Appendix 4.12 C
Qbar Calculations

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Appendix C. Surface Water Qbar Calculations

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

Project *Herbata Data Centre*
Project No. *DOBA 2232*
Title: *Filter Drain Area*
Calcs By *SP* Date: 29.06.2023

PRELIMINARY SURFACE WATER STORAGE ESTIMATE (NO LONG TERM STORAGE)

Catchment Characteristics **Greenfield Runoff Flows (Sites < 50 Ha)** denotes Input Value

Standard Average Annual Rainfal (SAAR) =	848	mm
Soil Index =	0.47	
Total Site Area =	0.6000	Hectares (ha)
Storm Return Period =	100	Years
Permissible Outflow per hectare, QBAR =	6.0	l/s/ha
*** Total Permissible Outflow=**	3.63	l/s

Soil Classification for Runoff Potential
Based on FSR Maps

Soil 1	0	%
Soil 2	0	%
Soil 3	100	%
Soil 4	0	%
Soil 5	0	%

Infiltration

Appendix 4.12 D
Surface Water Calculations

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Appendix D. Surface Water Network Calculations

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details: Type: Junctions Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SID 1.00	Manhole	686108.165	719898.590	83.750	2.885	80.865	Circular	1.200
SID 1.01	Manhole	686126.735	719893.960	83.700	2.931	80.769	Circular	1.200
SID 1.02	Manhole	686117.603	719856.785	83.650	3.264	80.386	Circular	1.200
SID 2.00	Manhole	686139.253	719899.474	83.740	2.790	80.950	Circular	1.200
SID 2.01	Manhole	686137.477	719891.348	83.740	2.862	80.878	Circular	1.200
SID 3.00	Manhole	686165.085	719896.982	83.750	2.632	81.118	Circular	1.200
SID 3.01	Manhole	686160.422	719894.347	83.740	1.500	82.240	Circular	1.200
SID 4.00	Manhole	686177.421	719881.065	83.750	2.616	81.134	Circular	1.200
SID 4.02	Manhole	686160.427	719885.385	83.730	2.732	80.998	Circular	1.200
SID 4.01	Manhole	686169.603	719883.492	83.740	2.647	81.093	Circular	1.200

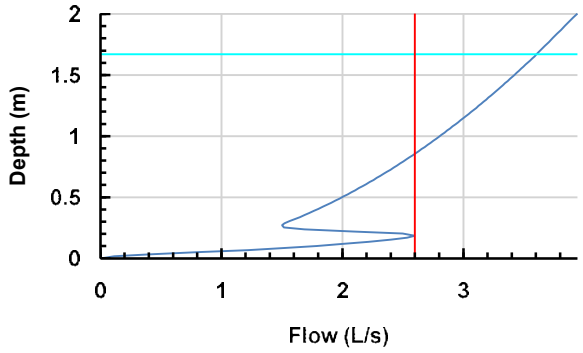
Name	Lock
SID 1.00	None
SID 1.01	None
SID 1.02	None
SID 2.00	None
SID 2.01	None
SID 3.00	None
SID 3.01	None
SID 4.00	None
SID 4.02	None
SID 4.01	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SID 1.00	Inlet	No Delay	(None)	No Restriction
SID 1.01	Inlet	SID 2.000 No Delay (2)	(None)	No Restriction
SID 1.02	Inlet	SID 1.000	(None)	No Restriction
SID 2.00	Inlet	No Delay (3) No Delay (8)	(None)	No Restriction
SID 2.01	Inlet	No Delay (10) No Delay (15)	(None)	No Restriction
SID 3.00	Inlet	No Delay (4)	(None)	No Restriction
SID 3.01	Inlet	No Delay (6)	(None)	No Restriction
SID 4.00	Inlet	No Delay (11)	(None)	No Restriction
SID 4.02	Inlet	SID 4.000	(None)	No Restriction
SID 4.01	Inlet	No Delay (13)	(None)	No Restriction

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details: Type: Junctions Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SID 1.00	Outlet	No Delay (1)	Orifice
	Diameter (m)	0.225	
	Coefficient of Discharge	0.600	
	Invert Level (m)	80.865	
SID 1.01	Outlet	SID 1.000	Hydro-Brake®
	Invert Level (m)	80.769	
	Design Depth (m)	1.670	
	Design Flow (L/s)	3.6	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0076-3600-1670-3600	
			
SID 2.00	Outlet	No Delay (9)	Orifice
	Diameter (m)	0.100	
	Coefficient of Discharge	0.600	
	Invert Level (m)	80.950	
SID 2.01	Outlet	SID 2.000	Free Discharge
SID 3.00	Outlet	No Delay (5)	Orifice
	Diameter (m)	0.225	
	Coefficient of Discharge	0.600	
	Invert Level (m)	81.118	
SID 3.01	Outlet	No Delay (7)	Orifice
	Diameter (m)	0.225	
	Coefficient of Discharge	0.600	
	Invert Level (m)	82.240	
SID 4.00	Outlet	No Delay (12)	Orifice
	Diameter (m)	0.225	
	Coefficient of Discharge	0.600	
	Invert Level (m)	81.134	
SID 4.02	Outlet	No Delay (14)	Orifice
	Diameter (m)	0.225	
	Coefficient of Discharge	0.600	
	Invert Level (m)	80.998	
SID 4.01	Outlet	SID 4.000	Free Discharge

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 1.0

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.750
Depth (m)	2.885
Base Level (m)	80.865
Freeboard (mm)	1885
Porosity (%)	40
Length (m)	69.446
Long. Slope (1:X)	125.00
Width (m)	1.500
Total Volume (m³)	43.324

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (19) Catchment Area Catchment Area (11)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 1.1

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.700
Depth (m)	2.931
Base Level (m)	80.769
Freeboard (mm)	1931
Porosity (%)	40
Length (m)	19.183
Long. Slope (1:X)	125.00
Width (m)	1.500
Total Volume (m³)	11.967

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (20) No Delay (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (2)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 2.0

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.740
Depth (m)	2.790
Base Level (m)	80.950
Freeboard (mm)	1490
Porosity (%)	40
Length (m)	61.483
Long. Slope (1:X)	116.00
Width (m)	1.500
Total Volume (m³)	49.424

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (21)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (25) Catchment Area (13)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (12) Catchment Area (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (3)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 3.0

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.750
Depth (m)	2.632
Base Level (m)	81.118
Freeboard (mm)	1332
Porosity (%)	40
Length (m)	59.419
Long. Slope (1:X)	160.00
Width (m)	1.500
Total Volume (m³)	47.764

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (4)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (22)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (23) Catchment Area (14)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (24)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (4)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Infiltration Trench 6

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.750
Depth (m)	2.664
Base Level (m)	81.086
Freeboard (mm)	1334
Porosity (%)	40
Length (m)	3.999
Long. Slope (1:X)	160.00
Width (m)	1.500
Total Volume (m³)	3.287

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (9) No Delay (5)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (6)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details:	Donnachadh O'Brien & Associates:		
Type: Stormwater Controls Storm Phase: Phase	Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 3.1

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.740
Depth (m)	2.790
Base Level (m)	80.950
Freeboard (mm)	1790
Porosity (%)	40
Length (m)	21.196
Long. Slope (1:X)	160.00
Width (m)	1.500
Total Volume (m³)	13.223

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (10) No Delay (7)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (8)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 4.0

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.750
Depth (m)	2.616
Base Level (m)	81.134
Freeboard (mm)	1616
Porosity (%)	40
Length (m)	71.768
Long. Slope (1:X)	200.00
Width (m)	1.500
Total Volume (m³)	44.773

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (28) Catchment Area (15) Catchment Area (5) Catchment Area (16) Catchment Area (17) Catchment Area (7)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (18)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (11)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 4.1

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.740
Depth (m)	2.647
Base Level (m)	81.093
Freeboard (mm)	1647
Porosity (%)	40
Length (m)	6.338
Long. Slope (1:X)	200.00
Width (m)	1.500
Total Volume (m³)	3.954

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (29) No Delay (12)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (13)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details:	Donnachadh O'Brien & Associates:		
Type: Stormwater Controls Storm Phase: Phase	Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

SID TR. 4.2

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.720
Depth (m)	2.842
Base Level (m)	80.878
Freeboard (mm)	1842
Porosity (%)	40
Length (m)	21.814
Long. Slope (1:X)	200.00
Width (m)	1.500
Total Volume (m³)	13.609

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (27) No Delay (14)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (15)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details: Type: Stormwater Controls Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN & ASSOCIATES CONSULTING ENGINEERS

SID TR. 2.1

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	83.720
Depth (m)	2.842
Base Level (m)	80.878
Freeboard (mm)	1542
Porosity (%)	40
Length (m)	5.745
Long. Slope (1:X)	116.00
Width (m)	1.500
Total Volume (m³)	4.618

Under Drain

Height Above Base (m)	0.050
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (26) Catchment Area (3) No Delay (9)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	No Delay (10)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	1000.0

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details: Type: Inflow Summary Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	SID TR. 1.0		Time of Concentration	0.059	80	0	80	0.047
Catchment Area (2)	SID TR. 2.0		Time of Concentration	0.042	80	0	80	0.034
Catchment Area (3)	SID TR. 2.1		Time of Concentration	0.019	80	0	80	0.015
Catchment Area (4)	SID TR. 3.0		Time of Concentration	0.045	80	0	80	0.036
Catchment Area (5)	SID TR. 4.0		Time of Concentration	0.002	80	0	80	0.002
Catchment Area (7)	SID TR. 4.0		Time of Concentration	0.002	80	0	80	0.002
Catchment Area (9)	Infiltration Trench 6		Time of Concentration	0.013	80	0	80	0.011
Catchment Area (10)	SID TR. 3.1		Time of Concentration	0.008	80	0	80	0.007
Catchment Area (11)	SID TR. 1.0		Time of Concentration	0.041	95	0	95	0.039
Catchment Area (12)	SID TR. 2.0		Time of Concentration	0.032	95	0	95	0.030
Catchment Area (13)	SID TR. 2.0		Time of Concentration	0.012	95	0	95	0.011
Catchment Area (14)	SID TR. 3.0		Time of Concentration	0.012	95	0	95	0.011
Catchment Area (15)	SID TR. 4.0		Time of Concentration	0.009	95	0	95	0.009
Catchment Area (16)	SID TR. 4.0		Time of Concentration	0.010	95	0	95	0.010
Catchment Area (17)	SID TR. 4.0		Time of Concentration	0.009	95	0	95	0.009
Catchment Area (18)	SID TR. 4.0		Time of Concentration	0.009	95	0	95	0.009
Catchment Area (19)	SID TR. 1.0		Time of Concentration	0.036	50	0	50	0.018
Catchment Area (20)	SID TR. 1.1		Time of Concentration	0.007	50	0	50	0.003
Catchment Area (21)	SID TR. 2.0		Time of Concentration	0.088	50	0	50	0.044
Catchment Area (22)	SID TR. 3.0		Time of Concentration	0.061	50	0	50	0.030
Catchment Area (23)	SID TR. 3.0		Time of Concentration	0.004	50	0	50	0.002
Catchment Area (24)	SID TR. 3.0		Time of Concentration	0.004	50	0	50	0.002
Catchment Area (25)	SID TR. 2.0		Time of Concentration	0.013	50	0	50	0.006
Catchment Area (26)	SID TR. 2.1		Time of Concentration	0.003	50	0	50	0.001
Catchment Area (27)	SID TR. 4.2		Time of Concentration	0.012	50	0	50	0.006
Catchment Area (28)	SID TR. 4.0		Time of Concentration	0.027	50	0	50	0.013
Catchment Area (29)	SID TR. 4.1		Time of Concentration	0.002	50	0	50	0.001
TOTAL		**0.0**		**0.581**				**0.408**

Herbata Data Centre- SID:	Date:		
Naas, Co. Kildare Surface Water SID	29/06/2023		
	Designed by:	Checked by:	Approved By:
	SP	RK	DOB
Report Details:	Donnachadh O'Brien & Associates:		
Type: Network Design Criteria Storm Phase: Phase	Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN & ASSOCIATES CONSULTING ENGINEERS

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	
Reduce Channel Depths	

Pipe Size Library

Default

Add. Increment (mm)	75

Diameter (mm)	Min. Slope (1:X)	Max. Slope (1:X)
100	0.00	0.00
150	0.00	0.00

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Network Design Criteria Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

Manhole Options

Apply Offset

An error has occurred while processing TextBox 'txtSynchroniseManholeInvertLevelsHeader':
The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is not defined in the current context.

Manhole Size Library

Default

Diameter / Width

Connection (mm)	Diameter / Length (m)	Width (m)
0	1.200	0.000
375	1.350	0.000
500	1.500	0.000
750	1.800	0.000

Additional Sizing

Connection (mm)	900
Diameter / Length (m)	0.900
Width (m)	0.000

Depth

Depth (m)	Diameter / Length (m)	Width (m)
0.000	1.050	0.000
1.500	1.200	0.000

Access

Depth (m)	Ladder Protrusion (mm)
0.000	130
3.000	230

Benching Requirements

Landing Width (mm)	500
Benching Width (mm)	225

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Title: Rainfall Analysis Criteria	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

100-Year

Type: FSR

Region	Scotland And Ireland
M5-60 (mm)	16.2
Ratio R	0.287
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	30.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Junctions Summary Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN & ASSOCIATES CONSULTING ENGINEERS

Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SID 1.00	100-Year: 100 years: +30 %: 60 mins: Summer	83.750	80.865	81.741	0.876	9.9	0.990	0.000	9.1	11.133	OK
SID 1.01	100-Year: 100 years: +30 %: 120 mins: Summer	83.700	80.769	82.159	1.390	5.7	1.573	0.000	3.3	33.284	Surcharged
SID 1.02	100-Year: 100 years: +30 %: 120 mins: Summer	83.650	80.386	80.424	0.038	3.3	0.000	0.000	3.3	33.213	OK
SID 2.00	100-Year: 100 years: +30 %: 120 mins: Summer	83.740	80.950	82.177	1.227	8.6	1.387	0.000	6.0	24.932	OK
SID 2.01	100-Year: 100 years: +30 %: 120 mins: Summer	83.740	80.878	82.161	1.283	6.2	1.451	0.000	4.2	28.751	Surcharged
SID 3.00	100-Year: 100 years: +30 %: 10080 mins: Winter	83.750	81.118	82.253	1.135	9.1	1.284	0.000	8.1	100.959	OK
SID 3.01	100-Year: 100 years: +30 %: 4320 mins: Summer	83.740	82.240	82.292	0.052	4.2	0.059	0.000	4.2	27.433	OK
SID 4.00	100-Year: 100 years: +30 %: 60 mins: Summer	83.750	81.134	81.412	0.278	16.7	0.315	0.000	16.4	8.389	OK
SID 4.02	100-Year: 100 years: +30 %: 60 mins: Summer	83.730	80.998	81.414	0.416	14.4	0.471	0.000	12.4	5.103	OK
SID 4.01	100-Year: 100 years: +30 %: 60 mins: Summer	83.740	81.093	81.414	0.321	16.6	0.363	0.000	14.4	5.804	Surcharged

Herbata Data Centre- SID: Naas, Co. Kildare Surface Water SID	Date: 29/06/2023		
	Designed by: SP	Checked by: RK	Approved By: DOB
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Donnachadh O'Brien & Associates: Unit 5C, Elm House Millennium Park, Naas Co. Kildare		

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

Critical Storm Per Item: Rank By: Max. DS Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
SID TR. 1.0	100-Year: 100 years: +30 %: 60 mins: Summer	81.743	81.740	0.322	0.875	34.4	24.871	0.000	0.000	9.2	13.936	42.594	OK
SID TR. 1.1	100-Year: 100 years: +30 %: 60 mins: Summer	81.741	81.741	0.819	0.972	9.8	10.305	0.000	0.000	4.1	1.658	13.891	OK
SID TR. 2.0	100-Year: 100 years: +30 %: 120 mins: Summer	82.191	82.177	0.711	1.227	31.0	35.720	0.000	0.000	8.8	37.631	27.726	OK
SID TR. 3.0	100-Year: 100 years: +30 %: 7200 mins: Summer	82.246	82.246	0.757	1.128	1.2	33.561	0.000	0.000	9.2	136.589	29.736	OK
Infiltration Trench 6	100-Year: 100 years: +30 %: 5760 mins: Summer	82.259	82.286	1.148	1.200	4.1	2.764	0.000	0.000	4.6	72.022	15.905	OK
SID TR. 3.1	100-Year: 100 years: +30 %: 720 mins: Summer	81.182	81.179	0.100	0.229	1.4	2.093	0.000	0.000	1.1	4.069	84.169	OK
SID TR. 4.0	100-Year: 100 years: +30 %: 60 mins: Summer	81.673	81.412	0.180	0.278	17.7	8.290	0.000	0.000	16.7	9.178	81.485	OK
SID TR. 4.1	100-Year: 100 years: +30 %: 60 mins: Summer	81.413	81.413	0.288	0.320	16.7	1.156	0.000	0.000	16.5	6.872	70.768	OK
SID TR. 4.2	100-Year: 100 years: +30 %: 60 mins: Summer	81.415	81.415	0.428	0.537	14.7	6.318	0.000	0.000	0.0	0.000	53.576	OK
SID TR. 2.1	100-Year: 100 years: +30 %: 120 mins: Summer	82.163	82.164	1.236	1.286	8.6	4.347	0.000	0.000	6.4	29.850	5.875	OK

Appendix 4.12 E

Uisce Eireann Confirmation of Feasibility Letter

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Appendix E. Uisce Eireann Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

Donnachadh O'Brien

Unit 5C, Elm House
Millennium Park
Naas
Co. Kildare
W91P9P8

11 May 2023

Our Ref: CDS23000739 Pre-Connection Enquiry
Halverstown, Halverstown, Kildare, Co.Kildare

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Business Connection of 6 unit(s) at Halverstown, Halverstown, Kildare, Co.Kildare, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection**
  - Feasible without infrastructure upgrade by Irish Water
  - This PCE is only validate for 1.3l/s demand. If applicant needs to have more flow, applicant should apply again for a new PCE for further assessment.

- **Wastewater Connection**
  - Feasible without infrastructure upgrade by Irish Water.
  - Applicant should install private rising mains from the site to the existing 300mm wastewater gravity network along Newbridge Road.
  - This PCE is only validate to a maximum discharging load of 5l/s during the cooling event. If applicant needs to discharge more flow, applicant should apply again for a new PCE for further assessment.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Irish Water.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

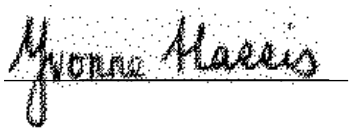
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Irish Water's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Irish Water's network(s). This is not a connection offer and capacity in Irish Water's network(s) may only be secured by entering into a connection agreement with Irish Water.

For any further information, visit **www.water.ie/connections**, **email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,



Yvonne Harris
Head of Customer Operations

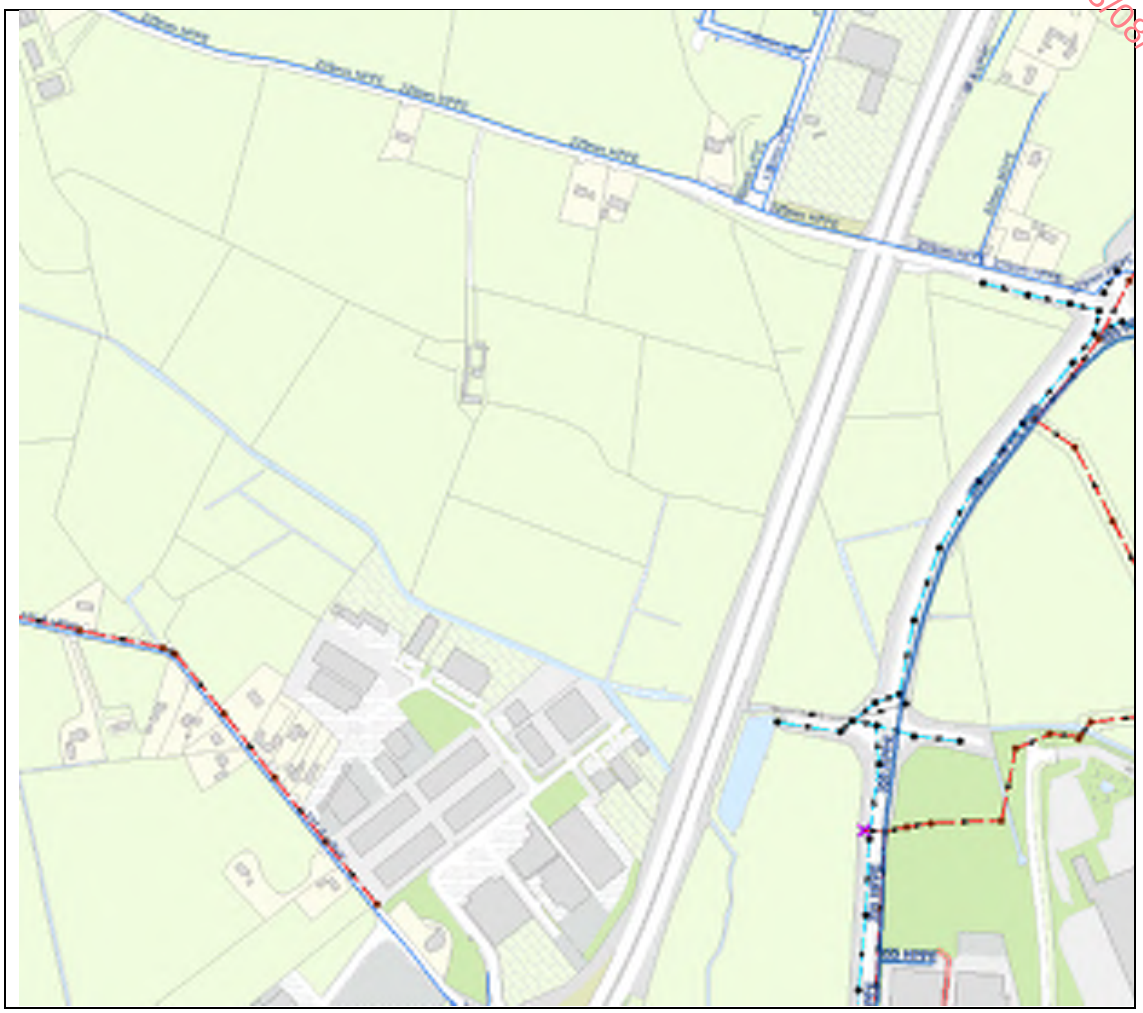
Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Irish Water's network(s). • Before the Development can connect to Irish Water's network(s), you must submit a connection application and be granted and sign a connection agreement with Irish Water.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Irish Water connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Irish Water's network(s), including works in the public space, must be carried out by Irish Water*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Irish Water's network(s)?	• Requests for maps showing Irish Water's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Irish Water Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Irish Water's Network(s)

The map included below outlines the current Irish Water infrastructure adjacent the Development: To access Irish Water Maps email datarequests@water.ie



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Note: The information provided on the included maps as to the position of Irish Water's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Irish Water.

Whilst every care has been taken in respect of the information on Irish Water's network(s), Irish Water assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Irish Water's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Irish Water's underground network(s) is identified prior to

excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

Appendix 4.12 F
Fire Hydrant Flow Simulation Testing

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Appendix F. Fire Hydrant Flow Simulation Testing

SES WATER MANAGEMENT
seswater.ie

Hydrant Testing Report

Naas, Co. Kildare

Client:	Donnacadh O'Brien Associates
Site Contact:	Richard Kiernan
Project:	Hydrant Testing & 7 Day Logging Naas, Co. Kildare
Technician:	Aaron Hogan
Start/Finish of Survey	17/01/2023

Contents

1 Scope of Works

SES Water Management were requested by Donnocadh O'Brien Associates to carry out flow and pressure testing on hydrants at Naas, Co. Kildare.

Pressure logging of the hydrants was carried out over a 7-day period. Flow testing was then carried out using a digital flow meter with static and residual pressures also being recorded.

2 Hydrant Specifications & Flow Requirements

2.1 Guidelines for Fire Flow Requirements

Housing Developments
Housing Developments with units of detached or semi-detached houses of not more than two floors should have a supply capable of delivering a minimum of 8 l/s (480 l/min) OR multi occupied developments with units of more than 2 floors should have a water supply capable of delivering a minimum of 20 to 35 l/s (1,200 to 2,100 Litres/minute).

Village Hall or the like
Should have a water supply capable of delivering 15 Litres per second (900 Litres/minute) through any single hydrant on the development.

Primary School and/or Single Storey Health Centre or the like
Should have a water supply capable of delivering 20 Litres per second (1,200 Litres/minute) through any single hydrant on the development.

Secondary Schools, Colleges, Large Health & Community Facilities or the like
Should have a water supply capable of delivering 35 Litres per second (2,100 Litres/minute) through any single hydrant on the development.

Industry
Up to one hectare, facility should have 20 Litres per second (1,200 Litres/minute)
Between one and two hectares, facility should have 35 Litres per second (2,100 Litres/minute)

2.2 Key Aspects of Fire Hydrant Specification

SURFACE:
Hydrants should be located in the footpath or grass margin adjoining the roadway. Where it is located in the grass, the periphery of the box should be concreted. The surface box and concrete surround should be kept over the level of the adjoining surface to prevent polluted water from entering the hydrant pit.

FRAME:
Hydrant chambers should have a cast iron surface box. The surface box should be bedded in mortar on the chamber walls, and if the hydrants are located other than on a footway or roadway, they should be surrounded by 150mm concrete of 100mm in depth.

COVER:
The hydrant cover should provide a 375mm x 225mm clear opening and should be placed centrally over the hydrant to permit freedom of affixing stand-pipe and valve key.

PIT:
The hydrant pit / chamber should provide not less than 75mm clearance around the hydrant body. Hydrant pits should be constructed to be self-draining. The pit should be clean and free of all debris.

OUTLET DEPTH:
The depth of the hydrant outlet should not exceed 350mm below finished ground level, with the top of the spindle being 75mm minimum to 225mm maximum below finished surface to footpath.

MARKER:
A hydrant indicator plate should be fitted on a wall or marker post at 450mm over ground level. They should show the diameter of the water main and the distance in metres of the hydrant from the marker.

TESTING:
Fire hydrants should be tested on an annual basis. The Fire Hydrant condition should be assessed to ensure it meets the required criteria. The flow and pressure should be recorded and reported in writing. Calibration certificates must be available for all test Equipment used.

3 Fire Hydrant Condition Survey

The hydrant to be flow and pressure tested was reviewed to assess that it meets the standards in accordance with the BS9990.

Appendix A provides full details of the condition survey which was completed on site. The items below are the main findings of the fire hydrant condition survey;

- All Hydrants are accessible and have spindles in place, except for FH2 where the Spindle is missing.
- All Hydrant Pits are in good condition, and the hydrants Frames/Covers are in poor condition.
- Hydrant outlet FH1 and FH2 connections are LUG, FH3 is an LRT connection.
- All Hydrants have marker plates to identify hydrant location/details.
- The covers to the Hydrant chambers are NOT painted canary yellow.


FH1


FH1


FH2


FH2


FH3


FH3

Figure 1: Fire Hydrant Condition Images

4 Fire Hydrant Flow, Pressure Testing & 7-Day Logging

4.1 7-Day Pressure Logging

Pressure loggers were deployed on the Fire Hydrants on 17th January 2023 to record pressure over a 7-day logging period. The graph below shows the pressure logging results which show the day night variation in pressure. There is a pressure reducing valve in operation in the area reducing pressure from 1:00a.m to 6:00am.

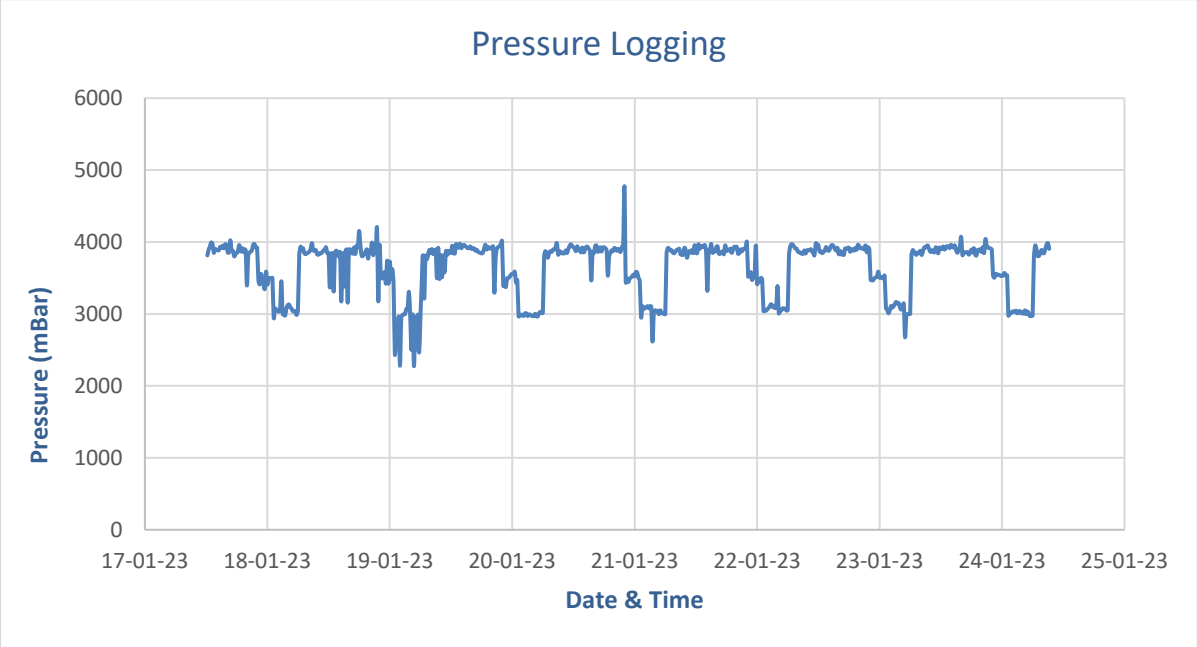

Figure 1: 7-Day Static Pressure Logging Results

Based on the downloaded pressure data, the static pressure varies from 3.0 bar at night to 4.0 bar during the day.

4.2 Hydrant Testing

Flow testing was carried out on the hydrants and the results are documented in the table and graphs below.

The test includes measuring the static pressure at the test hydrant before the flow test begins. A digital hydrant flow meter is connected to the hydrant to record flow rates in Litres per minute over a 5-minute period. The flow rates detailed below, are the average maximum sustainable flow based on the 3-minute flow test.

Flow testing was carried out on 24th January 2023 at 09.30hrs and the results are details in the table below.

FH No.	Flow Rate L/Min	Static Pressure (bar)	Residual Pressure (bar)
FH1	1300	3.5	2.8
FH2	1580	3.5	2.3
FH3	1697	4.0	3.2

Table 1: Fire Hydrant Flow & Pressure Test Results

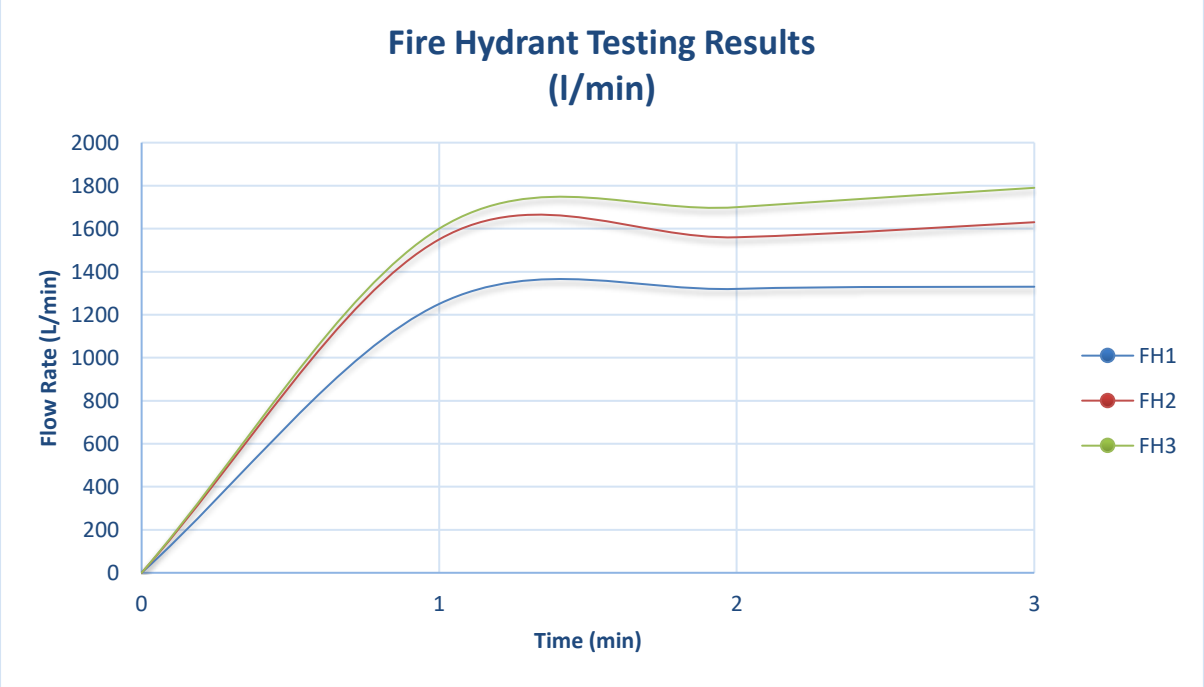

Figure 2: Fire Hydrant Flow Test Results

5 Fire Hydrant Location Plan

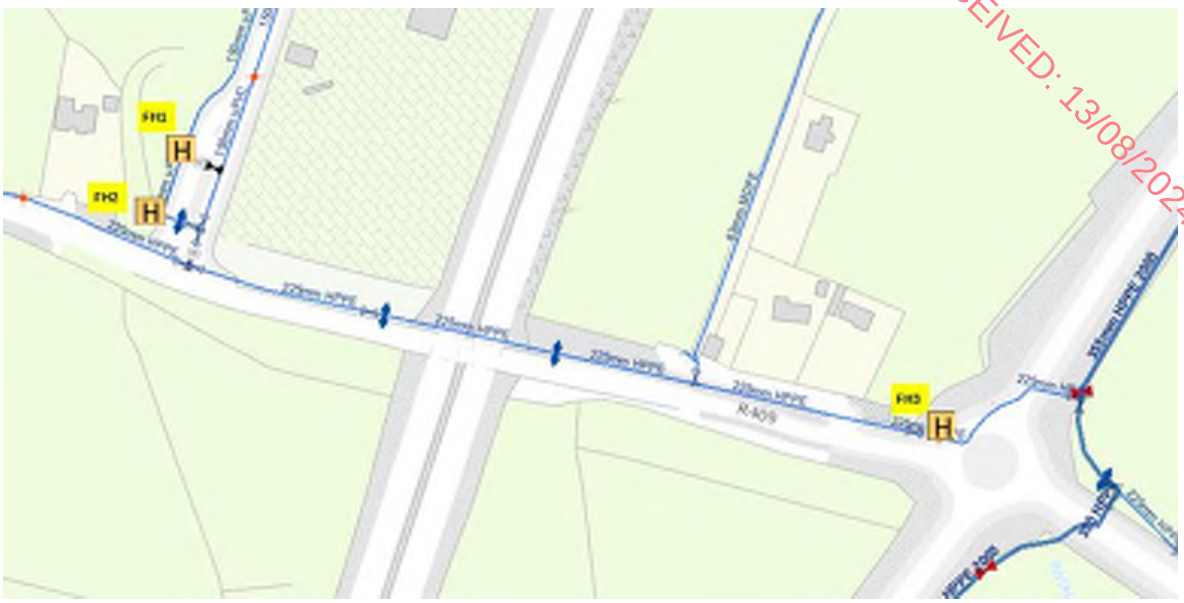

Figure 3: Fire Hydrant Location Plan

Appendix A – Fire Hydrant Condition Survey

FH No.	Surface	Cover / Frame	Pit	Type	Depth	Marker / Plate	Canary Yellow	Spindle	Operating	Comments
1	Grass	Poor	Good	LUG	290	Yes	No	Good		No Plinth
2	Grass	Poor	Good	LUG	370	Yes	No	Missing		No Plinth
3	Grass	Poor	Good	LRT	520	Yes	No	Good		No Plinth

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS

Project *Herbata Data Centre*
Project No. *DOBA 2232*
Title: *Filter Drain Area*
Calcs By *SP* Date: 29.06.2023

PRELIMINARY SURFACE WATER STORAGE ESTIMATE (NO LONG TERM STORAGE)

Catchment Characteristics **Greenfield Runoff Flows (Sites < 50 Ha)** denotes Input Value

Standard Average Annual Rainfal (SAAR) =	848	mm
Soil Index =	0.47	
Total Site Area =	0.6000	Hectares (ha)
Storm Return Period =	100	Years
Permissible Outflow per hectare, QBAR =	6.0	l/s/ha
*** Total Permissible Outflow=**	3.63	l/s

Soil Classification for Runoff Potential
Based on FSR Maps

Soil 1	0	%
Soil 2	0	%
Soil 3	100	%
Soil 4	0	%
Soil 5	0	%

Infiltration

Appendix 4.13
110kV Grid Substation and Transmission Line Report

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110kV Grid Substation and Transmission Line Report

Document: 10360452

HDR-XX-XX-RP-E-000001

Herbata Data Centre Campus

Naas, County Kildare

June 7, 2024

Issue:	P03
Status:	Issue For Planning
Prepared By:	Robert Thorogood
Edited By:	Robert Thorogood
Authorised By:	Ulrich Groenewald

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

Contents

Tables

Figures

Appendices

1 Introduction

This report has been prepared by HDR on behalf of Herbata Ltd in support of an Electricity Transmission application to An Bord Pleanála (ABP) 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.

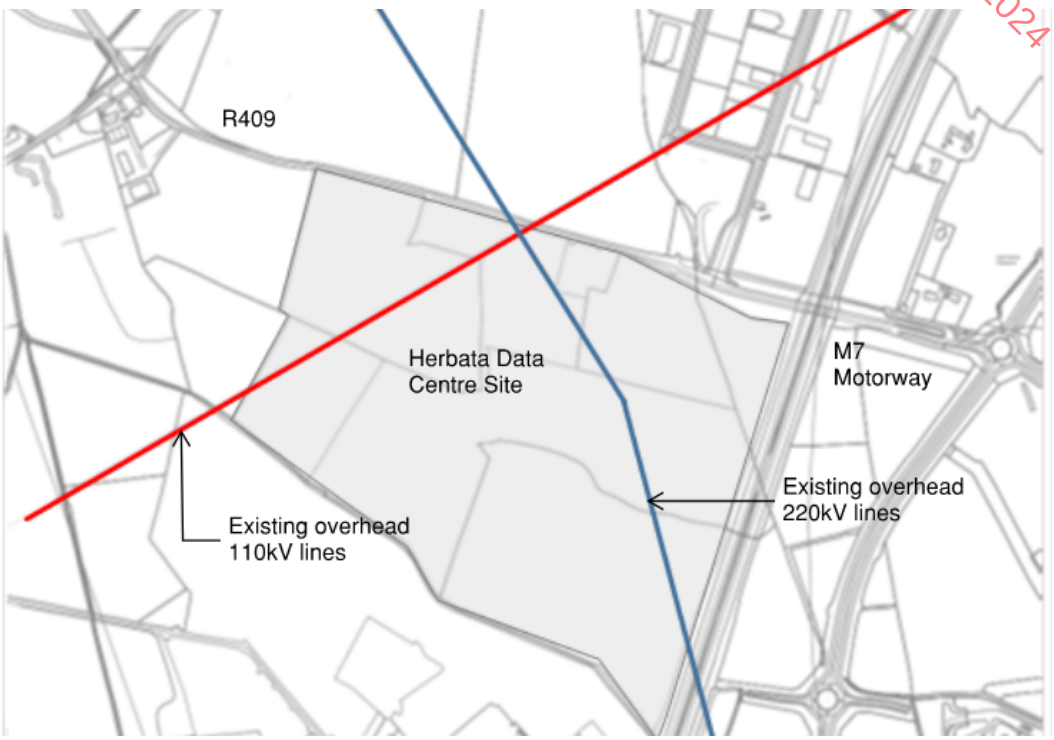
It should be noted that there is an also a 220kV overhead line that crosses the site, no works are proposed to this line, it will remain as existing. An exclusion zone of 8.5m either side of the Centre line of the 220kV overhead line has been assumed with no construction works allowed in this zone.

All 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. 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 west by the M7 Motorway and to the north by the R409 roadway. Access is provided from the R409.

3 Proposed Changes

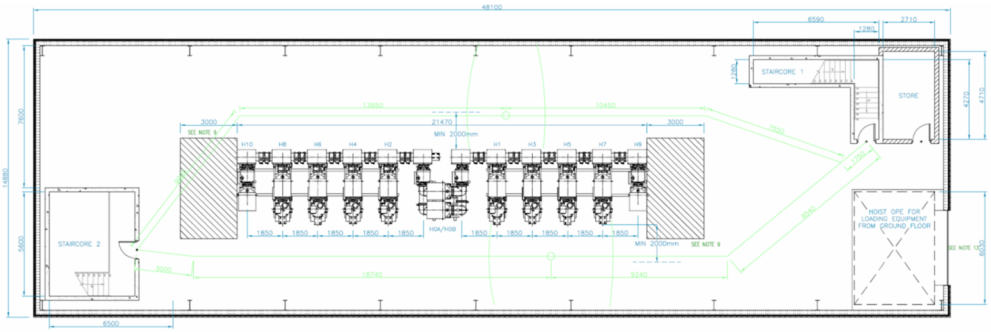
The proposed development requires a new power connection from the existing 110kV transmission line, by breaking into it and providing a new grid substation; this is in accordance with Eirgrid's policy Pol_St_18 titled "Policy Statement on Options for Connecting Customers to the Transmission Network", see link below:

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

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.

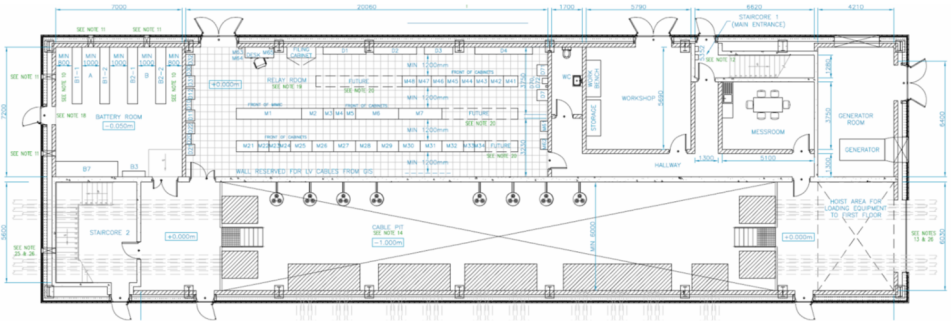
The proposed new gas insulated switchgear (GIS) grid substation is based on Eirgrid's standard arrangements for an 8-bay 110kV based switchboard. Trials were carried out to see if AIS based gear could be used but test fits showed that the area required was too great. Eirgrid also have standard arrangements 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.
Figure 3-1, Figure 3-2and Figure 3-3 show the standard arrangement for an 8-bay GIS Station. Refer to 6Appendix A for the full version of the drawings.

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



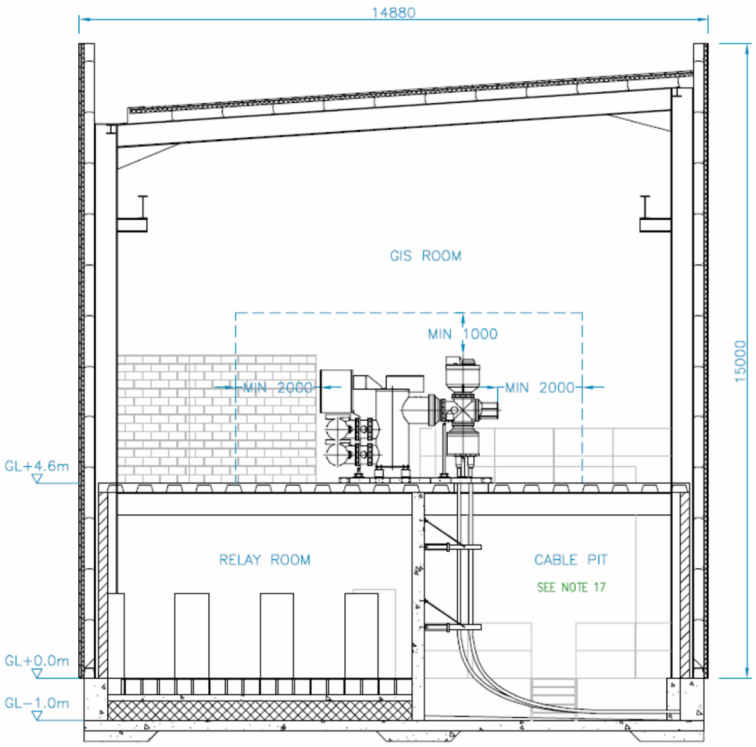
Source: Eirgrid

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



Source: Eirgrid

Figure 3-3. 8-bay GIS Station Section



Source: Eirgrid

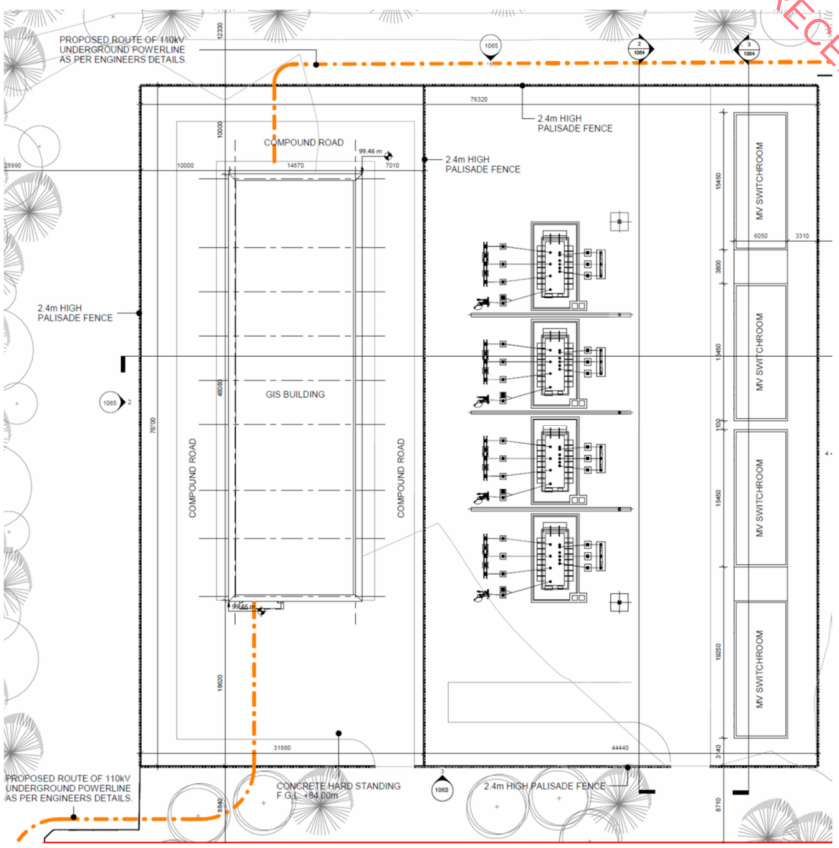
Using this standard arrangement for a GIS station, the substation for the Herbata Data Centre campus development has been arranged to have two sections, the first to fully incorporate the arrangement of the Eirgrid 8-bay GIS station and the second section to incorporate the local distribution and step-down 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 left-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 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 110/10kV 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.

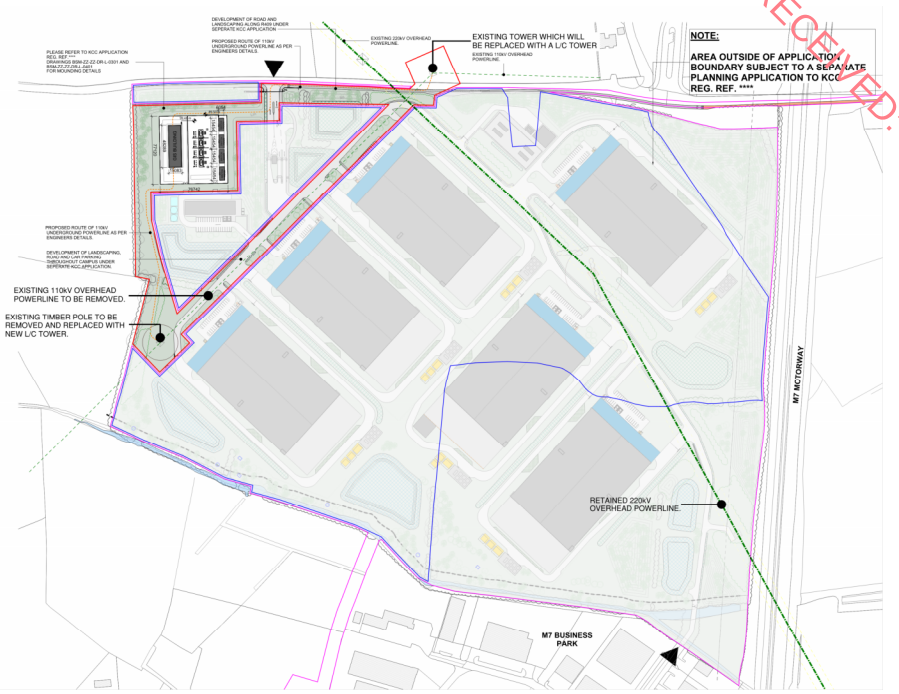
Access to these two sections is provided separately albeit via single entry, but the Eirgrid area can be fully secured and controlled by Eirgrid TSO. The location of the new substation on site is shown in Figure 3-5 below. The overall substation development will also include access paths, landscaping,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

Figure 3-4. Proposed New Substation Arrangement in Principle



Source: RKD/HDR

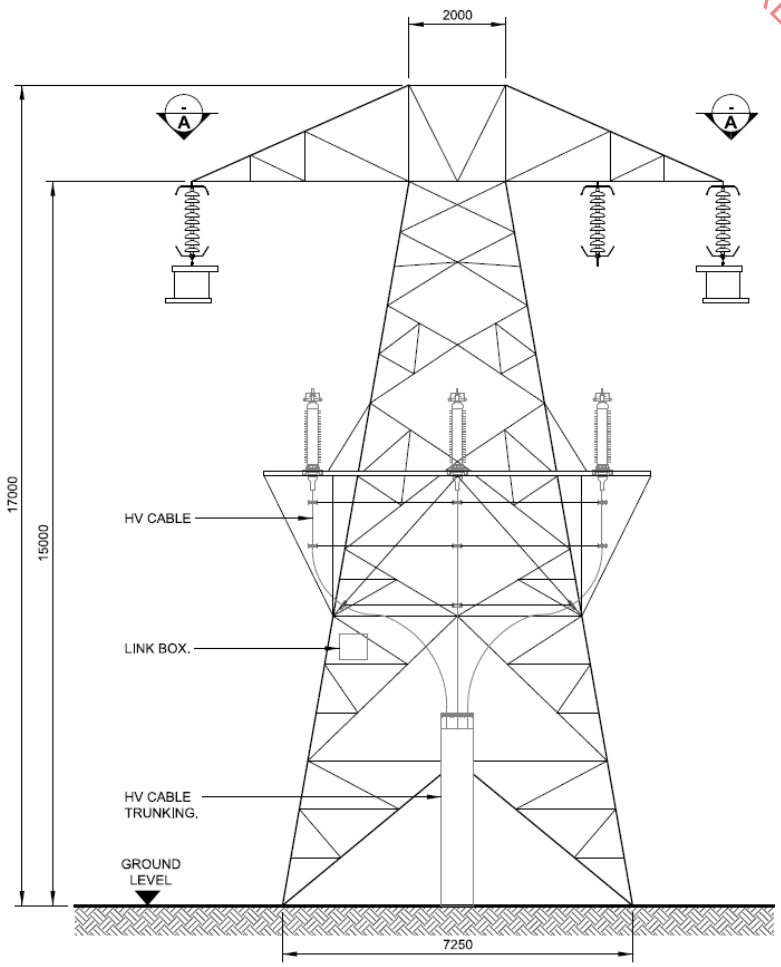
Figure 3-5. Substation and undergrounding of 110kV Overhead Line



Source: RKD / HDR

Figure 3-5 indicate two positions 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. More definitive drawing is shown in 6Appendix B.

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

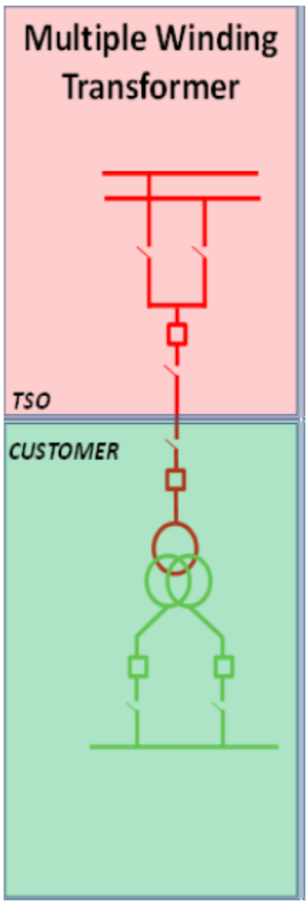


Source: ESB Networks (standard version with no Shieldwire)

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 meters 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

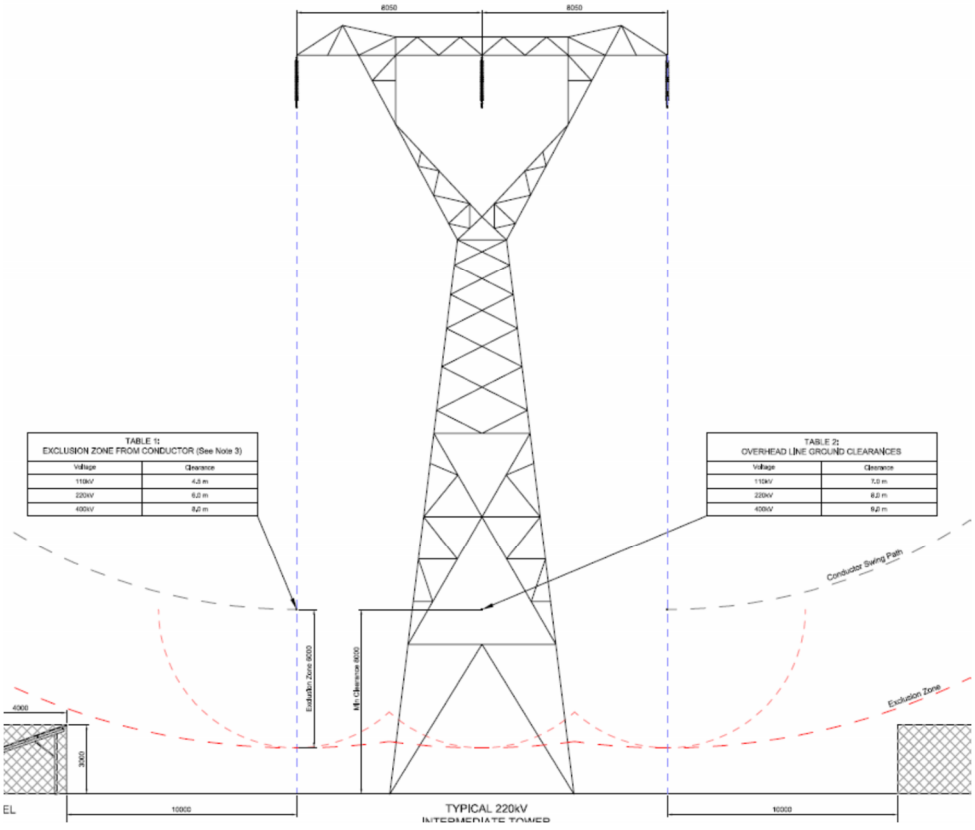
4 Proximity to 220kV Overhead Lines

The Herbata Data Centre campus has a 110kV and a 220kV overhead line crossing the site, the 110kV overhead line is proposed to be re-routed and undergrounded via the new Grid Substation as discussed earlier in Section 3. This leaves the single 220kV overhead line that crosses the site as shown in Figure 3 5. Information used to assess the clearances needed from the 220kV overhead line is shown in the link below.

https://www.eirgridgroup.com/site-files/library/EirGrid/8-Transmission-Line-and-Solar-Farm-Guideline-Clearances.pdf

The most relevant information relates to the spacing of the 220kV overhead line towers, some of this information relates to that used for spacing to solar farms, but it is also providing information to adjacencies to the 220kV lines. An extract from the tower drawing is shown below in Figure 4-1 with the full drawing included in Appendix C.

Figure 4-1. Extract of 220kV Overhead Line Clearances Drawing



Source: Eirgrid

5 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 5-1 below:

Table 5-1. Contestable and non-Constable Works

Scope of Work Item	Contestable Works?
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 two LCIMs (Line/Cable Towers)	Yes
Supply and erect the two 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	No
Termination of underground cables on new LCIMs	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
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 5 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.

6 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 as far as practically possible, it is expected that the finer detail will need to be discussed and agreed with Eirgird/ESB at Stage 2 of the application for an Autoproducer connection to Eirgrid.

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 meters in height, set on concrete foundations. The obsolete sections of the 110kV line, including the supporting poles /masts, will be removed / demolished.

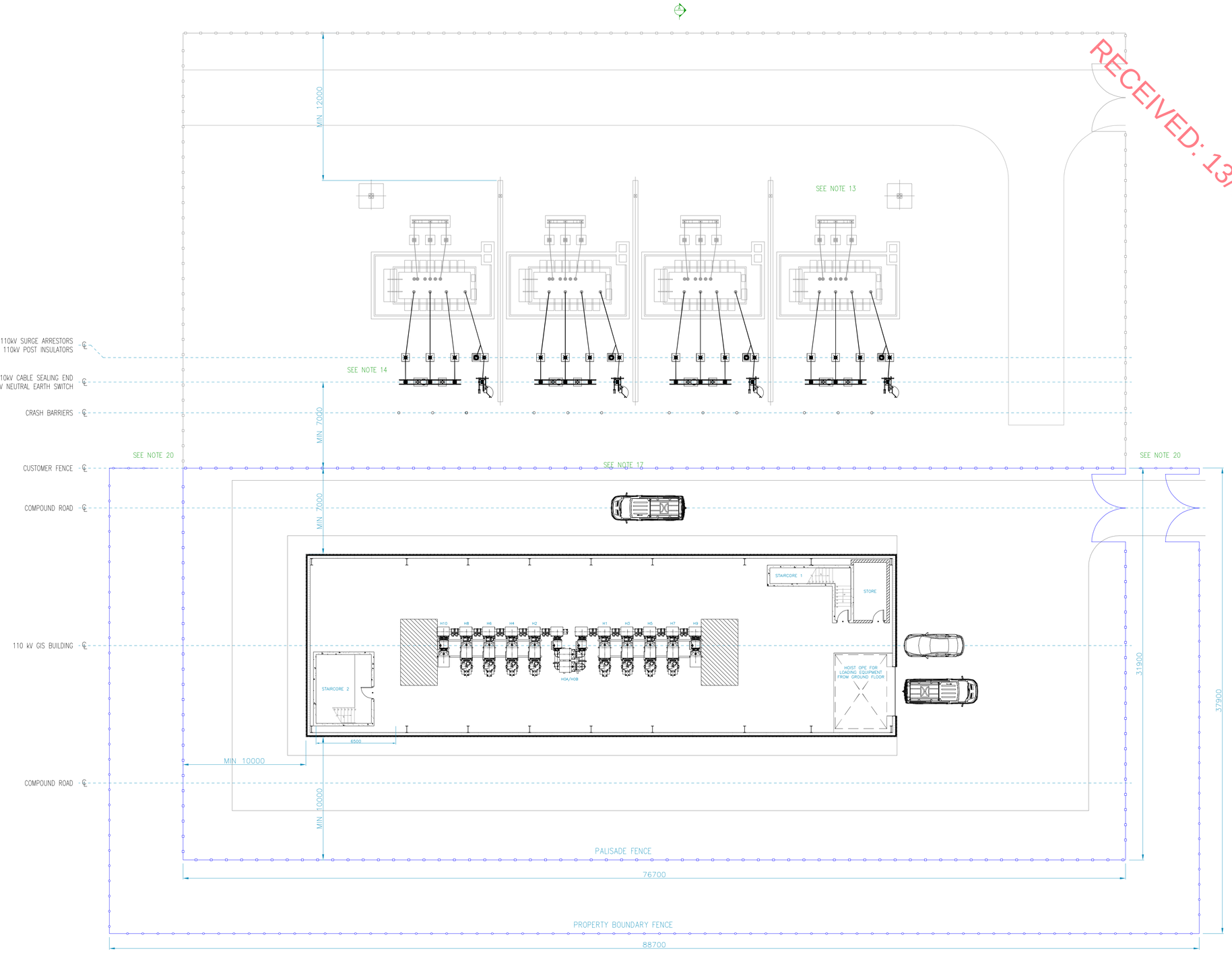
Consideration has also been given to the existing 220kV overhead line that cross the site, no works are proposed to this line. The layout of the campus and its buildings has taken into account the safe working distances around the line.

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 drawings:

Reference	Description	Rev.
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



RECEIVED: 13/08/2024

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.

REV	DESC	DRAWN	CHECKED	APPROVED	DATE
00	FIRST ISSUE	CHC	NK	CF	26/09/2019

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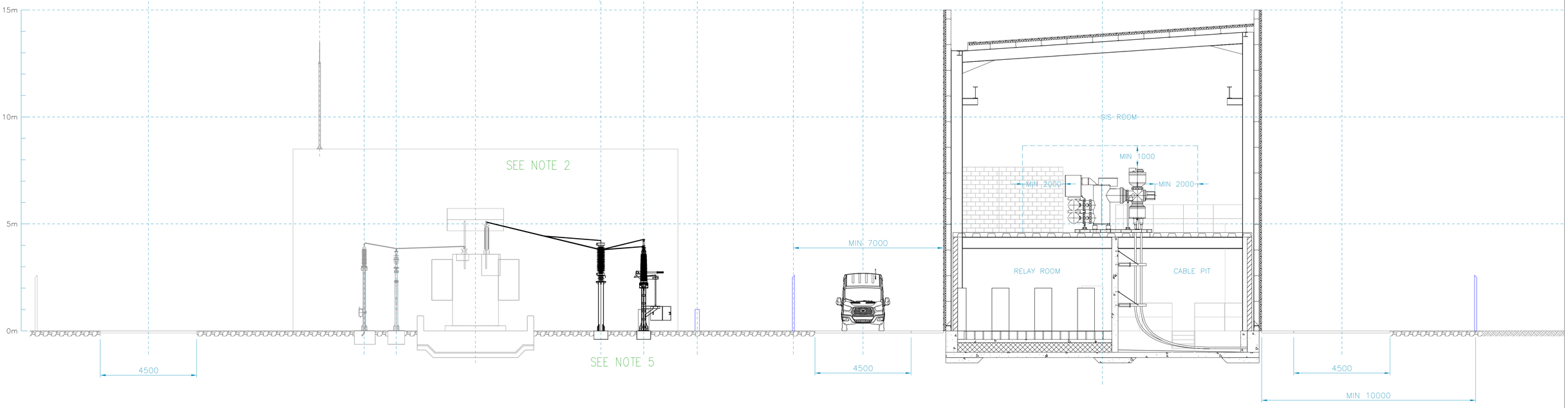
PROJECT: STATION DESIGN STANDARD 110kV GIS STATION

DRAWING TITLE: 110kV GIS STATION LAYOUT PLAN VIEW – 8 BAY STATION ENGINEERING DRAWING

No of Shts	SIZE	SCALE	SHEET	REV
3	A1	NTS	001	00

DRAWING NUMBER: XDN-LAY-ELV-STND-H-012



SECTION A
NTS

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.

REV	DESC	DRAWN	CHECKED	APPROVED	DATE
00	FIRST ISSUE	CHC	NK	CF	26/09/2019

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PROJECT
STATION DESIGN STANDARD
110kV GIS STATION

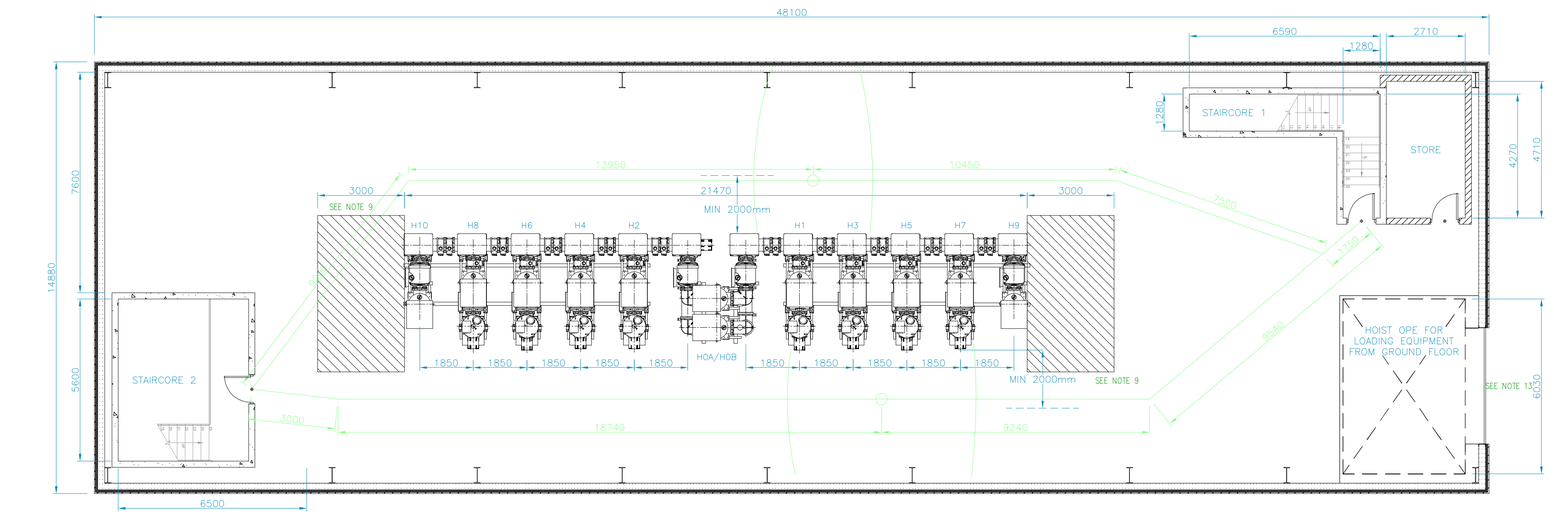
DRAWING TITLE
110kV GIS STATION LAYOUT
ELEVATION VIEW – 8 BAY STATION
ENGINEERING DRAWING

No of Shts	SIZE	SCALE
3	A1	NTS

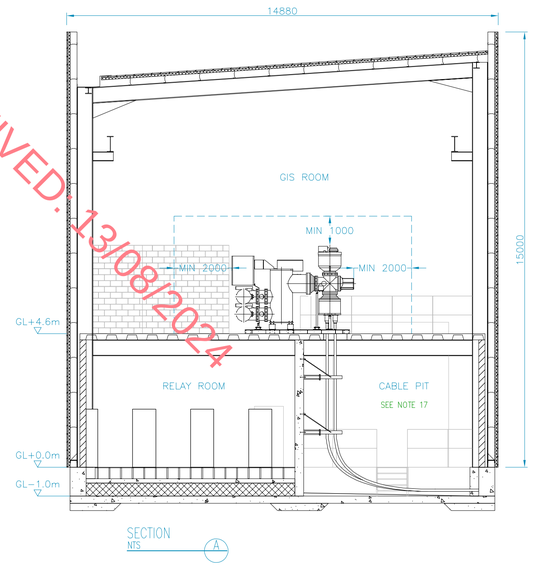
DRAWING NUMBER
XDN-LAY-ELV-STND-H-012

SHEET	REV
002	00

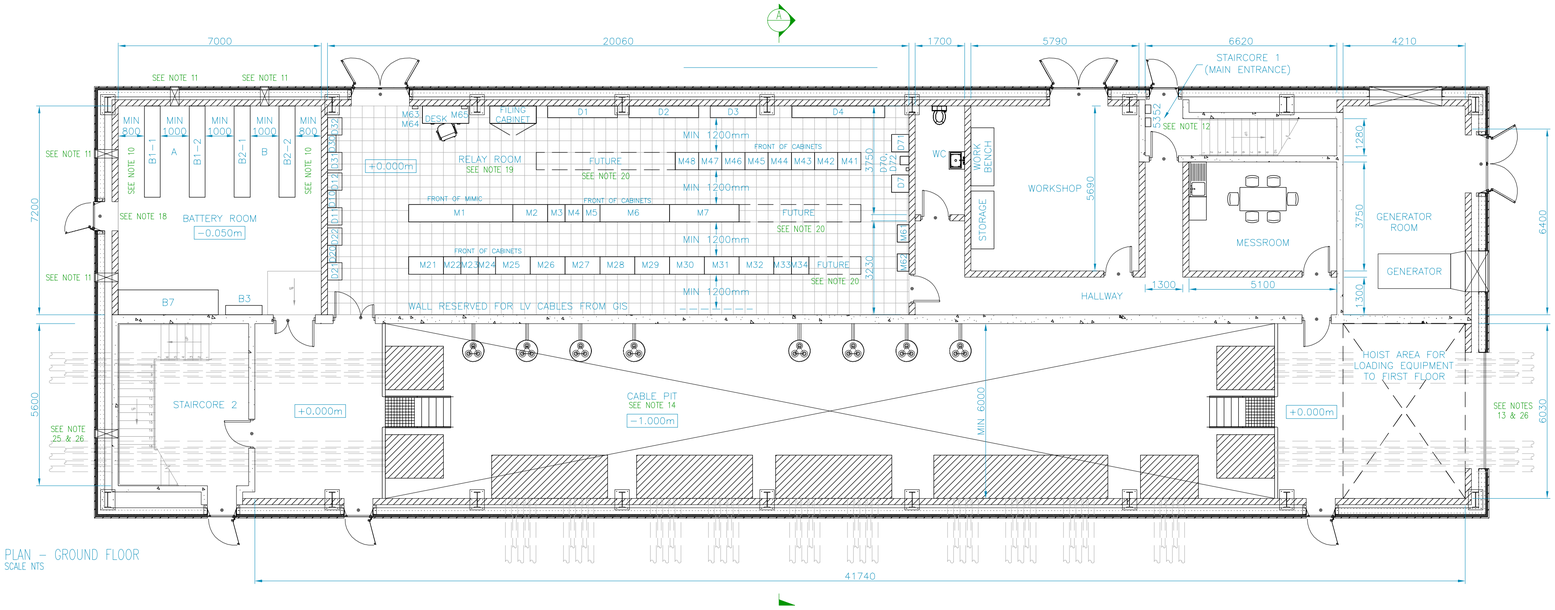
110kV GIS BUILDING LAYOUT



PLAN – FIRST FLOOR
SCALE NTS



SECTION
NTS



PLAN – 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	3450x860
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	
D71	48V SMPS (TELECOMS)	600x600
D72	TELECOMS ISOLATION SWITCH	100x100
M1	MIMIC	3600x600
M2	SYNCHRONISING PANEL	1200x600
M3	EVENT RECORDER/AAP	600x600
M4	BACKUP AAP	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	H08 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	TELEMETERING	800x600
M48	EIRGRID ENERGY METERING	800x600
M61	DCC RTU SEE NOTE 22	600x400
M62	CTE	600x400
M63	INTRUDER ALARM PANEL	
M64	FIRE ALARM PANEL	
M65	TELEPHONE POINTS (2No.)	

NOTE 1:
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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.

REV	DESC	DRAWN	CHECKED	APPROVED	DATE
00	FIRST ISSUE	CHC	NK	CF	26/09/2019

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PROJECT
STATION DESIGN STANDARD
110kV GIS STATION

DRAWING TITLE
110kV GIS BUILDING LAYOUT
FOR 8 BAY STATION
ENGINEERING DRAWING

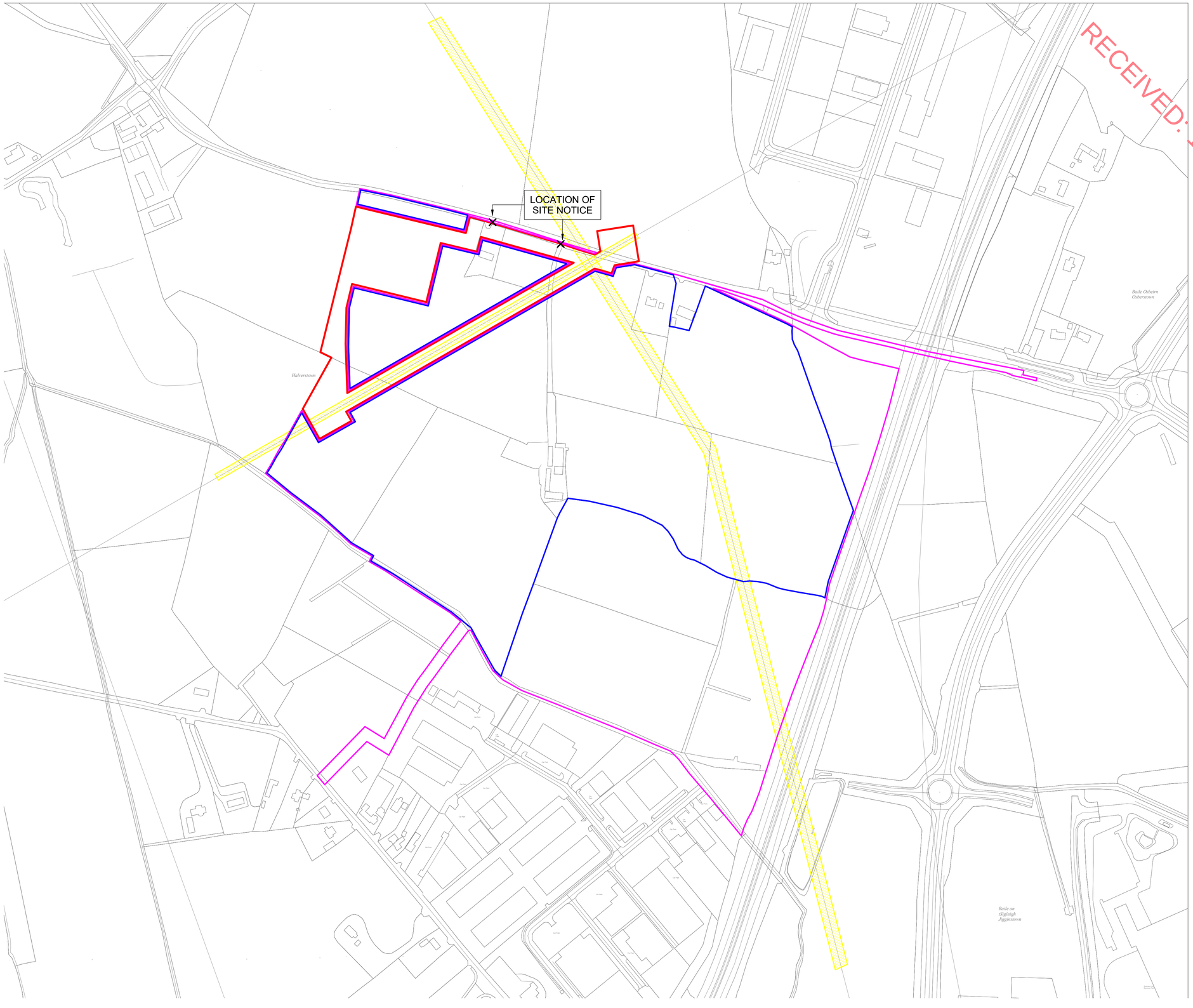
No of Shts	SIZE	SCALE
3	A1	NTS

DRAWING NUMBER: XDN-LAY-ELV-STND-H-012
SHEET: 003
REV: 00

Appendix B.

This appendix includes the following drawings:

Reference	Description	Rev
22217-RKD-ZZ-ZZ-DR-A-1050	Site Location Map	P01
22217-RKD-ZZ-ZZ-DR-A-1063	PROPOSED SUBSTATION COMPOUND PLAN	P01



Description:
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Digital Landscape Model (DLM)

Publisher / Source:
==========
Ordnance Survey Ireland (OSi)

Data Source / Reference:
==========
PRIME2

File Format:
==========
Autodesk AutoCAD (DWG_R2013)

File Name:
==========
y_50329935_1.dwg

Clip Extent / Area of Interest (AOI):
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LLX,LLY= 685721.3486,718741.6304
LRX,LRY= 687357.2067,718741.6304
ULX,ULY= 685721.3486,720252.4042
URX,URY= 687357.2067,720252.4042

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:
==========
Map Series | Map Sheets
1:2,500 | 3558-A
1:2,500 | 3508-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:
==========
Ordnance Survey Ireland 'Terms of Use' apply.
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DRAFT

SUBJECT TO SEPARATE SID APPLICATION

All dimensions to be checked on site. Figured dimensions take preference over scaled dimensions. Any errors or descrepancies to be reported to the Architects.This drawing may not be edited or modified by the recipient.

A1

HERBATA
GREEN ENERGY DATA

Notes:

LEGEND:

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

KEY PLAN

TRUE NORTH

Rev.	Date	Description
P05	29/04/2024	ISSUED FOR INFORMATION
P04	15/12/2023	ISSUED FOR INFORMATION
P03	14/08/2023	UPDATED PLANNING ISSUE
P02	11/07/2023	DRAFT PLANNING ISSUE
P01	02/06/2023	DRAFT PLANNING ISSUE

STATUS: INFORMATION

PROJECT: HERBATA DATA CENTRE CAMPUS

PROJECT ADDRESS: NAAS, CO. KILDARE

DWG TITLE: SITE LOCATION MAP

DWG NO.: 22217-RKD-ZZ-ZZ-DR-A-1050

REV.	STATUS	PROJECT NO.	22217
P05	S3	SCALE	1:2500
DATE 03/11/2023	DRN AMG	CHK KOS	

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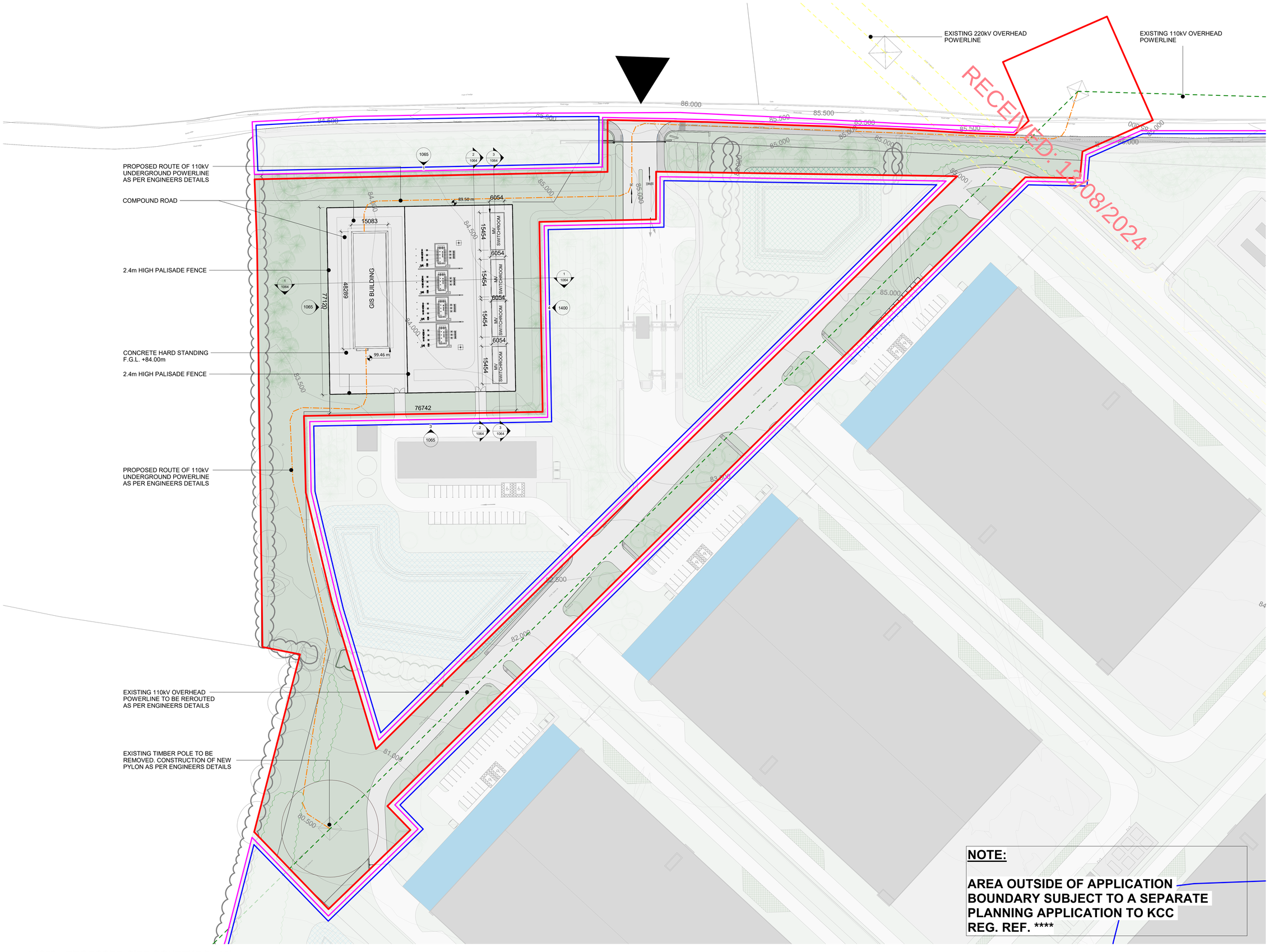
BSM
Est. 1968

DONNACHADH O'BRIEN
& ASSOCIATES CONSULTING ENGINEERS



1 **A1063 - PROPOSED SITE CONTEXT PLAN**
1 : 500

DRAFT
SUBJECT TO SEPARATE SID APPLICATION

All dimensions to be checked on site. Figured dimensions take preference over scaled dimensions. Any errors or discrepancies to be reported to the author. This drawing may not be edited or modified by the recipient.

A0

HERBATA GREEN ENERGY DATA

Notes.

LEGEND:

- AREA TO WHICH APPLICATION RELATES
- AREA SUBJECT OF SEPARATE KCC PLANNING APPLICATION
- OTHER LANDS UNDER CONTROL OF THE APPLICANT
- EXISTING OVERHEAD 110kV POWERLINE
- EXISTING OVERHEAD 220kV POWERLINE
- PROPOSED UNDERGROUND 110kV POWERLINE

KEY PLAN

TRUE NORTH

Rev.	Date	Description
P04	29/04/2024	ISSUED FOR INFORMATION
P03	15/12/2023	ISSUED FOR INFORMATION
P02	11/07/2023	DRAFT PLANNING ISSUE
P01	02/06/2023	DRAFT PLANNING ISSUE

STATUS: INFORMATION

PROJECT: HERBATA DATA CENTRE CAMPUS

PROJECT ADDRESS: NAAS, CO. KILDARE

DWG TITLE: PROPOSED SUBSTATION COMPOUND LAYOUT

DWG NO: 22217-RKD-ZZ-ZZ-DR-A-1063

REV.	SUITABILITY	PROJECT NO.
P04		22217
DATE	03/11/2023	DRN AMG CHK KOS
		SCALE 1:500

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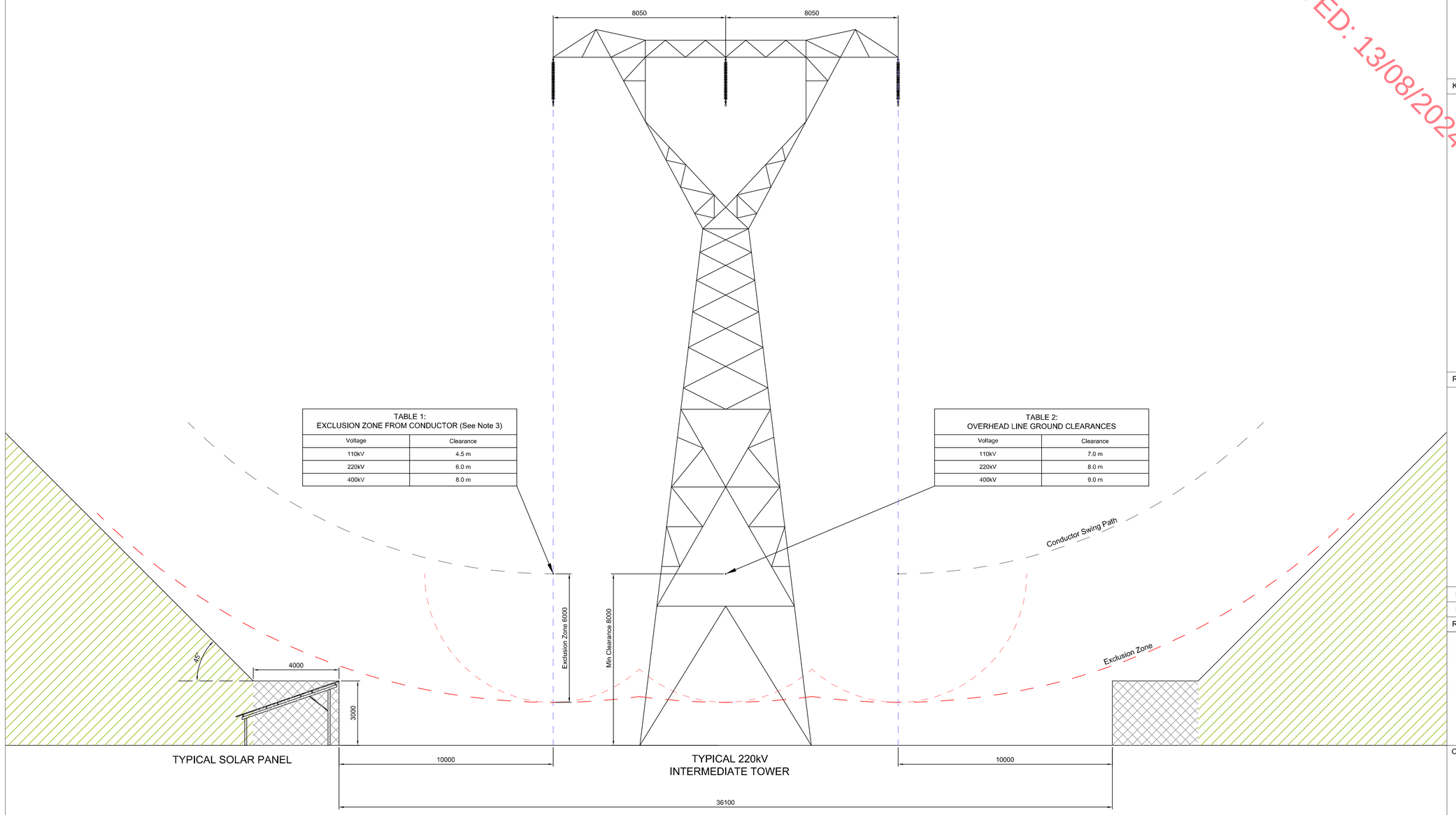
BSM Est. 1968

DONNACHADH O'BRIEN & ASSOCIATES CONSULTING ENGINEERS

Appendix C.

This appendix includes the following drawings:

Reference	Description	Rev
MMD-373966-E-SK-00-XX-0022	Transmission Line and Solar Farm Guidance Clearances Guideline 220kV Setback Distances Section Drawing - Elevation	P2



Section B-B

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

1:100 0 2m 5m 10m

Notes

1. All dimensions in millimetres.
2. Overhead line clearances derived from EirGrid functional specification for overhead lines LDS-EFS-00-001-R0.
3. Exclusion zone clearances derived from ESBN Code of Practice for Avoiding Danger from Overhead Electricity Lines (Document No: DOC-230910-BBA).
4. Conductor swing path based on midspan wind blow at minimum ground clearance.
5. This drawing does not specify clearances at structures. Refer to drawing MMD-373966-E-SK-00-XX-0012 for clearance at structures.
6. 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

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

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Client

EIRGRID

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	Status	Rev	Security
1:100	PRE	P2	STD

Drawing Number
MMD-373966-E-SK-00-XX-0022