

LEGEND:

Blow counts exceed 20.

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated: * from main blows ** from seating blows

Typical Dynamic Probe plot with depth

PROFILE

Hole ID (Offset)

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Railway Ballast [RB]

Topsil [TOP]

Peat [Peat]

Clay [Clay]

Sand [Sand]

Gravel [Gravel]

Silt [Silt]

Mudstone [Mud]

Limestone [Lst]

Diorite or Basalt [IN]

Sandstone [SS]

Siltstone [Sist]

Conglomera [Cng]

Breccia [BR]

Weathered Rock [WrR]

Masonry Wall [Masonry]

Open Hole [OH]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

SANDY GRAVELLY SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

SANDY GRAVEL

Made Ground - FILL

SAND and GRAVEL

SANDY GRAVELLY COBBLY CLAY

SANDY CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy gravelly CLAY

Silty sandy CLAY

SANDY CLAY

Clayey gravelly SAND

Clayey silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

GI SYMBOL

NA-BH Cable Percussion

NA-BH Cable Percussion with S-Geobor

NA-BH Cable Percussion with Rotary Core Follow-on

NA-BH S-Geobor

NA-BH Rotary Core

NA-SC Structural Coring

NA-DP Dynamic Probing

NA-WS Window Sample and Dynamic Probing

NA-FIP Foundation Pit Inspection

NA-OP Observation Pit

NA-ST Slit Trench

NA-SA Soak Away

NA-TP Trial Pit

R1 ERT Profile

S1 Seismic Refraction Profile

YES (See Factual Reports for Results)

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NOTE:

1. FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IS BASED ON 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, CLONGRIFFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.

2. DOWN MAIN AND UP MAIN BOUNDARY LEVEL BASED ON TOPOGRAPHICAL LEVELS TAKEN FROM 2012 LIDAR ALONG IÉ PROPERTY BOUNDARY.

3. GEOLOGICAL STICK LOGS PRESENTED ON PROFILES ARE PROJECTED TO A CENTRE LINE BETWEEN THE UP AND DOWN MAIN LINES AND SHOULD BE READ WITH IN THE CONTEXT OF INCREASING CHAINAGE.

4. DYNAMIC PROBES PRESENTED ARE DPSH-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.

Rev P01 Date 20/11/2023 Dm EAM Chk'd MT App'd MF Description PLANNING ISSUE

Client **Iarnród Éireann Irish Rail**

Engineering Designer **ARUP**

Date 06/07/2023 Scale 1:2500 @ A1 1:5000 @ A3 Drawn SR Checked MT Approved MF

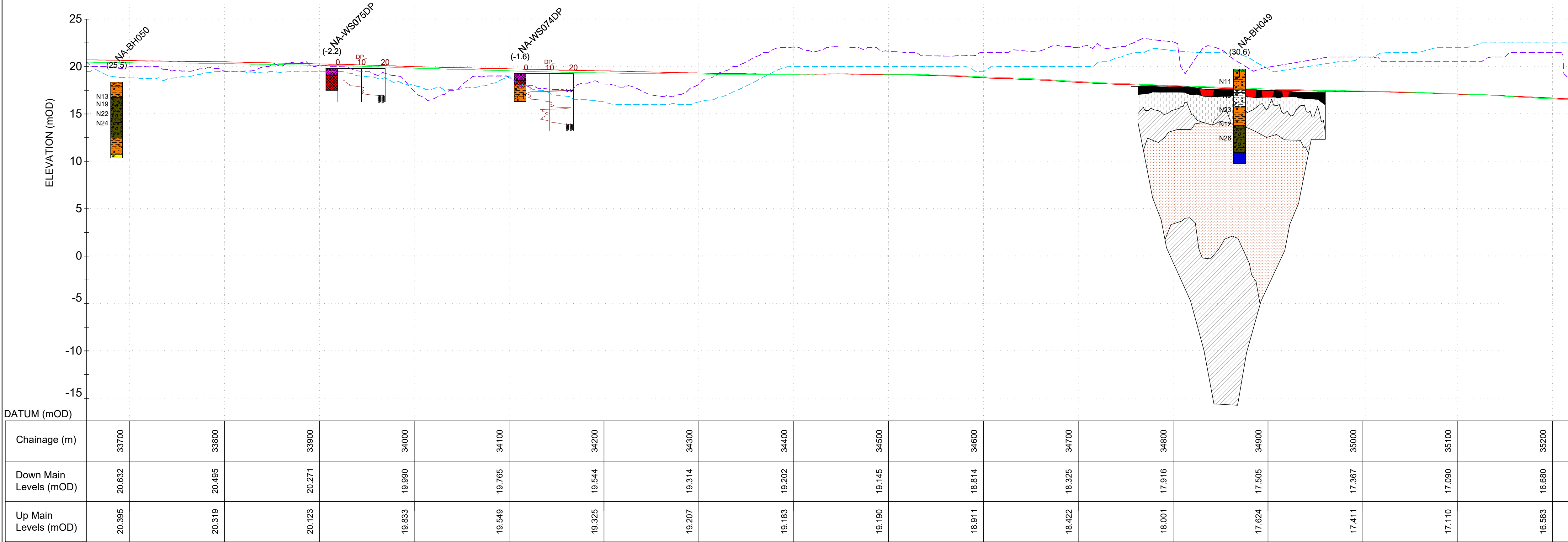
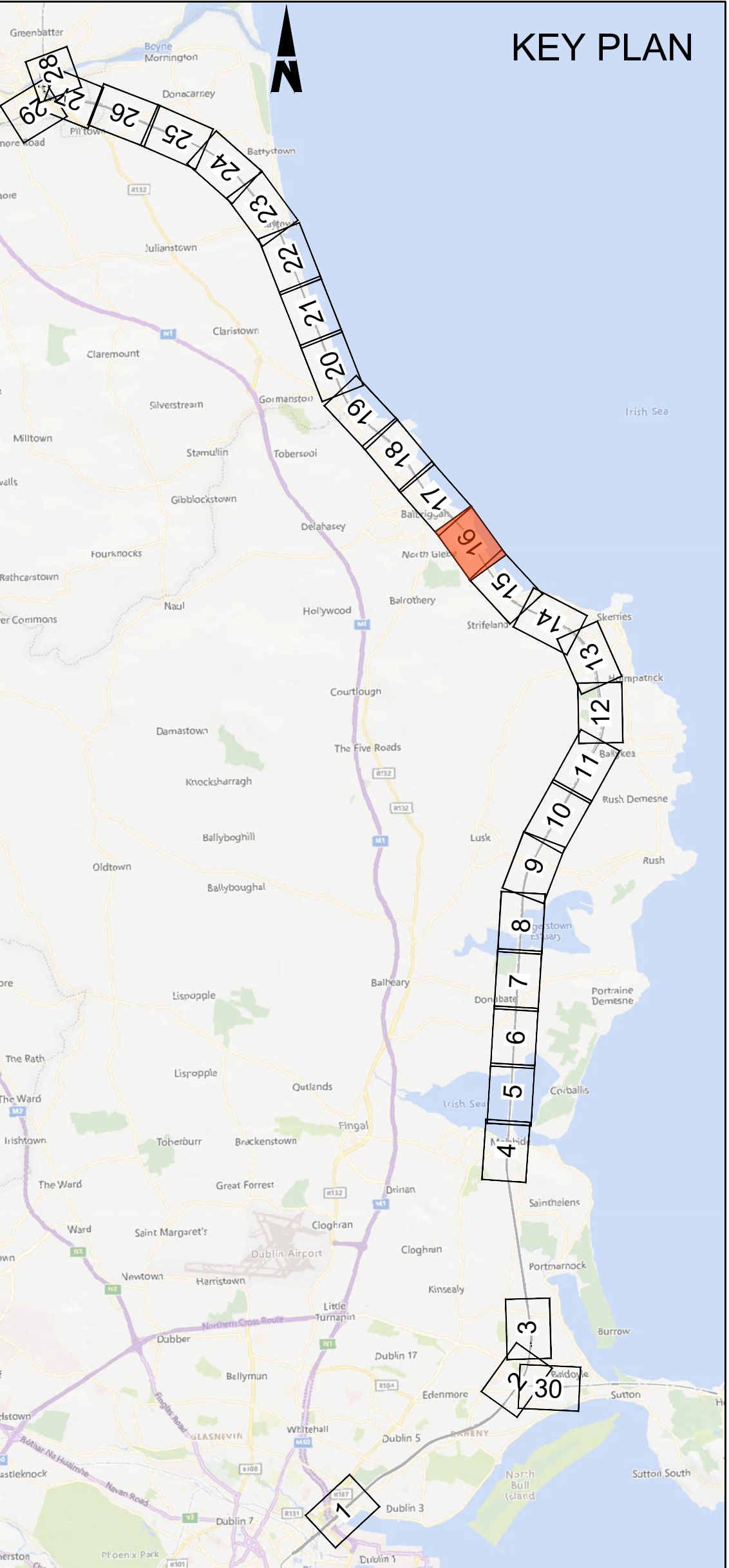
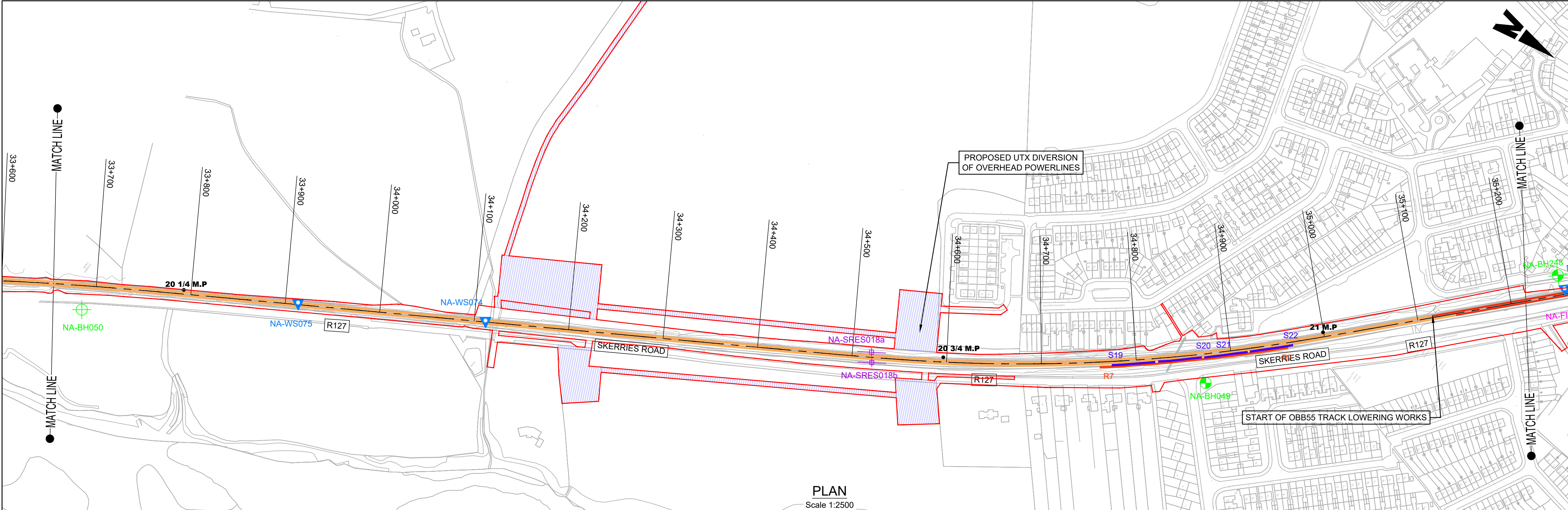
Project Code D+WP56 Originator Code ARP QMS Code 280275-00

Project Title **DART+ COASTAL NORTH**

Drawing Title **PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE SKERRIES STATION AND SURROUNDS**

Drawing File Name D+WP56-ARP-P4-NL-DR-RO-900014 Sheet Number 14 of 30 Status S3 Rev P01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Chainage (m)	33700	33800	33900	34000	34100	34200	34300	34400	34500	34600	34700	34800	34900	35000	35100	35200
Down Main Levels (mOD)	20.632	20.495	20.271	19.990	19.765	19.544	19.314	19.202	19.145	18.814	18.325	17.916	17.505	17.367	17.090	16.680
Up Main Levels (mOD)	20.395	20.319	20.123	19.833	19.549	19.325	19.207	19.183	19.190	18.911	18.422	18.001	17.624	17.411	17.110	16.583

LEGEND:

PROFILE

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated: * from main blows ** from seating blows

Typical Dynamic Probe plot with depth

Hole ID

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

Made Ground [MG]

Railway Ballast [RB]

Topsail [TOP]

Peat [Peat]

Clay [Clay]

Sand [Sand]

Gravel [Gravel]

Silt [Silt]

Mudstone [Mud]

Limestone [Lst]

Diorite or Basalt [IN]

Sandstone [SS]

Siltstone [Sist]

Conglomera [Cng]

Breccia [BR]

Masonry Wall [Masonry]

Open Hole [OH]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

Sandy gravelly SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

Sandy GRAVEL

Made Ground - FILL

SAND and GRAVEL

Sandy gravelly cobbly CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy gravelly CLAY

Silty sandy CLAY

Sandy CLAY

Clayey gravelly SAND

Clayey silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

Geophysical (for factual data refer to Note 1)

Soft-Firm SILT/CLAY

Soft-Firm sandy gravelly SILT/CLAY

Moderately-Slightly Weathered MUDSTONE/SHALE

Slightly weathered - Fresh MUDSTONE/SHALE

Slightly weathered - Fresh SANDSTONE

GI SYMBOL

NA-BH

NA-BH

NA-BH

NA-BH

NA-BH

NA-SC

NA-DP

NA-WS

NA-FIP

NA-OP

NA-ST

NA-SA

NA-TP

FOUNDATION PIT INSPECTION

OBSERVATION PIT

SLIT TRENCH

SOAK AWAY

TRIAL PIT

ERT PROFILE

SEISMIC REFRACTION PROFILE

VES (SEE FACTUAL REPORTS FOR RESULTS)

NOTE:

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• VOLUME 1 - DROGHEDA STATION, DEPOT & BEMU, REPORT NO. 21-1711A, REV A10, OCTOBER 2023;

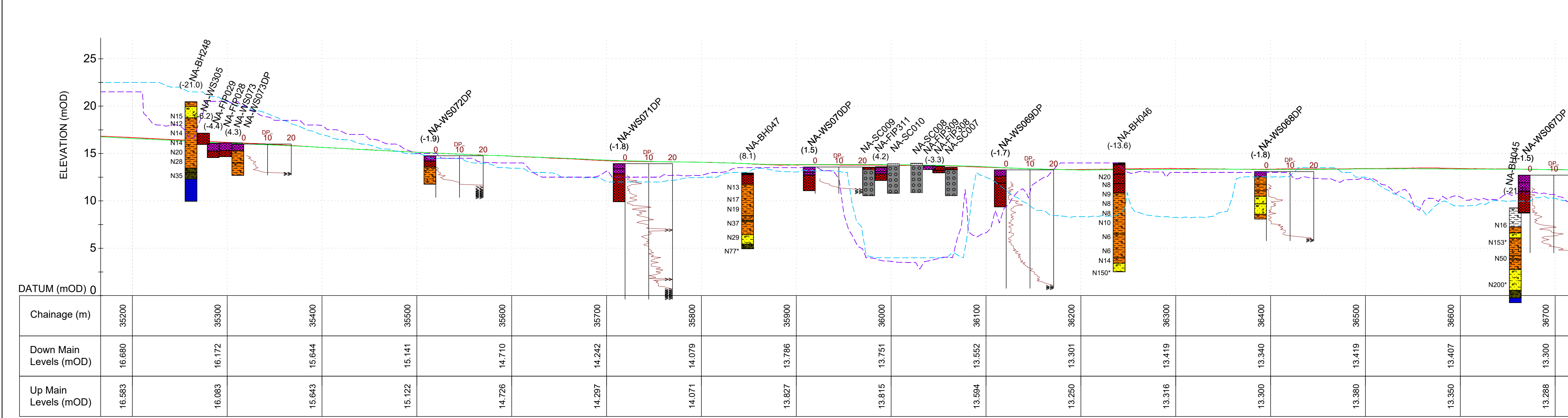
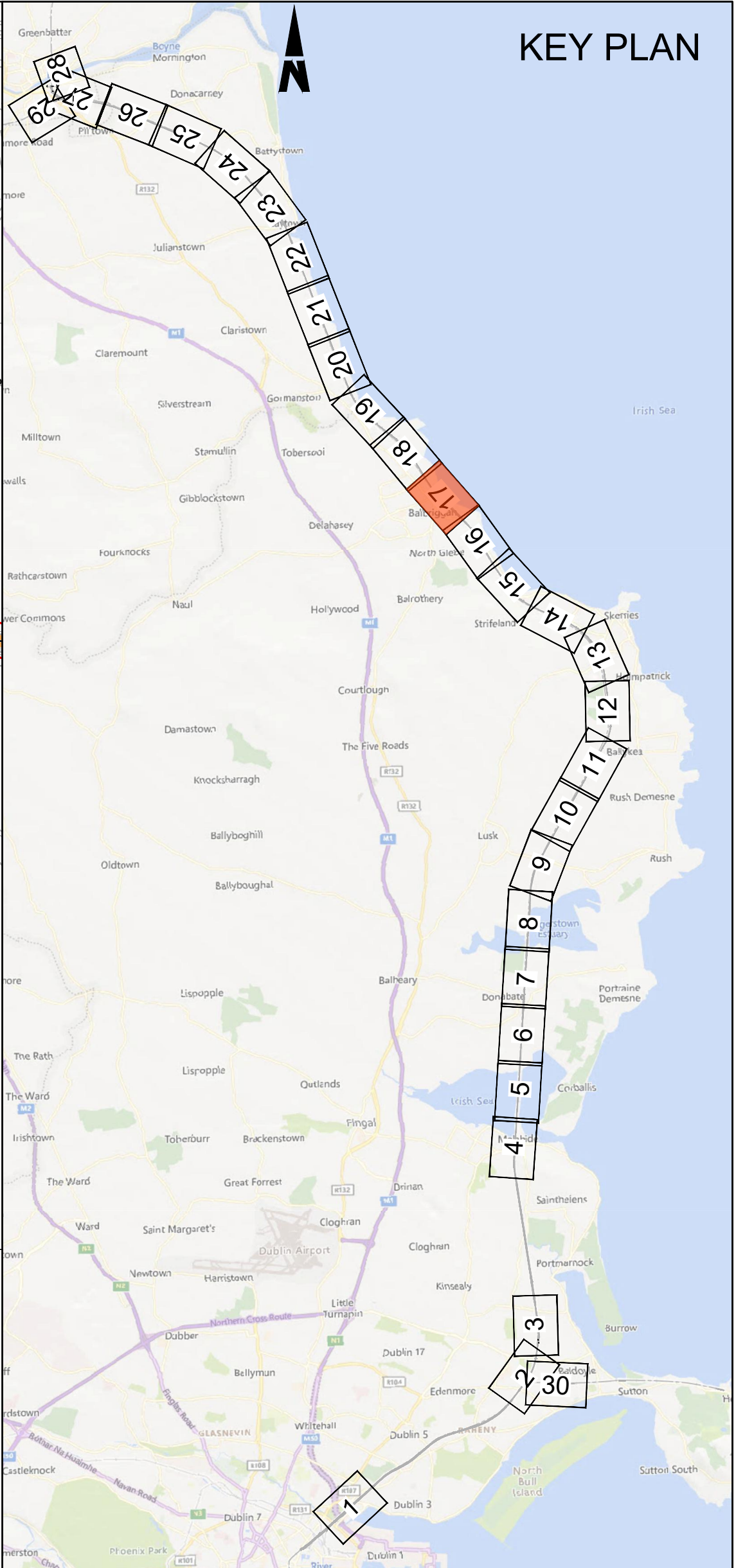
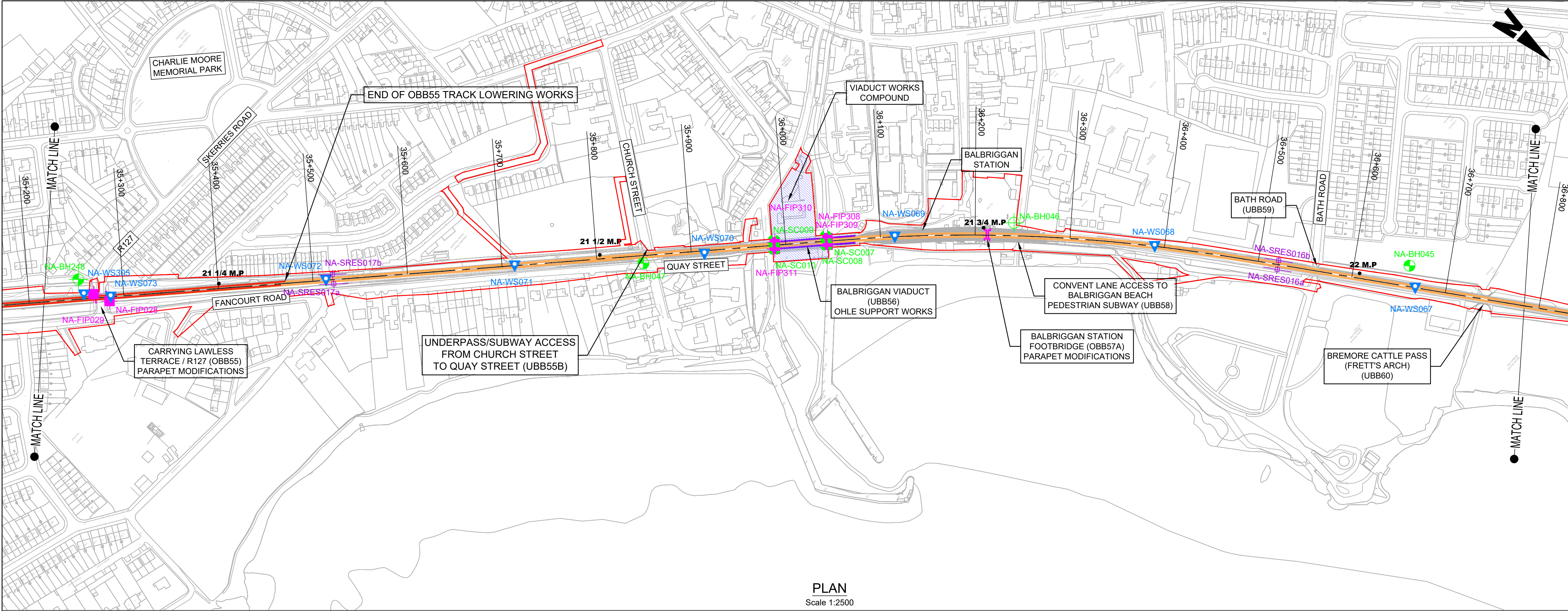
• VOLUME 2 - DROGHEDA TO MALAHIDE ELECTRIFICATION, REPORT NO. 21-1711B, REV A05, OCTOBER 2023; AND

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LEGEND:

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SPT N value, * denotes N extrapolated: * from main blows ** from seating blows

Typical Dynamic Probe plot with depth

PROFILE

Hole ID

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Railway Ballast [RB]

Topsoil [TOP]

Peat [Peat]

Clay [Clay]

Sand [Sand]

Gravel [Gravel]

Silt [Silt]

Mudstone [Mud]

Limestone [Lst]

Diorite or Basalt [IN]

Sandstone [SS]

Siltstone [Sist]

Conglomera [Cng]

Breccia [BR]

Weathered Rock [WrR]

Masonry Wall [Masonry]

Open Hole [OH]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

SANDY GRAVELLY SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

SANDY GRAVEL

Made Ground - FILL

SAND and GRAVEL

SANDY GRAVELLY COBBLY CLAY

SANDY CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy gravelly CLAY

Silty sandy CLAY

SANDY CLAY

Clayey gravelly SAND

Clayey silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

GI SYMBOL

NA-BH Cable Percussion

NA-BH Cable Percussion with S-Geobor

NA-BH Cable Percussion with Rotary Core Follow-on

NA-BH S-Geobor

NA-BH Rotary Core

NA-SC Structural Coring

NA-DP Dynamic Probing

NA-WS Window Sample and Dynamic Probing

NA-FIP Foundation Pit Inspection

NA-OP Observation Pit

NA-ST Slit Trench

NA-SA Soak Away

NA-TP Trial Pit

R1 ERT Profile

S1 Seismic Refraction Profile

YES (See Factual Reports for Results)

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4. DYNAMIC PROBES PRESENTED ARE DP5H-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.

Rev

Date

Drn

Chk'd

App'd

Description

Client

Engineering Designer

Project Title

Drawing Title

Drawing File Name

Sheet Number

Status

Rev

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DART+ Coastal North

Irish Rail

ARUP

DART+ COASTAL NORTH

PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE

BALBRIGGAN STATION AND SURROUNDS

D+WP56

Originator Code

QMS Code

280275-00

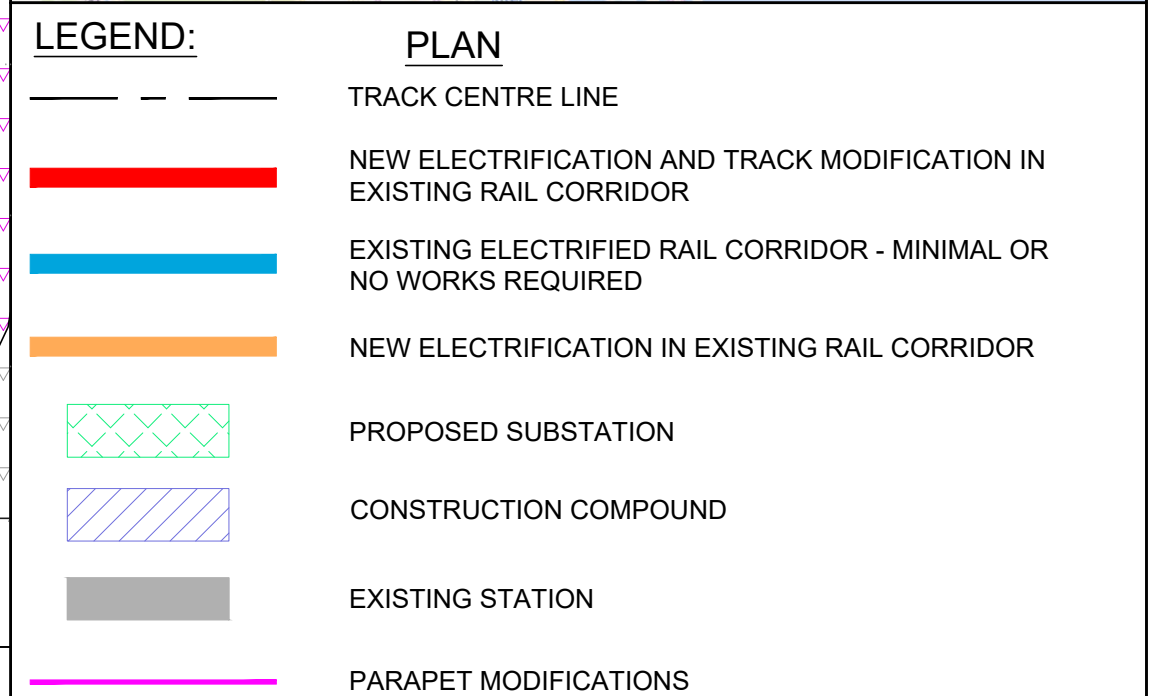
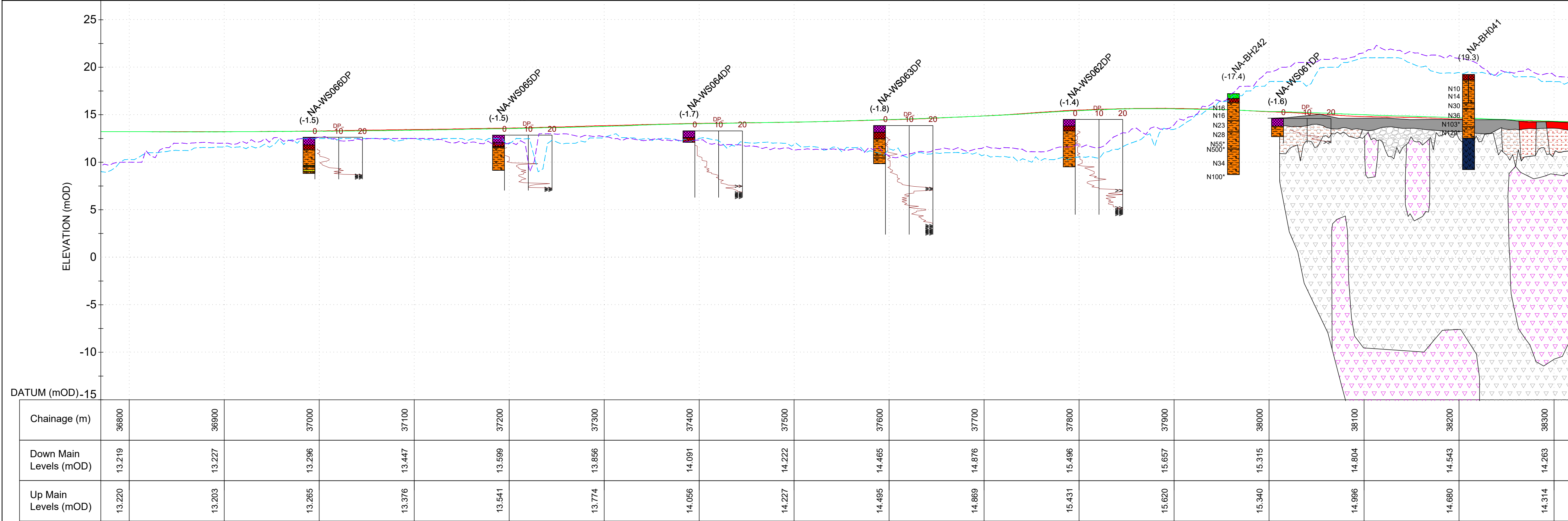
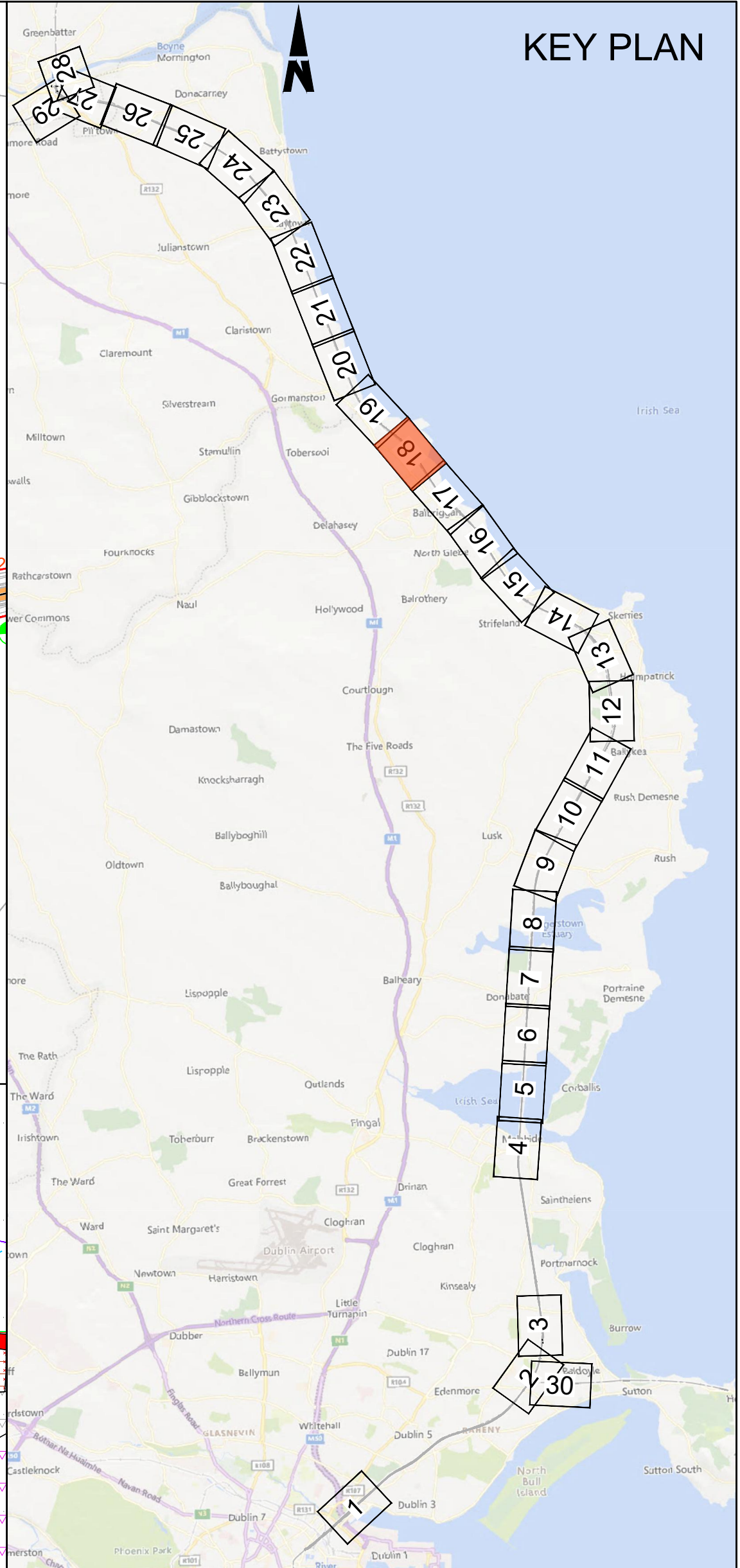
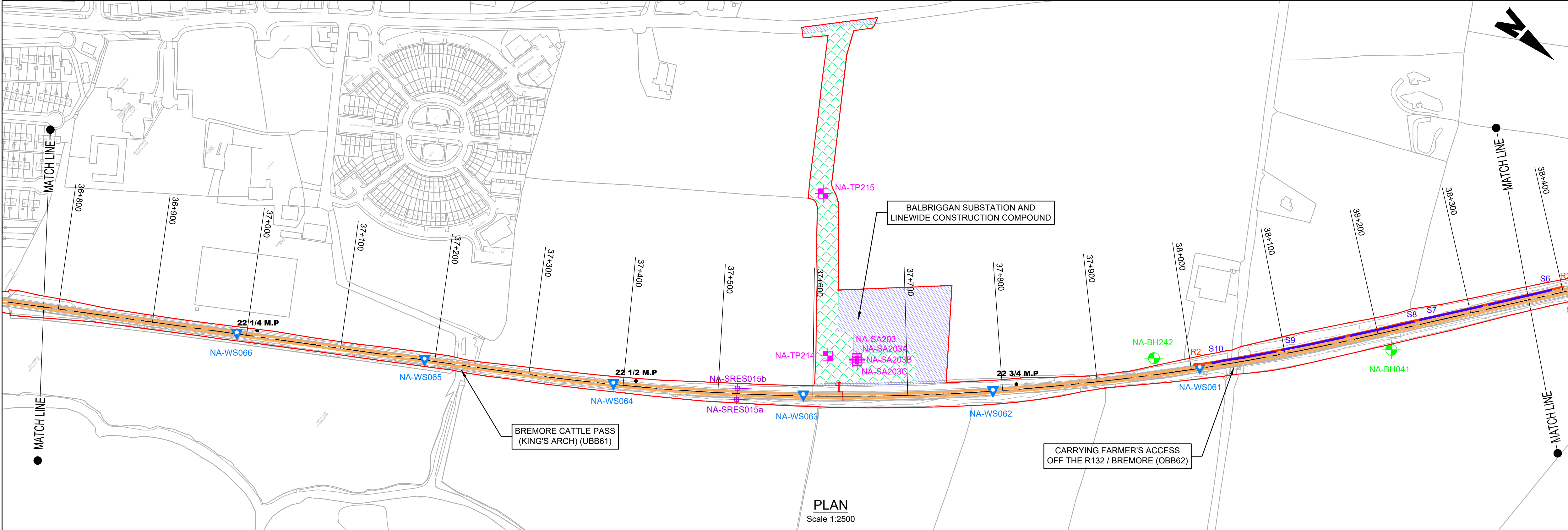
D+WP56-ARP-P4-NL-DR-RO-900017

17 of 30

S3

P01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



LEGEND:

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated:
* from main blows
** from seating blows

Typical Dynamic Probe plot with depth

PROFILE

Hole ID

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Railway Ballast [RB]

Topsoil [TOP]

Peat [Peat]

Clay [Clay]

Sand [Sand]

Gravel [Gravel]

Silt [Silt]

Mudstone [Mud]

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Sandstone [SS]

Siltstone [Sist]

Conglomera [Cng]

Breccia [BR]

Weathered Rock [WrR]

Masonry Wall [Masonry]

Open Hole [OH]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

Sandy gravelly SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

Sandy GRAVEL

Made Ground - FILL

SAND and GRAVEL

Sandy gravelly cobbly CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy gravelly CLAY

Silty sandy CLAY

Sandy CLAY

Clayey gravelly SAND

Clayey silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

Soft-Firm SILT/CLAY

Soft-Firm sandy gravelly SILT/CLAY

Stiff-Very Stiff SILT/CLAY

Stiff-Very Stiff sandy gravelly SILT/CLAY and/or possible Moderately - Slightly Weathered MUDSTONE and/or TUFF

Moderately - Slightly Weathered MUDSTONE and/or TUFF

Slightly Weathered - Fresh MUDSTONE and/or TUFF

Slightly Weathered - Fresh ANDESITE

Slightly Weathered - Fresh SANDSTONE/SILTSTONE

GEOPHYSICAL
(for factual data refer to Note 1)

NA-BH

NA-BH

NA-BH

NA-BH

NA-BH

NA-SC

NA-DP

NA-WS

NA-FIP

NA-OP

NA-ST

NA-SA

NA-TP

R1

S1

NA-SRES

FOUNDATION PIT INSPECTION

OBSERVATION PIT

SLIT TRENCH

SOAK AWAY

TRIAL PIT

ERT PROFILE

SEISMIC REFRACTION PROFILE

VES (SEE FACTUAL REPORTS FOR RESULTS)

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DART+ Coastal North

NTA
National Transport Authority

Tionacal Éireann
Project Ireland
2040

Rev	Date	Drn	Chk'd	App'd	Description
P01	20/11/2023	EAM	MT	MF	PLANNING ISSUE

Client

Iarnród Éireann
Irish Rail

Engineering Designer

ARUP

Date: 06/07/2023

Scale: 1:2500 @ A1
1:5000 @ A3

Drawn: SR

Checked: MT

Approved: MF

Project Code: D+WP56

Originator Code: ARP

QMS Code: 280275-00

Project Title

DART+ COASTAL NORTH

Drawing Title

**PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE
BALBRIGGAN STATION AND SURROUNDS**

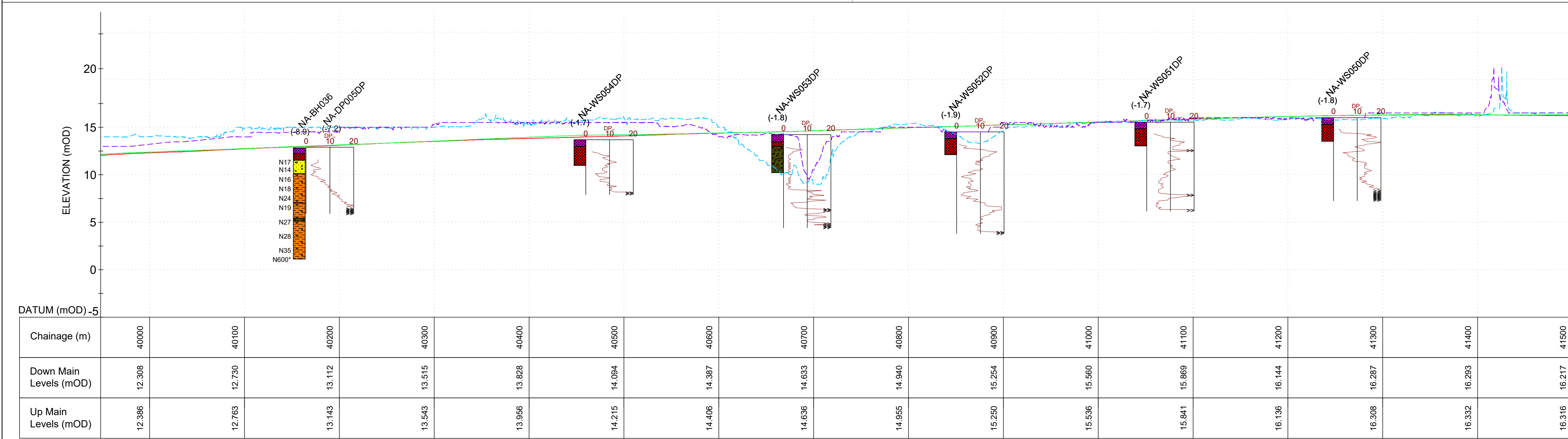
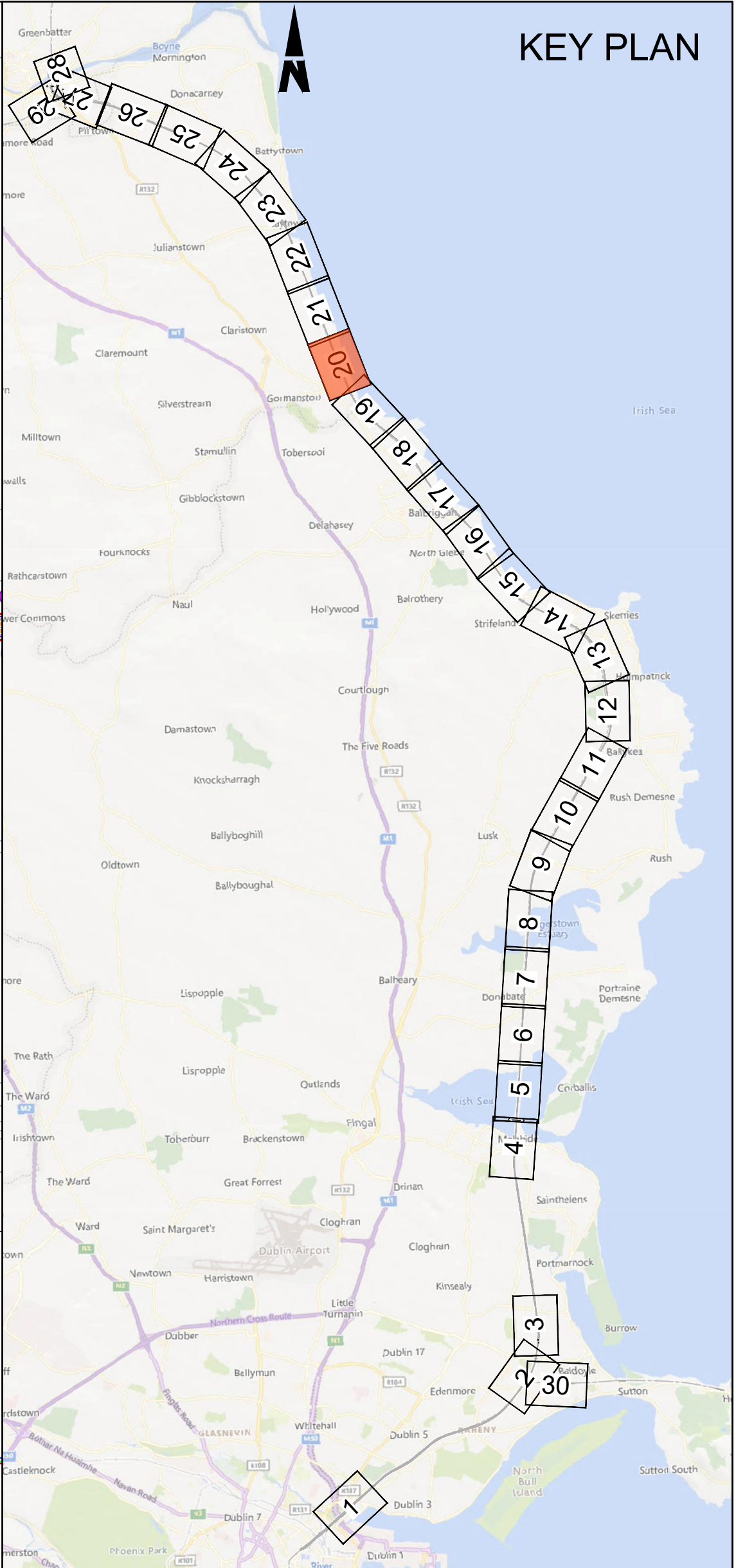
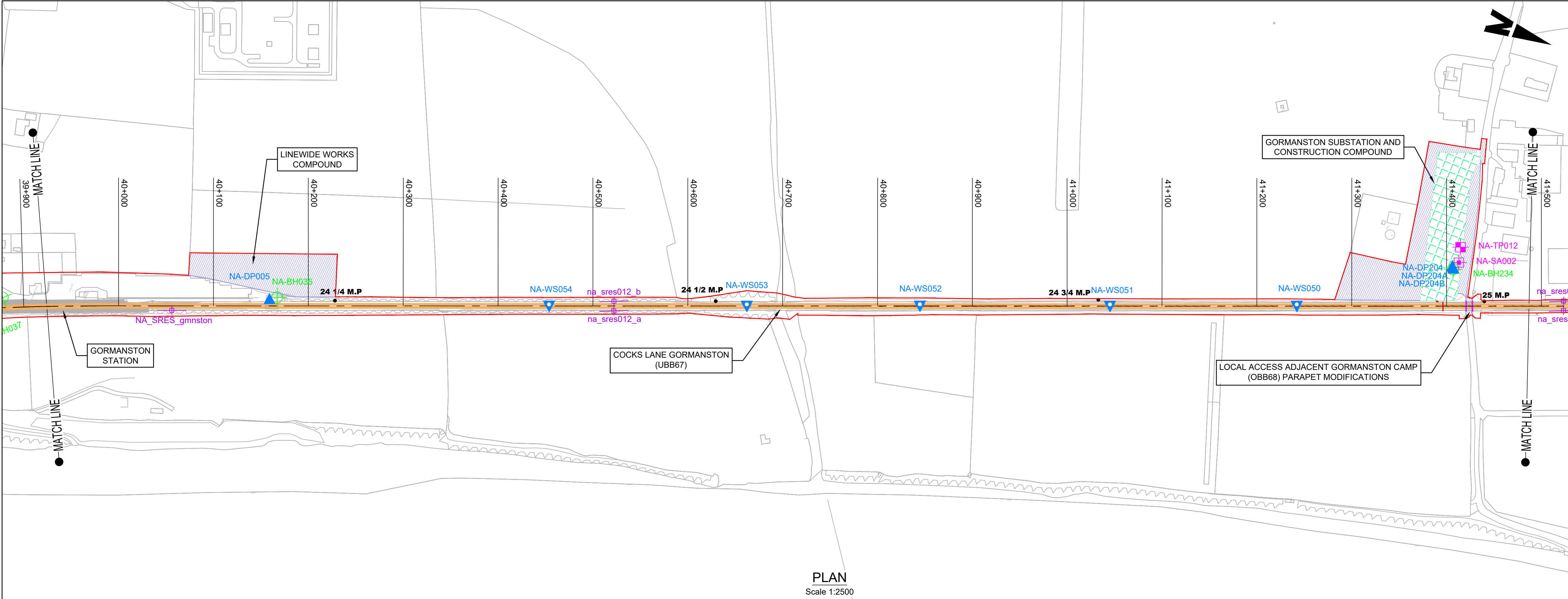
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Sheet Number: 18 of 30

Status: S3

Rev: P01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



LEGEND:

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated: * from main blows ** from seating blows

Typical Dynamic Probe plot with depth

Hole ID

(Offset)

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Sand [Sand]

Diorite or Basalt [IN]

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Railway Ballast [RB]

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Masonry Wall [Masonry]

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Silt [Silt]

Siltstone [Silt]

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MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

Sandy gravelly SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

Sandy GRAVEL

Made Ground - FILL

SAND and GRAVEL

Sandy gravelly cobbly CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy gravelly CLAY

Silty sandy CLAY

Sandy CLAY

Clayey gravelly SAND

Clayey silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

GI SYMBOL

NA-BH

NA-BH

NA-BH

NA-BH

NA-BH

NA-SC

NA-DP

NA-WS

NA-FIP

NA-OP

NA-ST

NA-SA

NA-TP

R1

S1

NA-SRES

FOUNDATION PIT INSPECTION

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Rev

Date

Drn

Chk'd

App'd

Description

P01 20/11/2023 EAM MT MF PLANNING ISSUE

Client

Engineering Designer

Project Title

Drawing Title

DART+ COASTAL NORTH

PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE

GORMANSTON STATION AND SURROUNDS

Date

Scale

Drawn

Checked

Approved

06/07/2023 1:2500 @ A1 1:5000 @ A3 SR MT MF

Project Code

Originator Code

QMS Code

Drawing File Name

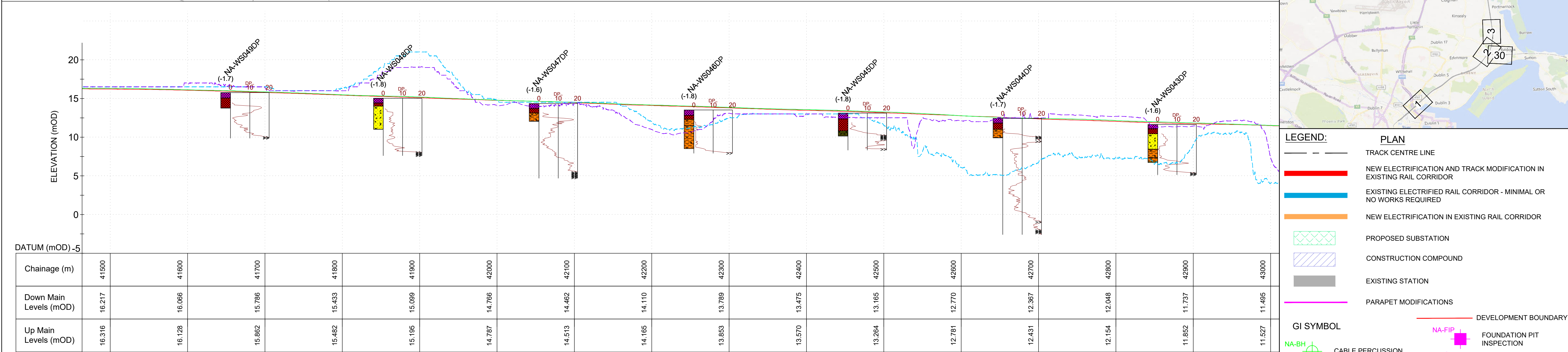
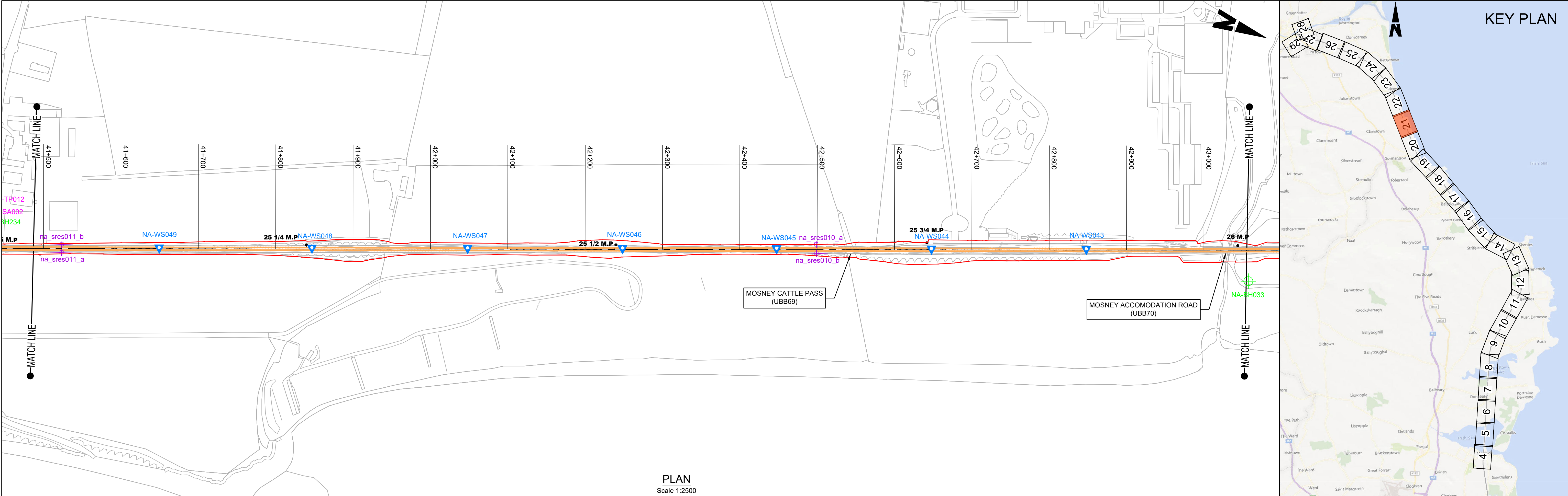
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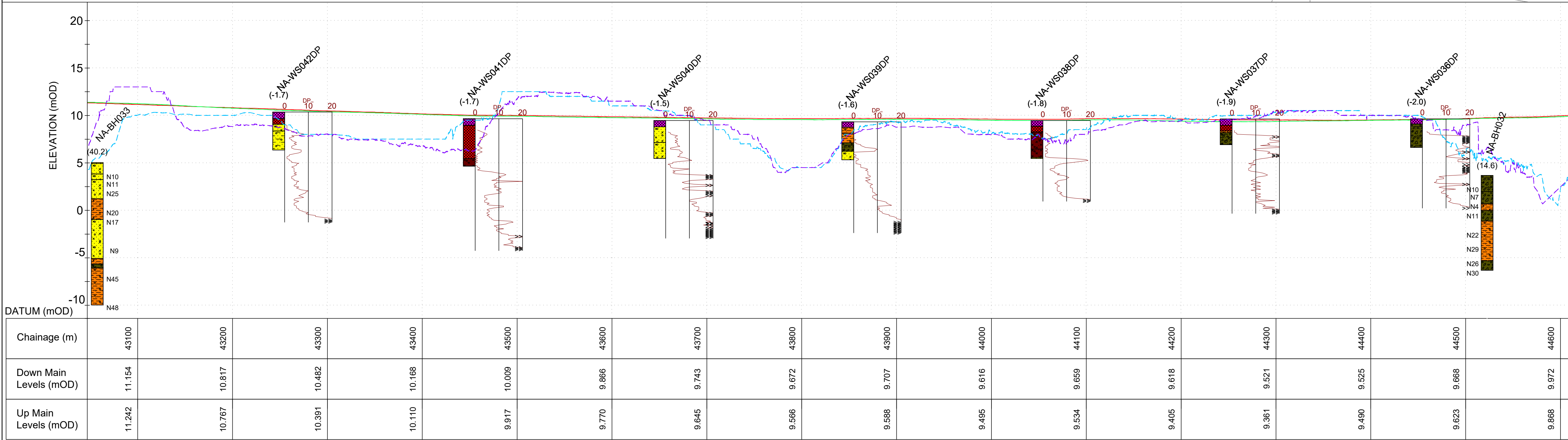
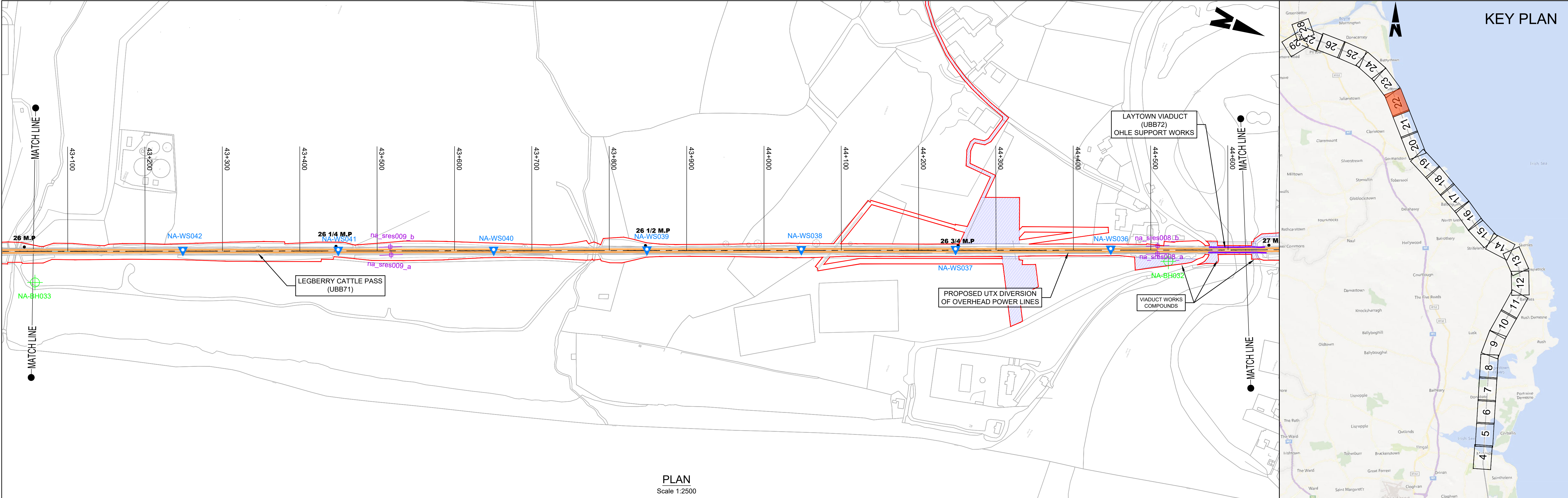
D+WP56 ARP 280275-00 D+WP56-ARP-P4-NL-DR-RO-900020 20 of 30 S3 P01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



<p>LEGEND:</p> <p>Blow counts exceed 20</p> <p>Hole offset is +ve to the RIGHT of the section line, see Note 3.</p> <p>SPT N value, * denotes N extrapolated: * from main blows ** from seating blows</p> <p>Typical Dynamic Probe plot with depth</p> <p>PROFILE</p> <p>Down Main IÉ Boundary Ground Level (West)</p> <p>Up Main IÉ Boundary Ground Level (East)</p> <p>Down Main Levels</p> <p>Up Main Levels</p> <p>COLOUR LEGEND</p> <p>Made Ground [MG]</p> <p>Railway Ballast [RB]</p> <p>Topsoil [TOP]</p> <p>Peat [Peat]</p> <p>Clay [Clay]</p> <p>Sand [Sand]</p> <p>Gravel [Gravel]</p> <p>Silt [Silt]</p> <p>Mudstone [Mud]</p> <p>Limestone [Lst]</p> <p>Diorite or Basalt [IN]</p> <p>Sandstone [SS]</p> <p>Siltstone [Sist]</p> <p>Conglomera [Cng]</p> <p>Breccia [BR]</p> <p>Weathered Rock [WrR]</p> <p>Masonry Wall [Masonry]</p> <p>Open Hole [OH]</p> <p>MATERIALS</p> <p>Fill (MADE GROUND)</p> <p>Sandy gravelly CLAY</p> <p>SANDY GRAVELLY SILT</p> <p>SAND</p> <p>Silty gravelly SAND</p> <p>Silty sandy GRAVEL</p> <p>SANDY GRAVEL</p> <p>Made Ground - FILL</p> <p>SAND and GRAVEL</p> <p>SANDY GRAVELLY COBBLY CLAY</p> <p>Clayey sandy GRAVEL</p> <p>Silty sandy cobbly GRAVEL</p> <p>Silty sandy gravelly CLAY</p> <p>Silty sandy CLAY</p> <p>SANDY CLAY</p> <p>Clayey gravelly SAND</p> <p>Clayey silty sandy GRAVEL</p> <p>TOPSOIL</p> <p>Clayey SAND</p> <p>SANDSTONE</p> <p>Medium Grained Igneous</p> <p>MUDSTONE</p> <p>Silty SAND</p> <p>Clayey GRAVEL</p>	<p>NOTE:</p> <p>1. FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IS BASED ON CAUSEWAY GEOTECH LTD (2023). DART+ NORTH & BEMU STAGE A GROUND INVESTIGATION:</p> <ul style="list-style-type: none">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; ANDVOLUME 3 - MALAHIDE, CLONGRIFFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023. <p>2. DOWN MAIN AND UP MAIN BOUNDARY LEVEL BASED ON TOPOGRAPHICAL LEVELS TAKEN FROM 2012 LIDAR ALONG IÉ PROPERTY BOUNDARY.</p> <p>3. GEOLOGICAL STICK LOGS PRESENTED ON PROFILES ARE PROJECTED TO A CENTRE LINE BETWEEN THE UP AND DOWN MAIN LINES AND SHOULD BE READ WITH IN THE CONTEXT OF INCREASING CHAINAGE.</p> <p>4. DYNAMIC PROBES PRESENTED ARE DP SH-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.</p>	<p>Rev</p> <p>Date</p> <p>Drm</p> <p>Chk'd</p> <p>App'd</p> <p>Description</p> <p>P01</p> <p>20/11/2023</p> <p>EAM</p> <p>MT</p> <p>MF</p> <p>PLANNING ISSUE</p>	<p>Client</p> <p>Iarnród Éireann Irish Rail</p> <p>Date</p> <p>06/07/2023</p> <p>Scale</p> <p>1:2500 @ A1 1:5000 @ A3</p> <p>Drawn</p> <p>SR</p> <p>Checked</p> <p>MT</p> <p>Approved</p> <p>MF</p> <p>Project Code</p> <p>D+WP56</p> <p>Originator Code</p> <p>ARP</p> <p>QMS Code</p> <p>280275-00</p>	<p>Engineering Designer</p> <p>ARUP</p> <p>Project Title</p> <p>DART+ COASTAL NORTH</p> <p>Drawing Title</p> <p>PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE MOSNEY AND SURROUNDS</p> <p>Drawing File Name</p> <p>D+WP56-ARP-P4-NL-DR-RO-900021</p> <p>Sheet Number</p> <p>21 of 30</p> <p>Status</p> <p>S3</p> <p>Rev</p> <p>P01</p>
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DO NOT SCALE USE FIGURED DIMENSIONS ONLY



LEGEND:

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

Typical Dynamic Probe plot with depth

PROFILE

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Railway Ballast [RB]

Topsoil [TOP]

Peat [Peat]

Clay [Clay]

Sand [Sand]

Gravel [Gravel]

Silt [Silt]

Mudstone [Mud]

Limestone [Lst]

Diorite or Basalt [IN]

Sandstone [SS]

Siltstone [Silt]

Conglomerate [Cng]

Breccia [BR]

Weathered Rock [WrR]

Masonry Wall [Masonry]

Open Hole [OH]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

SANDY GRAVELLY SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

SANDY GRAVEL

Made Ground - FILL

SAND and GRAVEL

SANDY GRAVELLY COBBLY CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy gravelly CLAY

Silty sandy CLAY

SANDY CLAY

Clayey gravelly SAND

Clayey silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

GI SYMBOL

NA-BH

NA-BH

NA-BH

NA-BH

NA-BH

NA-SC

NA-DP

NA-WS

NA-FIP

NA-OP

NA-ST

NA-SA

NA-TP

R1

S1

NA-SRES

FOUNDATION PIT INSPECTION

OBSERVATION PIT

SLIT TRENCH

SOAK AWAY

TRIAL PIT

ERT PROFILE

SEISMIC REFRACTION PROFILE

VES (SEE FACTUAL REPORTS FOR RESULTS)

NOTE:

1. FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IS BASED ON CAUSEWAY GEOTECH LTD (2023), DART+ NORTH & BEMU STAGE 4 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, CLONGRIFFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.

2. DOWN MAIN AND UP MAIN BOUNDARY LEVEL BASED ON TOPOGRAPHICAL LEVELS TAKEN FROM 2012 LIDAR ALONG IÉ PROPERTY BOUNDARY.

3. GEOLOGICAL STICK LOGS PRESENTED ON PROFILES ARE PROJECTED TO A CENTRE LINE BETWEEN THE UP AND DOWN MAIN LINES AND SHOULD BE READ WITH IN THE CONTEXT OF INCREASING CHAINAGE.

4. DYNAMIC PROBES PRESENTED ARE DPH-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.

Rev

Date

Drm

Chk'd

App'd

Description

P01 20/11/2023 EAM MT MF PLANNING ISSUE

Client

Engineering Designer

Project Title

Drawing Title

DART+ COASTAL NORTH

PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE

MOSNEY AND SURROUNDS

Date

Scale

Drawn

Checked

Approved

06/07/2023 1:2500 @ A1 1:5000 @ A3 SR MT MF

Project Code

Originator Code

QMS Code

Drawing File Name

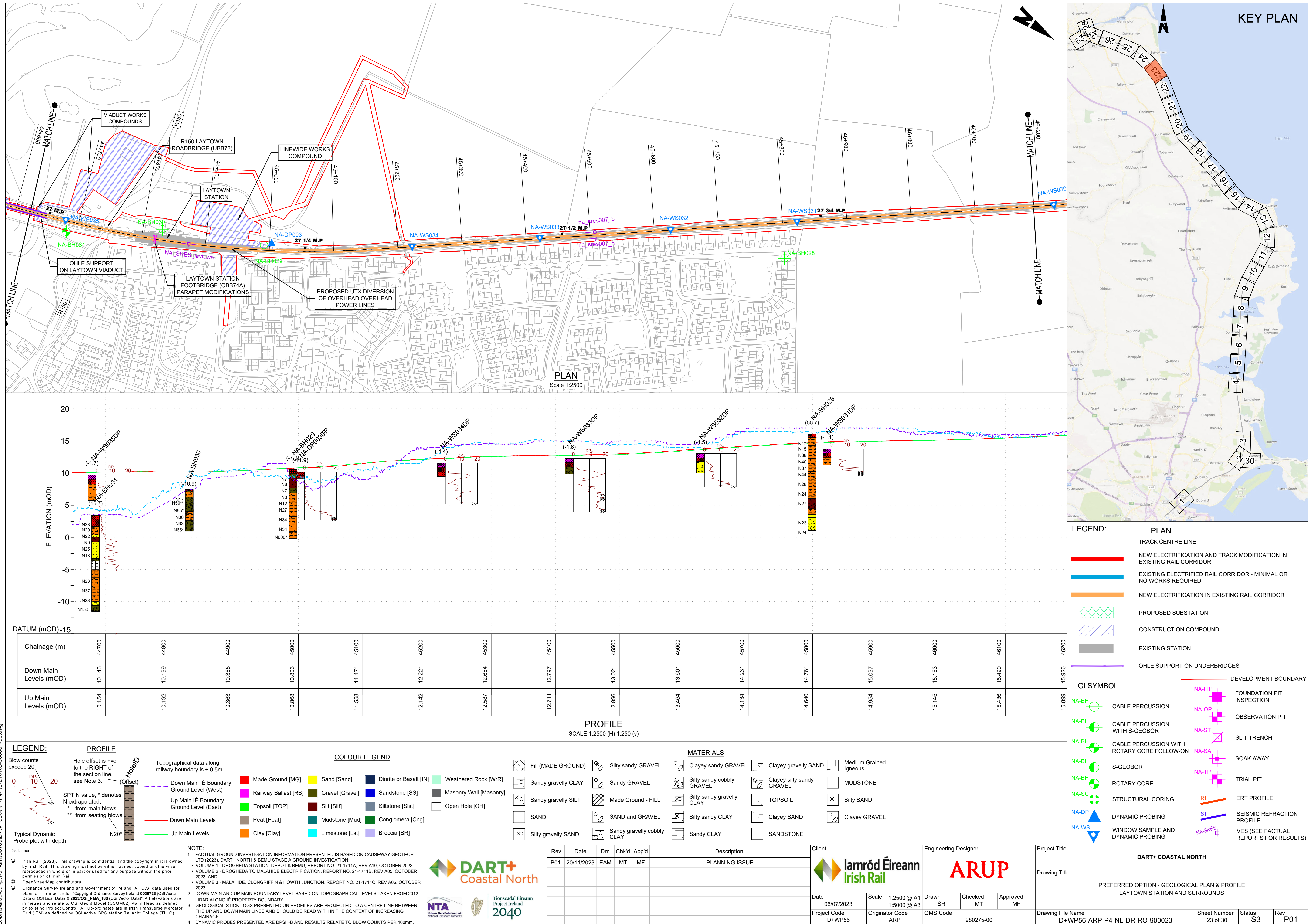
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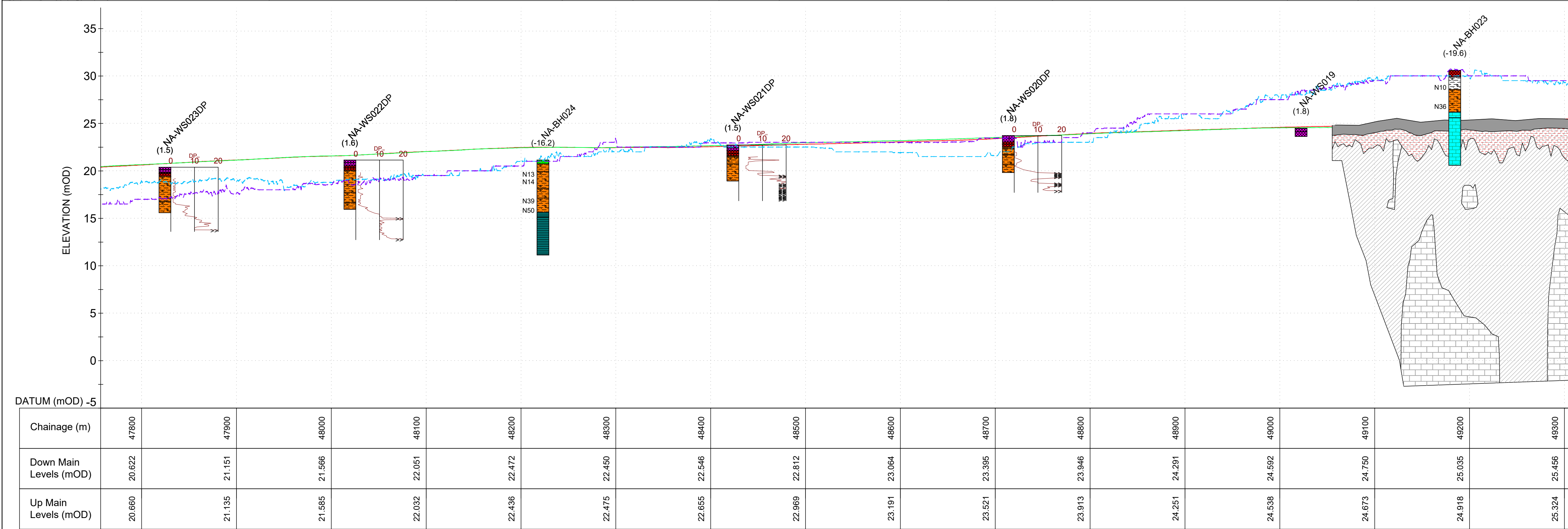
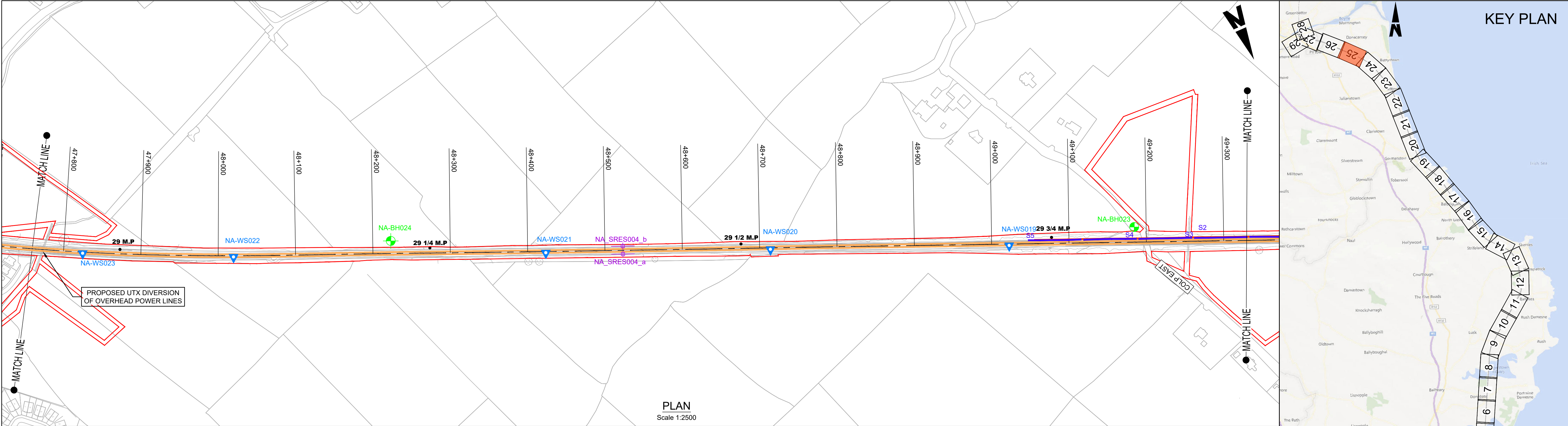
Status

Rev

D+WP56 ARP 280275-00 22 of 30 S3 P01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY





LEGEND:

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated:
* from main blows
** from seating blows

Typical Dynamic Probe plot with depth

PROFILE

Hole ID

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]	Sand [Sand]	Diorite or Basalt [IN]	Weathered Rock [WrR]
Railway Ballast [RB]	Gravel [Gravel]	Sandstone [SS]	Masonry Wall [Masonry]
Topsoil [TOP]	Silt [Silt]	Siltstone [Silt]	Open Hole [OH]
Peat [Peat]	Mudstone [Mud]	Conglomerate [Cng]	
Clay [Clay]	Limestone [Lst]	Breccia [BR]	

MATERIALS

Fill (MADE GROUND)	Silty sandy GRAVEL	Clayey sandy GRAVEL	Clayey gravelly SAND	Medium Grained Igneous
Sandy gravelly CLAY	Sandy GRAVEL	Silty sandy cobbly GRAVEL	Clayey silty sandy GRAVEL	MUDSTONE
Sandy gravelly SILT	Made Ground - FILL	Silty sandy gravelly CLAY	TOPSOIL	Silty SAND
SAND	SAND and GRAVEL	Silty sandy CLAY	Clayey SAND	Clayey GRAVEL
Silty gravelly SAND	Sandy gravelly cobbly CLAY	Sandy CLAY	SANDSTONE	

GEOPHYSICAL
(for factual data refer to Note 1)

Soft-Firm sandy gravelly SILT/CLAY and/or Completely Weathered MUDSTONE/SHALE	Slightly weathered - Fresh MUDSTONE/SHALE	Slightly weathered - Fresh LIMESTONE
---	---	--------------------------------------

GI SYMBOL

NA-BH	CABLE PERCUSSION	NA-FIP	FOUNDATION PIT INSPECTION
NA-BH	CABLE PERCUSSION WITH S-GEOBOR	NA-OP	OBSERVATION PIT
NA-BH	CABLE PERCUSSION WITH ROTARY CORE FOLLOW-ON	NA-ST	SLIT TRENCH
NA-BH	S-GEOBOR	NA-SA	SOAK AWAY
NA-BH	ROTARY CORE	NA-TP	TRIAL PIT
NA-SC	STRUCTURAL CORING	R1	ERT PROFILE
NA-DP	DYNAMIC PROBING	S1	SEISMIC REFRACTION PROFILE
NA-WS	WINDOW SAMPLE AND DYNAMIC PROBING	NA-SRES	VES (SEE FACTUAL REPORTS FOR RESULTS)

NOTE:

- FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IS BASED ON 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, CLONGRIFFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.
- DOWN MAIN AND UP MAIN BOUNDARY LEVEL BASED ON TOPOGRAPHICAL LEVELS TAKEN FROM 2012 LIDAR ALONG IÉ PROPERTY BOUNDARY.
- GEOLOGICAL STICK LOGS PRESENTED ON PROFILES ARE PROJECTED TO A CENTRE LINE BETWEEN THE UP AND DOWN MAIN LINES AND SHOULD BE READ WITH IN THE CONTEXT OF INCREASING CHAINAGE.
- DYNAMIC PROBES PRESENTED ARE DPHS-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.

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OpenStreetMap contributors

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DART+ Coastal North

Irish Rail

NTA
National Transport Authority

Tionacal Éireann
Project Ireland 2040

Rev	Date	Drn	Chk'd	App'd	Description
P01	20/11/2023	EAM	MT	MF	PLANNING ISSUE

Client

larnród Éireann
Irish Rail

Date: 06/07/2023
Scale: 1:2500 @ A1
1:5000 @ A3

Project Code: D+WP56
Originator Code: ARP

Engineering Designer

ARUP

Drawn: SR
Checked: MT
Approved: MF

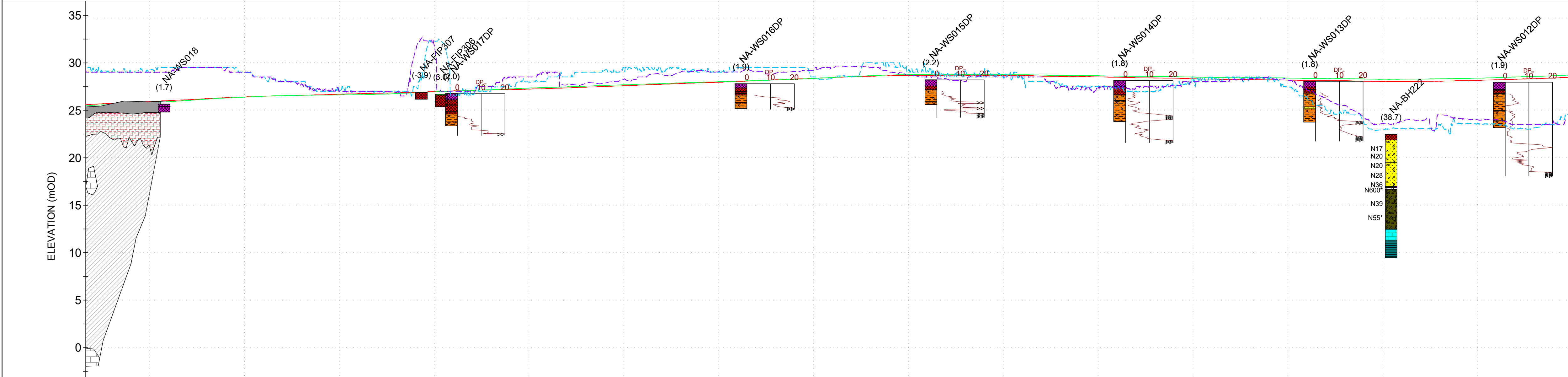
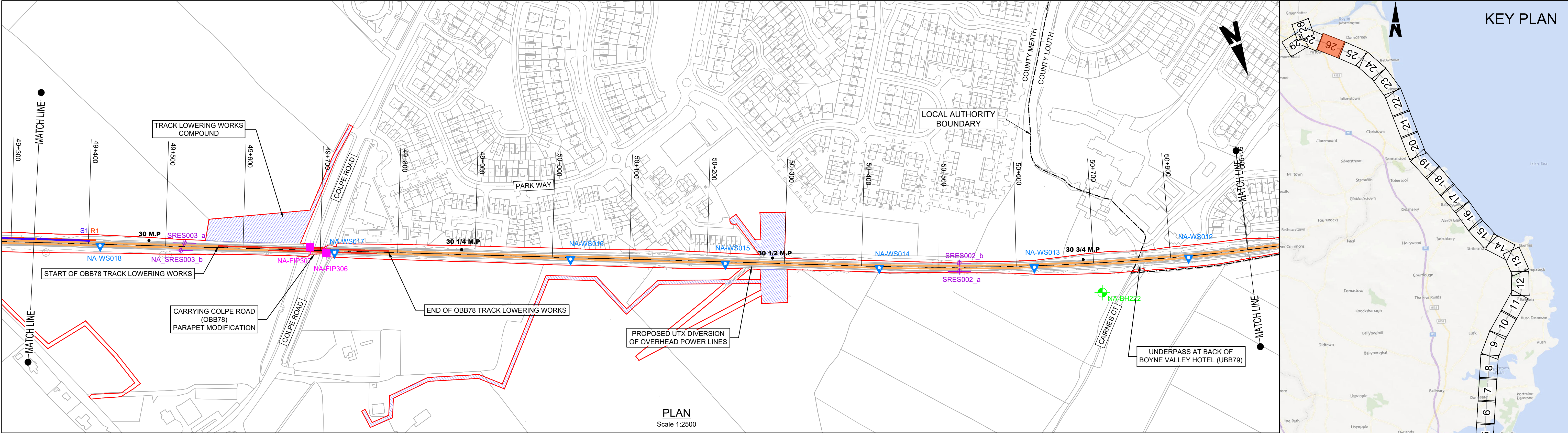
Project Title

DART+ COASTAL NORTH

Drawing Title

PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE
PILLTOWN AND SURROUNDS

Drawing File Name: D+WP56-ARP-P4-NL-DR-RO-900025
Sheet Number: 25 of 30
Status: S3
Rev: P01



Chainage (m)	49400	49500	49600	49700	49800	49900	50000	50100	50200	50300	50400	50500	50600	50700	50800	50900
Down Main Levels (mOD)	25.913	26.399	26.694	26.969	27.229	27.582	27.943	28.361	28.661	28.671	28.519	28.318	28.174	28.019	28.149	28.488
Up Main Levels (mOD)	25.794	26.384	26.615	26.940	27.337	27.682	28.006	28.354	28.765	28.758	28.638	28.497	28.393	28.264	28.379	28.712

LEGEND:

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated: * from main blows ** from seating blows

Typical Dynamic Probe plot with depth

PROFILE

Hole/D (Offset)

Topographical data along railway boundary is ± 0.5m

Down Main IÉ Boundary Ground Level (West)

Up Main IÉ Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Sand [Sand]

Diorite or Basalt [IN]

Weathered Rock [WwR]

Railway Ballast [RB]

Gravel [Gravel]

Sandstone [SS]

Masonry Wall [Masonry]

Topsail [TOP]

Silt [Silt]

Siltstone [Silt]

Open Hole [OH]

Peat [Peat]

Mudstone [Mud]

Conglomerate [Cng]

Clay [Clay]

Limestone [Lst]

Breccia [BR]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

Sandy gravelly SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

Sandy GRAVEL

Made Ground - FILL

SAND and GRAVEL

Sandy gravelly cobbly CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Clayey silty sandy GRAVEL

TOPSOIL

Silty sandy CLAY

Clayey SAND

SANDY CLAY

SANDSTONE

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

GEOPHYSICAL (for factual data refer to Note 1)

Soft-Firm sandy gravelly SILT/CLAY and/or Completely Weathered MUDSTONE/SHALE

Highly - Moderately Weathered MUDSTONE/SHALE

Slightly weathered - Fresh MUDSTONE/SHALE

Slightly weathered - Fresh LIMESTONE

CABLE PERCUSSION

CABLE PERCUSSION WITH S-GEOBOR

CABLE PERCUSSION WITH ROTARY CORE FOLLOW-ON

S-GEOBOR

ROTARY CORE

STRUCTURAL CORING

DYNAMIC PROBING

WINDOW SAMPLE AND DYNAMIC PROBING

FOUNDATION PIT INSPECTION

OBSERVATION PIT

SLIT TRENCH

SOAK AWAY

TRIAL PIT

ERT PROFILE

SEISMIC REFRACTION PROFILE

VES (SEE FACTUAL REPORTS FOR RESULTS)

NOTE:

1. FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IS BASED ON 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, CLONGRIFFIN & HOWTH JUNCTION, REPORT NO. 21-1711C, REV A06, OCTOBER 2023.

2. DOWN MAIN AND UP MAIN BOUNDARY LEVEL BASED ON TOPOGRAPHICAL LEVELS TAKEN FROM 2012 LIDAR ALONG IÉ PROPERTY BOUNDARY.

3. GEOLOGICAL STICK LOGS PRESENTED ON PROFILES ARE PROJECTED TO A CENTRE LINE BETWEEN THE UP AND DOWN MAIN LINES AND SHOULD BE READ WITH IN THE CONTEXT OF INCREASING CHAINAGE.

4. DYNAMIC PROBES PRESENTED ARE DPH-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.

Rev

Date

Drm

Chk'd

App'd

Description

P01 20/11/2023 EAM MT MF PLANNING ISSUE

Client

Engineering Designer

Project Title

Drawing Title

Drawing File Name

Sheet Number

Status

Rev

Irish Rail

ARUP

DART+ COASTAL NORTH

PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE

PILLTOWN AND SURROUNDS

D+WP56-ARP-P4-NL-DR-RO-900026

26 of 30

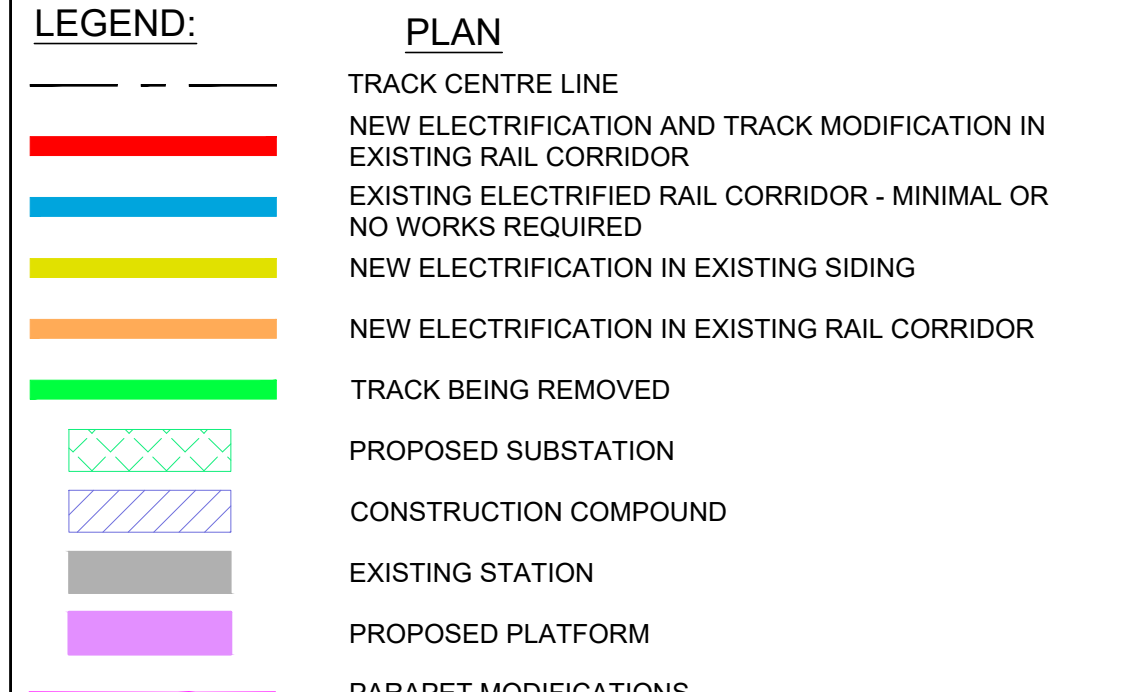
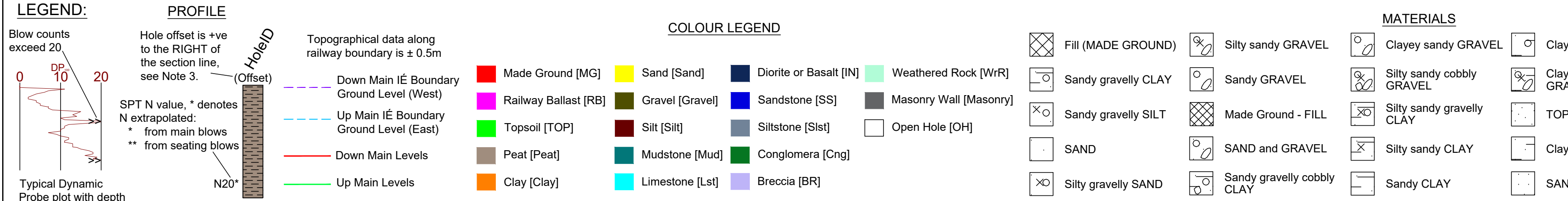
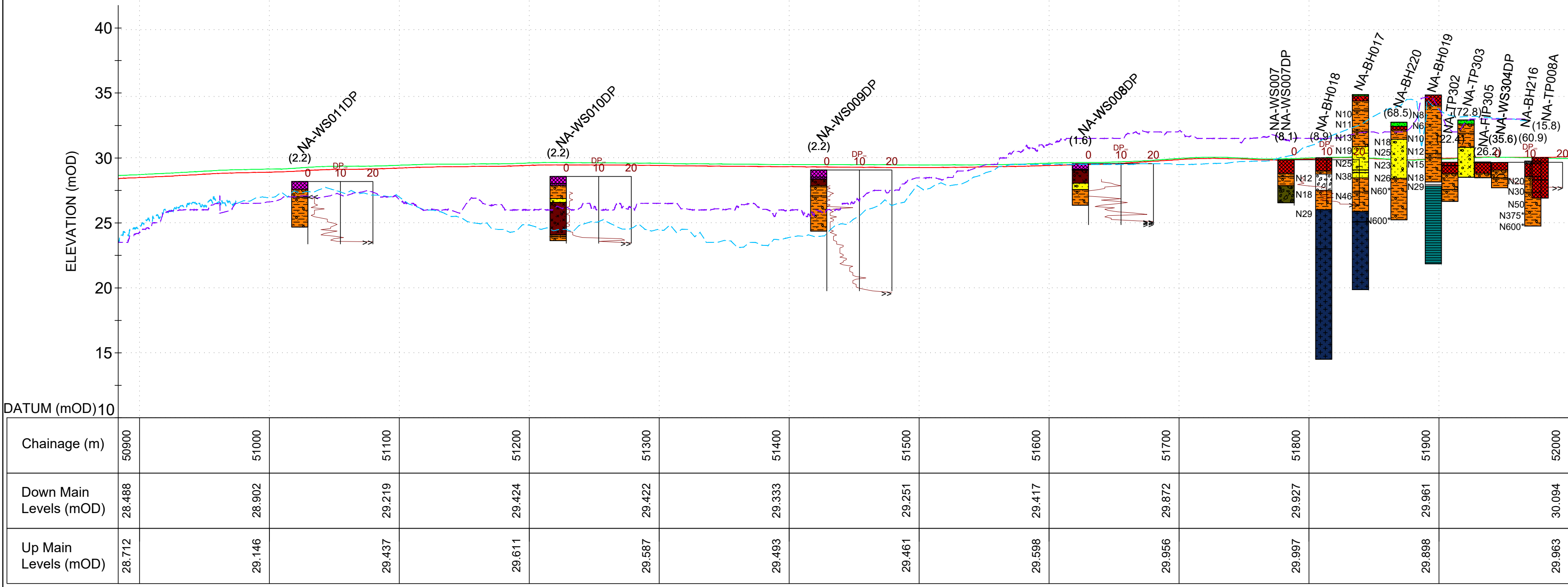
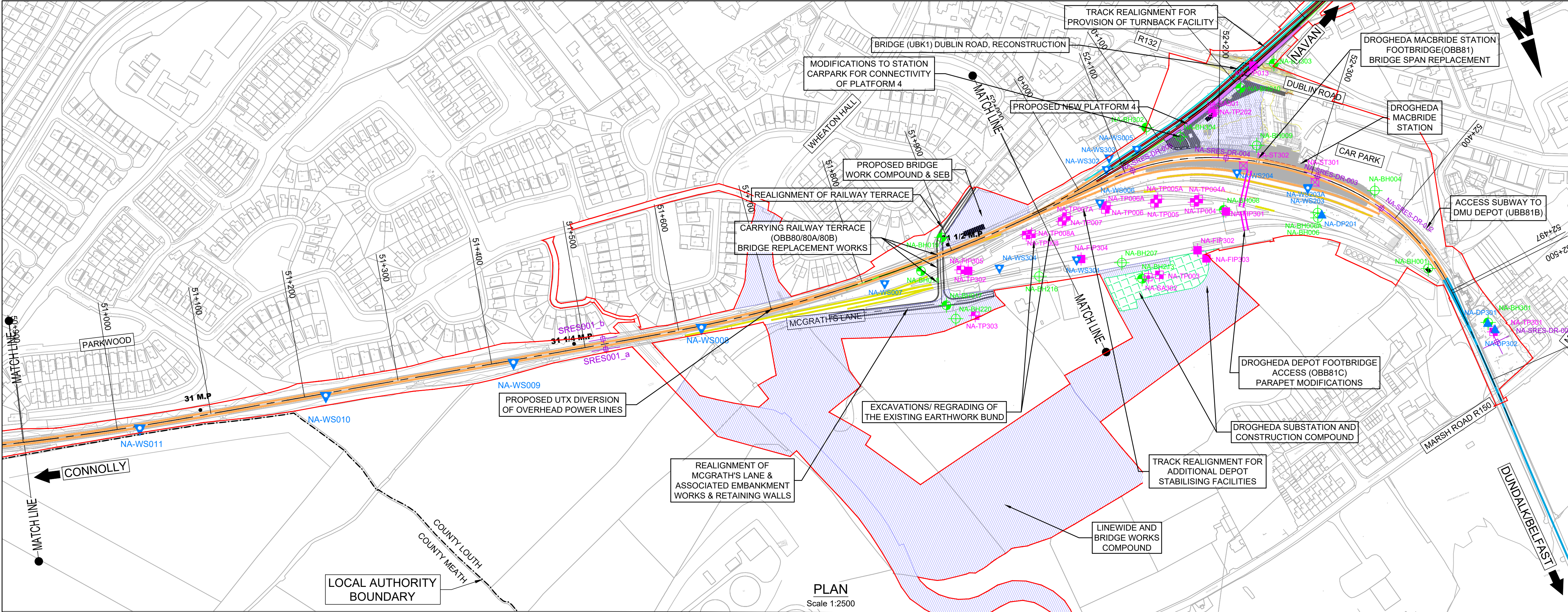
S3

P01



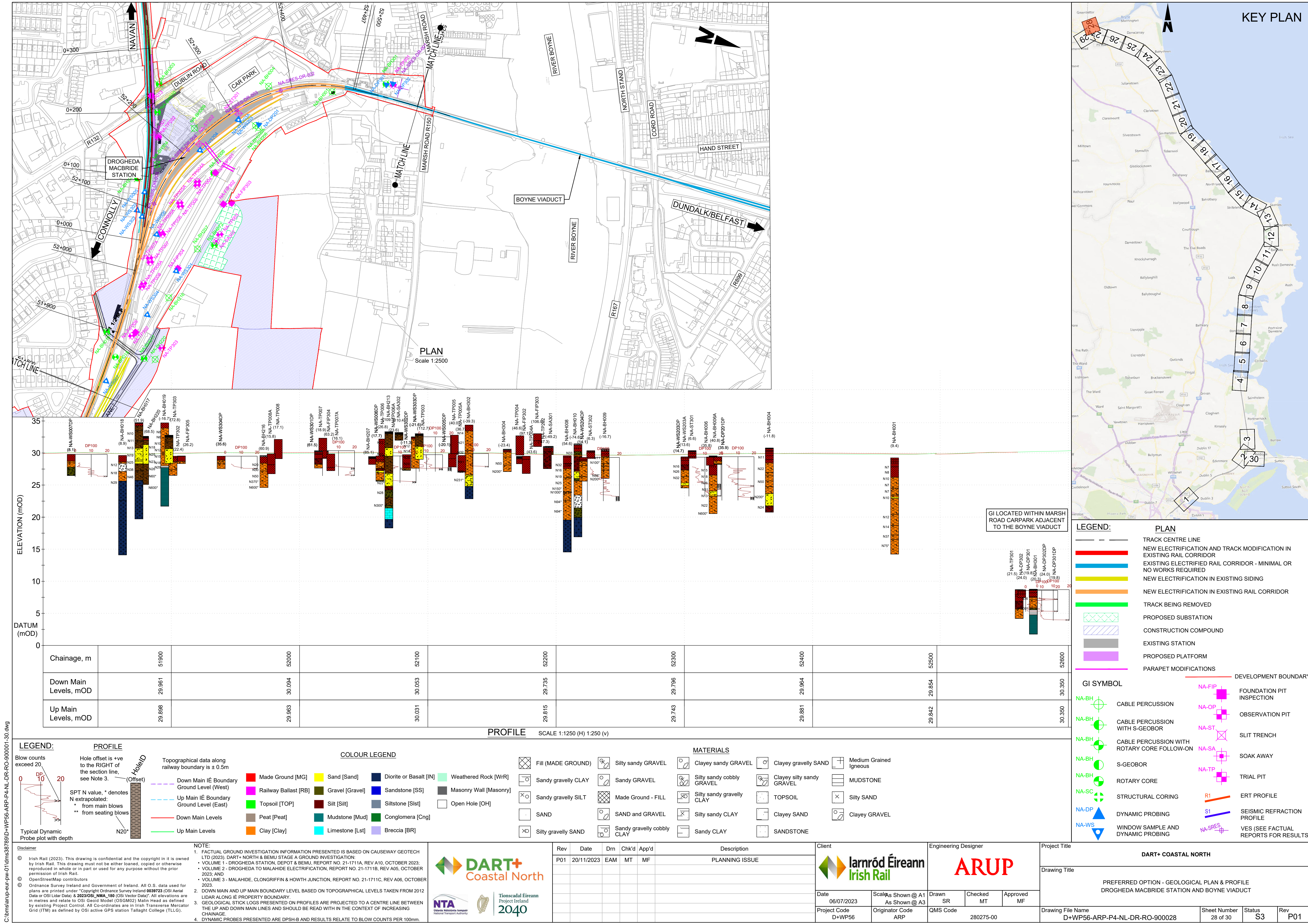
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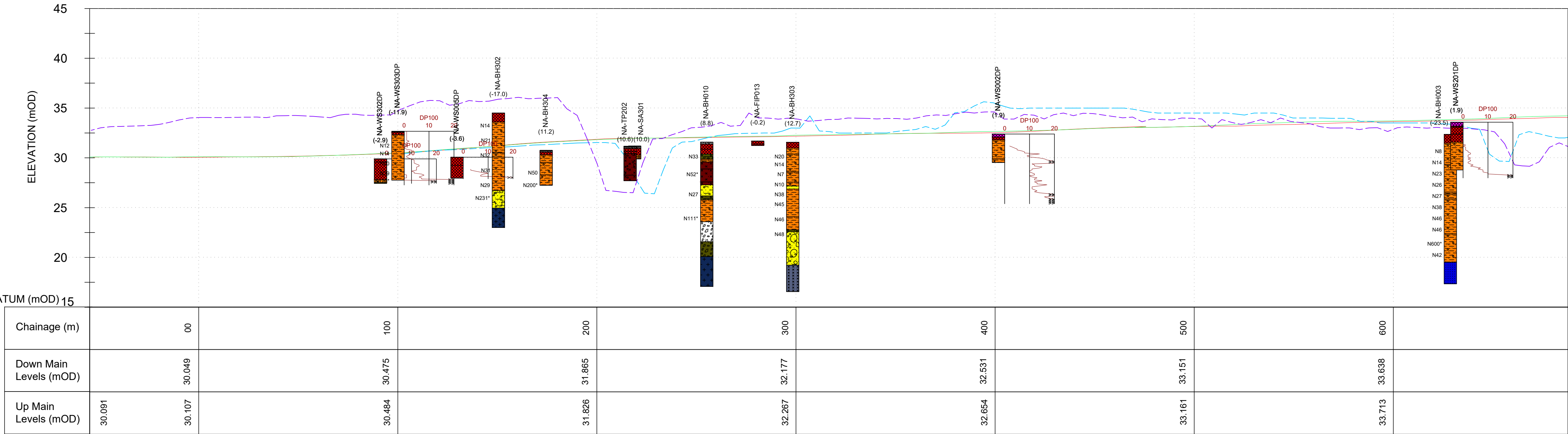
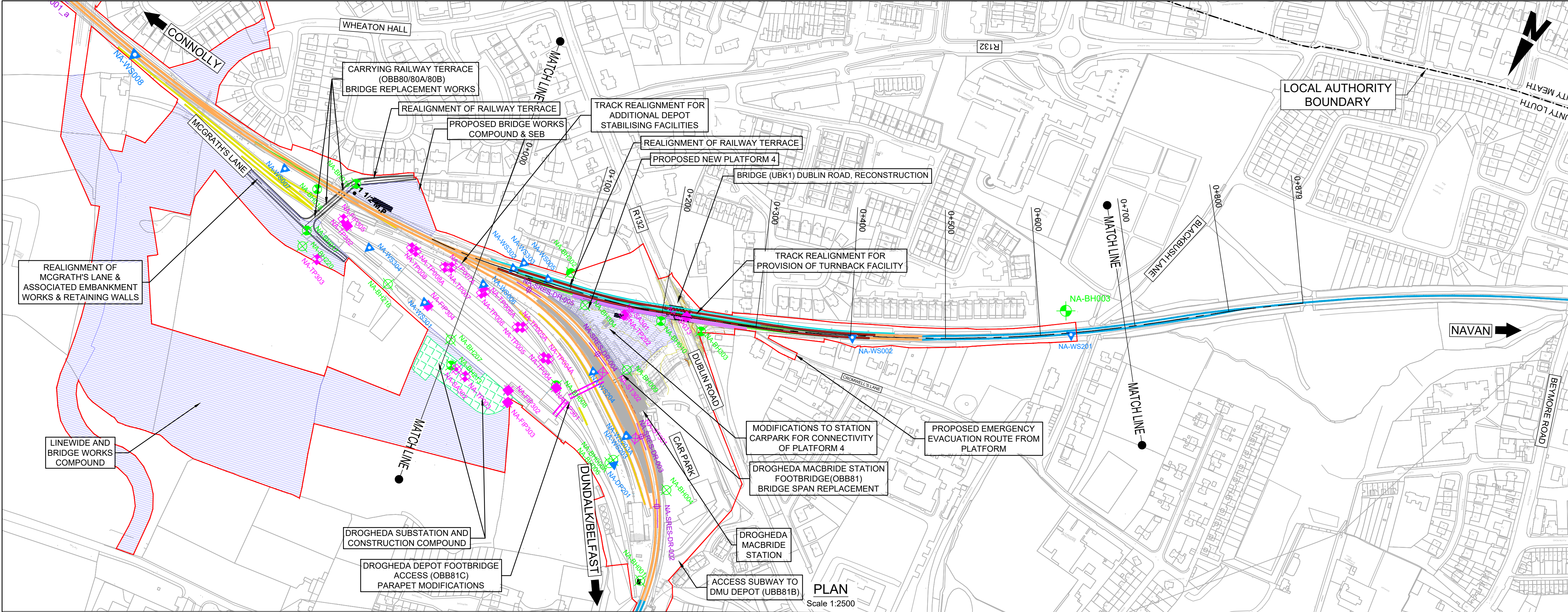


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DO NOT SCALE USE FIGURED DIMENSIONS ONLY



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LEGEND:

Blow counts exceed 20

Hole offset is +ve to the RIGHT of the section line, see Note 3.

SPT N value, * denotes N extrapolated: * from main blows ** from seating blows

Typical Dynamic Probe plot with depth

PROFILE

Hole ID

Topographical data along railway boundary is ± 0.5m

Down Main IE Boundary Ground Level (West)

Up Main IE Boundary Ground Level (East)

Down Main Levels

Up Main Levels

COLOUR LEGEND

Made Ground [MG]

Railway Ballast [RB]

Topsil [TOP]

Peat [Peat]

Clay [Clay]

Sand [Sand]

Gravel [Gravel]

Silt [Silt]

Mudstone [Mud]

Limestone [Lst]

Diorite or Basalt [IN]

Sandstone [SS]

Siltstone [Silt]

Conglomera [Cng]

Breccia [BR]

Weathered Rock [WrR]

Masonry Wall [Masonry]

Open Hole [OH]

MATERIALS

Fill (MADE GROUND)

Sandy gravelly CLAY

SANDY GRAVELLY SILT

SAND

Silty gravelly SAND

Silty sandy GRAVEL

SANDY GRAVEL

Made Ground - FILL

SAND and GRAVEL

SANDY GRAVELLY COBBLY CLAY

SANDY CLAY

Clayey sandy GRAVEL

Silty sandy cobbly GRAVEL

Silty sandy GRAVEL

TOPSOIL

Clayey SAND

SANDSTONE

Clayey gravelly SAND

Clayey silty sandy GRAVEL

Medium Grained Igneous

MUDSTONE

Silty SAND

Clayey GRAVEL

GI SYMBOL

NA-BH

NA-BH

NA-BH

NA-BH

NA-BH

NA-SC

NA-DP

NA-WS

NA-FIP

NA-OP

NA-ST

NA-SA

NA-TP

FOUNDATION PIT INSPECTION

OBSERVATION PIT

SLIT TRENCH

SOAK AWAY

TRIAL PIT

ERT PROFILE

SEISMIC REFRACTION PROFILE

VES (SEE FACTUAL REPORTS FOR RESULTS)

NOTE:

1. FACTUAL GROUND INVESTIGATION INFORMATION PRESENTED IS BASED ON CAUSEWAY GEOTECH LTD (2023), DART+ NORTH & BEMU STAGE 4 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.

2. DOWN MAIN AND UP MAIN BOUNDARY LEVEL BASED ON TOPOGRAPHICAL LEVELS TAKEN FROM 2012 LIDAR ALONG IE PROPERTY BOUNDARY.

3. GEOLOGICAL STICK LOGS PRESENTED ON PROFILES ARE PROJECTED TO A CENTRE LINE BETWEEN THE UP AND DOWN MAIN LINES AND SHOULD BE READ WITH IN THE CONTEXT OF INCREASING CHAINAGE.

4. DYNAMIC PROBES PRESENTED ARE DPH-B AND RESULTS RELATE TO BLOW COUNTS PER 100mm.

Rev

Date

Drm

Chk'd

App'd

Description

P01 20/11/2023 EAM MT MF PLANNING ISSUE

Client

Engineering Designer

Project Title

Drawing Title

Date

Scale

As Shown @ A1

As Shown @ A3

Drawn

SR

Checked

MT

Approved

MF

Project Code

D+WP56

Originator Code

ARP

QMS Code

280275-00

Drawing File Name

D+WP56-ARP-P4-NL-DR-RO-900029

Sheet Number

29 of 30

Status

S3

Rev

P01

DART+ Coastal North

PREFERRED OPTION - GEOLOGICAL PLAN & PROFILE

DROGHEDA MACBRIDE STATION NAVAN LINE

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DO NOT SCALE USE FIGURED DIMENSIONS ONLY

