



# 110kV Grid Substation and Transmission Line Report

Herbata Data Centre Campus

*Naas, County Kildare*

November 27, 2025

Document Number: 10360452-HDR-XX-XX-RP-E-000001

Issue: P10

Status: Issue for Planning

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# Document Control

Issue	Date	Status	HDR Author	HDR Approval	Notes
P01	31/05/2023	Review	05/06/2023_RT	07/06/2023_JM	First issue for review
P02	06/09/2023	Final	06/09/2023_RT	07/09/2023_JM	Updated with comments, for submission
P03	07/06/2024	Final	07/06/2024_RT	07/06/2024_UG	Stage 2 Engineering Design
P04	01/07/2024	Final	01/07/2024_RT	01/07/2024_RT	Stage 2 Engineering Design
P05	15/07/2025	Review	15/07/2025_RT	15/07/2025_UG	Revision to site plan, minor updates
P06	06/08/2025	Review	06/08/2025_SG	06/08/2025_UG	Revised to suit comments
P07	22/08/2025	Review	22/08/2025_SG	22/08/2025_UG	Revised to suit comments
P08	07/11/2025	Review	07/11/2025_SG	07/11/2025_UG	Revised to suit comments
P09	26/11/2025	Review	20/11/2025_SG	20/11/2025_UG	Revised to suit comments
P10	27/11/2025	Review	27/11/2025_JJ	27/11/2025_UG	Revised to suit comments



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# 1 Introduction

This report has been prepared by HDR on behalf of Herbata Ltd in support of an Electricity Transmission application to An Comisiún Pleanála under Section 182 of the Planning and Development Act for a new 110kV GIS grid substation, transmission line connections, and associated development.

The substation development is to be made of two elements, the first being a new node on the Irish electricity grid to the West of Naas which will be handed over and be operated by EirGrid ESO as the transmission system operator (TSO), the second element will comprise the transformation to a lower voltage to enable connection of the onsite gas turbine generation at the Herbata Data Centre Campus Development.

This report defines the existing condition of the overhead 110kV line that crosses the site, and how it is proposed extend Eirgrid's transmission system to allow power connection for import or export to the Herbata Data Centre site with spare bays for future development around Naas. The report also discusses other necessary measures required including the undergrounding of the existing 110kV overhead lines that crosses the site and the removal of the resulting obsolete stretches of overhead line and associated supporting towers.

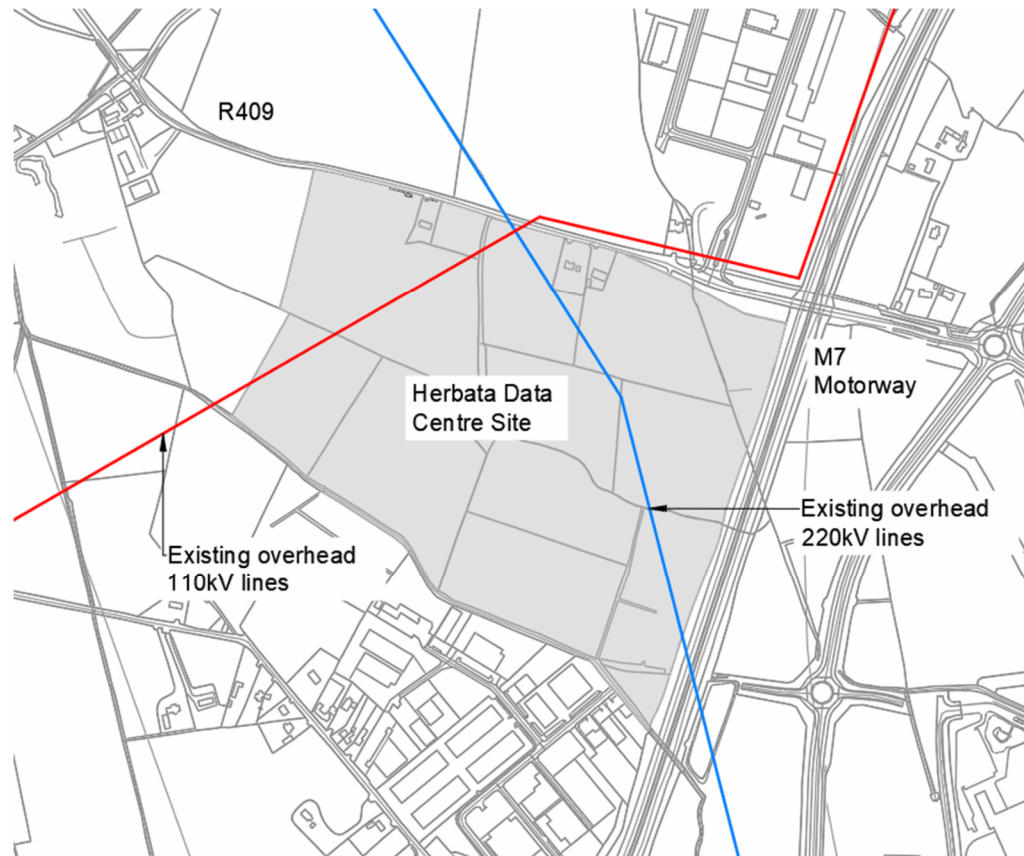
It should be noted that there is a also a 220kV overhead line that crosses the site, no works are proposed to this line, it will remain as existing. An exclusion zone of 8.5m either side of the centre line of the 220kV overhead line has been assumed with no construction works allowed in this zone.

All of the works that are intended to be handed over to Eirgrid will be specified, procured and constructed to Eirgrid's standards and requirements for a grid substation at a node. Liaison with ESB has already commenced and reference has been made to all relevant drawings and documentation for the development of this design.

## 2 Existing Condition

The existing site has a single 110kV overhead line and a single 220kV overhead that crosses approximately perpendicular to each other and at different heights, see Figure 2-1 below. No works or changes are intended for the 220kV line.

**Figure 2-1. Herbata Project Site – Existing Overhead Lines**



Source: RKD / HDR

The Herbata Data Centre site is located to the west of Naas bounded to the east by the M7 Motorway and to the north by the R409 roadway. Access is provided from the R409.

### 3 Proposed Changes

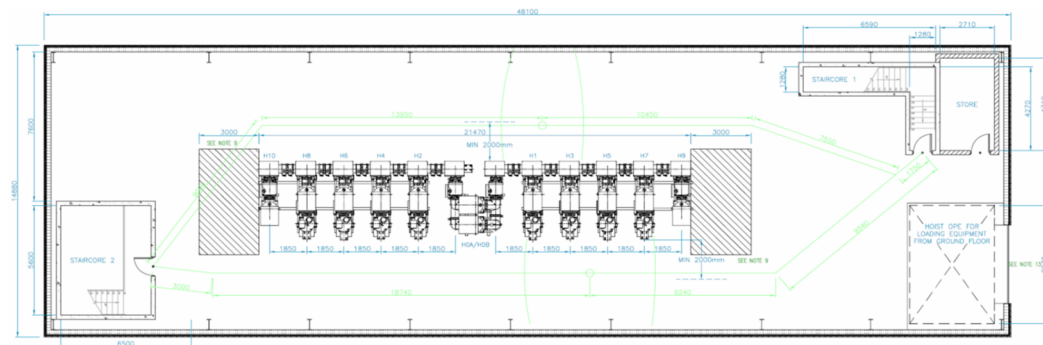
The proposed development requires a new power connection from the existing 110kV transmission line, by breaking into it and providing a new grid substation; this is in accordance with Eirgrid's policy Pol\_St\_18 titled "Policy Statement on Options for Connecting Customers to the Transmission Network", see link below:

[https://www.eirgridgroup.com/site-files/library/EirGrid/Options-for-Connecting-Customers-to-the-Transmission-Network-\(2022\).pdf](https://www.eirgridgroup.com/site-files/library/EirGrid/Options-for-Connecting-Customers-to-the-Transmission-Network-(2022).pdf)

The option that is proposed to be used from the above policy statement is Option 1, however instead of a 4 bay grid substation it is proposed to use Eirgrid's standard 8-bay format grid substation, where two bays will be used for the incoming and outgoing feeders to the existing transmission line, two further bays will be allocated to the Herbata Data Centre campus, leaving 4 bays as spare for future development in and around the Naas area.

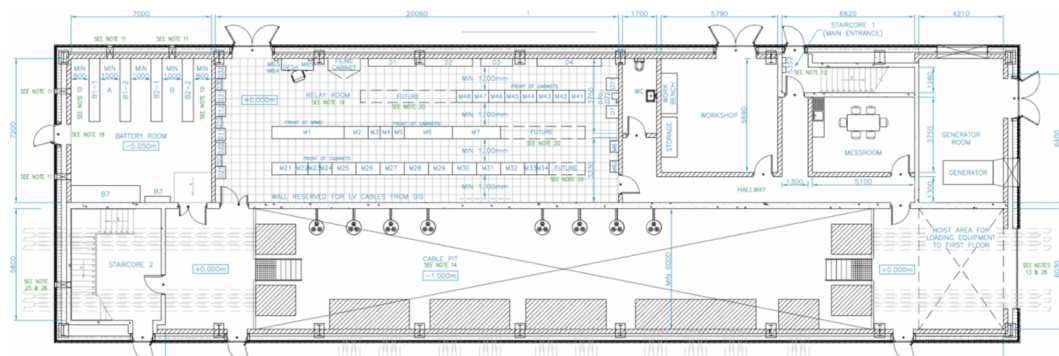
The proposed new gas insulated switchgear (GIS) grid substation is based on Eirgrid's standard arrangements for an 8-bay 110kV based switchboard. Trials were carried out to see if AIS based gear could be used but test fits showed that the area required was too great. Eirgrid also have standard arrangements for GIS (gas insulated switchgear) that they use on their network, these require the switchgear to be housed in a 2 storey building to enable safe operation and cable entry. Figures, 3-1, 3-2 and 3-3 show the standard arrangement for an 8-bay GIS Station, refer to Appendix A for the full version of the drawings.

**Figure 3-1. First Floor 8-bay GIS Station**



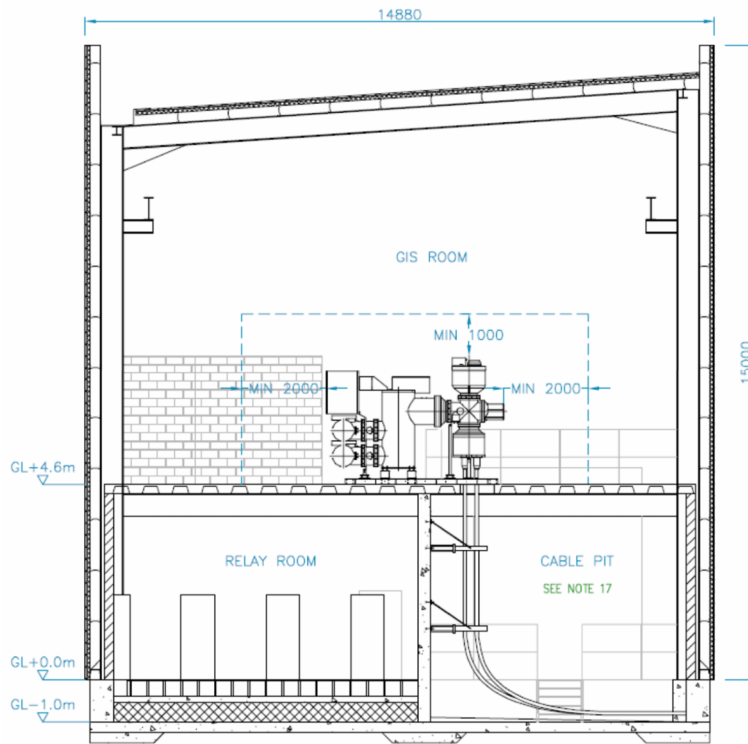
Source: Eirgrid

**Figure 3-2. Ground Floor 8-bay GIS Station**



Source: Eirgrid

Figure 3-3. 8-bay GIS Station Section



Source: Eirgrid

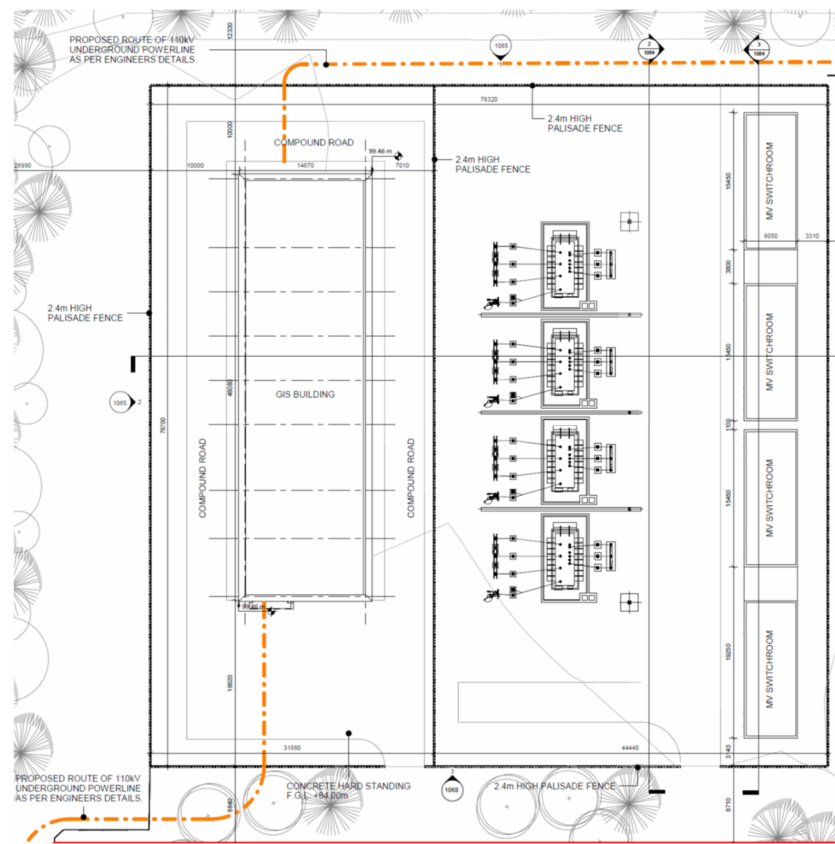
Using this standard arrangement for a GIS station, the substation for the Herbata Data Centre campus development has been arranged to have two sections, the first to fully incorporate the arrangement of the Eirgrid 8-bay GIS station and the second section to incorporate the local distribution and step-down transformers for the data centre development itself. This proposed arrangement is shown in Figure 3-4.

Looking at Figure 3-4 below, the left-hand side shows the standard arrangement for an 8-bay GIS substation and the right-hand side shows the distribution side of the substation to serve the Herbata Data Centre campus. The right-hand side is made up of the following components:

- Ducting from the new Eirgrid GIS station.
- Set off of 7m minimum from the fence line around the Eirgrid GIS station.
- Up to 4 x 110kV hybrid GIS circuit breakers, isolators and metering equipment.
- Up to 4 x 110kV primary dual output step down transformers.
- 4 x 10kV medium voltage output switch rooms for distribution to the site and connection to the onsite gas turbines and generators in each data centre.

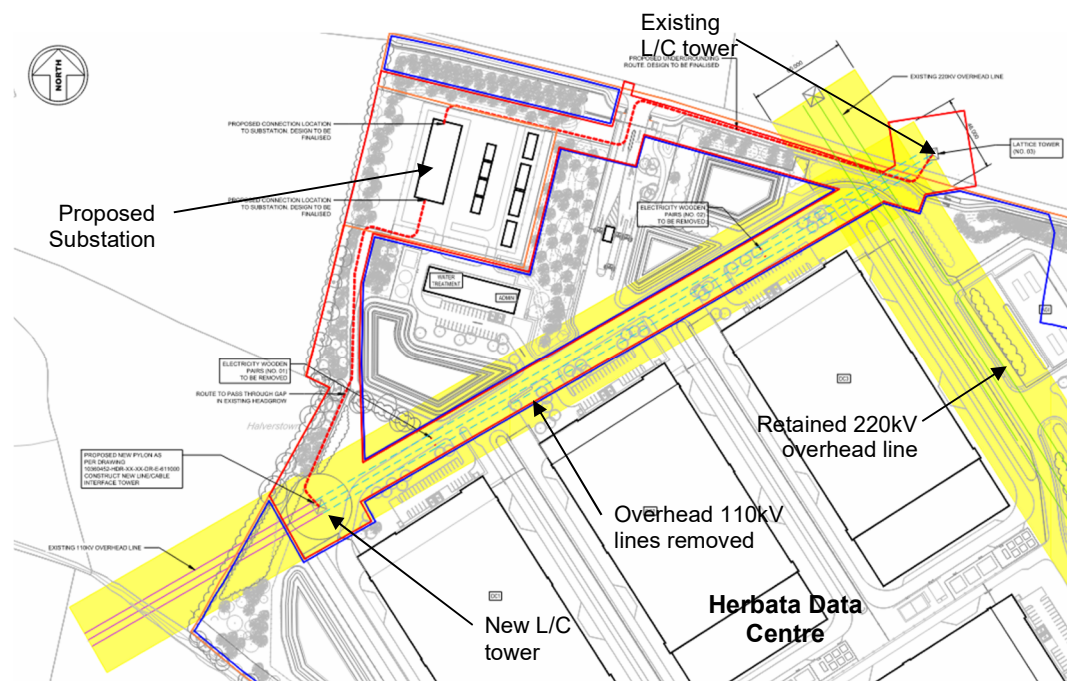
Access to these two sections is provided separately albeit via single entry, but the Eirgrid area can be fully secured and controlled by Eirgrid TSO. The location of the new substation on site is shown in Figure 3-5 below. The overall substation development will also include access paths, landscaping, security fencing, provision of internal access roads and car parking within the GIS substation compound.

**Figure 3-4. Proposed New Substation Typical Arrangement**



Source: RKD/HDR

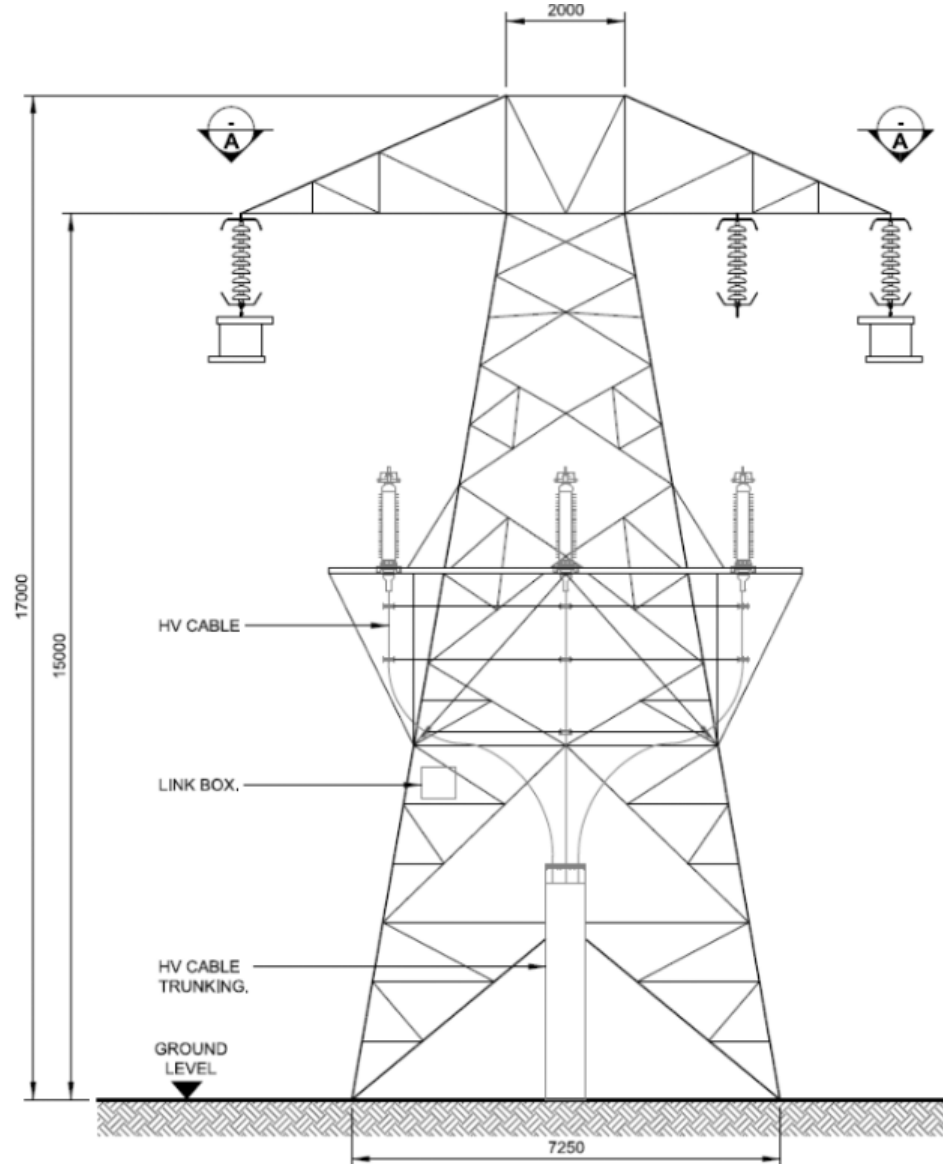
**Figure 3-5. Substation and Undergrounding of 110kV Overhead Line**



Source: RKD / HDR

Also shown on Figure 3-5 are two locations where the existing overhead 110kV line is proposed to be terminated at two line/cable interface towers and then diverted underground. Termination of the overhead lines will have to be by new single circuit L/C interface towers, similar to that shown in Figure 3-6 below.

**Figure 3-6. Example Single Circuit L/C Interface Tower**



Source: ESB Networks (standard version with no Shieldwire)

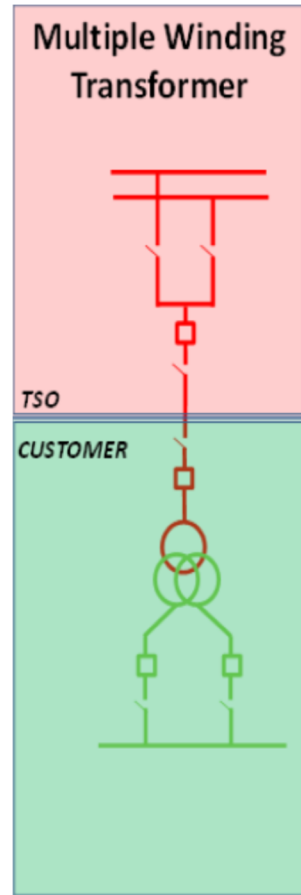
The new cables are to be run in ducts, conforming with Eirgrid's standards, run in a North-east to South-west direction to the edge of the site. Once the cable is connected into the new GIS grid substation and into the existing overhead line, then electrically the transmission system will remain the same schematically. The new circuit will terminate in a cable – overhead line/cable (L/C) interface compound containing air-insulated electrical equipment mounted on concrete plinths. Adjacent to each L/C interface compound, an overhead line tower, see example in Figure 3-6



above, which will be erected to facilitate connection of the new underground cables to the existing 110 kV overhead line. Each proposed dropdown mast will be circa 17.00m in height, set on concrete foundations. The obsolete sections of the 110kV line, including the supporting poles /masts, will be removed / demolished.

Electrically, as noted earlier, it is intended to adopt Option 1 as the new customer connection method as shown below in Figure 3-7. This depicts a high-level single line diagram, extracted from Eirgrid's policy document "Pol\_St\_18", specifically for a multiple winding transformer (see Figure 6 in the policy document).

**Figure 3-7. High Level Single Line Diagram – Multiple Winding Transformer**



Source: Eirgrid



## 3.1 Tower Amendments

Proposed works to existing tower to accommodate underground connection are as follow:

- Prepare foundations for an L/C tower to be erected adjacent or in place of existing line tower
- Prepare new L/C tower off-site/nearby ready to be erected
- Install ducts from new grid substation to close by to the L/C tower position
- Install 110kV cables in ducts from grid substation to the L/C tower position, terminate at grid substation, protect prior to termination on the L/C tower
- Eirgrid by request and agreement to arrange an outage to the 110kV line (assumed in summer months)
- Disconnect the overhead line to the existing tower
- Erect the new L/C tower and bolt down to foundations
- Re-connect the existing 110kV overhead line that is to be retained on to the new L/C tower (that replaces the existing tower)
- Connect the cables connecting to the new on-site grid substation to the cable bushings on the new L/C tower
- Test and commission and put into service on acceptance.

Proposed works to new L/C tower to accommodate underground connection are as follow:

- Prepare foundations for an L/C tower to be erected
- Prepare new L/C tower off-site/nearby ready to be erected
- Install ducts from new grid substation to close by to the L/C tower position
- Install 110kV cables in ducts from grid substation to the L/C tower position, terminate at grid substation, protect prior to termination on the L/C tower
- Eirgrid by request and agreement to arrange an outage to the 110kV line (assumed in summer months)
- Disconnect the overhead line that cross the site currently
- Erect the new L/C tower and bolt down to foundations
- Connect the existing 110kV overhead line that is to be retained on to the new L/C tower
- Connect the cables connecting to the new on-site grid substation to the cable bushings on the new L/C tower
- Test and commission and put into service on acceptance.

## 4 Contestable & Non-contestable Works

Through the CER, now the CRU (Commission for the Regulation of Utilities) an amendment was brought into law in 2009 (SI226) amending Section 34 of the Electricity Regulation Act of 1999. This allowed for works to extend or modify electrical supply networks to be determined as contestable or non-contestable works. The assumed definition of these terms is as follows:

Non-contestable works: works that have to be carried out by Eirgrid or ESB or their agents

Contestable works: works that can be carried out by an accredited contractor to the standards acceptable to Eirgrid and ESB, paid for directly by the employer.

In terms of procurement of the works, it is accepted that there will be both non-contestable and contestable works to deliver the overall works as part of this SIDS application. A listing has been identified of the proposed works to be included in each of these two categories. It is possible that the same party, e.g. ESB, could be called upon to carry out both elements of work subject to agreement by all parties.

The proposed listing is shown in Table 4-1:

**Table 4-1. Contestable and Non-Constable Works**

<b>Scope of Work Item</b>	<b>Contestable Works?</b>
All and any works in existing Eirgrid substations (as required)	No
Removal of existing overhead lines	No
Disconnection of existing overhead lines	No
Foundations for the new LCIMs (Line/Cable Towers)	Yes
Supply and erect the new LCIMs (Line/Cable Towers)	Yes
Cable ducting on Herbata Data Centre campus site	Yes
Cable ducting in public roadway	Yes
Supply and install 110 kV cable in ducts	Yes
Supply and install communications cables in ducts.	Yes
Install and make HV cable joints (if any)	Yes
Termination of existing overhead lines onto new LCIMs (in place of existing tower)	No
Termination of underground cables on new LCIMs (instead of continuing as overhead line)	Yes
Provision and internal fit out of GIS substation building	Yes
Supply and install GIS in new building	Yes
Terminate all 110 kV cables in GIS building	Yes
Install 110 kV cables between GIS building & Herbata sub/st'n	Yes
<b>Scope of Work Item</b>	<b>Contestable Works?</b>
Install PLC equipment on new LCIM	No
Terminate existing fibre wrap on new LCIM	No
Terminate fibre optic cables in new GIS station	No
Herbata Data Centre 110kV/10kV switchgear, transformers, VT/CTs, circuit breakers and isolators	Direct works by Employer

In Table 4-1 above, where noted as “No” under “Contestable Works”, this is to indicate that these works would need to be carried out by Eirgrid/ESB.

## 5 Summary

This report considers how a new connection would be made into the existing 110kV overhead line for Herbata's new data centre campus at Naas, Co. Kildare. This will allow electrical utility power to be imported to and exported from the data centre project site. This report shows that Eirgrid's standard policies and technical requirements are being adhered to. It is expected that the finer detail will need to be discussed and agreed with Eirgrid/ESB at Stage 2 of the electrical connection application, which is acknowledged will have to be as an Autoproducer connection to Eirgrid to give maximum flexibility to being able to support the grid and also draw down on renewable energy from renewable generators in Ireland.

The proposals include the provision of space for an extension 8-bay GIS Grid substation on the Herbata Data Centre campus site. Using Eirgrid's standard arrangement for this type of substation, space has been identified both a compound and building for Eirgrid's use and operations together with a step-down transformer station to be used for distribution to the Herbata Data Centre development buildings.

The existing overhead 110 kV transmission circuits that traverses the site from north-west to south-east will be undergrounded via 2 no. dropdown masts and then connected with a 110kV underground transmission cable set to connect the proposed dropdown masts with the proposed 110kV GIS substation. The new circuit will terminate in a cable – overhead line/cable (L/C) interface compound containing air-insulated electrical equipment mounted on concrete plinths. Adjacent to each L/C interface compound, an overhead line tower will be erected to facilitate connection of the new underground cables to the existing 110 kV overhead line. Each proposed dropdown mast will be circa 17.00 metres in height, set on concrete foundations. The obsolete sections of the 110kV line, including the supporting poles /masts, will be removed / demolished.

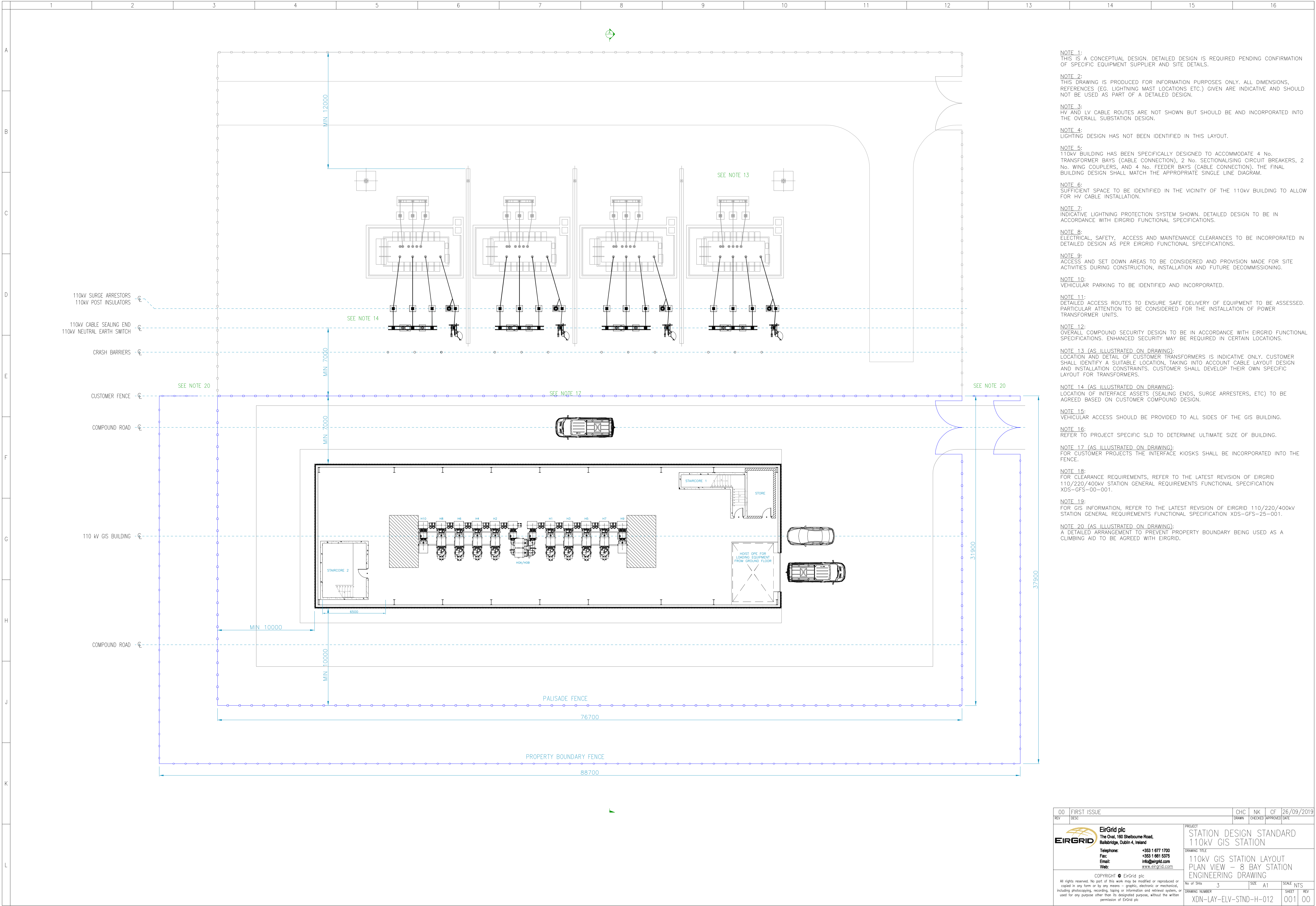
Consideration has also been given to the existing 220kV overhead line that cross the site, no works are proposed to this line. The layout of the campus and its buildings has taken into account the safe working distances around the line.

In terms of procurement of the works, it is accepted that there will be both non-contestable and contestable works to deliver the overall works as part of this SIDS application. A listing has been identified of the proposed works to be included in each of these two categories. It is possible that the same party, e.g. ESB, could be called upon to carry out both elements of work subject to agreement by all parties.


# Appendix A

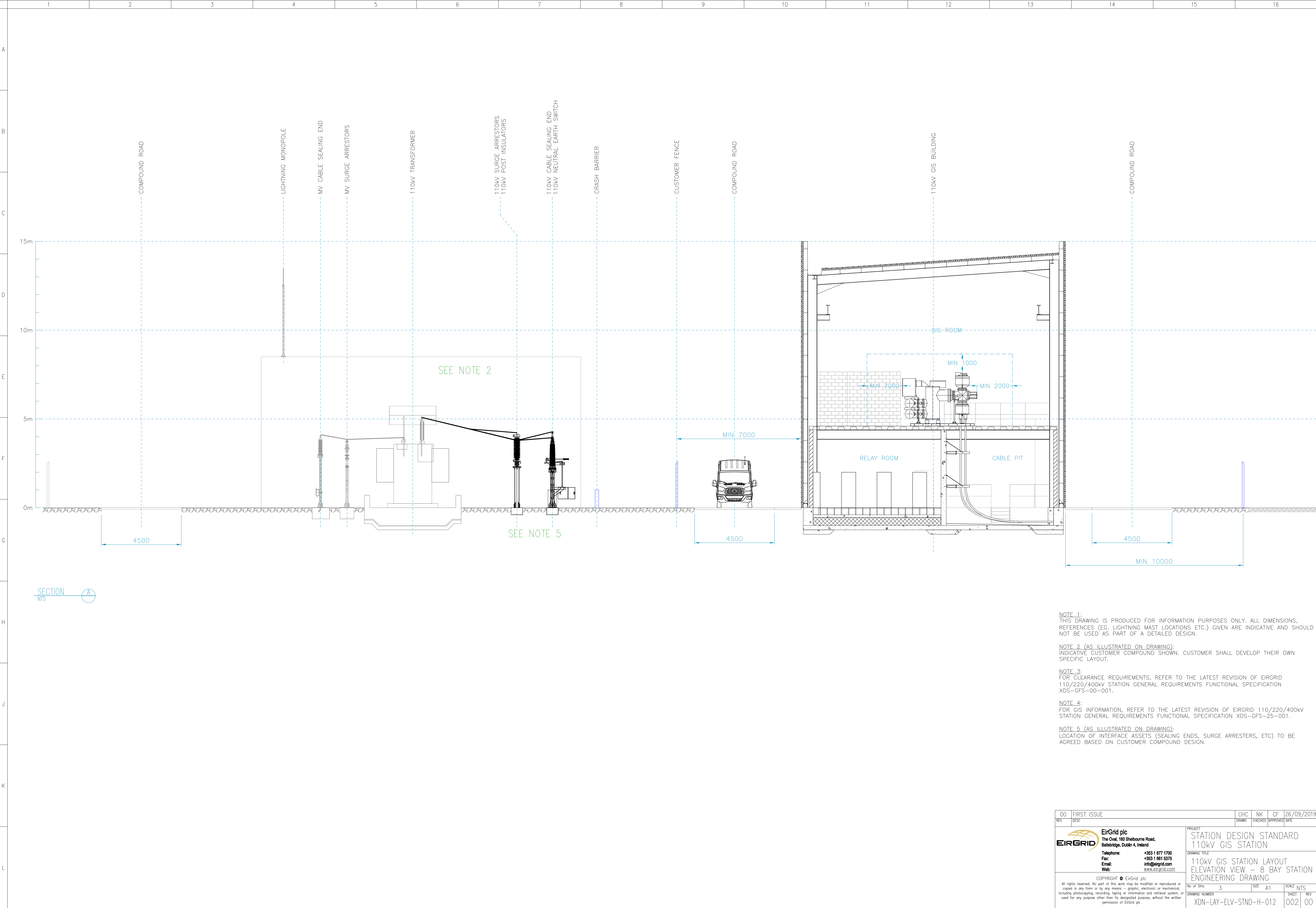
This appendix includes the following Eirgrid standard drawings:

Reference	Description	Revision
XDN-LAY-ELV-STND-H-012	110kV GIS Station Layout – Plan View – 8 Bay Station Engineering Drawing – Sheet 1	00
XDN-LAY-ELV-STND-H-012	110kV GIS Station Layout – Plan View – 8 Bay Station Engineering Drawing – Sheet 2	00
XDN-LAY-ELV-STND-H-012	110kV GIS Station Layout – Plan View – 8 Bay Station Engineering Drawing – Sheet 3	00



- NOTE 1:**  
THIS IS A CONCEPTUAL DESIGN. DETAILED DESIGN IS REQUIRED PENDING CONFIRMATION OF SPECIFIC EQUIPMENT SUPPLIER AND SITE DETAILS.
- NOTE 2:**  
THIS DRAWING IS PRODUCED FOR INFORMATION PURPOSES ONLY. ALL DIMENSIONS, REFERENCES (EG. LIGHTNING MAST LOCATIONS ETC.) GIVEN ARE INDICATIVE AND SHOULD NOT BE USED AS PART OF A DETAILED DESIGN.
- NOTE 3:**  
HV AND LV CABLE ROUTES ARE NOT SHOWN BUT SHOULD BE AND INCORPORATED INTO THE OVERALL SUBSTATION DESIGN.
- NOTE 4:**  
LIGHTING DESIGN HAS NOT BEEN IDENTIFIED IN THIS LAYOUT.
- NOTE 5:**  
110kV BUILDING HAS BEEN SPECIFICALLY DESIGNED TO ACCOMMODATE 4 No. TRANSFORMER BAYS (CABLE CONNECTION), 2 No. SECTIONALISING CIRCUIT BREAKERS, 2 No. WING COUPLERS, AND 4 No. FEEDER BAYS (CABLE CONNECTION). THE FINAL BUILDING DESIGN SHALL MATCH THE APPROPRIATE SINGLE LINE DIAGRAM.
- NOTE 6:**  
SUFFICIENT SPACE TO BE IDENTIFIED IN THE VICINITY OF THE 110kV BUILDING TO ALLOW FOR HV CABLE INSTALLATION.
- NOTE 7:**  
INDICATIVE LIGHTNING PROTECTION SYSTEM SHOWN. DETAILED DESIGN TO BE IN ACCORDANCE WITH EIRGRID FUNCTIONAL SPECIFICATIONS.
- NOTE 8:**  
ELECTRICAL, SAFETY, ACCESS AND MAINTENANCE CLEARANCES TO BE INCORPORATED IN DETAILED DESIGN AS PER EIRGRID FUNCTIONAL SPECIFICATIONS.
- NOTE 9:**  
ACCESS AND SET DOWN AREAS TO BE CONSIDERED AND PROVISION MADE FOR SITE ACTIVITIES DURING CONSTRUCTION, INSTALLATION AND FUTURE DECOMMISSIONING.
- NOTE 10:**  
VEHICULAR PARKING TO BE IDENTIFIED AND INCORPORATED.
- NOTE 11:**  
DETAILED ACCESS ROUTES TO ENSURE SAFE DELIVERY OF EQUIPMENT TO BE ASSESSED. PARTICULAR ATTENTION TO BE CONSIDERED FOR THE INSTALLATION OF POWER TRANSFORMER UNITS.
- NOTE 12:**  
OVERALL COMPOUND SECURITY DESIGN TO BE IN ACCORDANCE WITH EIRGRID FUNCTIONAL SPECIFICATIONS. ENHANCED SECURITY MAY BE REQUIRED IN CERTAIN LOCATIONS.
- NOTE 13 (AS ILLUSTRATED ON DRAWING):**  
LOCATION AND DETAIL OF CUSTOMER TRANSFORMERS IS INDICATIVE ONLY. CUSTOMER SHALL IDENTIFY A SUITABLE LOCATION, TAKING INTO ACCOUNT CABLE LAYOUT DESIGN AND INSTALLATION CONSTRAINTS. CUSTOMER SHALL DEVELOP THEIR OWN SPECIFIC LAYOUT FOR TRANSFORMERS.
- NOTE 14 (AS ILLUSTRATED ON DRAWING):**  
LOCATION OF INTERFACE ASSETS (SEALING ENDS, SURGE ARRESTERS, ETC) TO BE AGREED BASED ON CUSTOMER COMPOUND DESIGN.
- NOTE 15:**  
VEHICULAR ACCESS SHOULD BE PROVIDED TO ALL SIDES OF THE GIS BUILDING.
- NOTE 16:**  
REFER TO PROJECT SPECIFIC SLD TO DETERMINE ULTIMATE SIZE OF BUILDING.
- NOTE 17 (AS ILLUSTRATED ON DRAWING):**  
FOR CUSTOMER PROJECTS THE INTERFACE KIOSKS SHALL BE INCORPORATED INTO THE FENCE.
- NOTE 18:**  
FOR CLEARANCE REQUIREMENTS, REFER TO THE LATEST REVISION OF EIRGRID 110/220/400kV STATION GENERAL REQUIREMENTS FUNCTIONAL SPECIFICATION XDS-GFS-00-001.
- NOTE 19:**  
FOR GIS INFORMATION, REFER TO THE LATEST REVISION OF EIRGRID 110/220/400kV STATION GENERAL REQUIREMENTS FUNCTIONAL SPECIFICATION XDS-GFS-25-001.
- NOTE 20 (AS ILLUSTRATED ON DRAWING):**  
A DETAILED ARRANGEMENT TO PREVENT PROPERTY BOUNDARY BEING USED AS A CLIMBING AID TO BE AGREED WITH EIRGRID.

00 FIRST ISSUE				CHC	NK	CF	26/09/2019	
REV	DESC			DRAWN	CHECKED	APPROVED	DATE	
 <b>EirGrid plc</b> The Oval, 160 Shelbourne Road, Bellebridge, Dublin 4, Ireland Telephone: +353 1 677 1700 Fax: +353 1 681 5375 Email: <a href="mailto:info@eirgrid.com">info@eirgrid.com</a> Web: <a href="http://www.eirgrid.com">www.eirgrid.com</a>				PROJECT <b>STATION DESIGN STANDARD 110kV GIS STATION</b>				
				DRAWING TITLE <b>110kV GIS STATION LAYOUT PLAN VIEW – 8 BAY STATION ENGINEERING DRAWING</b>				
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NOTE 1:  
THIS DRAWING IS PRODUCED FOR INFORMATION PURPOSES ONLY. ALL DIMENSIONS, REFERENCES (EG. LIGHTNING MAST LOCATIONS ETC.) GIVEN ARE INDICATIVE AND SHOULD NOT BE USED AS PART OF A DETAILED DESIGN.

NOTE 2 (AS ILLUSTRATED ON DRAWING):  
INDICATIVE CUSTOMER COMPOUND SHOWN. CUSTOMER SHALL DEVELOP THEIR OWN SPECIFIC LAYOUT.

NOTE 3:  
FOR CLEARANCE REQUIREMENTS, REFER TO THE LATEST REVISION OF EIRGRID 110/220/400kV STATION GENERAL REQUIREMENTS FUNCTIONAL SPECIFICATION XDS-GFS-00-001.

NOTE 4:  
FOR GIS INFORMATION, REFER TO THE LATEST REVISION OF EIRGRID 110/220/400kV STATION GENERAL REQUIREMENTS FUNCTIONAL SPECIFICATION XDS-GFS-25-001.

NOTE 5 (AS ILLUSTRATED ON DRAWING):  
LOCATION OF INTERFACE ASSETS (SEALING ENDS, SURGE ARRESTERS, ETC) TO BE AGREED BASED ON CUSTOMER COMPOUND DESIGN.

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 <b>EirGrid plc</b> The Oval, 160 Shelbourne Road, Ballsbridge, Dublin 4, Ireland Telephone: +353 1 877 1700 Fax: +353 1 861 8376 Email: info@eirgrid.com Web: www.eirgrid.com				PROJECT STATION DESIGN STANDARD 110kV GIS STATION			
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DRAWING NUMBER XDN-LAY-ELV-STND-H-012		No of Sheets 3		SIZE A1		SCALE NTS	
						SHEET 002	
						REV 00	



## 110kV GIS BUILDING LAYOUT

PLAN - FIRST FLOOR  
SCALE NTSSECTION  
NTSPLAN - GROUND FLOOR  
SCALE NTS

LIST OF CABINETS		
CABINET DESIGNATION	DESCRIPTION	DIMENSIONS
B1-1	220V DC BATTERY 1, STAND 1	3150x550
B1-2	220V DC BATTERY 1, STAND 2	3150x550
B2-1	220V DC BATTERY 2, STAND 1	3150x550
B2-2	220V DC BATTERY 2, STAND 2	3150x550
B3	24V DC STATION BATTERY	3450x660
B7	48V DC TELECOMS BATTERY	1260x320
D1	220V DC DISTRIBUTION BOARD 1	2400x400
D2	220V DC DISTRIBUTION BOARD 2	2400x400
D3	24/48V DC DISTRIBUTION BOARD	1600x400
D4	AC DISTRIBUTION BOARD	3200x400
D7	48V (TELECOMS) DISTRIBUTION	600x600
D10	220V BATTERY No.1 CHARGER CHANGEOVER SWITCH & FUSE BOX	600x300
D11	220V BATTERY No.1: CHARGER 1 & BATTERY SUPERVISION	600x600
D12	220V BATTERY No.1: CHARGER 2 & BATTERY SUPERVISION	600x600
D20	220V BATTERY No.2: CHARGER CHANGEOVER SWITCH & FUSE BOX	600x300
D21	220V BATTERY No.2: CHARGER 1 & BATTERY SUPERVISION	600x600
D22	220V BATTERY No.2: CHARGER 2 & BATTERY SUPERVISION	600x600
D30	24/48V BATTERY: CHARGER CHANGEOVER SWITCH & FUSE BOX	600x300
D31	24/48V BATTERY: CHARGER 1 & BATTERY SUPERVISION	600x600
D32	24/48V BATTERY: CHARGER 2 & BATTERY SUPERVISION	600x600
D70	48V TELECOMS CONNECTION/FUSE BOX	600x600
D71	48V SMPS (TELECOMS)	600x600
D72	TELECOMS ISOLATION SWITCH	100x100
M1	MMC	3600x400
M2	SYNCHRONISING PANEL	1200x600
M3	EVENT RECORDER/AMP	600x600
M4	BACKUP AMP	600x600
M5	BATTERY SUPERVISION	600x600
M6	SIGNAL INTERPOSING	2400x600
M7	CUSTOMER INTERFACE	2400x600
M21	BUSBAR PROTECTION	1200x600
M22	REMOTE INTERROGATION/DISTURBANCE RECORDER	600x600
M23	H10 COUPLER PROTECTION	600x600
M24	H9 COUPLER PROTECTION	600x600
M25	H8 BAY PROTECTION	1200x600
M26	H7 BAY PROTECTION	1200x600
M27	H6 BAY PROTECTION	1200x600
M28	H5 BAY PROTECTION	1200x600
M29	H4 BAY PROTECTION	1200x600
M30	H3 BAY PROTECTION	1200x600
M31	H2 BAY PROTECTION	1200x600
M32	H1 BAY PROTECTION	1200x600
M33	H0B SECTIONALISER PROTECTION	600x600
M34	H0A SECTIONALISER PROTECTION	600x600
M41	OPMUX 1	800x600
M42	OPMUX 2	800x600
M43	ODF	800x600
M44	IP SERVICES	800x600
M45	MAIN DISTRIBUTION FRAME	800x600
M46	NCC RTU (INCL. GPS CLOCK)	800x600
M47	TELEMETERS	800x600
M48	ERROR ENERGY METERING	800x600
M61	DCC RTU SEE NOTE 22	600x400
M62	ETIE	600x400
M63	INTRUDER ALARM PANEL	
M64	FIRE ALARM PANEL	
M65	TELEPHONE POINTS (2No.)	

NOTE 1:  
THIS DRAWING IS PRODUCED FOR INFORMATION PURPOSES ONLY. ALL DIMENSIONS, REFERENCES (EG. LIGHTNING MAST LOCATIONS ETC.) GIVEN ARE INDICATIVE AND SHOULD NOT BE USED AS PART OF A DETAILED DESIGN.

NOTE 2:  
THIS IS A CONCEPTUAL DESIGN. DETAILED DESIGN IS REQUIRED PENDING CONFIRMATION OF SPECIFIC EQUIPMENT SUPPLIER AND SITE DETAILS.

NOTE 3:  
BUILDING HAS BEEN SPECIFICALLY DESIGNED TO ACCOMMODATE 4 NO. TRANSFORMER BAYS (CABLE CONNECTION) AND 4 NO. FEEDER BAYS (CABLE CONNECTION).

NOTE 4:  
SWITCHGEAR SHOWN ON THIS DRAWING IS INDICATIVE ONLY.

NOTE 5:  
REQUIREMENT FOR GIS OVERPRESSURE VENTS TO BE CONFIRMED BY GIS SUPPLIER.

NOTE 6:  
WHERE THERE IS MORE THAN ONE MINIMUM DISTANCE STATED FOR A SPECIFIC AREA THE LARGEST MINIMUM DISTANCE SHOULD BE ADHERED TO.

NOTE 7:  
ALL OPES IN GIS ROOM FOR LV AND HV CABLES TO BE FIRE SEALED.

NOTE 8:  
THE MAXIMUM LENGTH OF A CABLE THAT CAN BE PUSHED INTO THE CABLE ROOM IS 100m ROUTE LENGTH.

NOTE 9 (AS ILLUSTRATED ON DRAWING):  
MINIMUM CLEAR AREA ON BOTH SIDES OF THE GIS FOR THE HV TEST EQUIPMENT IS 3000mm.

NOTE 10 (AS ILLUSTRATED ON DRAWING):  
MINIMUM CLEAR DISTANCE BETWEEN 220V BATTERY STANDS AND WALLS IS 800mm.

NOTE 11 (AS ILLUSTRATED ON DRAWING):  
SCREENED VENTS (2 HIGH LEVEL AND 2 LOW LEVEL) ARE TO BE INSTALLED IN THE BATTERY ROOM AS PER IEC 62485-2 ON ADJACENT EXTERNAL WALL.

NOTE 12 (AS ILLUSTRATED ON DRAWING):  
FIRE AND ALARM PANELS TO BE LOCATED IN THE VICINITY OF THE MAIN ENTRANCE.

NOTE 13 (AS ILLUSTRATED ON DRAWING):  
EQUIPMENT ACCESS DOOR TO BE SIZED SUCH THAT A STANDARD ESB TRUCK CAN BE REVERSED IN THE HOIST AREA (MIN 4000mm WIDTH).

NOTE 14 (AS ILLUSTRATED ON DRAWING):  
THERE ARE TO BE NO OBSTRUCTIONS LOCATED 2m DIRECTLY IN FRONT OF THE CABLE DUCTS AND 300mm TO THE SIDE OF THE CABLE DUCT WHERE THE DUCT ENTERS THE CABLE ROOM.

NOTE 15:  
ADEQUATE AREA TO BE PROVIDED IN THE VICINITY OF THE GIS BUILDING TO ALLOW SPACE FOR SETTING UP THE EQUIPMENT NEEDED FOR CABLE PULLING OPERATIONS. THIS AREA IS APPROX. 12m X 12m FOR EACH CABLE CIRCUIT. CABLE DESIGNER TO ADVISE.

NOTE 16:  
AN OPENING MUST BE PROVIDED FOR EACH CIRCUIT TO ALLOW FOR SUITABLE CABLE PULLING DUCTS.

NOTE 17 (AS ILLUSTRATED ON DRAWING):  
CABLE SUPPORT STEELWORK TO BE PROVIDED BY THE CONTRACTOR. WALL TO BE CAPABLE OF SUPPORTING HV CABLES, RING CT's etc.

NOTE 18 (AS ILLUSTRATED ON DRAWING):  
ADDITIONAL EXIT DOOR IN BATTERY ROOM, REQUIREMENT TBC IN LINE WITH FIRE REGULATIONS.

NOTE 19 (AS ILLUSTRATED ON DRAWING):  
RELAY ROOM MUST BE SIZED APPROPRIATELY TO ALLOW FOR ULTIMATE DEVELOPMENT OF STATION.

NOTE 20 (AS ILLUSTRATED ON DRAWING):  
SPACE SHOULD BE PROVIDED FOR FUTURE TELECOMS AND PROTECTION PANELS.

NOTE 21:  
INDICATIVE CABLE ACCESS SHOWN.

NOTE 22:  
A TELECOMS EARTH BAR SHALL BE INSTALLED IN CLOSE PROXIMITY TO THE DCC RTU.


NOTE 23:  
ONLY SINGLE ROW BATTERY STANDS MAY BE LOCATED AGAINST A WALL.

NOTE 24:  
NO ELECTRICAL EQUIPMENT (INCL. BATTERIES) SHALL BE INSTALLED DIRECTLY IN FRONT OF VENTS.

NOTE 25 (AS ILLUSTRATED ON DRAWING):  
AN OPENING SHALL BE PROVIDED UNDER THE STAIRS FOR CABLE PULLING.

NOTE 26 (AS ILLUSTRATED ON DRAWING):  
SUITABLE ANCHOR POINTS SHALL BE INSTALLED FOR CABLE PULLING.

NOTE 27:  
FIRE AND ATEX ZONES NOT SHOWN, THIS SHOULD BE CONSIDERED DURING DETAILED CUSTOMER DESIGN.

00 FIRST ISSUE		CHC	NK	CF	26/09/2019
REV	DESC	DRAWN	CHECKED	APPROVED	DATE
 <b>EirGrid plc</b> The Oval, 160 Shelbourne Road, Ballsbridge, Dublin 4, Ireland Telephone: +353 1 677 1700 Fax: +353 1 681 5375 Email: info@eirgrid.com Web: www.eirgrid.com		PROJECT <b>STATION DESIGN STANDARD 110kV GIS STATION</b>			
COPYRIGHT © EirGrid plc All rights reserved. No part of this work may be modified or reproduced or copied in any form or by any means – graphic, electronic or mechanical, including photocopying, recording, taping or information and retrieval system, or used for any purpose other than its designated purpose, without the written permission of EirGrid plc.		DRAWING TITLE <b>110kV GIS BUILDING LAYOUT FOR 8 BAY STATION ENGINEERING DRAWING</b>			
No of Sheets <b>3</b>		SIZE <b>A1</b>		SCALE <b>NTS</b>	
DRAWING NUMBER <b>XDN-LAY-ELV-STND-H-012</b>		SHEET <b>003</b>		REV <b>00</b>	

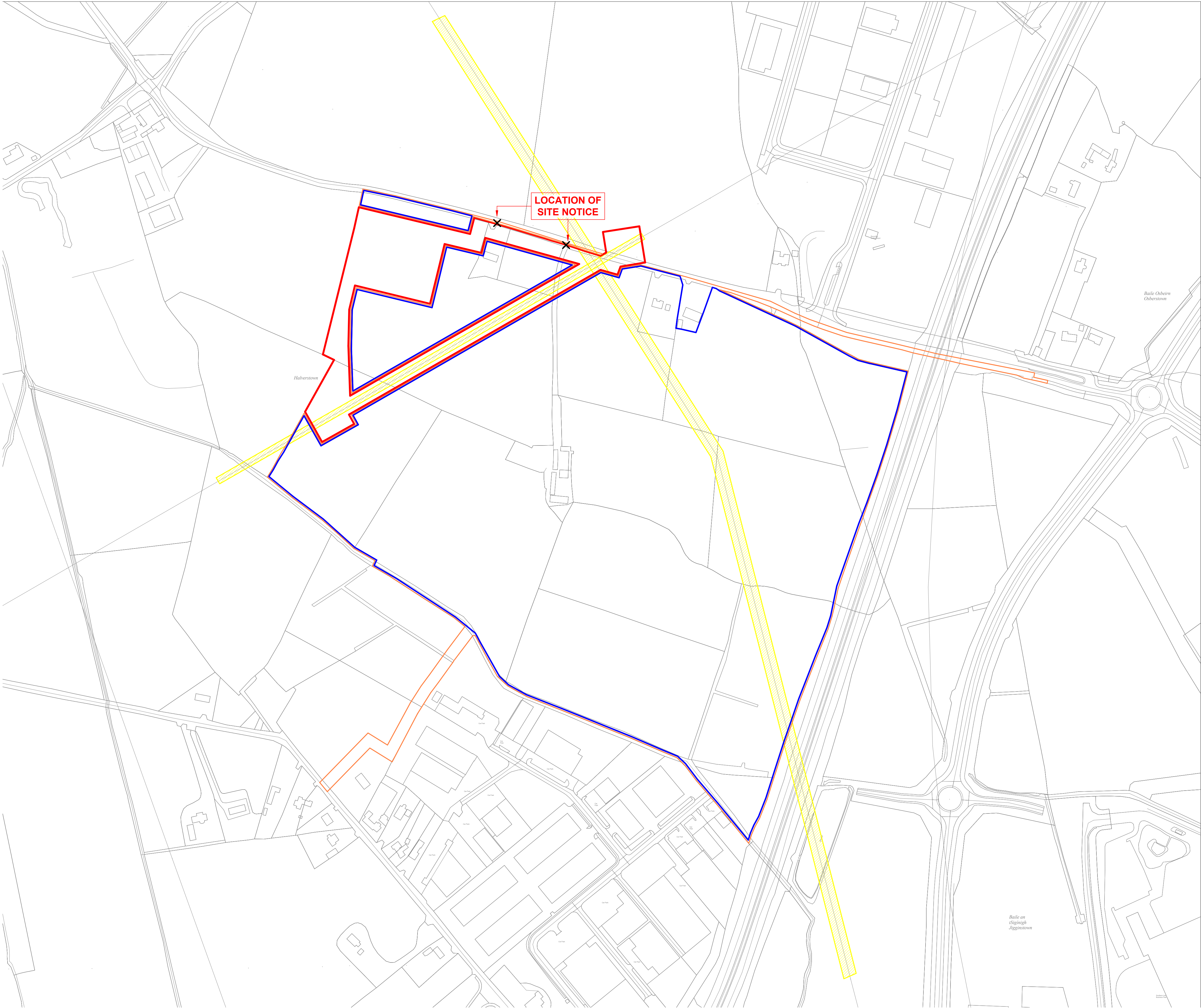


## Appendix B

This appendix includes the following drawings:

Reference	Description	Revision
22217-RKD-ZZ-ZZ-DR-A-1050	Site Location Map	P04
22217-RKD-ZZ-ZZ-DR-A-1063	Proposed Substation Compound plan	P04





Description:  
=====

Digital Landscape Model (DLM)

Publisher / Source:  
=====

Ordnance Survey Ireland (OSi)

Data Source / Reference:  
=====

PRIME2

File Format:  
=====

Autodesk AutoCAD (DWG\_R2013)

File Name:  
=====

v\_50329935\_1.dwg

Clip Extent / Area of Interest (AOI):  
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LLX,LLY= 685201.3486,718741.6304  
LRX,LRY= 687167.2067,718741.6304  
ULX,ULY= 685201.3486,720252.4042  
URX,URY= 687167.2067,720252.4042

Projection / Spatial Reference:  
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Projection= IRENET95\_Irish\_Transverse\_Mercator

Centre Point Coordinates:  
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X,Y= 686184.27765,719497.0173

Reference Index:  
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Map Series | Map Sheets  
1:2,500 | 3558-A  
1:2,500 | 3558-C  
1:2,500 | 3558-B  
1:2,500 | 3508-D

Data Extraction Date:  
=====

Date= 20-Apr-2023

Source Data Release:  
=====

DCMLS Release V1.162.115

Product Version:  
=====

Version= 1.4

License / Copyright:  
=====

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Sáraíonn atáirgeadh neamhúdaraithe cóipcheart Shuirbhéireacht Ordanáis Éireann agus Rialtas na hÉireann.

Gach cead ar cosnamh. Ní ceadmhach aon chuid den fhóilseachán seo a chóipeáil, a atáirgeadh nó a tharchur in aon fhoirm ná ar aon bhealach gan cead i scríbhinn roimh ré ó úinéirí an chóipchirt.

Ní hionann bóthar, bealach nó cosán a bheith ar an léarscáil seo agus fianaise ar chead slí.

Ní thaispeánann léarscail de chuid Ordanáis Shuirbhéireacht na hÉireann teorann phointí dleathúil de mhaoin riamh, ná úinéireacht de ghnéithe fhisiciúla.

LEGEND:

- AREA TO WHICH APPLICATION RELATES
- AREA SUBJECT OF SEPARATE KCC PLANNING APPLICATION REG. REF. 2460740
- OTHER LANDS UNDER CONTROL OF THE APPLICANT
- EXISTING WAYLEAVES
- LOCATION OF SITE NOTICE



KEY PLAN



TRUE NORTH

P04	15/07/2025	ISSUED FOR PLANNING
P03	14/08/2023	UPDATED PLANNING ISSUE
P02	11/07/2023	DRAFT PLANNING ISSUE
P01	02/06/2023	DRAFT PLANNING ISSUE

Rev.	Date	Description
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STATUS	PLANNING
--------	----------

PROJECT	HERBATA DC CAMPUS ESB SUBSTATION
---------	-------------------------------------

PROJECT ADDRESS	NAAS, CO. KILDARE
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DWG TITLE	SITE LOCATION MAP
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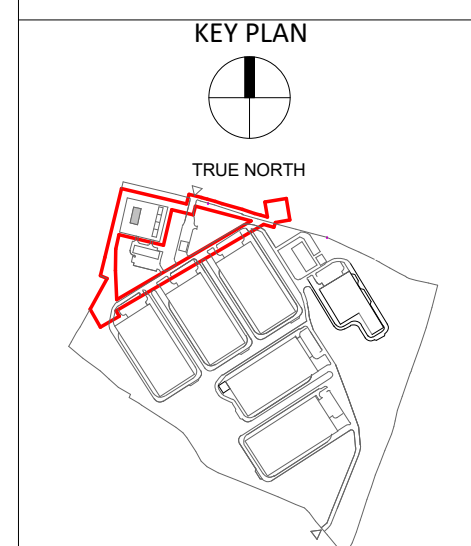
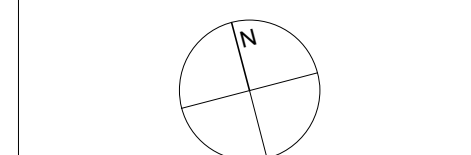
DWG NO.	22217-RKD-ZZ-ZZ-DR-A-1050
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REV.	STATUS	PROJECT NO.	22217
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P04	S3	SCALE	1:2500
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DATE	JUL 2025	DRN	AMG	CHK	KOS
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Rev.	Date	Description
P04	15/07/2025	ISSUED FOR PLANNING
P03	14/06/2023	UPDATED PLANNING ISSUE
P02	11/03/2023	DRAFT PLANNING ISSUE
P01	03/06/2022	DRAFT PLANNING ISSUE

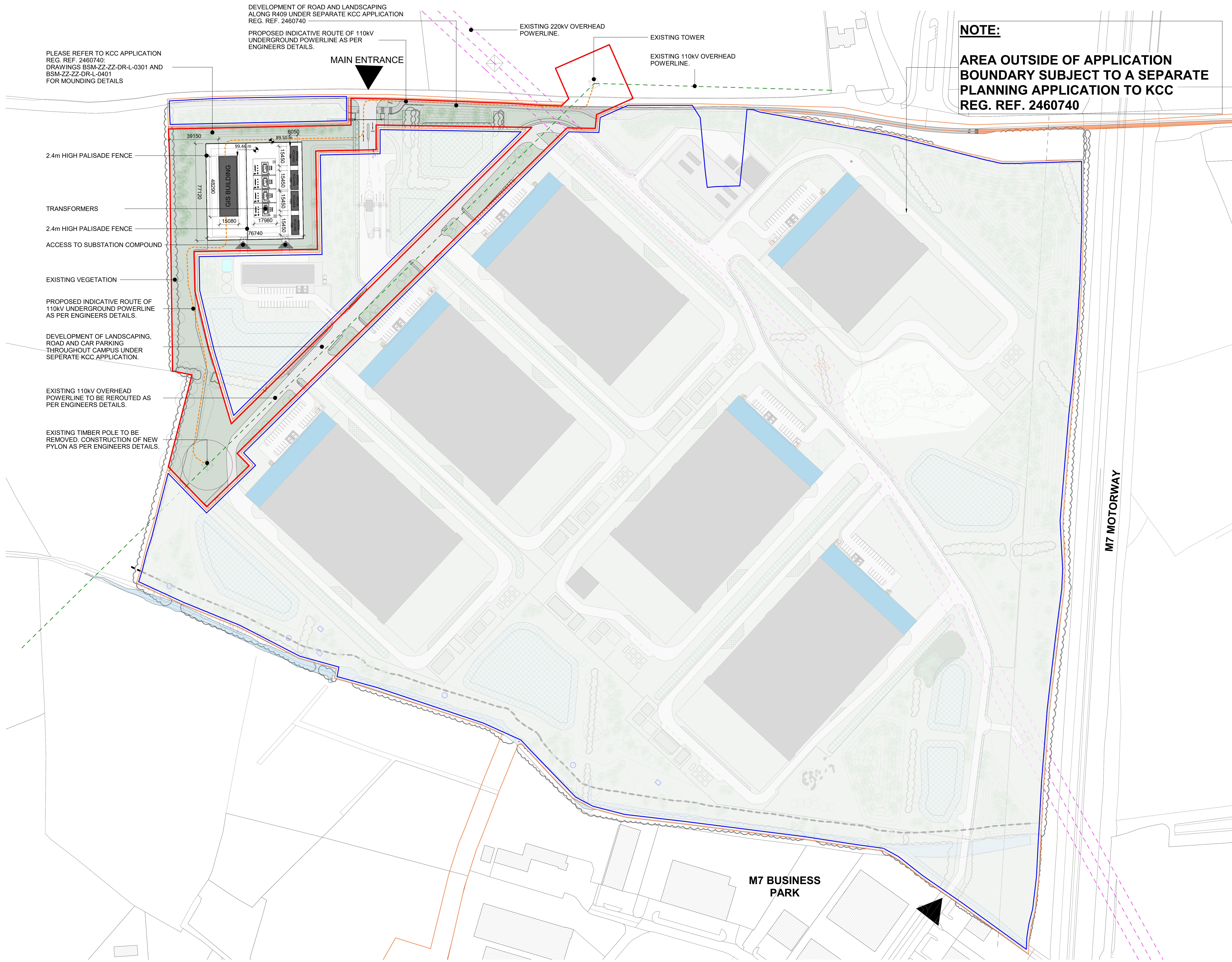
Rev.	Date	Description
P04	15/07/2025	ISSUED FOR PLANNING
P03	14/06/2023	UPDATED PLANNING ISSUE
P02	11/03/2023	DRAFT PLANNING ISSUE
P01	03/06/2022	DRAFT PLANNING ISSUE

STATUS	PLANNING
PROJECT	HERBATA DC CAMPUS ESS SUBSTATION
PROJECT ADDRESS	NAAS, CO. KILDARE
DWG TITLE	PROPOSED SITE CONTEXT PLAN

DWG NO.	22217-RKD-ZZ-ZZ-DR-A-1055
REV.	SUBMITTAL PROJECT NO. 22217
P04	S3 SCALE 1:1000
DATE	JUL 2025 DRW: AMG CHK: KOS



**NOTE:**  
**AREA OUTSIDE OF APPLICATION  
BOUNDARY SUBJECT TO A SEPARATE  
PLANNING APPLICATION TO KCC  
REG. REF. 2460740**



**1 A1055 - PROPOSED SITE CONTEXT PLAN**  
1 : 1000



## Appendix C

Eirgrid drawing No; MMD-373966-E-SK-00-XX-0022 Rev P2  
Drawing Title: Transmission Line and Solar Farm Guidance Clearances  
Guideline 220kV Setback Distances  
Section Drawing - Elevation

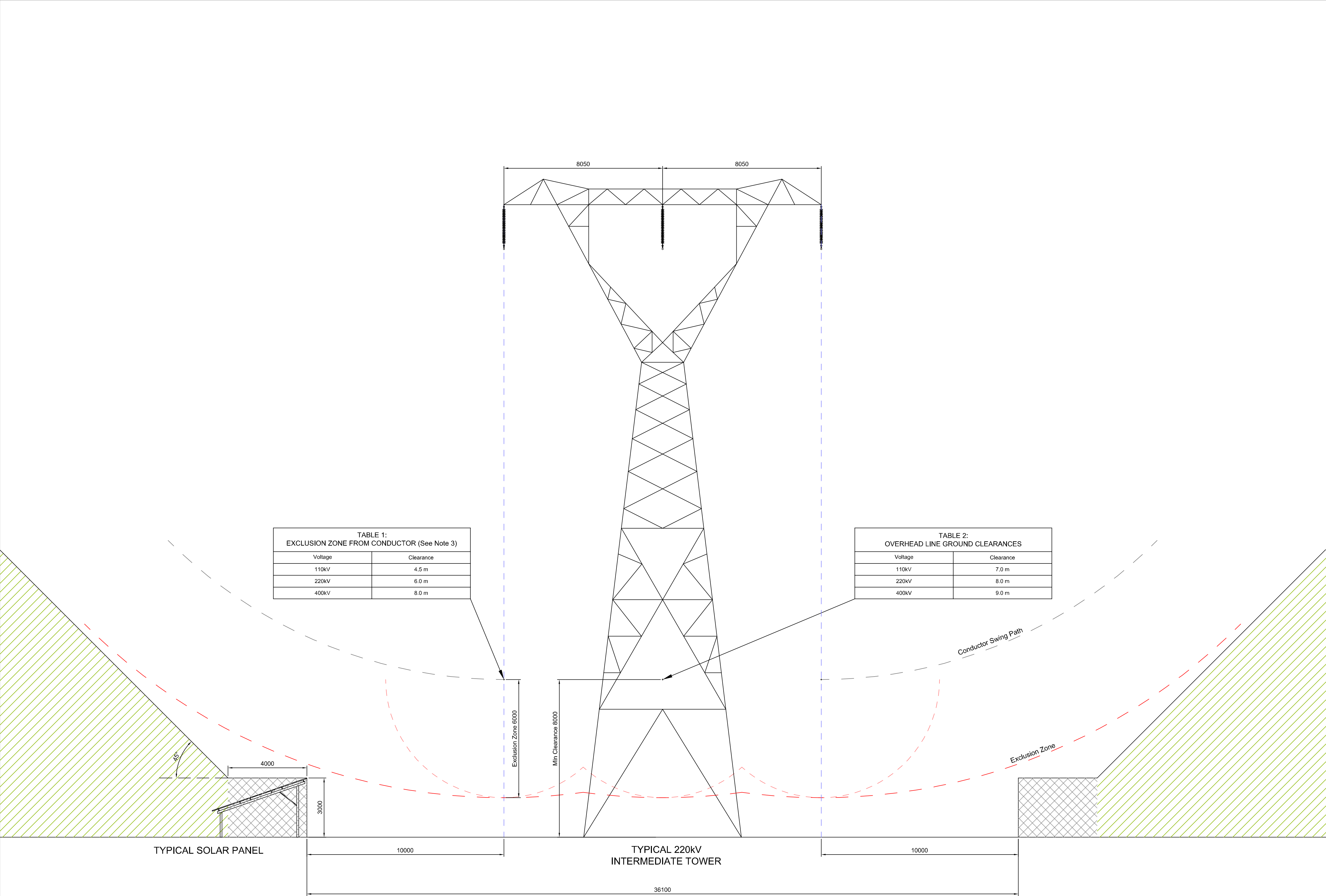


TABLE 1: EXCLUSION ZONE FROM CONDUCTOR (See Note 3)	
Voltage	Clearance
110kV	4.5 m
220kV	6.0 m
400kV	8.0 m


TABLE 2: OVERHEAD LINE GROUND CLEARANCES	
Voltage	Clearance
110kV	7.0 m
220kV	8.0 m
400kV	9.0 m

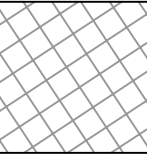
Section B-B

REPRESENTS THE MIDSPAN OF THE LINE TO BE READ IN CONJUNCTION WITH PLAN DRAWING  
MMD-373966-E-SK-00-XX-0012

- Notes
- All dimensions in millimetres.
  - Overhead line clearances derived from EirGrid functional specification for overhead lines LDS-EFS-00-001-R0.
  - Exclusion zone clearances derived from ESBN Code of Practice for Avoiding Danger from Overhead Electricity Lines (Document No: DOC-230910-BBA).
  - Conductor swing path based on midspan wind blow at minimum ground clearance.
  - This drawing does not specify clearances at structures. Refer to drawing MMD-373966-E-SK-00-XX-0012 for clearance at structures.
  - There is a statutory obligation for the developer to notify ESB prior to the erection of any structure within a 46 metre corridor of an overhead line. This notification shall be made in writing at least two months prior to commencement of construction works.

Key to symbols

 Clear area for placement of Solar panels

 3 metre height restriction on Solar panels

Reference drawings

Guideline 220kV setback distances plan view: MMD-373966-E-SK-00-XX-0012

P2	21/12/2018	JD	Notes Updated	CF	BM
P1	17/11/2017	SHY	Issued for Comment	DMC	DMC
Rev	Date	Drawn	Description	Ch'k'd	App'd



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Client



Title  
**Transmission Line and Solar Farm  
Guideline Clearances  
Guideline 220kV Setback Distances  
Section Drawing - Elevation**

Designed	E. Halpenny	Eng check	D. McCormack	
Drawn	S.Healy	Coordination	G. McCarthy	
Dwg check	D. McCormack	Approved	D. McCormack	
Scale at A1	1:100	Status	PRE	P2
		Security	STD	
Drawing Number <b>MMD-373966-E-SK-00-XX-0022</b>				

