 x 2.5 mm<sup>2</sup> LSOH** cable with suitable insulation & protection layer or where otherwise indicated / required by the relevant equipment. All appliance final connections shall be in flexible cable, long enough for normal service withdrawal. All final circuits for power outlets for equipment shall be protected by a suitable separate residual circuit (current) devices. (RCBO's) were these are in contact with water/water systems and deemed required under the regulations.

**E.10 General 400V power installation.**

**a - Extent of work.**

This section shall allow for the supply, delivery, installation, connection and commissioning of the complete 400V power installation as detailed in the drawings and specifications. The works comprises ALL power supplies to internal and external located 400V equipment /panels / systems including all cable terminations to/from equipment supplied or not supplied by the contractor and not accounted for in any separate power supply sections for mechanical / ventilation / HVAC / AC or other equipment / panels / systems and includes cable/wiring, back boxes, isolators, spur outlets, appliance outlets, conduit, outlets and all other items/requirements deemed necessary.

**b - Additional information.**

Outlets shall be independently wired using, as a minimum, a **5 x 2.5 mm<sup>2</sup> LSOH** cable with suitable insulation & protection layer or where otherwise indicated / required by the relevant equipment. All appliance final connections shall be in flexible cable, long enough for normal service withdrawal. All final circuits for power outlets for equipment shall be protected by a suitable separate residual circuit (current) devices. (RCBO's) were these are in contact with water/water systems and deemed required under the regulations.

**E.11 General purpose socket outlet installation.**

**a - Extent of work.**

This section shall allow for the supply, delivery, installation, connection and commissioning of the complete general purpose socket installation as detailed in the drawings and specifications. The installation comprises the complete installation including cable/wiring, back boxes, conduit, socket outlets and all other items / requirements deemed necessary.

**b - Additional information.**

Outlets shall be independently or radial wired using, as a minimum, a **3 x 2.5 mm<sup>2</sup> LSOH** cable with suitable insulation & protection layer or where otherwise indicated / required by the relevant equipment. All final circuits for GP socket outlets shall be protected by a suitable separate residual circuit (current) devices. (RCBO's). All socket outlets shall be switched

**E.12 External plant room general electrical installation.**

**a - Extent of work.**

This section shall allow for the supply, delivery, installation, connection, testing, certifying and commissioning of the complete general electrical installation as detailed in the drawings and specifications the drawings. All cables are to be clearly marked and labelled at each end for identification purposes to the engineers /architects satisfaction.



b - Additional information.

All wiring shall be wired using, as a minimum, **PVC/SWA/PVC LSOH** cable typically 3x2.5 for 230V circuits, 5x1.5 for AC controls, 3x1.5 for lighting and 5x4,0 for the condenser circuits with suitable insulation & protection layer or where otherwise indicated / required by the relevant equipment. All final circuits for GP socket outlets shall be protected by a suitable separate residual circuit (current) devices. (RCBO's). All socket outlets shall be switched

**E.13 Mechanical installation power and control wiring installation. Including BMS panel**

a - Extent of work.

This section shall allow for the supply, delivery, installation, connection and commissioning of the complete mechanical installation power & control wiring including BMS panel and all it's equipment as detailed in the drawings and specifications.

The installation comprises all 240V / 400V power supplies not accounted for in the 240V and 400V power supply sections and include for equipment, cable/wiring, back boxes, isolators, appliance outlets, conduit and all other items/requirements deemed necessary. Where Mechanical installation equipment is supplied by others the contractor shall allow for the cable/wiring, back boxes, isolators, appliance outlets, conduit, fitting of equipment, final (electrical) connection of equipment and all other items/requirements deemed necessary for such equipment unless otherwise stated in the equipment schedules or layout drawings.

b - Additional information.

All cabling for mechanical installation works shall be **LSOH**. The contractor shall also allow in this tender for the complete wiring installation and final connections to all equipment, controls and control panel of both ends of the cable. All final circuits for power outlets for equipment in contact with water shall be protected by a suitable separate residual circuit (current) devices. (RCBO's). All appliance final connections shall be in flexible cable, long enough for normal service withdrawal. External cabling, cabling in external ducts or cabling in under ground ducts are to be rated and suitable for permanent submersion in water and have adequate mechanical protection. All category 5/6 cabling and other signal cables shall be routed to the server / patch panel cabinets.

BMS panel to be remotely accessible through broadband and capable of switching through built in timers and/or remotely.

**E.14 Earth/bonding installation.**

a - Extent of work.

The contractor shall allow for the supply, delivery, installation, connection and commissioning of the complete earth/bonding installation as detailed in the drawings and specifications.

The installation comprises the complete installation including equipment, rods, chambers, links, terminals, conduit, cable/wiring and all other items/requirements deemed necessary.

b - Additional information.

The installation shall include for all required high conductivity non corrosive earth electrodes terminated in accessible earth pits with suitable covers.

The contractor shall liaise with the grid power supplier to ensure the correct earthing system is applied prior to commencement of any construction works.

The main earth conductor shall be as shown in the drawings applied to the grid power supply intake and PVC sheathed green/yellow copper cable, clamped with a heavy clamp to the earth electrode(s) and connected to the main earth bus bar terminal in the main distribution board and continued to other distribution boards, low voltage switch gear and kWh metering arrangement.

The equipotential bonding conductor servicing the fuel, gas, water, water mains, heating and hot & cold water main pipe work shall be **16 mm<sup>2</sup>** PVC sheathed green/yellow copper cable.

Supplementary bonding conductors of **6 mm<sup>2</sup>** PVC sheathed green/yellow copper cable shall be connected to ceiling frames and other sub-structural steel items.

Supplementary bonding conductors of **2.5 mm<sup>2</sup>** PVC sheathed green/yellow copper cable shall be connected to wash hand basins (invisible), pipe work, steel sinks and extractor hood, duct work in ceiling spaces, conduits & trunking.

Circuit protective conductors of correct size in relation to current carrying conductor PVC sheathed green/yellow copper cable or sleeved wire shall be connected to armoured sheet of cabling and all metal switch and socket boxes.

The contractor shall supply under this contract a concrete earth pit(s) with hinged lid(s) properly installed into the footpath /terrace concrete surface to the engineers, architects & main contractors satisfaction.

**E.15 Cable containment installation.**

**a - Extent of work.**

The contractor shall allow for the supply, delivery, installation, connection and commissioning of the complete containment installation as required for the containment of all cabling & wiring. It is the contractors responsibility to design and allow for the correct sizing and routing of all containment and shall forward a layout drawings showing proposed service routes to the project services coordinator prior to commencement. DKP drawings may show containment on drawings but this is executed for general information and represent the initial assumed containment sizing and routes however final sizing and routes for the purpose of tender and construction shall be the responsibility of the contractor in coordination with the project services coordinator or mechanical contractors / mechanical containment and routes. Variations for incorrect capacities and or routes to be revised will not be entertained. The installation comprises the complete installation including equipment, cable trunking, conduit, basket, tray and all other items/requirements deemed necessary.

**b - Additional information.**

See item "Coordination" of containment and services in the general specification section. Fire installation wiring requires a separate containment from other ELV services.

**Take note of instructions re containment in 3.5**

**PV Installation**

**a - Extent of work.**

The contractor shall allow for the supply, delivery, installation, connection and commissioning of the complete PV installation as per drawing taking into account the sea salt air and at times storm wind environment. All metal parts, fixing etc are to be at minimum of marine stainless steel 316 grade.

**b - Additional information**

Any roof penetrations are to be agreed with the structural engineer before executing. As per drawing the panel supports are to be mounted on/in the roof. No ballast weight for keeping the panels on the roof. Power supply and inverter are to be 3 phase. Installation to be to IS 10101 regulation



## 5 Responsibility matrix.

| Item                                                          | Approval | Supply | Handle/fit | Connect | Test/check |
|---------------------------------------------------------------|----------|--------|------------|---------|------------|
| General light fittings                                        | ✓        | EL     | EL         | EL      | EL         |
| Decorative light fittings                                     | ✓        | EL     | EL         | EL      | EL         |
| Emergency / exit light fittings                               | ✓        | EL     | EL         | EL      | EL         |
| External light fittings                                       | ✓        | EL     | EL         | EL      | EL         |
| Distribution boards                                           | ✓        | EL     | EL         | EL      | EL         |
| Telecoms/data/TV wiring J-Box                                 | ✓        | EL     | EL         | EL      | EL         |
| Electrical switch gear, socket outlets, isolators etc         | ✓        | EL     | EL         | EL      | EL         |
| Extract fan(s)                                                | ✓        | ME     | ME         | EL+ME   | EL+ME      |
| Extract fan controls; PIR                                     | ✓        | ME     | ME         | EL+ME   | EL+ME      |
| Cooker hood / canopy                                          |          | OT     | OT         | EL+ME   | OT         |
| MVHR/CMEV units                                               | ✓        | ME     | ME         | EL+ME   | EL+ME      |
| MVHR/CMEV controls; Time clock, Humidity sensor, PIR          | ✓        | ME     | EL         | EL      | EL+ME      |
| Kitchen sink(s), mixer tap, drain and syphon                  | ✓        | OT     | OT         | ME      | ME         |
| Laundry sink(s), mixer tap, drain and syphon                  | ✓        | OT     | OT         | ME      | ME         |
| Cooker / cooking equipment *                                  |          | OT     | OT         | EL+ME   | OT         |
| Fridge freezer *                                              |          | OT     | OT         | EL      | OT         |
| Washing machine / Dryer *                                     |          | OT     | OT         | EL+ME   | OT         |
| Dishwasher *                                                  |          | OT     | OT         | EL+ME   | OT         |
| Heat pump                                                     | ✓        | ME     | ME         | EL+ME   | OT         |
| Calorifier / factory insulated immersion tank                 | ✓        | ME     | ME         | EL+ME   | ME         |
| Calorifier thermostat                                         | ✓        | ME     | ME         | EL+ME   | EL+ME      |
| Heating, hot-water, hot-water return time clocks              | ✓        | ME     | EL         | EL      | EL+ME      |
| Room thermostat(s)                                            | ✓        | ME     | EL         | EL      | EL+ME      |
| Control valves                                                | ✓        | ME     | ME         | EL+ME   | EL+ME      |
| Cold water storage tank c/w booster pump                      | ✓        | ME     | ME         | EL+ME   | ME         |
| Heating manifold(s)                                           | ✓        | ME     | ME         | EL+ME   | ME         |
| Fire blanket                                                  | ✓        | OT     | OT         | Na      | OT         |
| In ground floor pre-insulated Pex pipe work and fittings      | ✓        | ME     | ME         | ME      | ME         |
| All Pex/copper pipe work, insulation and fittings             | ✓        | ME     | ME         | ME      | ME         |
| WC suite (sanitary ware, taps, mixers, syphons etc)           | ✓        | BW     | ME         | ME      | ME         |
| Bathroom suite (sanitary ware, taps, mixers, syphons etc)     | ✓        | BW     | ME         | ME      | ME         |
| En-suite suite (sanitary ware, taps, mixers, syphons etc)     | ✓        | BW     | ME         | ME      | ME         |
| Bath shower panel                                             | ✓        | BW     | BW         | BW      | BW         |
| Shower panel/door                                             | ✓        | BW     | BW         | BW      | BW         |
| External earth pit and earth wire duct                        | ✓        | EL     | EL         | EL      | EL         |
| 25mm fibre internal supply duct for Eir fibre cable/pull cord |          | BW     | BW         | BW      | BW         |
| External wall ESBN supply termination cabinet                 |          | BW     | BW         | BW      | BW         |
| External wall Telecoms/Eir supply termination cabinet         |          | BW     | BW         | BW      | BW         |
| Under ground incoming Irish Water mains & upstand             |          | BW     | BW         | BW      | BW         |
| Under ground drainage & upstands                              |          | BW     | BW         | BW      | BW         |

EL = Electrical contractor, ME = Mechanical contractor

BW = Main contractor / Builders Works

✓ Approval = To be approved by DKP in writing

EL+ME Both or relevant elec and/or mech contractor, Relevant service.

OT = Others

\* Where provided under the build contract.

### Appendix 1

Switching of Lights:

LED strip at glazing,  
A1, A2,  
B1, B2, B3, B4  
Lighting column 6mtr  
Changing rooms, Toilets and showers  
Plant rooms

Timer  
Through built in microwave sensor  
Timer and Photocell  
Photocell on light fitting  
Built in microwave sensor  
Manual light switch

