

- LEGEND**
- RAILWAY STATIONS
 - DEVELOPMENT BOUNDARY
 - 100M BUFFER
 - GROUNDWATER MONITORING INSTALLATIONS (INCLUDING THE METHOD WHICH THEY WERE DRILLED BY)**
 - CABLE PERCUSSION
 - CABLE PERCUSSION WITH ROTARY CORE FOLLOW-ON
 - ROTARY CORE

Disclaimer
© Irish Rail (2023). This drawing is confidential and the copyright in it is owned by Irish Rail. This drawing must not be either loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior permission of Irish Rail.
© OpenStreetMap contributors.
© Ordnance Survey Ireland and Government of Ireland. All O.S. data used for plans are printed under "Copyright Ordnance Survey Ireland 0039723 (OSI Aerial Data or OSI Lidar Data) & 2023/ OSI_NMA_180 (OSI Vector Data)". All elevations are in metres and relate to OSI Geoid Model (OSGM02) Mean Head as defined by OSI active GPS station Tallaght College (TLLG).

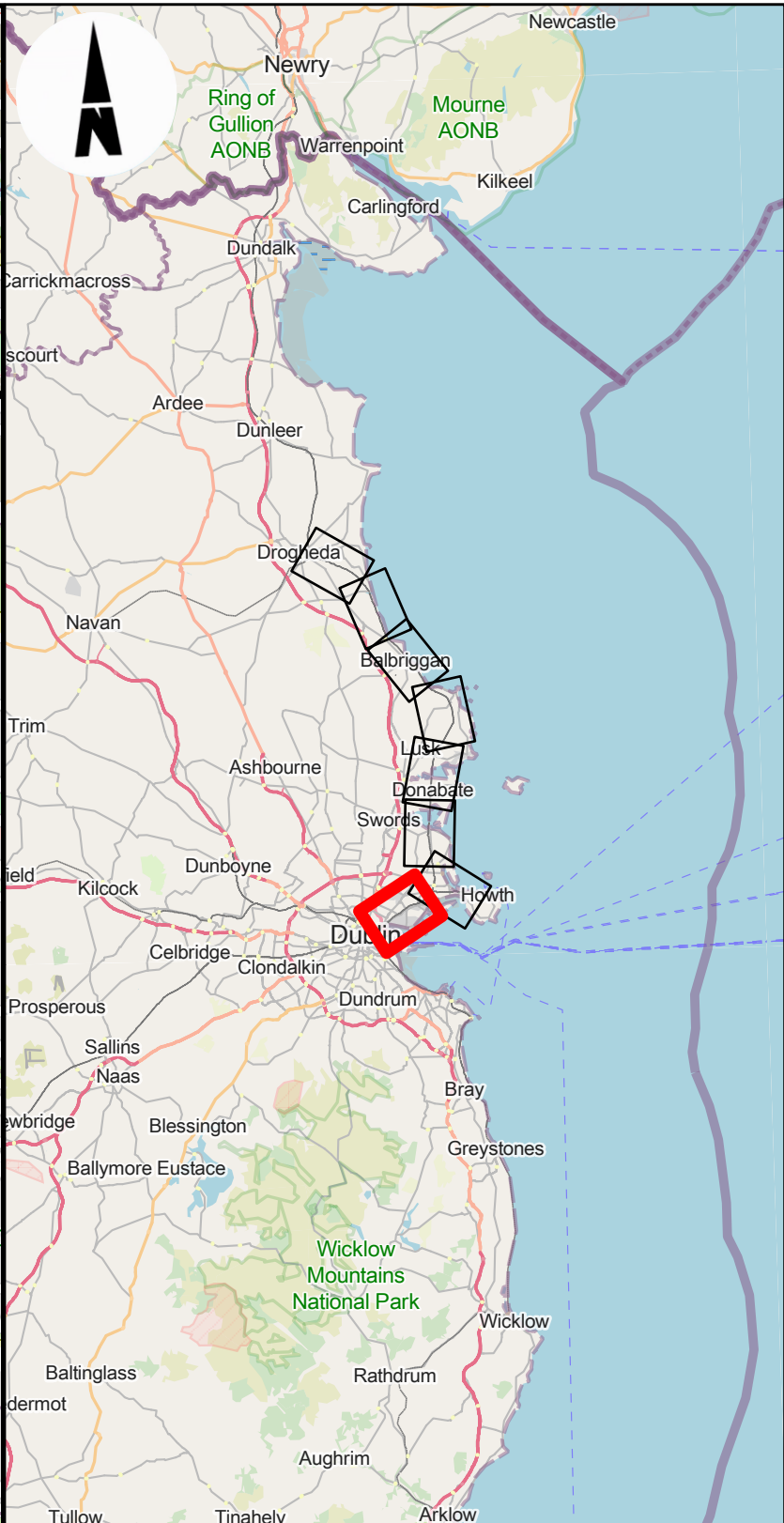
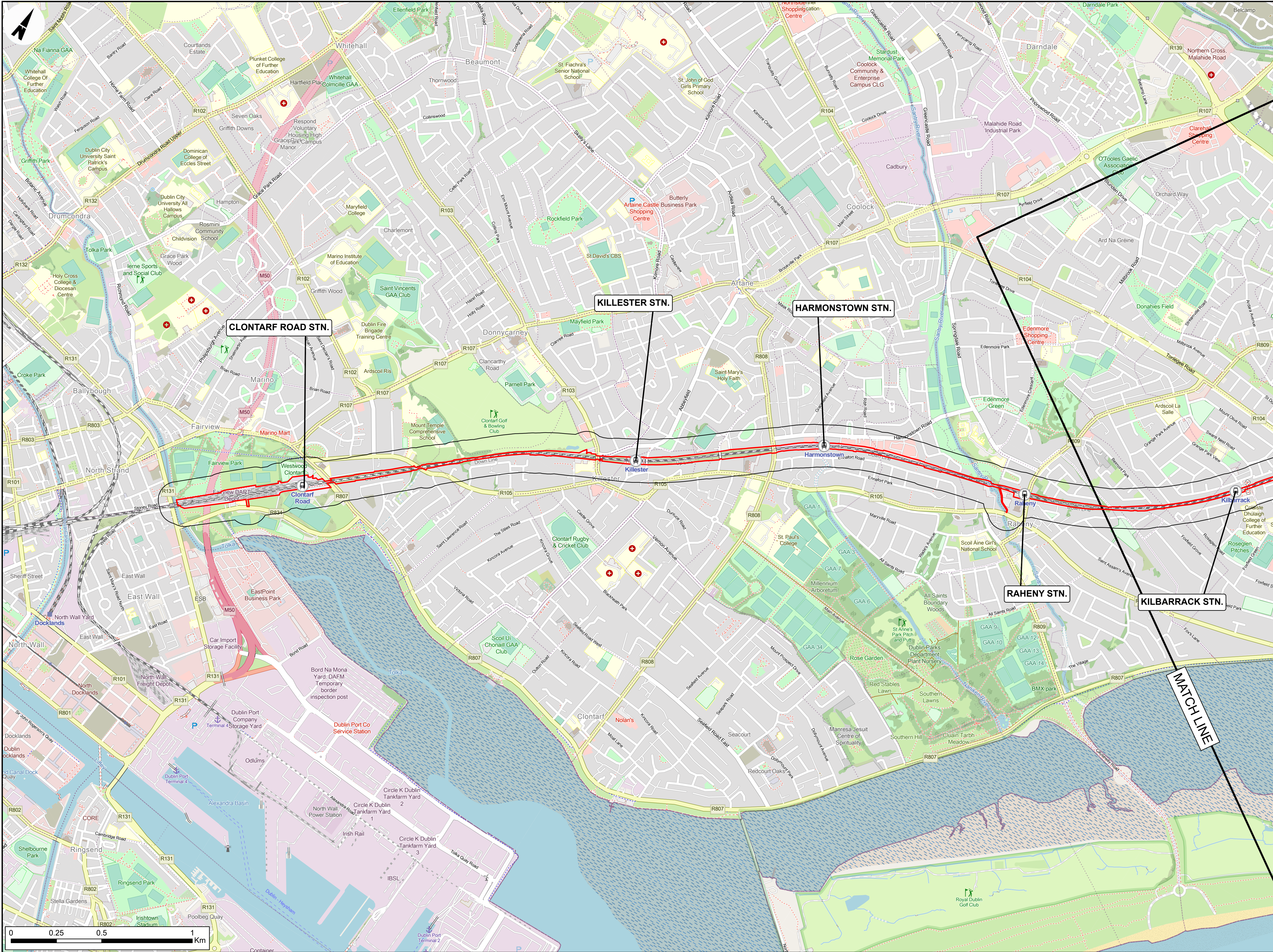
NOTES
GROUNDWATER MONITORING LOCATIONS SHOWN ARE BASED ON THE FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IN CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:
• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND
• VOLUME 3 - MALAHIDE, CLONGRIFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.



Rev	Date	Dm	Chkd	App'd	Description
P02	31/05/2024	DM	MF	GS	PLANNING ISSUE

Client		Engineering Designer	
Date	07/09/2023	Scale	1:75000 @ A1 1:150000 @ A3
Project Code	D+WP56	Originator Code	ARP
Drawn		Checked	Approved
DM		MF	GS

Project Title			
DART+ COASTAL NORTH			
Drawing Title			
HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS OVERVIEW			
Drawing File Name		Sheet Number	Status
D+WP56-ARP-ZZ-NL-DR-EVGT-100081		1 of 9	S4
Rev		P02	



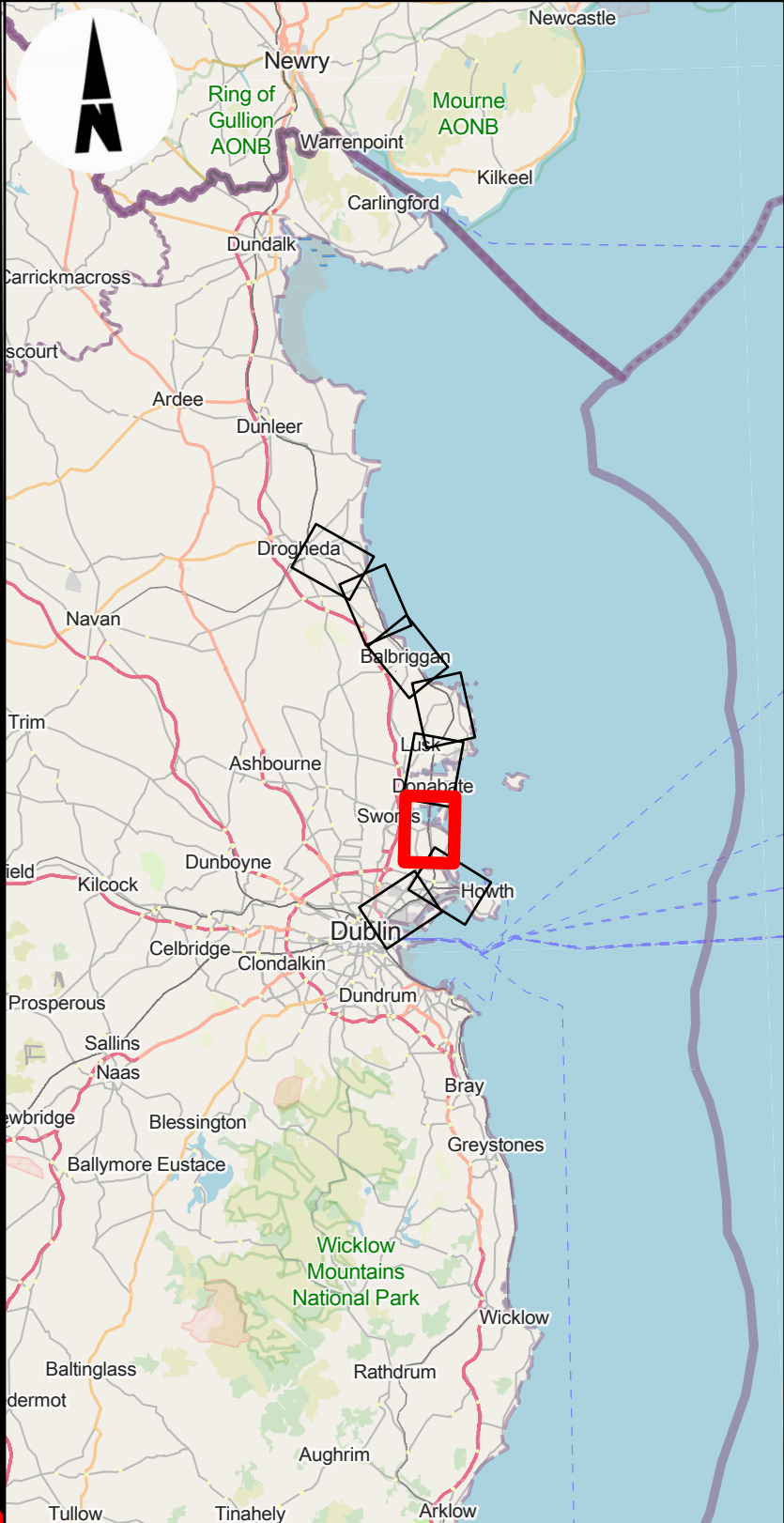
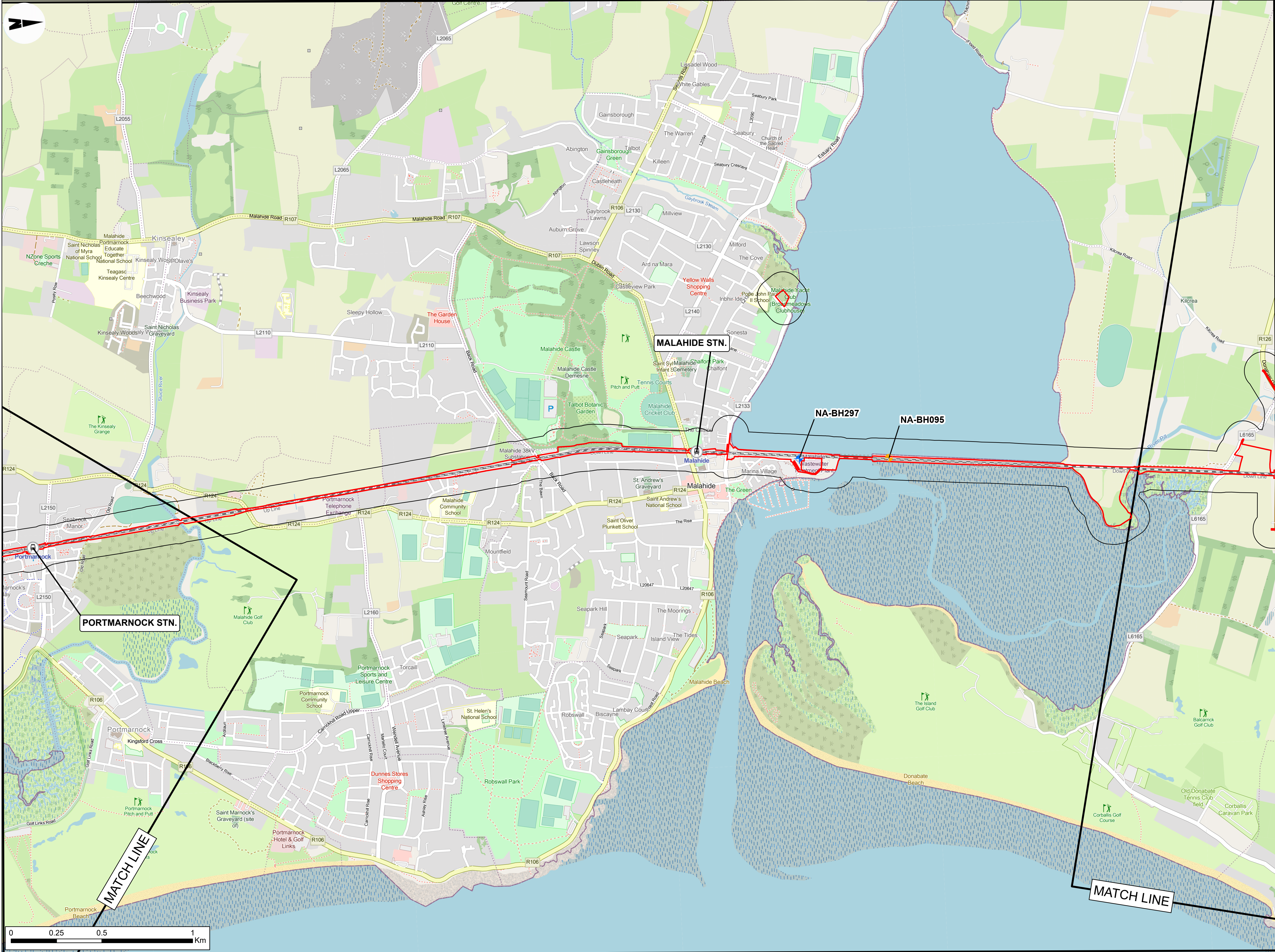
- LEGEND**
- RAILWAY STATIONS
 - DEVELOPMENT BOUNDARY
 - 100M BUFFER

Disclaimer
© Irish Rail (2023). This drawing is confidential and the copyright in it is owned by Irish Rail. This drawing must not be either loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior permission of Irish Rail.
© OpenStreetMap contributors.
© Ordnance Survey Ireland and Government of Ireland. All O.S. data used for plans are printed under "Copyright Ordnance Survey Ireland 0039723 (OSI Aerial Data or OSI Lidar Data) & 2023/21-1711B, REV A05, OCTOBER 2023; AND
(OSGM02) Malin Head as defined by existing Project Control. All Co-ordinates are in Irish Transverse Mercator Grid (ITM) as defined by OSI active GPS station Tallaght College (TLG).

NOTES
GROUNDWATER MONITORING LOCATIONS SHOWN ARE BASED ON THE FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IN CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:
• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND
• VOLUME 3 - MALAHIDE, CLONGRIFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.

	<table><tr><td>Rev</td><td>Date</td><td>Dm</td><td>Chkd</td><td>App'd</td><td>Description</td></tr><tr><td>P02</td><td>31/05/2024</td><td>DM</td><td>MF</td><td>GS</td><td>PLANNING ISSUE</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>	Rev	Date	Dm	Chkd	App'd	Description	P02	31/05/2024	DM	MF	GS	PLANNING ISSUE																									<table><tr><td>Client</td><td>Engineering Designer</td></tr><tr><td></td><td></td></tr><tr><td>Date: 07/09/2023</td><td>Scale: 1:10000 @ A1 1:20000 @ A3</td></tr><tr><td>Project Code: D+WP56</td><td>Originator Code: ARP</td></tr><tr><td>Drawn: DM</td><td>Checked: MF</td></tr><tr><td>Approved: GS</td><td> </td></tr></table>	Client	Engineering Designer			Date: 07/09/2023	Scale: 1:10000 @ A1 1:20000 @ A3	Project Code: D+WP56	Originator Code: ARP	Drawn: DM	Checked: MF	Approved: GS		<table><tr><td>Project Title</td><td colspan="3">DART+ COASTAL NORTH</td></tr><tr><td>Drawing Title</td><td colspan="3">HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS</td></tr><tr><td>Drawing File Name</td><td>D+WP56-ARP-ZZ-NL-DR-EVGT-100082</td><td>Sheet Number 2 of 9</td><td>Status S4</td></tr><tr><td>Rev</td><td>P02</td><td> </td><td> </td></tr></table>	Project Title	DART+ COASTAL NORTH			Drawing Title	HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS			Drawing File Name	D+WP56-ARP-ZZ-NL-DR-EVGT-100082	Sheet Number 2 of 9	Status S4	Rev	P02		
Rev	Date	Dm	Chkd	App'd	Description																																																														
P02	31/05/2024	DM	MF	GS	PLANNING ISSUE																																																														
Client	Engineering Designer																																																																		
Date: 07/09/2023	Scale: 1:10000 @ A1 1:20000 @ A3																																																																		
Project Code: D+WP56	Originator Code: ARP																																																																		
Drawn: DM	Checked: MF																																																																		
Approved: GS																																																																			
Project Title	DART+ COASTAL NORTH																																																																		
Drawing Title	HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS																																																																		
Drawing File Name	D+WP56-ARP-ZZ-NL-DR-EVGT-100082	Sheet Number 2 of 9	Status S4																																																																
Rev	P02																																																																		





- LEGEND**
- RAILWAY STATIONS
 - DEVELOPMENT BOUNDARY
 - 100M BUFFER
 - GROUNDWATER MONITORING INSTALLATIONS (INCLUDING THE METHOD WHICH THEY WERE DRILLED BY)**
 - CABLE PERCUSSION WITH ROTARY CORE FOLLOW-ON
 - ROTARY CORE

Disclaimer
© Irish Rail (2023). This drawing is confidential and the copyright in it is owned by Irish Rail. This drawing must not be either loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior permission of Irish Rail.
© OpenStreetMap contributors.
© Ordnance Survey Ireland and Government of Ireland. All O.S. data used for plans are printed under "Copyright Ordnance Survey Ireland 0039723 (OSI Aerial Data or OSI Lidar Data) & 2023/21-1711B, REV A05, OCTOBER 2023, AND OSI, NMA, 180 (OSI Vector Data)". All elevations are in metres and relate to OSI Geoid Model (OSGM02) Malin Head as defined by existing Project Control. All Co-ordinates are in Irish Transverse Mercator Gnd (ITM) as defined by OSI active GPS station Tallaght College (TLG).

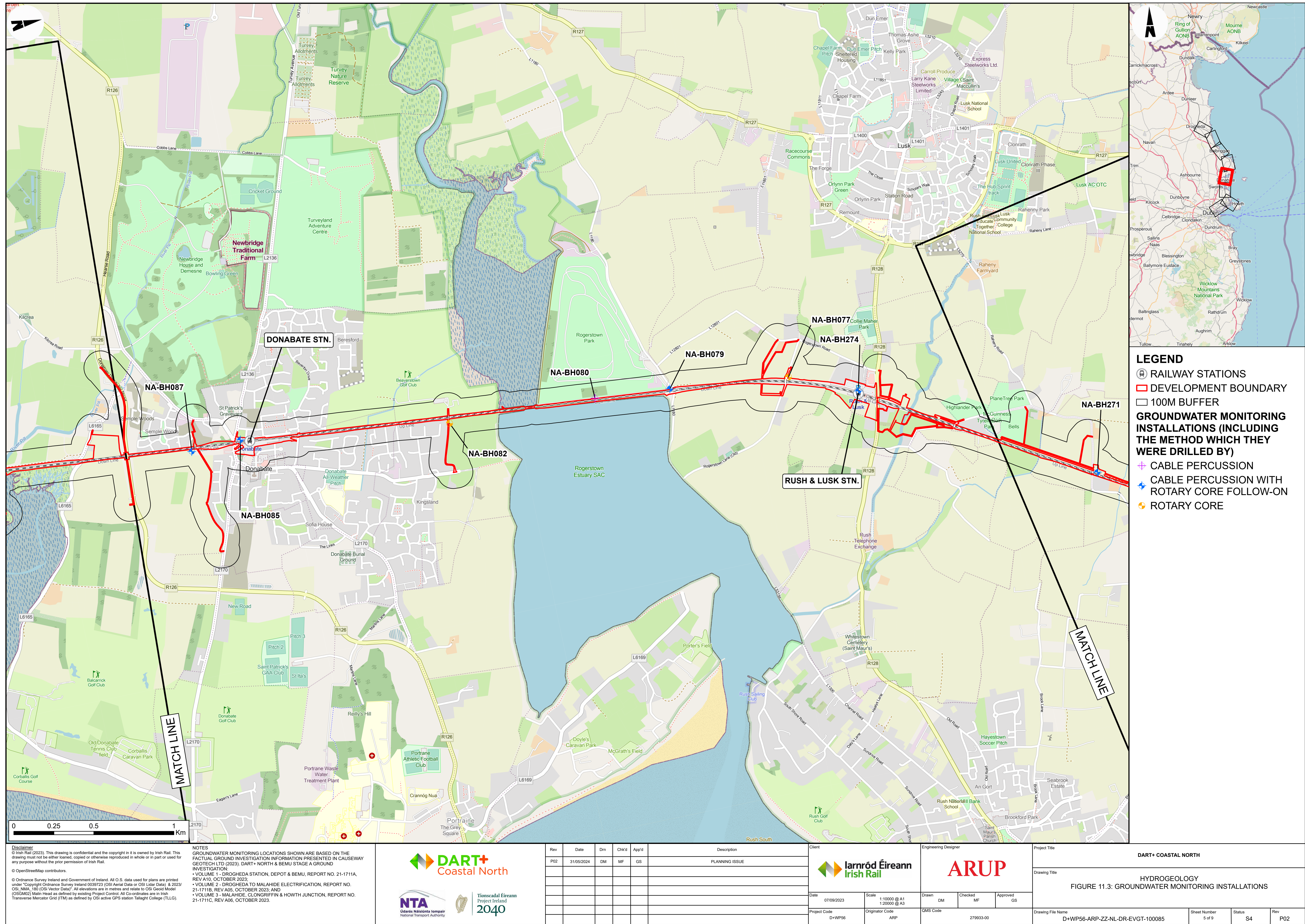
NOTES
GROUNDWATER MONITORING LOCATIONS SHOWN ARE BASED ON THE FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IN CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:
• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND
• VOLUME 3 - MALAHIDE, CLONGRIFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.

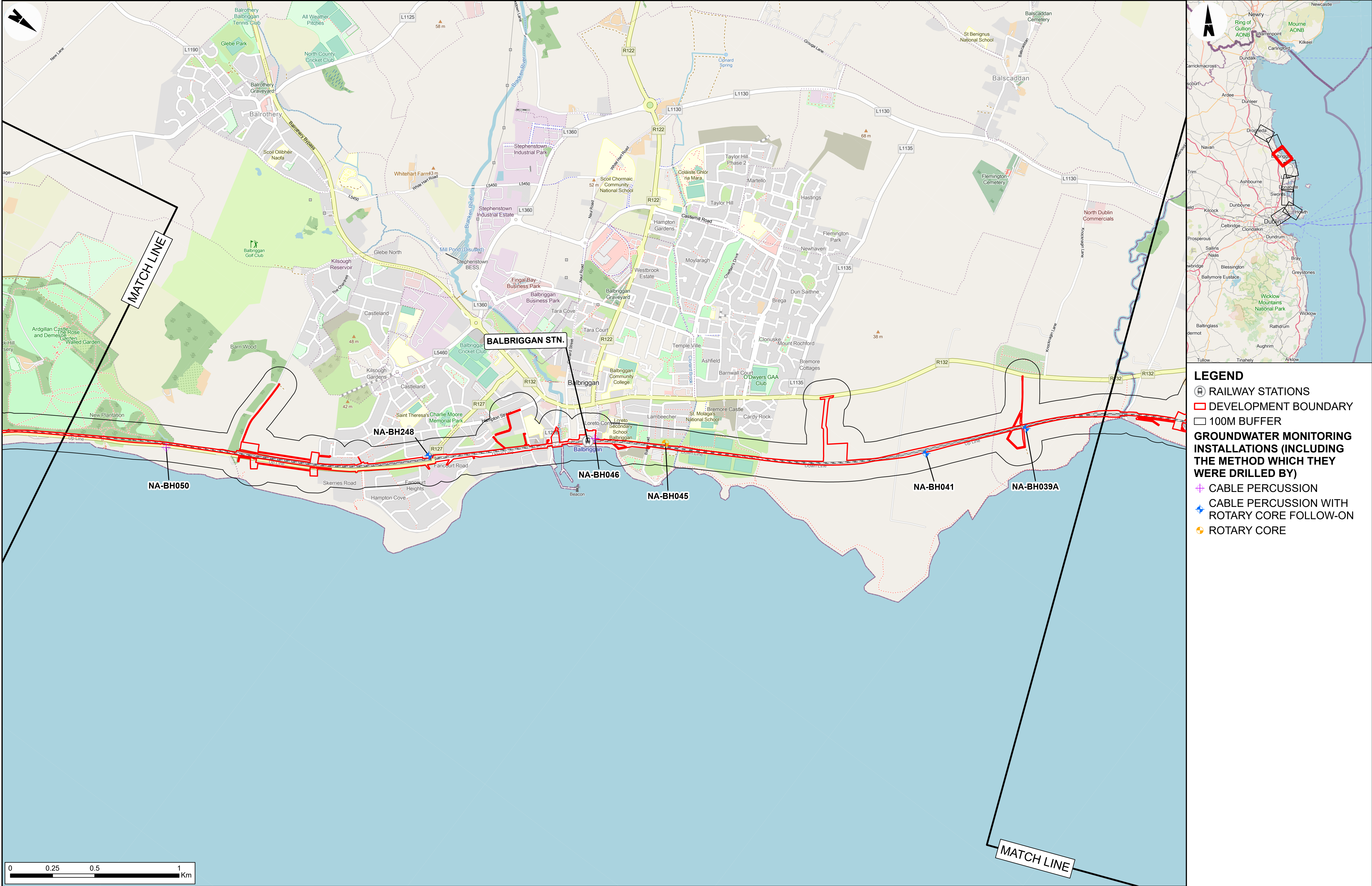


Rev	Date	Dn	Chkd	App'd	Description
P02	31/05/2024	DM	MF	GS	PLANNING ISSUE

Date	07/09/2023	Scale	1:10000 @ A1 1:20000 @ A3	Drawn	DM	Checked	MF	Approved	GS
Project Code	D+WP56	Originator Code	ARP	QMS Code	279933-00				

DART+ COASTAL NORTH				
Drawing Title				
HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS				
Drawing File Name				
D+WP56-ARP-ZZ-NL-DR-EVGT-100084				
Sheet Number	4 of 9	Status	S4	Rev
				P02





Disclaimer
© Irish Rail (2023). This drawing is confidential and the copyright in it is owned by Irish Rail. This drawing must not be either loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior permission of Irish Rail.

© Ordnance Survey Ireland and Government of Ireland. All O.S. data used for plans are printed under "Copyright Ordnance Survey Ireland 0039723 (OSI Aerial Data or OSI Lidar Data) & 2023/ OSI_NMA_180 (OSI Vector Data)". All elevations are in metres and relate to OSI Geoid Model (OSGM02) Malin Head as defined by existing Project Control. All Co-ordinates are in Irish Transverse Mercator Grid (ITM) as defined by OSI active GPS station Tallaght College (TLLG).

NOTES
GROUNDWATER MONITORING LOCATIONS SHOWN ARE BASED ON THE FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IN CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:
• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND
• VOLUME 3 - MALAHIDE, CLONGRIFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.

Udarás Náisiúnta Iompair
National Transport Authority

Project Ireland 2040

Rev	Date	Dm	Chk'd	App'd	Description
P02	31/05/2024	DM	MF	GS	PLANNING ISSUE

Irish Rail

Date

07/09/2023

Scale

1:10000 @ A1
1:20000 @ A3

Date

07/09/2023

Project Code

D+WP56

Engineering Designer

Drawn

DM

Checked

MF

Approved

GS

Client

Irish Rail

Project Title

DART+ COASTAL NORTH

Drawing Title

HYDROGEOLOGY
FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS

Drawing File Name

D+WP56-ARP-ZZ-NL-DR-EVGT-100087

Sheet Number

7 of 9

Status

S4

Rev

P02

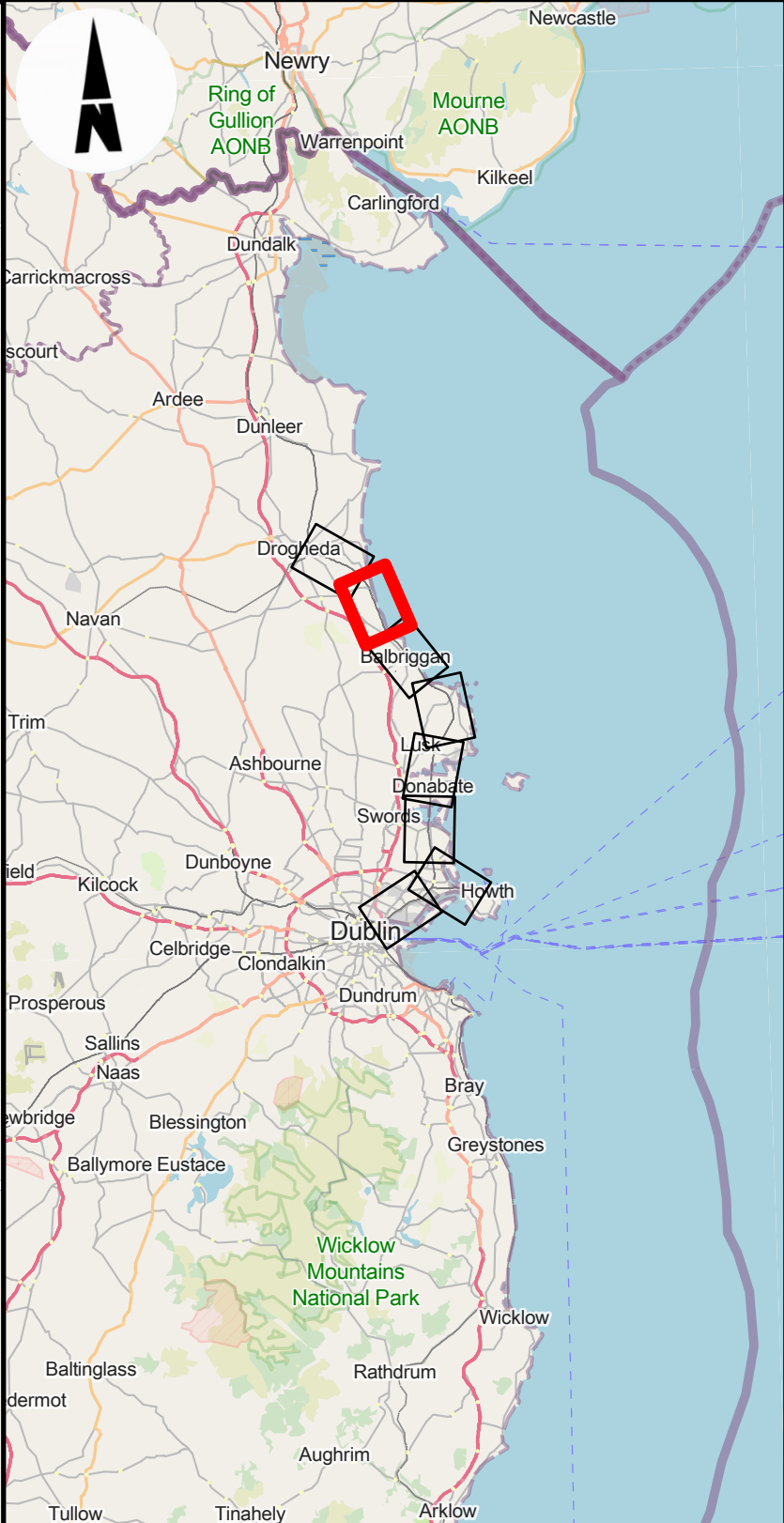
QMS Code

279933-00

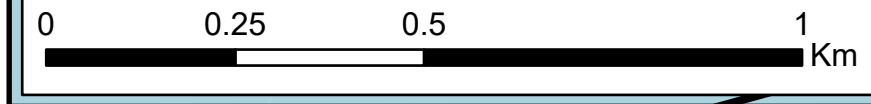
Originator Code

ARP

© Arup



- LEGEND**
- RAILWAY STATIONS
 - DEVELOPMENT BOUNDARY
 - 100M BUFFER
 - GROUNDWATER MONITORING INSTALLATIONS (INCLUDING THE METHOD WHICH THEY WERE DRILLED BY)**
 - CABLE PERCUSSION
 - CABLE PERCUSSION WITH ROTARY CORE FOLLOW-ON



Disclaimer
© Irish Rail (2023). This drawing is confidential and the copyright in it is owned by Irish Rail. This drawing must not be either loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior permission of Irish Rail.

© Ordnance Survey Ireland and Government of Ireland. All O.S. data used for plans are printed under "Copyright Ordnance Survey Ireland 0039723 (OSI Aerial Data or OSI Lidar Data) & 2023/ OSI_NMA_180 (OSI Vector Data)". All elevations are in metres and relate to OSI Geoid Model (OSGM02) Malin Head as defined by existing Project Control. All Co-ordinates are in Irish Transverse Mercator Grd (ITM) as defined by OSI active GPS station Tallaght College (TLLG).

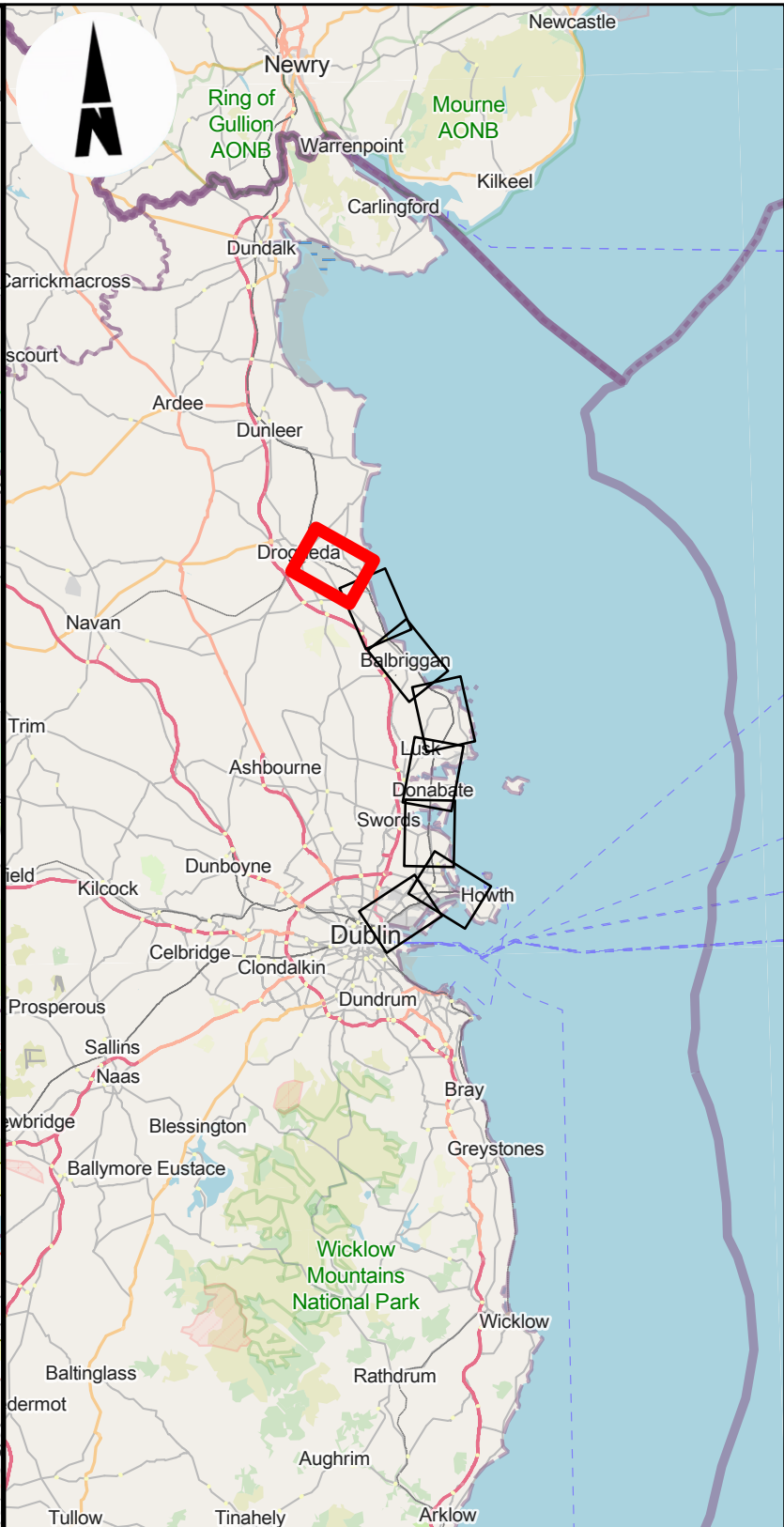
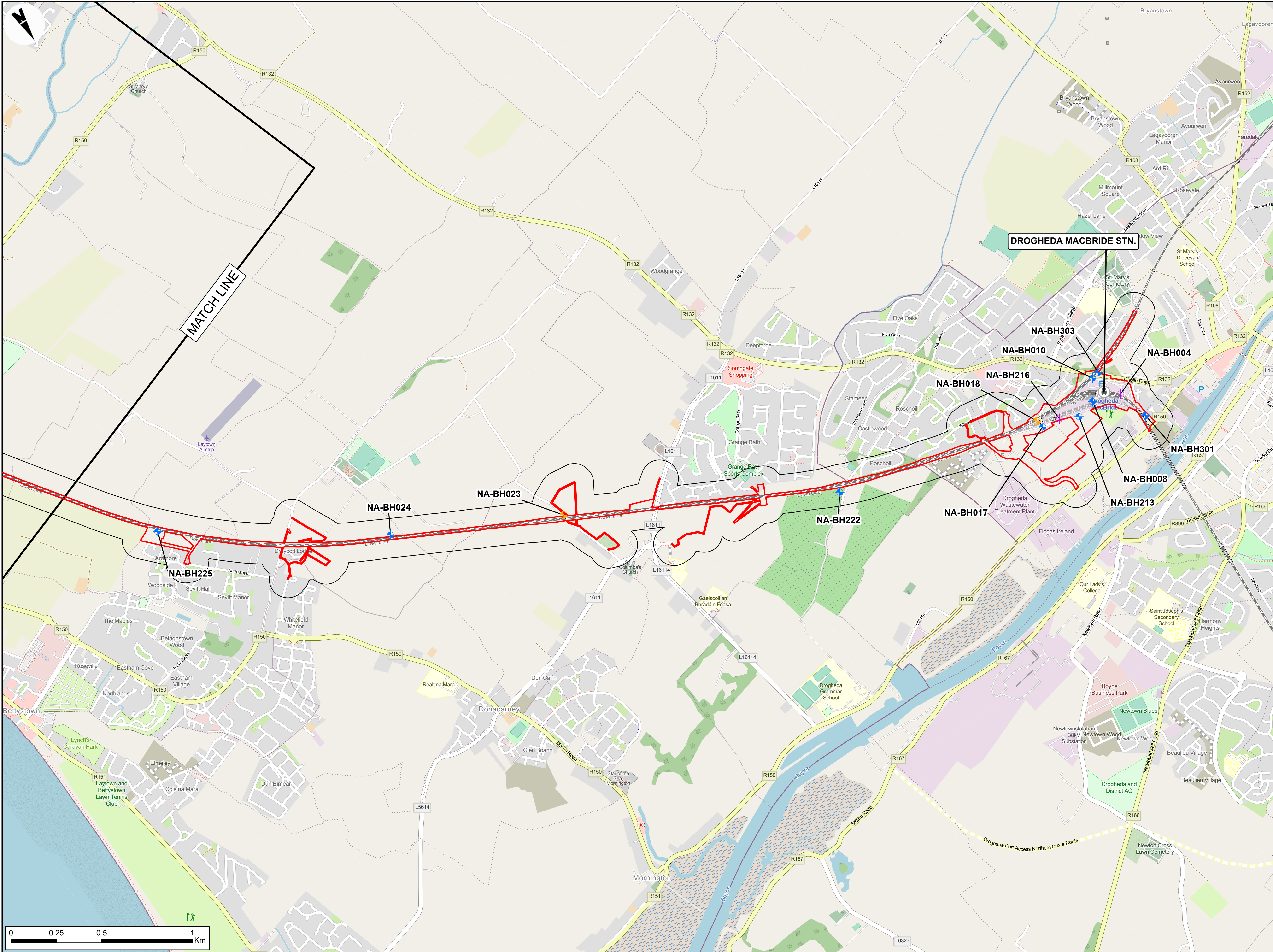
NOTES
GROUNDWATER MONITORING LOCATIONS SHOWN ARE BASED ON THE FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IN CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:
• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND
• VOLUME 3 - MALAHIDE, CLONGRIFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.



Rev	Date	Dm	Chk'd	App'd	Description
P02	31/05/2024	DM	MF	GS	PLANNING ISSUE

Client		Engineering Designer	
Iarnród Éireann Irish Rail		ARUP	
Date	07/09/2023	Scale	1:10000 @ A1 1:20000 @ A3
Project Code	D+WP56	Originator Code	ARP
Drawn		Checked	Approved
DM		MF	GS
QMS Code		279933-00	

Project Title			
DART+ COASTAL NORTH			
Drawing Title			
HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS			
Drawing File Name		Sheet Number	Status
D+WP56-ARP-ZZ-NL-DR-EVGT-100088		8 of 9	S4
Rev		P02	



- LEGEND**
- RAILWAY STATIONS
 - DEVELOPMENT BOUNDARY
 - 100M BUFFER
 - GROUNDWATER MONITORING INSTALLATIONS (INCLUDING THE METHOD WHICH THEY WERE DRILLED BY)**
 - CABLE PERCUSSION
 - CABLE PERCUSSION WITH ROTARY CORE FOLLOW-ON
 - ROTARY CORE

Disclaimer
© Irish Rail (2023). This drawing is confidential and the copyright in it is owned by Irish Rail. This drawing must not be either loaned, copied or otherwise reproduced in whole or in part or used for any purpose without the prior permission of Irish Rail.
© OpenStreetMap contributors.
© Ordnance Survey Ireland and Government of Ireland. All O.S. data used for plans are printed under "Copyright Ordnance Survey Ireland 0039723 (OSI Aerial Data or OSI Lidar Data) & 2023/ OSI, NMA, 180 (OSI Vector Data)". All elevations are in metres and relate to OSI Geoid Model (OSGM02) Malin Head as defined by existing Project Control. All Co-ordinates are in Irish Transverse Mercator Grid (ITM) as defined by OSI active GPS station Tallaght College (TLLG).

NOTES
GROUNDWATER MONITORING LOCATIONS SHOWN ARE BASED ON THE FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IN CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:
• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND
• VOLUME 3 - MALAHIDE, CLONGRIFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.



Rev	Date	Dm	Chk'd	App'd	Description
P02	31/05/2024	DM	MF	GS	PLANNING ISSUE

Client		Engineering Designer			Project Title	
Iarnród Éireann Irish Rail		ARUP			DART+ COASTAL NORTH	
Date 07/09/2023		Scale 1:10000 @ A1 1:20000 @ A3			Drawing Title	
Project Code D+WP56		Originator Code ARP			HYDROGEOLOGY FIGURE 11.3: GROUNDWATER MONITORING INSTALLATIONS	
QMS Code 279933-00		QMS Code 279933-00			Drawing File Name D+WP56-ARP-ZZ-NL-DR-EVGT-100089	
DM		Checked MF			Sheet Number 9 of 9	
Approved GS		Status S4			Rev P02	