



**ARC:MC**

**Data and Power Hub  
Services –Peamount 110kV  
Substation  
Design Statement**

Version: 03

Status: Complete

Date Issued: 16/03/2021

## Document Approval:

	Name	Role
<b>Reviewed by</b>	Colin Hyde	Director
<b>Authored by</b>	Michael Baggs	Architectural Technologist

## Version History:

Version	Description	Date of Issue
01	Issued for Comment	02/02/2021
02	Issued for Comment	15/03/2021
03	Issued for Planning	16/03/2021

# Table of Contents

Document Approval:.....	2
Version History:.....	2
1.1 Purpose Statement.....	4
1.2 Design Rationale.....	4



## 1.1 Purpose Statement

This design statement has been prepared in order to explain the design principles behind the design and layout of the proposed Peamount 110kV substation. The statement aims to support the application for 110kV substation electrical control building and associated external electrical equipment.

The Proposed Development is designed to enable the export of power from the Power Generation Facility (PGF) to the National Grid. This connection has been granted and accepted by Eirgrid. The proposed substation is also designed to provide a permanent power supply for the ICT facilities, if granted, that is subject to the concurrent application, and a request for Additional Information, under SDCC Reg. Ref. SD20A/0324. The same infrastructure, or part thereof, will be used to provide power to the ICT facilities.

This document should be read in conjunction with architectural drawing pack.

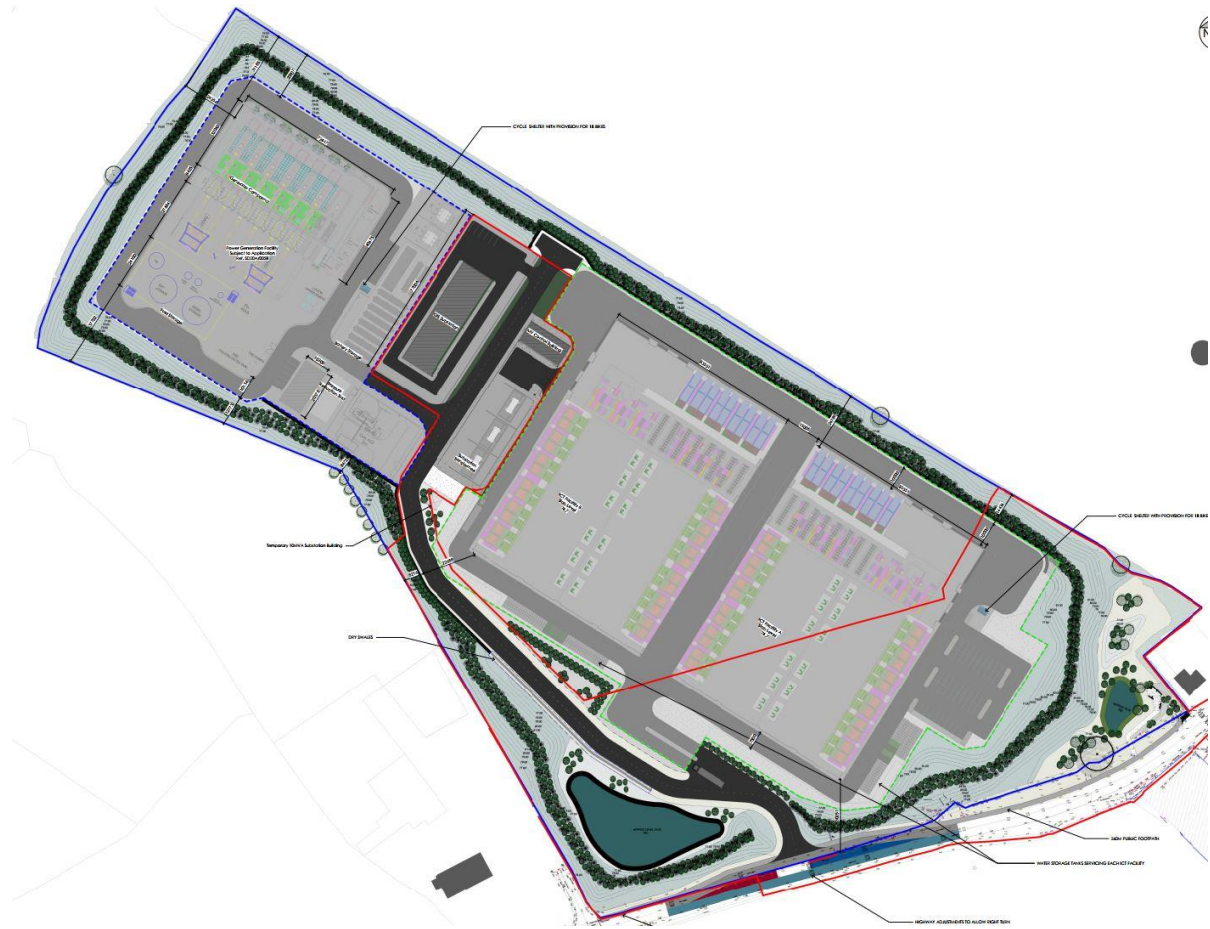
## 1.2 Design Rationale

The proposed 110kV GIS substation compound is designed based on requirements stipulated by the TAO i.e. ESB Networks. The design of the Substation Compound is centred around the equipment requirements of ESB Networks that are required to provide an efficient and safe service.

Two no. single circuit 110kV underground transmission lines were chosen above the overhead alternative as it enables more power to be transferred over a particular distance and requires less land to do so – minimising ecological and visual impacts of the Proposed Development and reducing installation costs.

The proposed substation sits centrally within a site of 8.2 hectares that is located within the townland of Miltown to the north of Peamount Road (R120), Newcastle, Co. Dublin. The lands to the north of the site are subject to an application for a Power Generation Facility (PGF) under Reg. Ref. SD20A/0058 that received a Final Grant of Permission issues on the 17th December 2020. The lands to the south are subject to an application for 2 ICT facility buildings under Reg. Ref. SD20A/0324, which is subject to a request for Additional Information from the SDCC. Access to the proposed substation is via access road and turning lane from Peamount Road permitted under SD20A/0058.





*Image 1: Proposed Site Masterplan*

The proposed development consists of a 2 storey, 1,430sqm 110kV Substation building, its surrounding compound, and a single storey 200sqm MV Control Building as well as associated external electrical equipment. The substation and electrical compound sit either side of the previously approved access road. The external electrical equipment consists of 3 transformers and two associated lightning masts. The compound perimeter treatment consists of palisade fences as detailed on images below (See also Architectural drawings), with access provided to the substation via a gate on to the access road while access to the electrical compound is provided from the data centre development. The substation building has an overall height of 14.95m and the MV control building has an overall height of 5.65m. Both building's façade treatments consist of grey insulated metallic wall panels that gradient from dark to light up the elevation to reduce the visual impact and scale of the buildings.

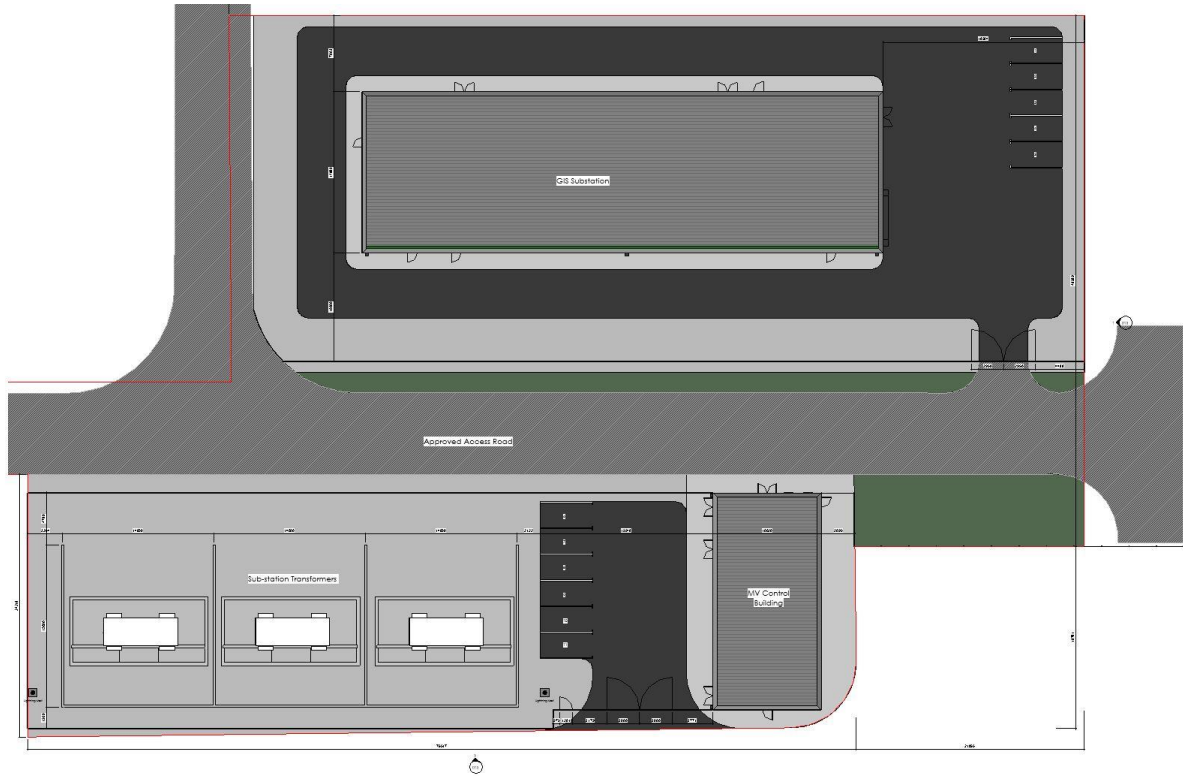


Image 2: Proposed Site Plan

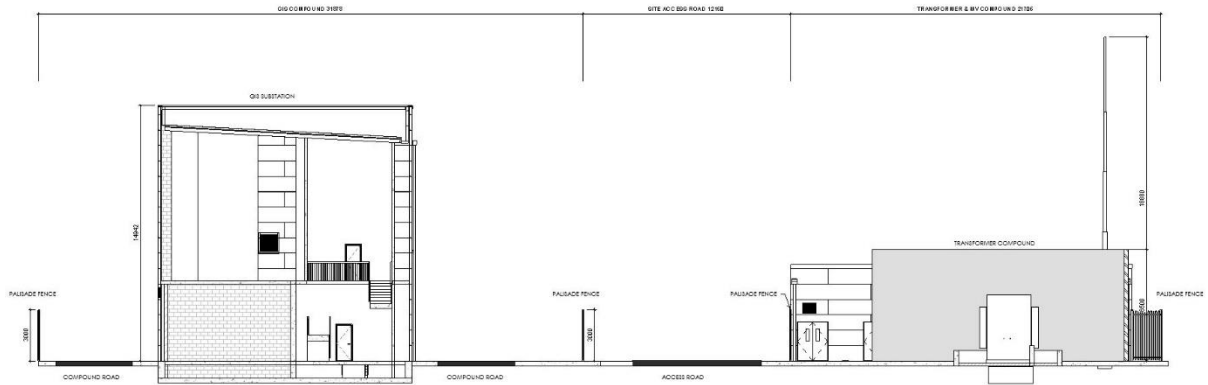


Image 3: Site Section

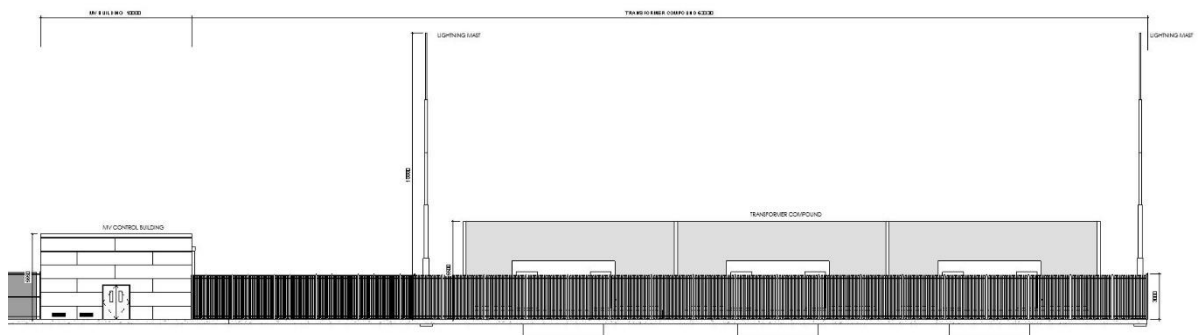


Image 4: Site Section 2

The 110kV Substation consists of a Cable Pit, Hoist Area, Generator Room, Messroom, Workshop, WC, Relay Room and Battery Room on the ground floor with GIS equipment room and Store on the first floor.

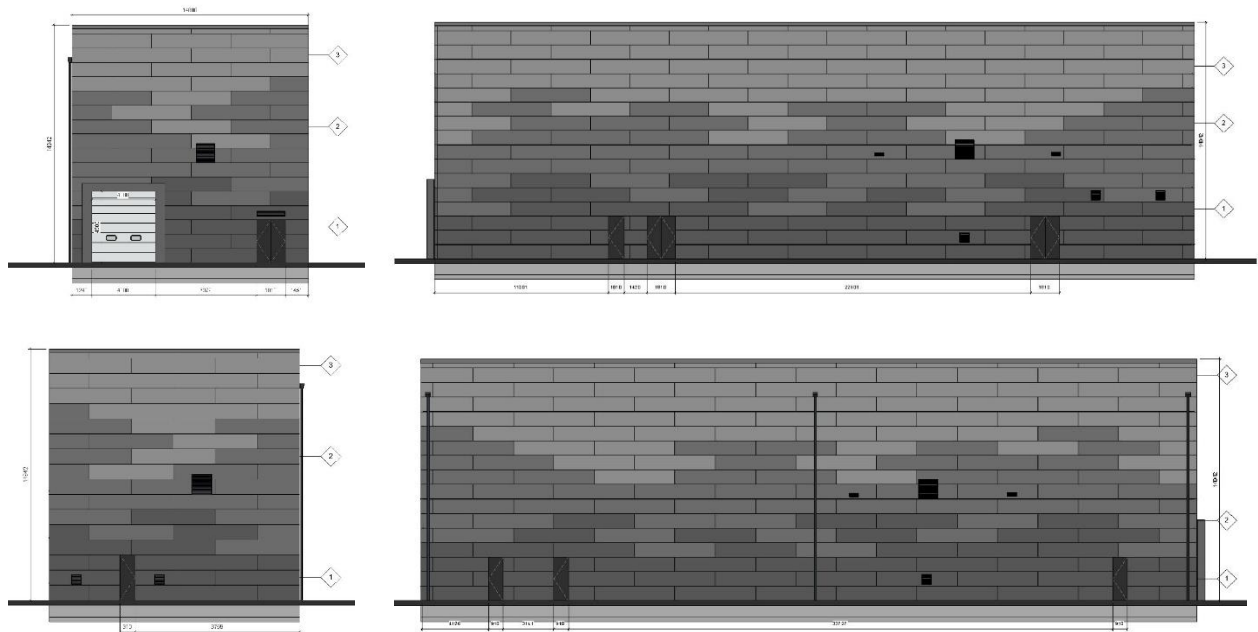


Image 5: Proposed Substation Elevations

The single storey MV Control Building Consists of 2No. 33kV Switchgear Rooms, AUX. Transformer Room, DC Battery Room, Ancillary Supplies Room, Relay Room, Control Room and WC.

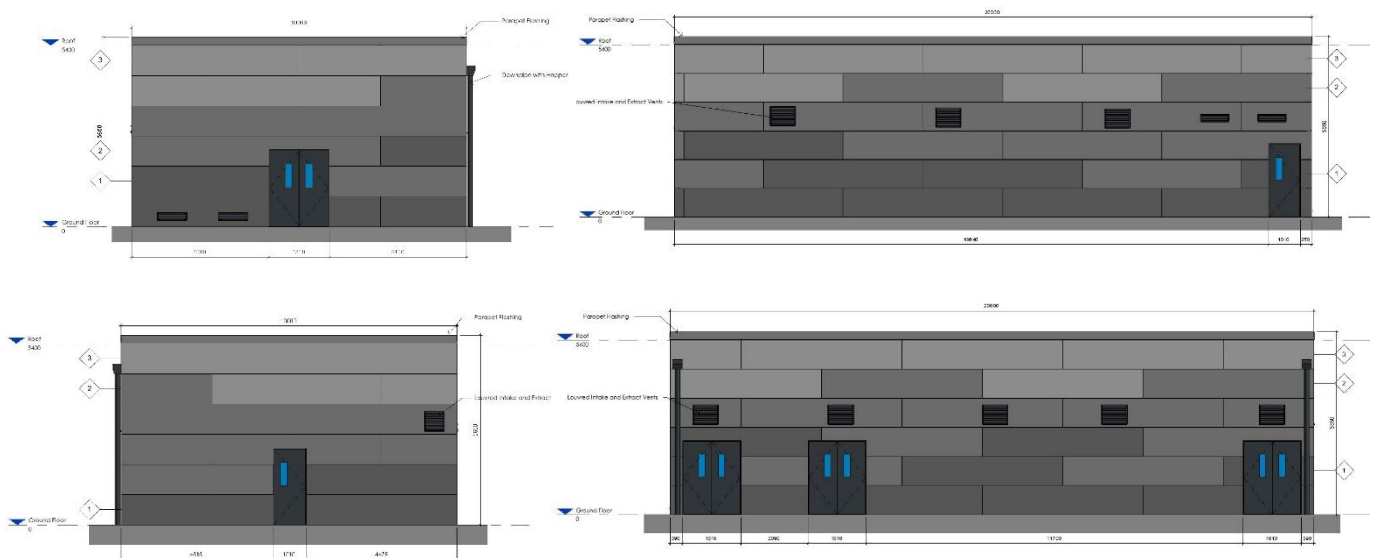


Image 6: MV Control Building Elevations