

AENC-MMAC-ENG-DWG-0085

Norwich to Tilbury

Volume 2: Plans, Drawings and Sections

Document: 2.6.1 Design and Layout Plans - Subs & Cables

Final Issue A

August 2025

Planning Inspectorate Reference: EN020027

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(o)

nationalgrid

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE HIGH VOLTAGE CABLE DIRECT BURIED CROSS SECTION AND CONSTRUCTION EASEMENT DRAWING
REGULATION 5(2)(o)
SHEET 1 OF 1

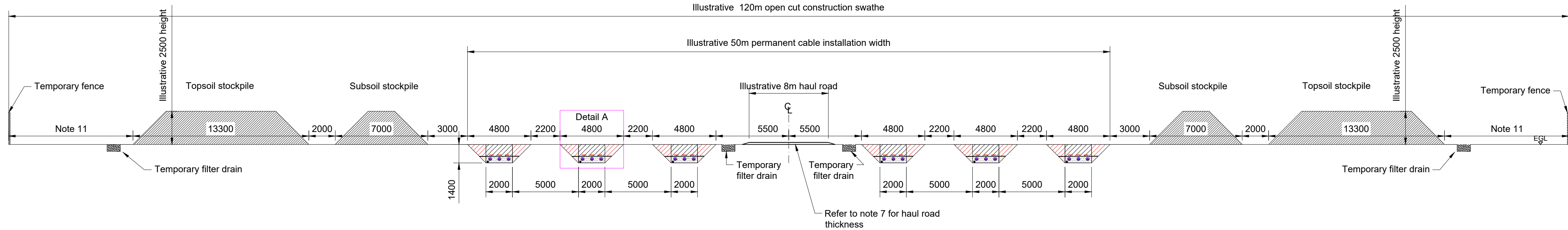
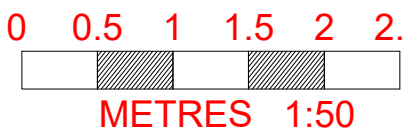
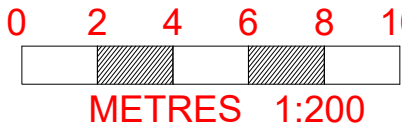
Application Document 2.6.1

LEGEND

- Well-compacted thermally suitable backfill (indigenous material to be used where possible)
- Well-compacted thermally suitable backfill (splayed excavation) (indigenous material to be used where possible)
- Cement-bound sand cable surround
- Cement-bound sand cable surround (splayed excavation)
- High voltage cable

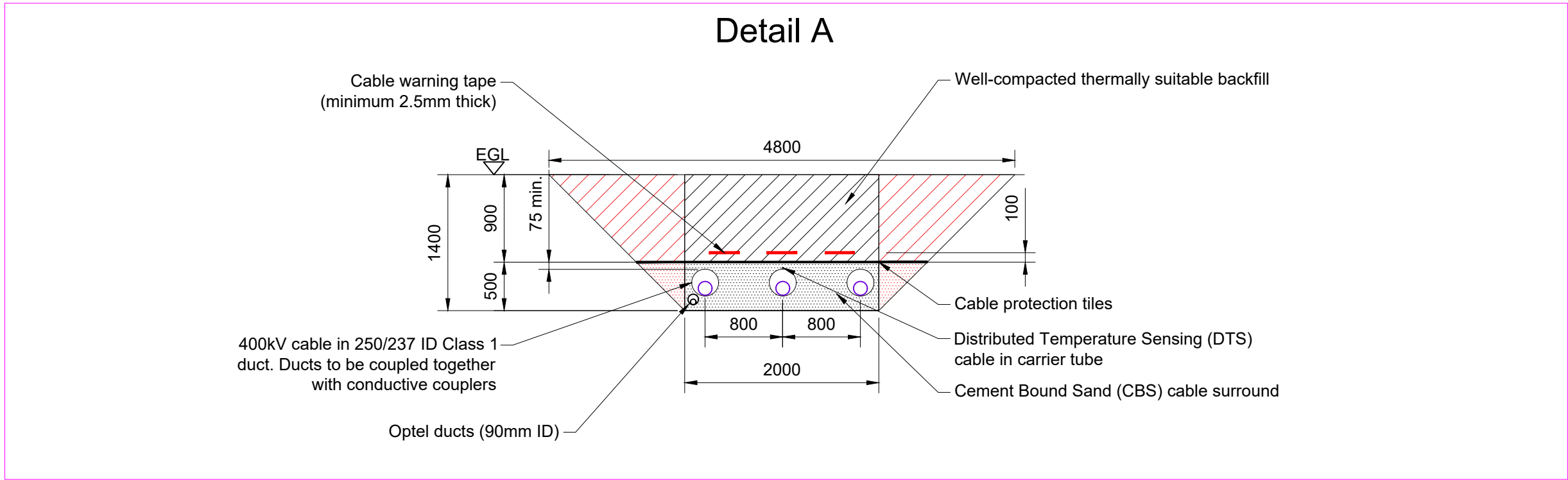
Notes

1. These plans are illustrative and will sit within the Order Limits. Due to the need for future flexibility, National Grid will be applying for Order Limits and Limits of Deviation within its DCO, within which any final alignment would lie.
2. For additional detail on the plan suites, please refer to the Guide to Plans (document reference 2.0), located in the Volume 2 of the DCO application.
3. All dimensions are approximate and indicated in millimetres (mm) unless noted otherwise.
4. This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
5. The proposed arrangement, including circuit and cable spacing, is shown for illustrative purposes only. Dimensions and the design may vary depending on site and installation conditions.
6. The cable construction swathe may reduce in width subject to site constraints. At these locations, associated topsoil and subsoil may be stored elsewhere along the route. It is assumed that soil stockpiles will be locally omitted where the swathe passes through hedgerows or in areas that are otherwise constrained. In particularly constrained areas, the trench spacing could be reduced by using vertical excavations and appropriate temporary works. However, this approach is not recommended for all locations as battered excavations will substantially aid efficiency of construction.
7. Haul road dimensions and depths are subject to vehicle requirements and ground conditions.
8. Drainage details are shown illustratively. Requirements are subject to site conditions and construction methodology.
9. Installation of high voltage cables, ducts and associated communications cables shall be in accordance with the relevant National Grid standards and technical specifications.
10. A "bypass" haul road is required on a location-specific basis to provide parallel access to overhead lines outside the underground cable working area. In these locations, the widths will be in accordance with the Illustrative Haul Road Cross Section drawing.
11. Offset between perimeter fence and bund allows for spacing of other features to change as a result of varying site conditions without affecting the overall swathe width.



Illustrative swathe for open cut construction for
400kV cabling works

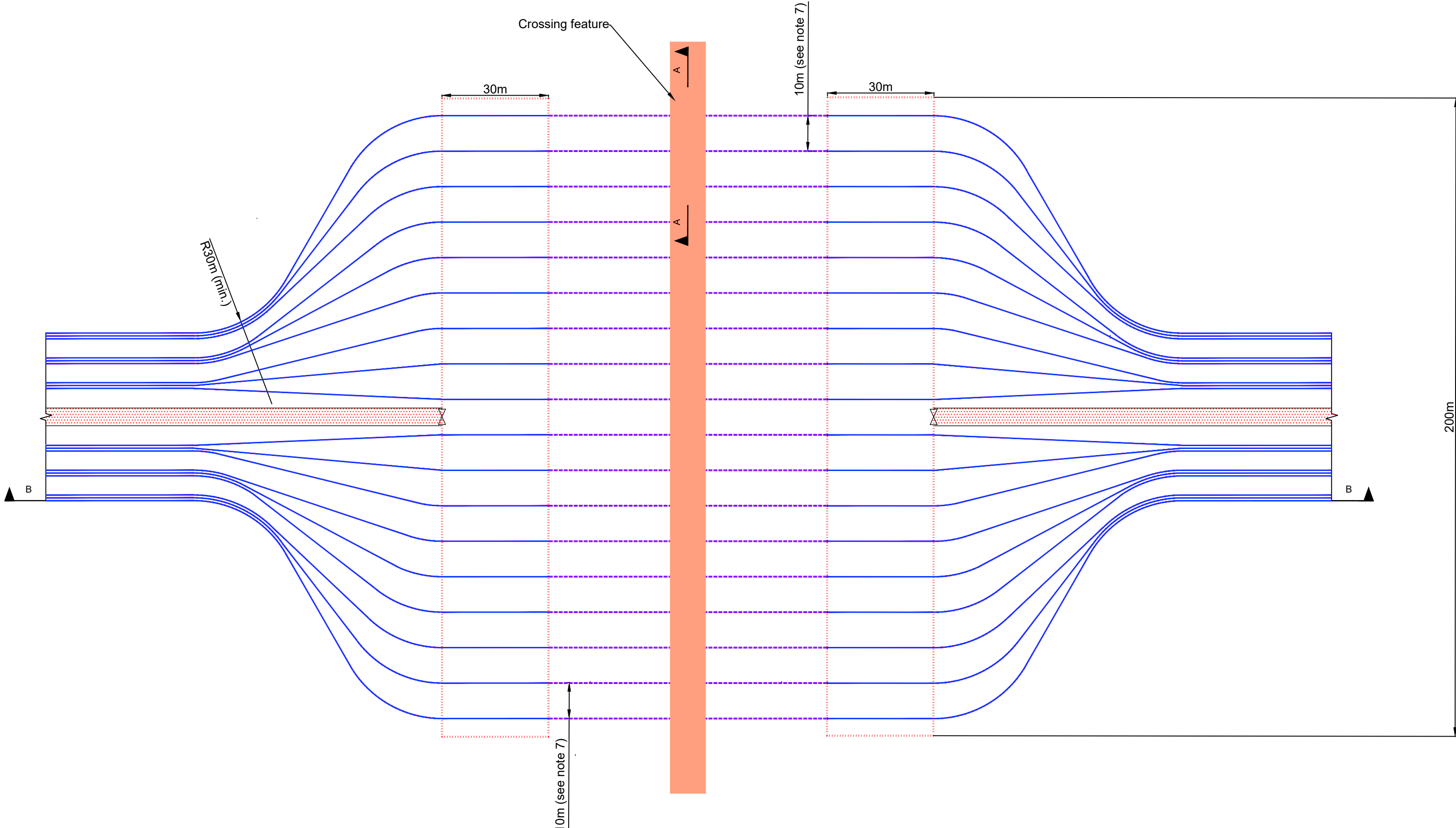
1:200



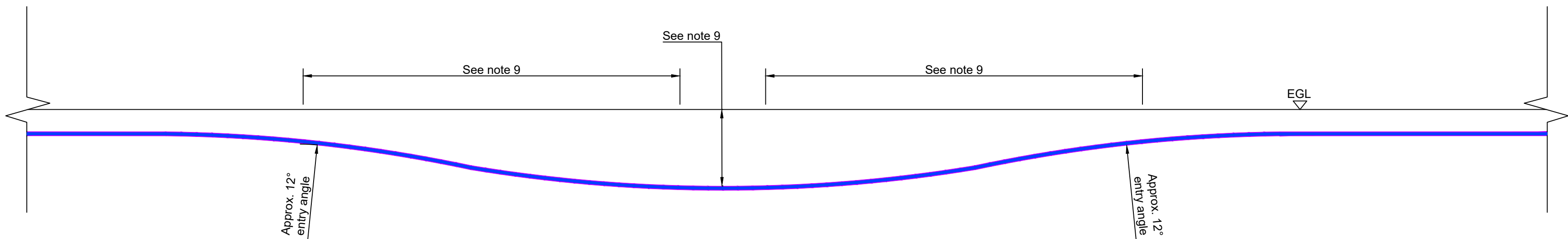
Illustrative direct buried cable trench
cross-section

1:50

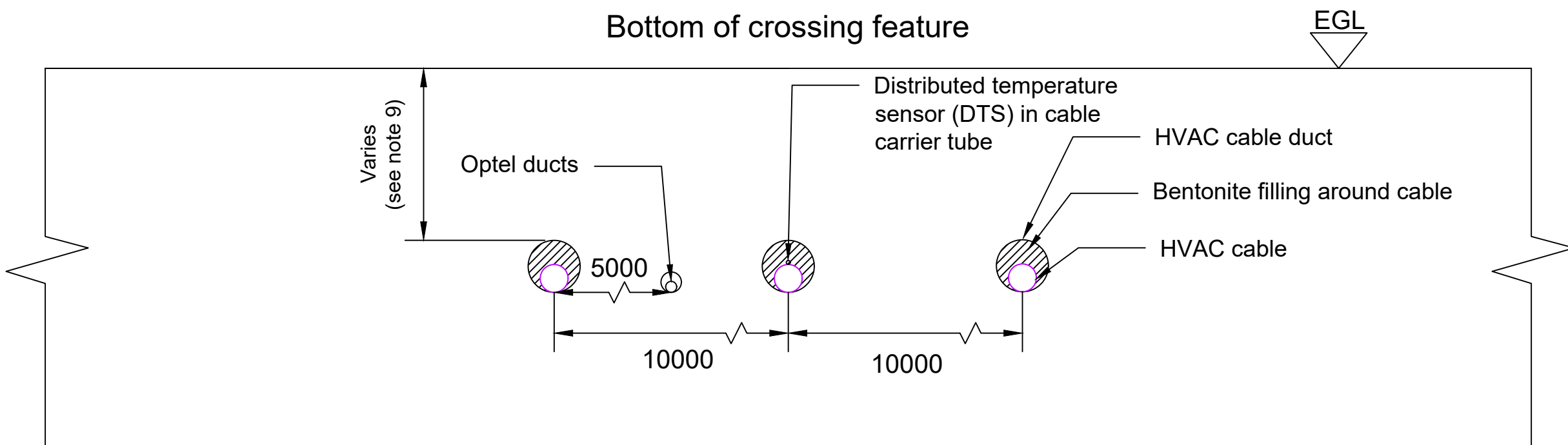
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE TRENCHLESS CROSSING STANDARD DETAIL
REGULATION 5(2)(o)
SHEET 1 OF 1



Illustrative HDD plan arrangement under a crossing feature












Cross Section B-B
Illustrative HDD cable long section



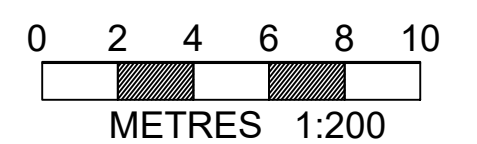
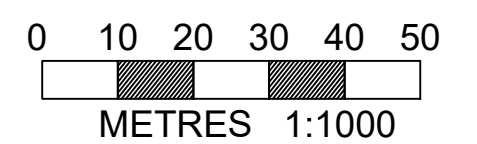
Cross Section A-A
Illustrative HDD cable cross section under crossing feature

LEGEND

- | | |
|---|---|
|  | Cable duct containing high voltage alternating current (HVAC) cable |
|  | Comms cable / duct |
|  | Horizontal directional drill (HDD) - one HVAC cable in duct |
|  | HDD launch / reception site |
|  | Temporary gate |
|  | Haul Road |
|  | Crossing feature |
|  | Bentonite filling |
|  | High voltage cable |

Notes

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3. All dimensions are approximate and indicated in millimeters (mm) unless noted otherwise.
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5. The proposed arrangement, including circuit and cable spacing, is shown for illustrative purposes only. Dimensions and the design may vary depending on site and installation conditions.
6. Installation of high voltage cables, ducts and associated communications cables shall be in accordance with the relevant National Grid standards and technical specifications.
7. Cable spacing based on typical 10m separation. Spacing may increase/decrease (within the underground cable Limits of Deviation) as the design is developed.
8. Horizontal Directional Drilling (HDD) is shown as the a baseline method of trenchless installation. However, various other trenchless installation methods are available. The selected method will vary by location to suit the detailed design and site conditions.
9. Depth between existing surface level, track, utility or bottom of ditch (as appropriate) and top of duct to be agreed with relevant stakeholders. Increase in depth may impact overall length of the trenchless installation.
10. Refer to drawing ENC-MMAC-ENG-DWG-0085-03 (document reference 2.6.1) for the illustrative HDD launching and reception worksite layout.



A	AUG-2025	For DCO submission	OB	CK	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE TRENCHLESS CROSSING
STANDARD DETAIL
REGULATION 5(2)(o)
SHEET 1 OF 1

nationalgrid

PINS Application Number

EN020027

National Grid Drawing Reference

AENC-MMAC-ENG-DWG-0085-02

<u>Scale</u>	<u>Sheet Size</u>	<u>Sheet</u>	<u>Issue</u>
As shown	A1	SHEET 1 OF 1	A

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE HDD LAUNCHING AND RECEPTION WORKSITE LAYOUT
REGULATION 5(2)(o)
SHEET 1 OF 1

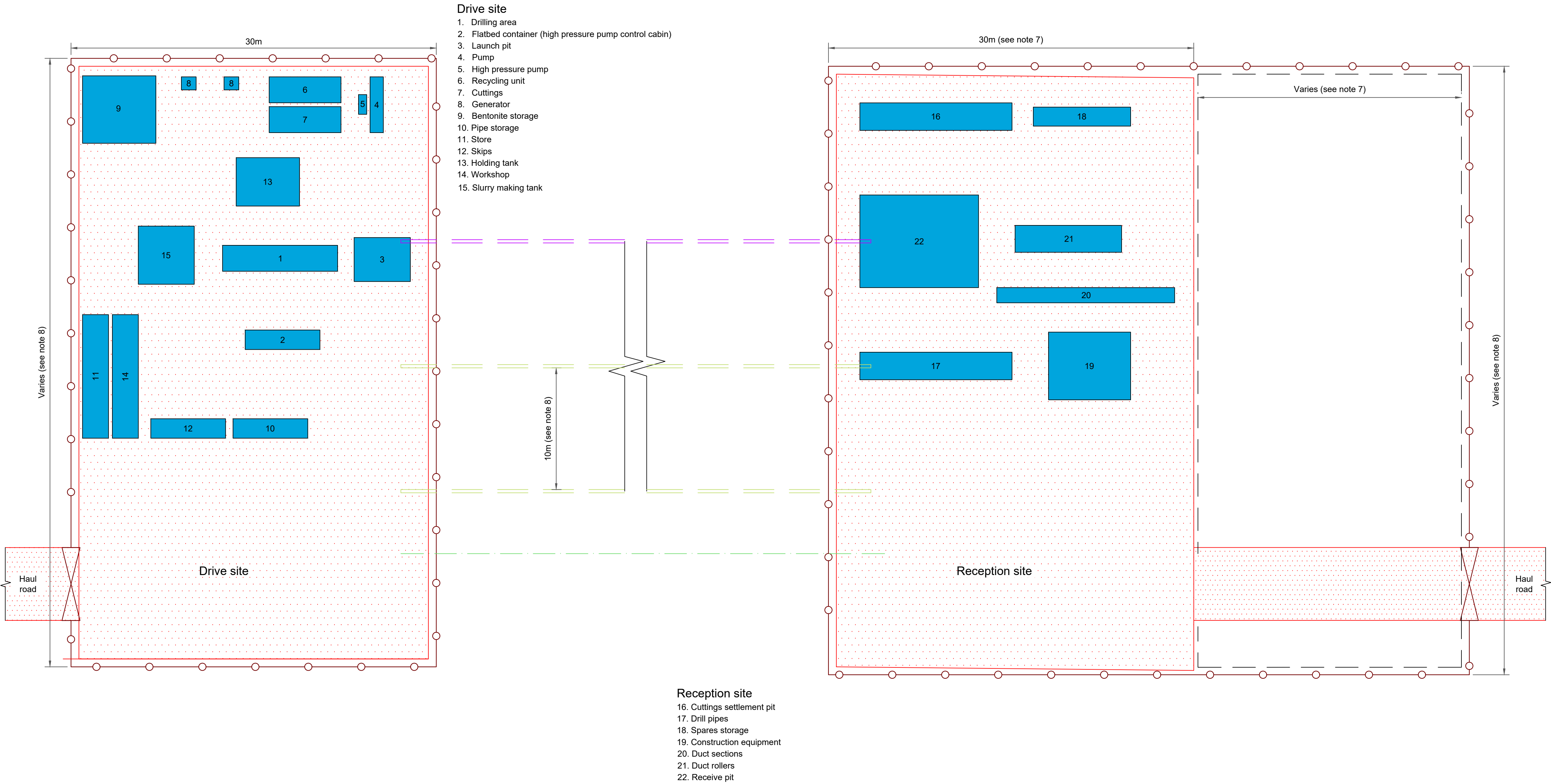
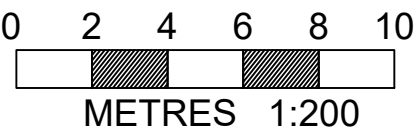
Application Document 2.6.1

LEGEND

- Hard standing/gravel surface
- Construction equipment/area
- Temporary fence
- Cable duct (being installed)
- Cable duct (installed)
- Temporary gate
- Comms cable/duct

Notes

- These plans are illustrative and will sit within the Order Limits. Due to the need for future flexibility, National Grid will be applying for Order Limits and Limits of Deviation within its DCO, within which any final alignment would lie.
- For additional detail on the plan suites, please refer to the Guide to Plans (document reference 2.0), located in the Volume 2 of the DCO application.
- All dimensions are approximate and indicated in metres (m) unless noted otherwise.
- This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
- The proposed arrangement, including circuit and cable spacing, is shown for illustrative purposes only. Dimensions and the design may vary depending on site and installation conditions.
- Temporary topsoil/subsoil bunding is not shown on drawing.
- Compound width may vary subject to length of crossing and handling area needed.
- This is an illustrative layout for Horizontal Directional Drilling of three cables. Installation of the proposed 18 cables will require a working area of approximately 180m, allowing for a typical separation of 10m between each cable. The spacing may increase/decrease (within the underground cable Limits of Deviation) as the design is developed.
- Horizontal Directional Drilling (HDD) is shown as the baseline method of trenchless installation. However, various other trenchless installation methods are available. The selected method will vary by location to suit the detailed design and design conditions.
- Cable winch locations are not shown on drawing as there is assumed sufficient space within the cable corridor to accommodate this.
- Drilling area, mud pit and associated construction equipment will move to suit each new drill position.
- Installation of high voltage cables, ducts and associated communications cables shall be in accordance with the relevant National Grid standards and technical specifications and the requirements of the organisation with responsibility for the feature being crossed.
- Refer to drawing AENC-MMAC-ENG-DWG-0085-02 (document 2.6.1) for the illustrative trenchless crossing standard detail.



Illustrative HDD construction compound layout
1:200

A	AUG-2025	For DCO submission	OB	CK	KR
Issue	Date	Remarks	Drawn	Checked	Approved
Title					
THE NATIONAL GRID (NORWICH TO TILBURY) ORDER ILLUSTRATIVE PRIMARY HDD LAUNCHING AND RECEPTION WORKSITE LAYOUT REGULATION 5(2)(o) SHEET 1 OF 1					
nationalgrid					
PINS Application Number					
EN020027					
National Grid Drawing Reference					
AENC-MMAC-ENG-DWG-0085-03					
Scale	Sheet Size	Sheet	Issue		
1:200	A1	SHEET 1 OF 1	A		

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE DIRECT PIPE LAUNCHING AND RECEPTION WORKSITE LAYOUT
REGULATION 5(2)(o)
SHEET 1 OF 1

Application Document 2.6.1

LEGEND

- Construction equipment/area
- Haul road
- Temporary fence
- Temporary gate
- Launch pit with push unit (pipe thruster)
25m x 4m (proposed/typical)
- Pipe welding & fabrication area
- Pipejack tunnel

- Pumps
- Slurry separation
- Slurry mixing
- Water and lubricant tanks
- Office
- Welfare
- Hydraulics unit
- Control room
- Power generator
- Launch pits

- Welfare
- Working crane
- Reception pits

Notes

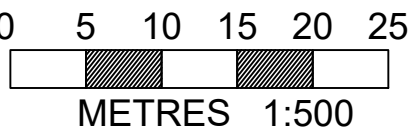
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- Compound width may vary subject to length of crossing and handling area needed.
- Tunnel spacing based on 10m separation. Spacing may increase/decrease (within the underground cable Limits of Deviation) at later stage of design.
- Layout based on six no. pipe jack tunnels.
- Plant/working areas shown for space allocation. Final number and layout will be established once design and specific sites known.
- The launch side will be selected based on several factors, including space and access.

Direct pipe - illustrative launching site layout

1:500

Direct pipe - illustrative reception site layout

1:500



A	AUG-2025	For DCO submission	OB	CK	KR

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THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE DIRECT PIPE LAUNCHING AND
RECEPTION WORKSITE LAYOUT
REGULATION 5(2)(o)
SHEET 1 OF 1

nationalgrid

PINS Application Number	EN020027
National Grid Drawing Reference	AENC-MMAC-ENG-DWG-0085-04

Scale	Sheet Size	Sheet	Issue
1:500	A1	SHEET 1 OF 1	A

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE PIPEJACK LAUNCHING AND RECEPTION WORKSITE LAYOUT
REGULATION 5(2)(o)
SHEET 1 OF 1

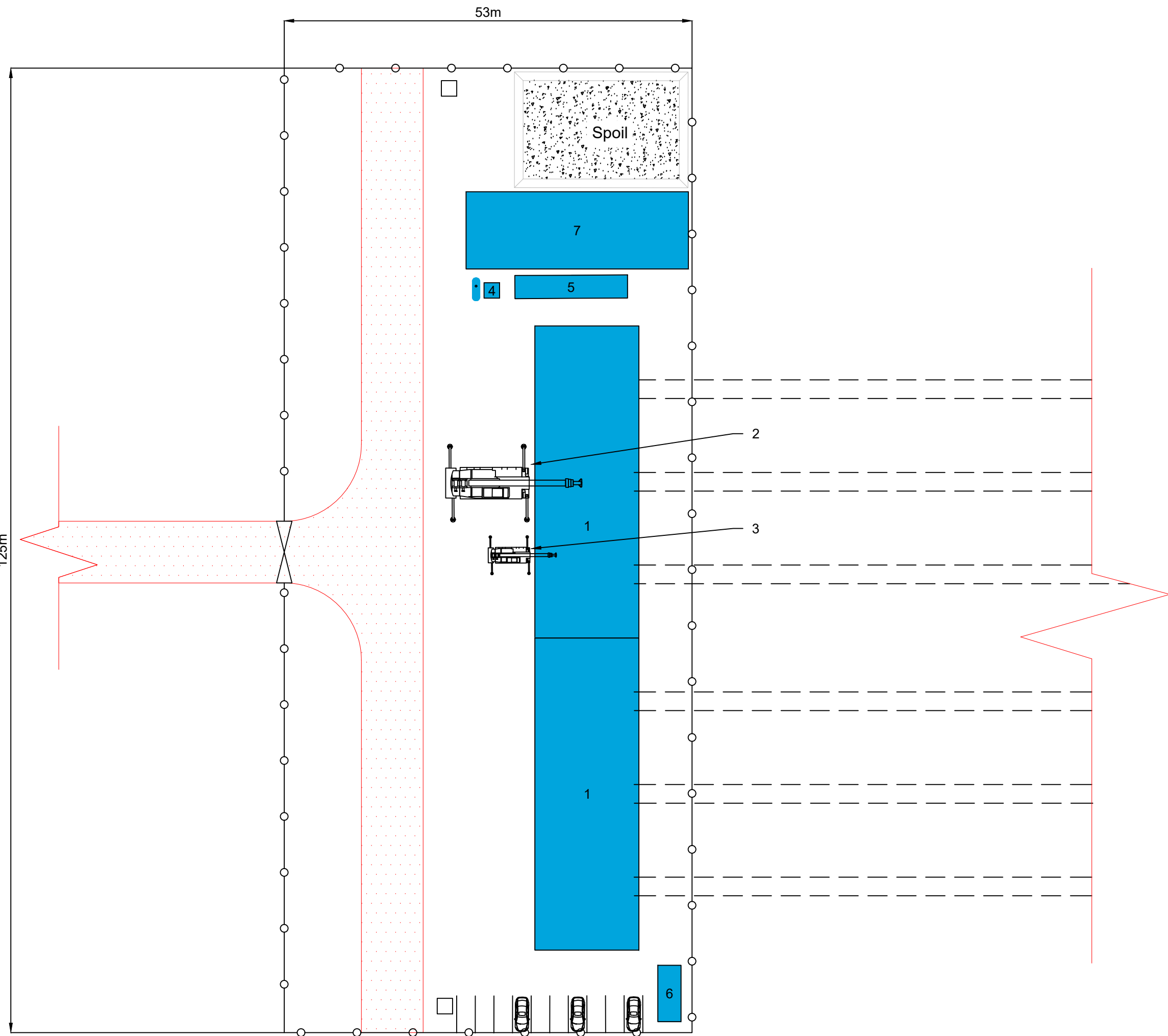
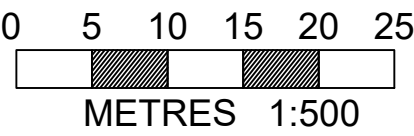
Application Document 2.6.1

LEGEND

- Construction equipment/area
- Haul road
- Temporary fence
- Temporary gate
- Temporary gate
- Pipejack tunnel

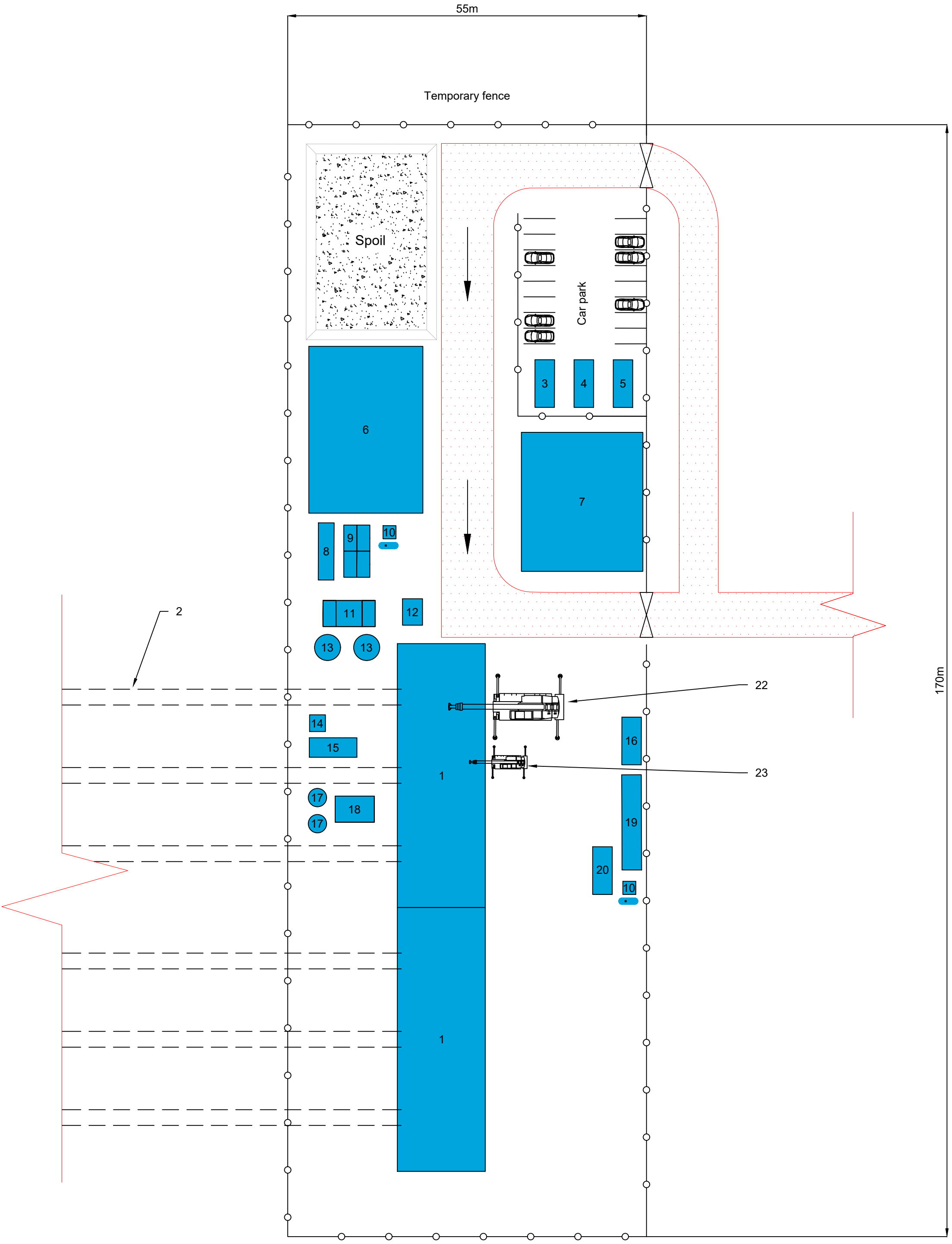
Notes

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- Compound width may vary subject to length of crossing and handling area needed.
- Tunnel spacing based on 10m separation. Spacing may increase/decrease (within the underground cable Limits of Deviation) at later stage of design.
- Layout based on six no. pipe jack tunnels.
- Plant/working areas shown for space allocation. Final number and layout will be established once design and specific sites known.
- The launch side will be selected based on several factors, including space and access.



Pipejack - illustrative reception site layout

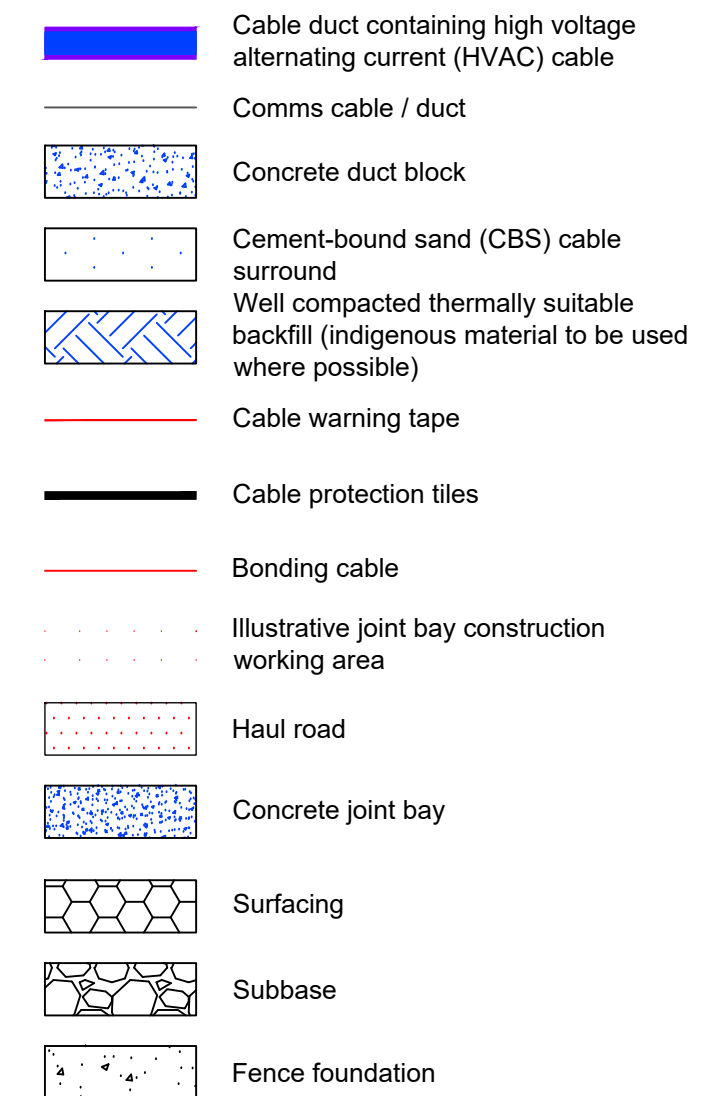
- Reception box area
- Working crane
- Rescue crane
- Diesel Tank and Generator
- Work Shop
- Welfare
- General Storage Area



Pipejack - illustrative launching site layout

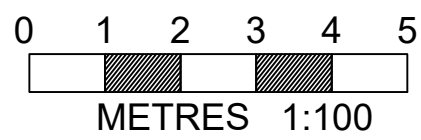
- Launching box area
- Pipejack tunnel
- Showers and toilets
- Welfare
- Office
- General storage area
- Slurry, bentonite pipes and other general storage
- Slurry separation
- Slurry mixing
- Power generator
- Separation tanks
- Skip
- Water and lubrication tanks
- Pumps
- Ventilation plant
- Control room
- Lubrication mixing
- Hydraulics unit
- Workshop
- Shelter and COSHH shed
- Illustrative tunnel alignment
- Working crane
- Rescue crane

LEGEND



Notes

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6. Installation of high voltage cables, ducts and associated communications cables shall be in accordance with the relevant National Grid standards and technical specifications.
7. Requirement for distributed temperature sensor (DTS) and/or Communication cables to be agreed at a later stage of the design.
8. Earthing will be required. Currently not included on drawing.
9. Link pillar size and joint bay arrangement and depth subject to cable manufacturer specification.
10. Illustrative arrangement relates to one trench only which can accommodate three cables. In total there are 18 cables, split across six trenches. This illustrative drawing shows one trench, any other trenches would be similar.
11. Joint bay spacing will be determined by cable section length following the cable system design. Typical cable section lengths are 500-1000m, although this may vary. Each set of three cables will require a joint bay and link pillar for every cable section.



A	AUG-2025	For DCO submission	OB	CK	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE JOINT BAY ARRANGEMENT
STANDARD DETAIL
REGULATION 5(2)(o)
SHEET 1 OF 1

nationalgrid

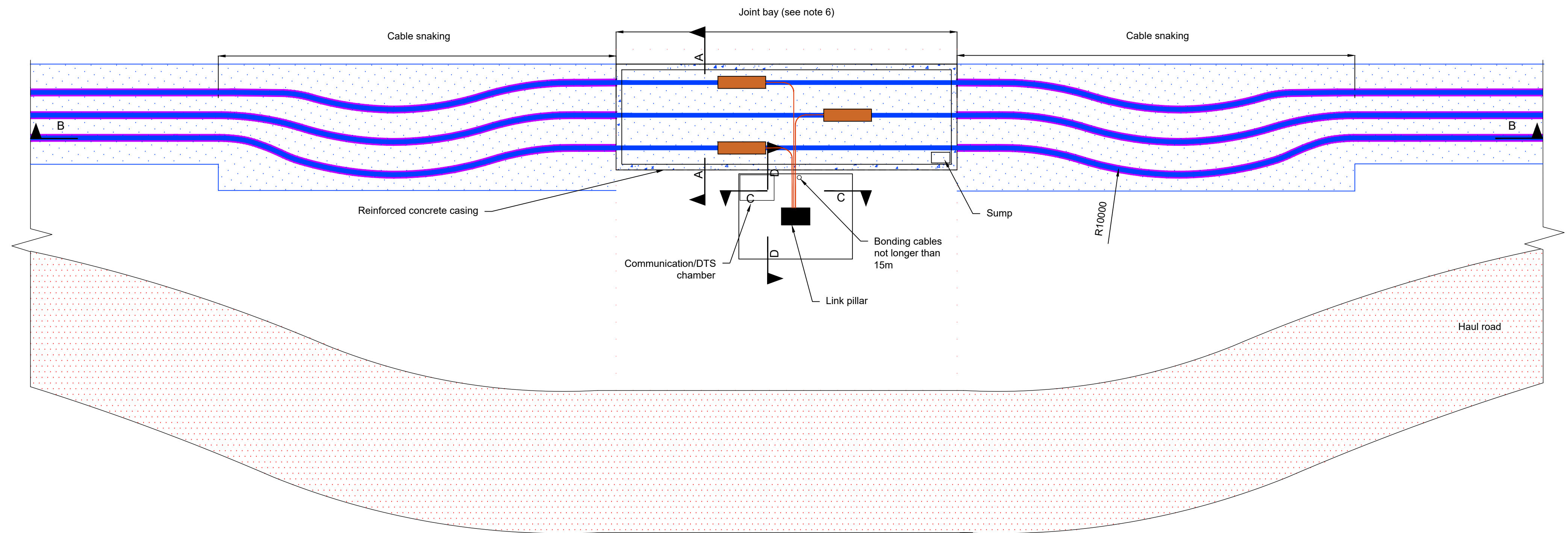
PINS Application Number

EN020027

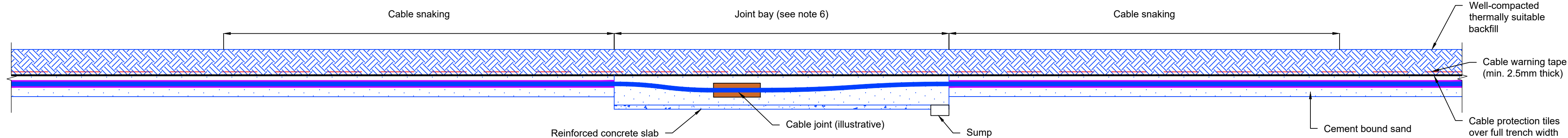
National Grid Drawing Reference

AENC-MMAC-ENG-DWG-0085-06

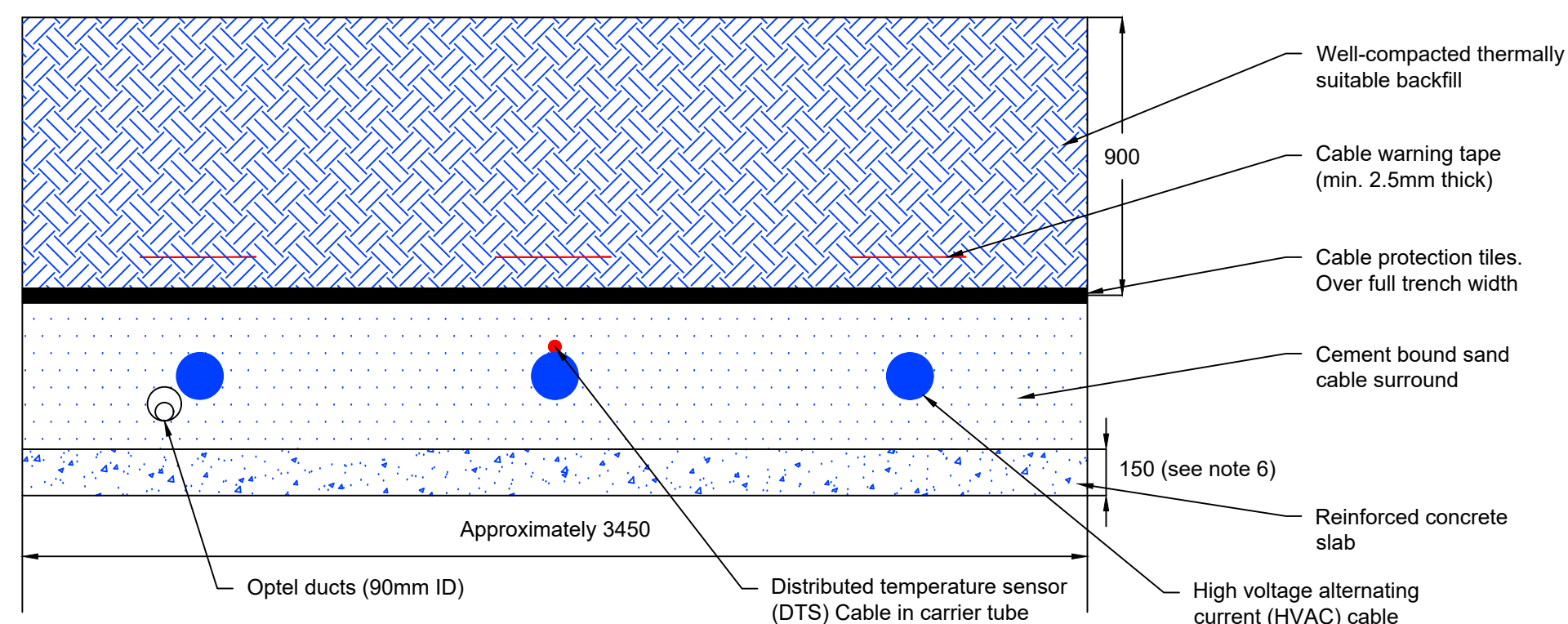
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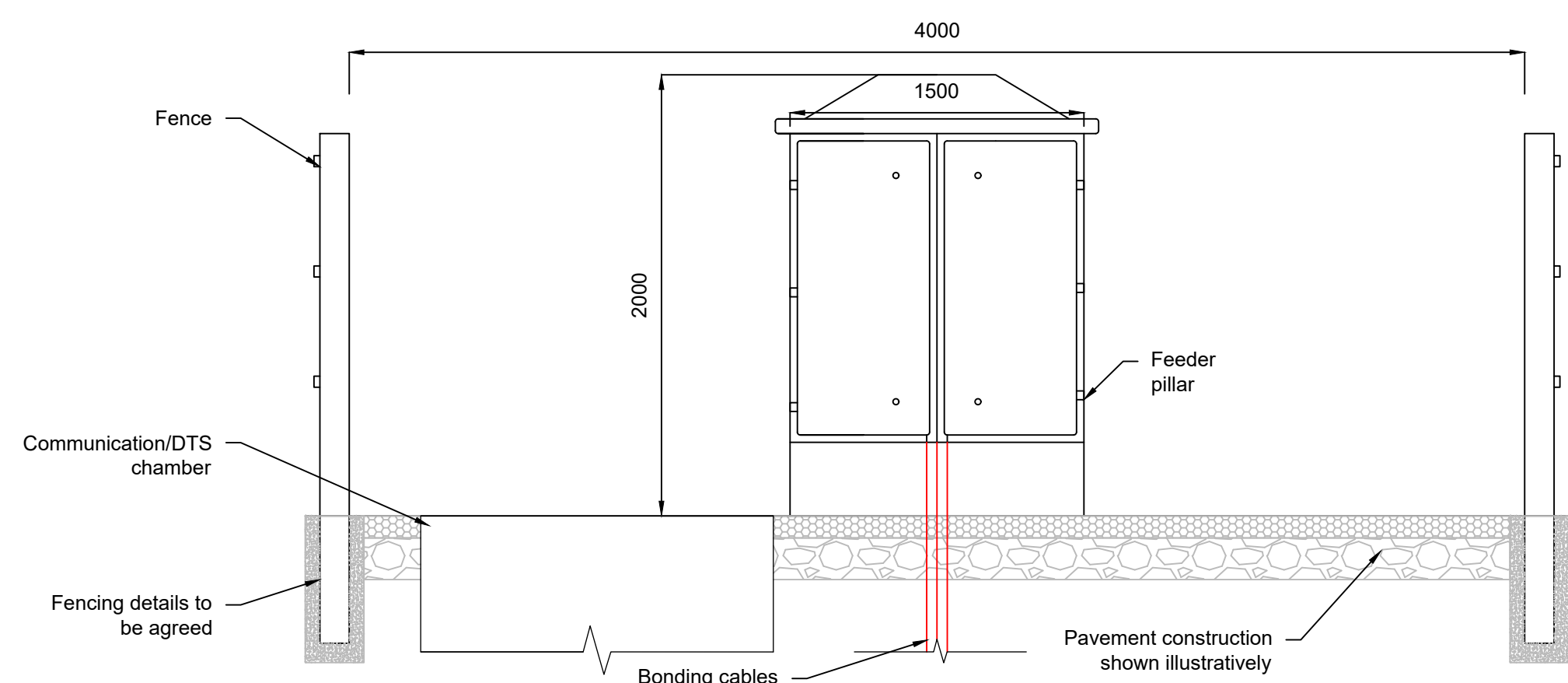
Illustrative HVAC cable joint bay layout
1:100



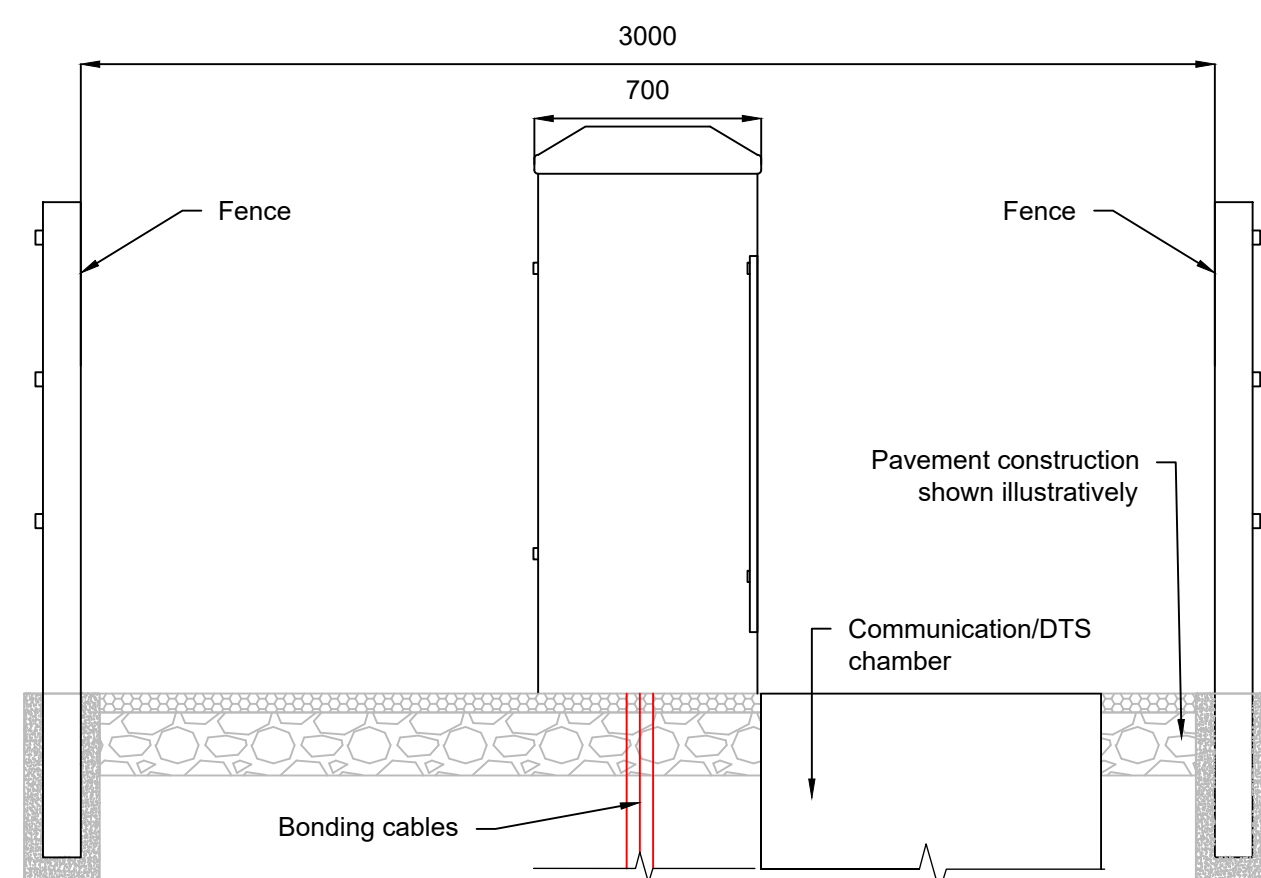
Cross Section B-B
Illustrative HVAC cable joint bay long section



Cross Section A-A
Illustrative HVAC cable joint bay
cross section
1:20



Cross Section C-C
Illustrative link pillar detail
1:20



Cross Section D-D
Illustrative link pillar detail
1:20

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE UTILITY CROSSING (DIRECT BURIED) STANDARD DETAIL
REGULATION 5(2)(o)
SHEET 1 OF 1

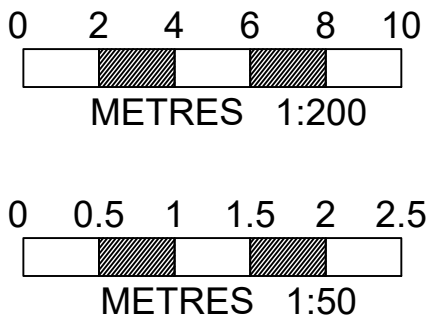
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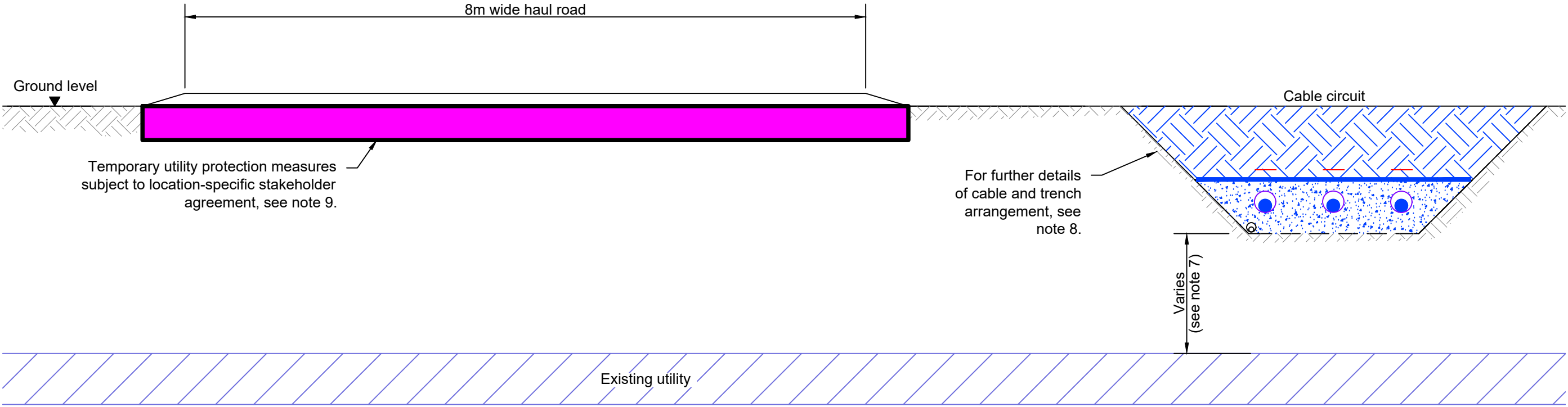
- Cable duct containing high voltage alternating current (HVAC) cable
- HVAC cable
- Comms cable / duct
- Haul road
- Concrete duct block
- Cement-bound sand (CBS) cable surround
- Well compacted thermally suitable backfill (indigenous material to be used where possible)
- Existing ground
- Cable warning tape
- Cable protection tiles
- Temporary support works
- Existing utility
- Temporary utility protection measures

Notes

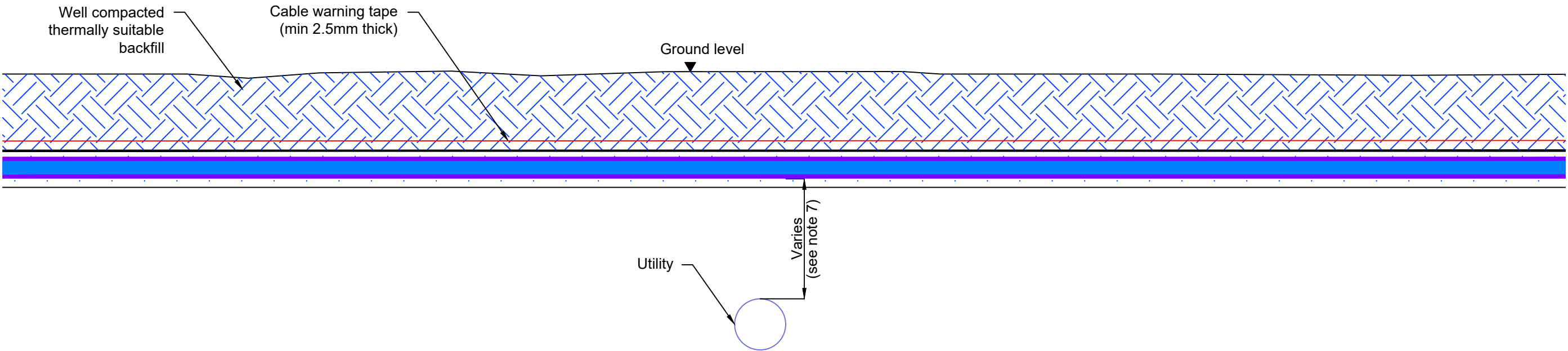
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- Installation of high voltage cables, ducts and associated communications cables shall be in accordance with the relevant National Grid standards and technical specifications.
- Spacing between existing utility and proposed cables is subject to agreement with the relevant utility provider at individual locations.
- A continuous haul road is normally required to support construction activities. Details of temporary utility crossings to be agreed with relevant statutory undertaker.
- Section details show standard single trench. Six trenches will be required in total.
- Details of any crossings will be agreed with the relevant statutory undertaker



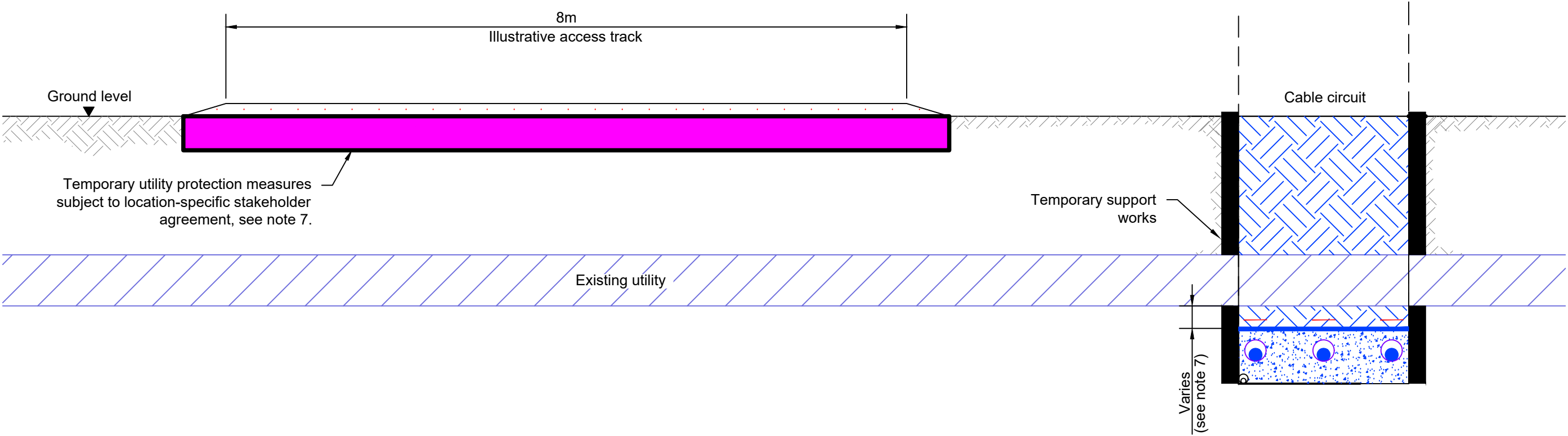
A	AUG-2025	For DCO submission	OB	CK	KR
Issue	Date	Remarks	Drawn	Checked	Approved
Title					
THE NATIONAL GRID (NORWICH TO TILBURY) ORDER ILLUSTRATIVE UTILITY CROSSING (DIRECT BURIED) STANDARD DETAIL REGULATION 5(2)(o) SHEET 1 OF 1					
nationalgrid					
PINS Application Number					
EN020027					
National Grid Drawing Reference					
AENC-MMAC-ENG-DWG-0085-07					
Scale	Sheet Size	Sheet	Issue		
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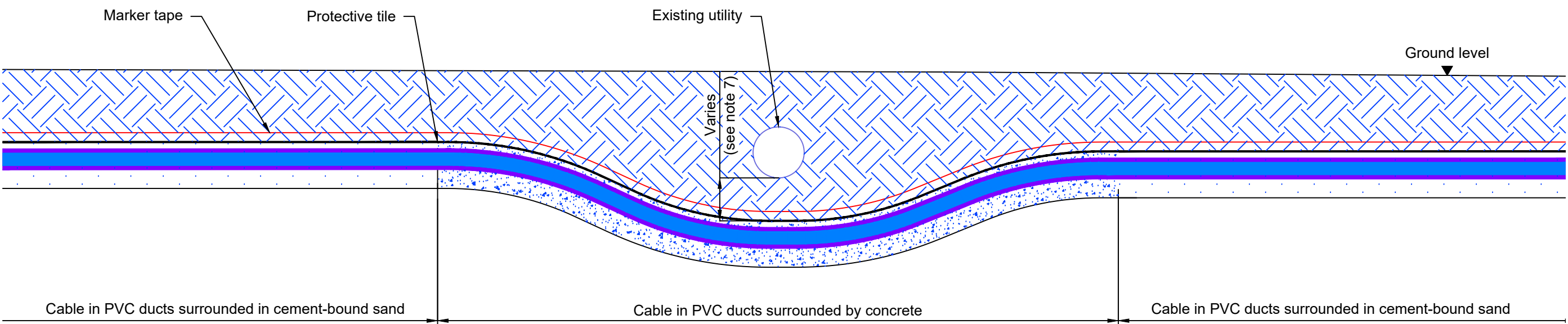
Cross Section A-A
Illustrative utility crossing - above existing services
1:50



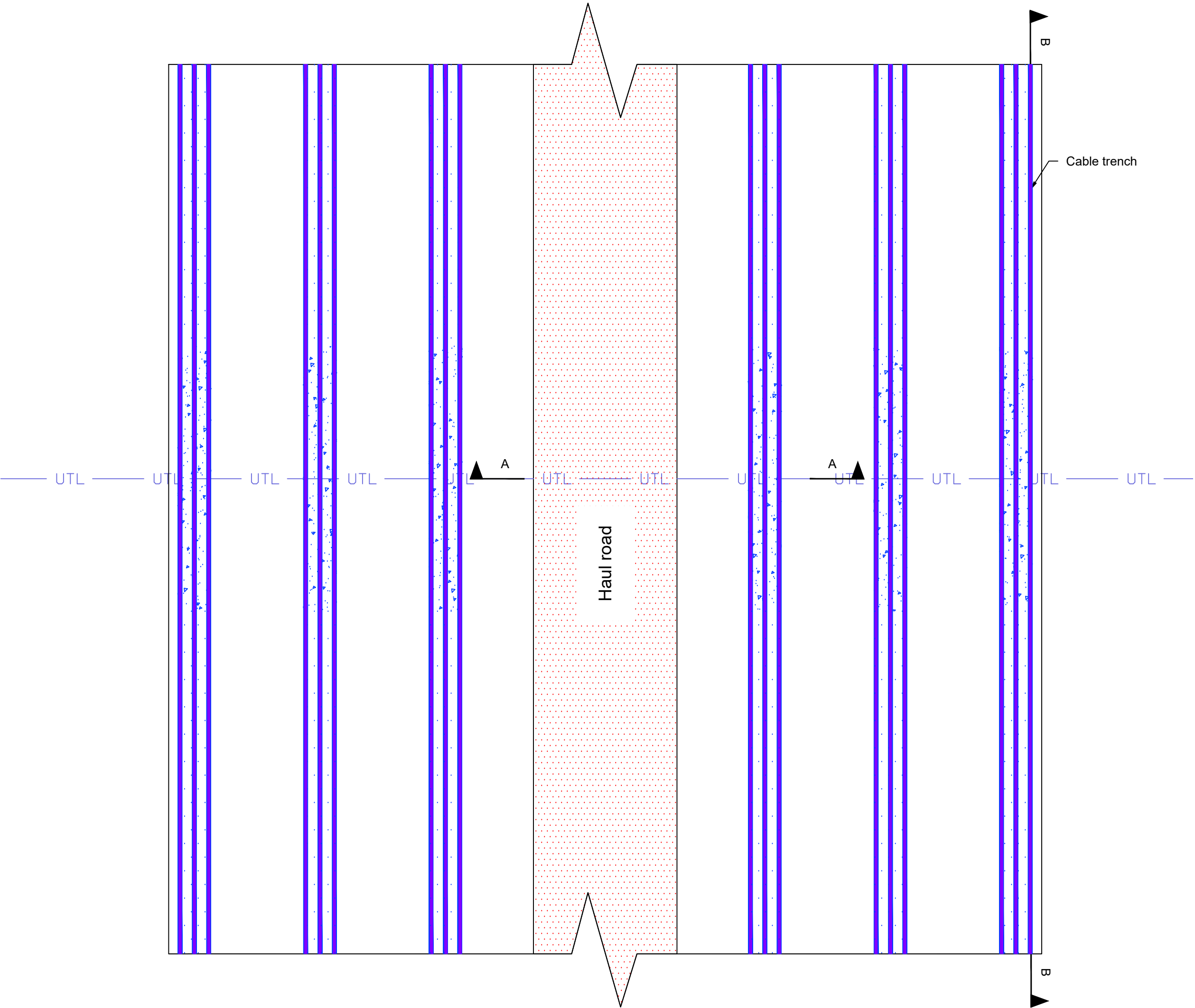
Cross Section B-B
Illustrative utility crossing - above existing services
1:50



Cross Section A-A
Illustrative utility crossing - below existing services
1:50



Cross Section B-B
Illustrative utility crossing - below existing services
1:50



Illustrative utility crossing
1:200

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE DUCTED WATERCOURSE CROSSING STANDARD DETAIL
REGULATION 5(2)(o)
SHEET 1 OF 1

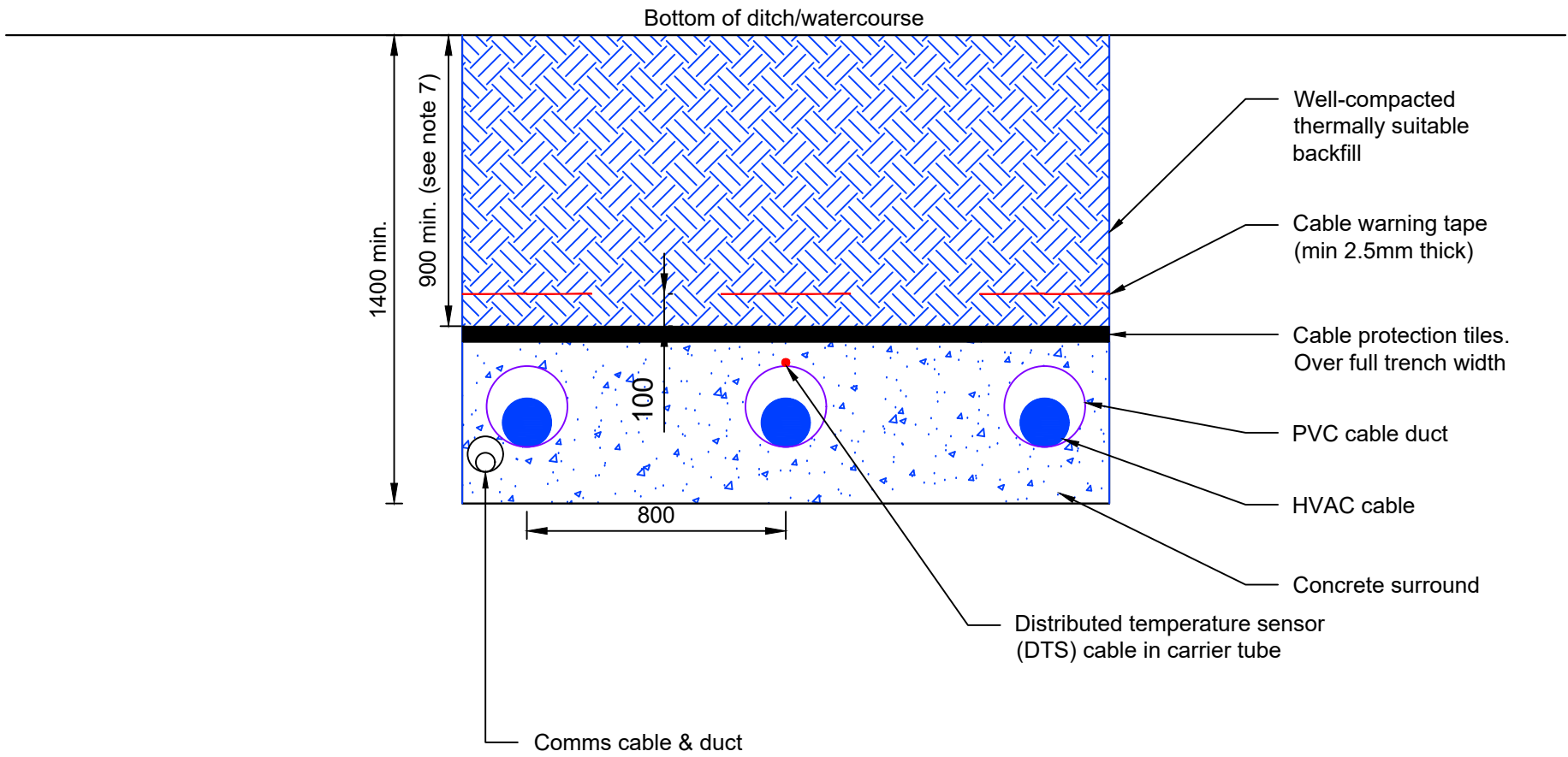
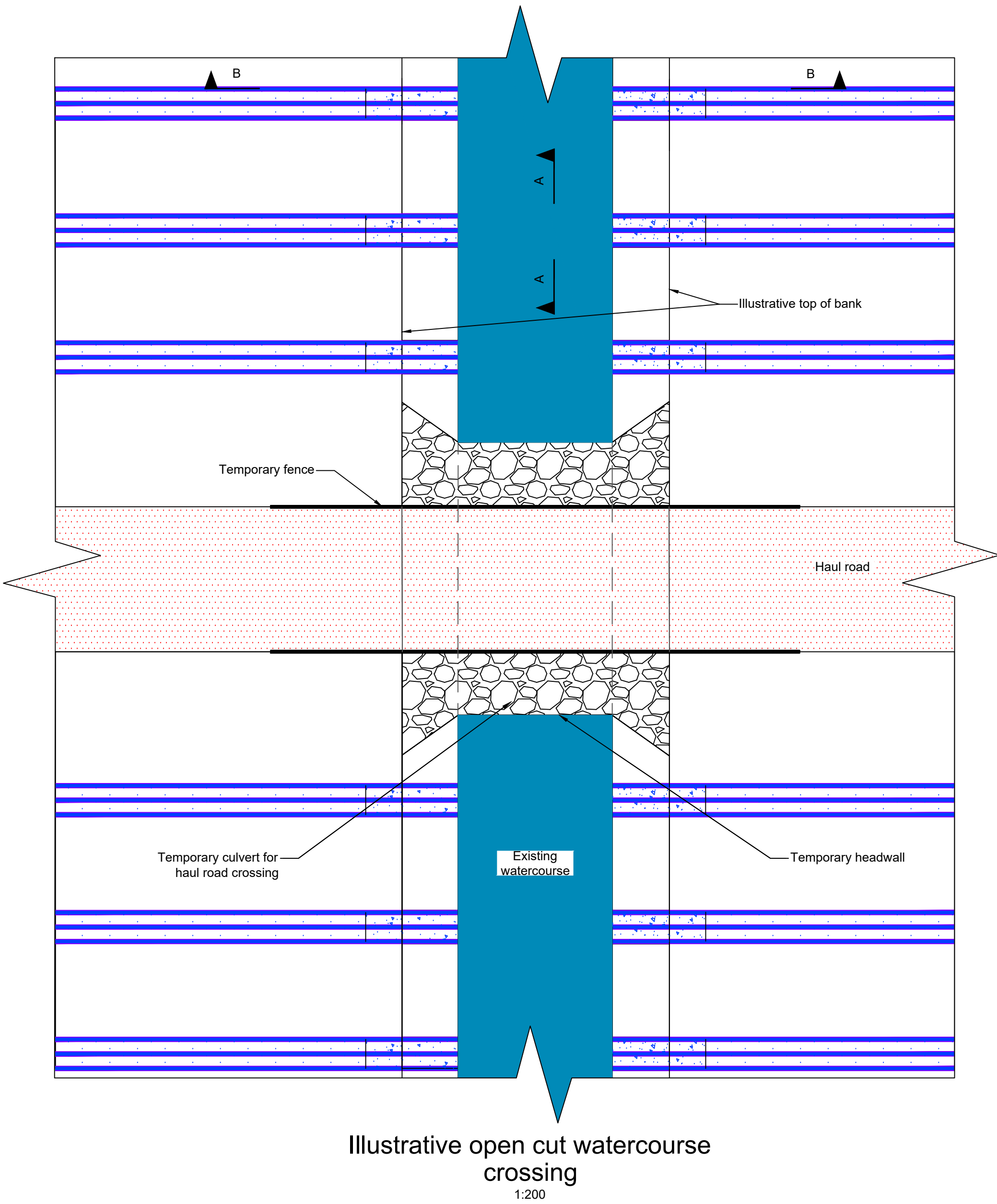
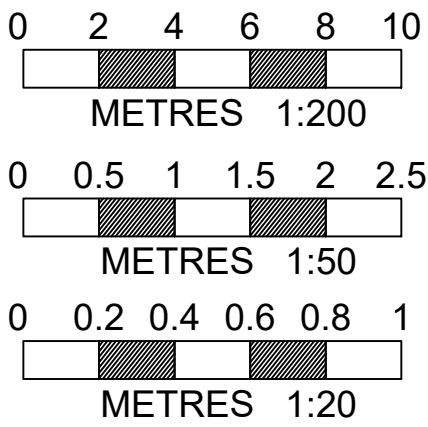
Application Document 2.6.1

LEGEND

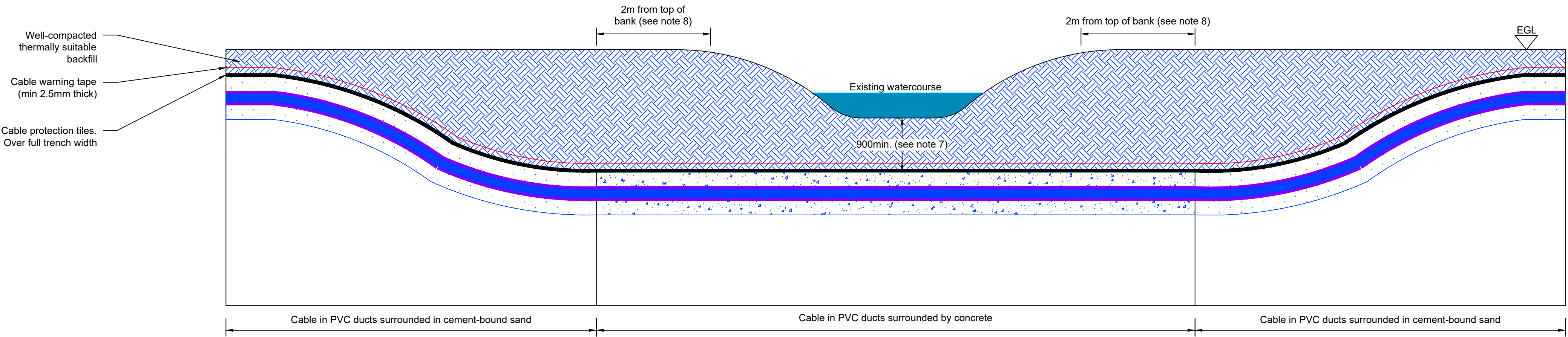
- Cable duct containing high voltage alternating current (HVAC) Cable
- Comms cable / duct
- Haul road
- Concrete duct block
- Cement-bound sand (CBS) cable surround
- Well compacted thermally suitable backfill (indigenous material to be used where possible)
- Cable warning tape
- Cable protection tiles
- Watercourse
- Granular material

Notes

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- Installation of high voltage cables, ducts and associated communications cables shall be in accordance with the relevant National Grid standards and technical specifications.
- Depth between top of watercourse and top of cable protection tiles to be agreed with relevant stakeholders.
- Concrete duct block length to extend by approximately two meters beyond top of bank. Subject to agreement with relevant stakeholders, cement bound sand surround may be used at the watercourse crossings instead of concrete. This is to be assessed at later stage of design.
- Comms cable / duct currently shown illustratively in trench cross section. Exact location to be agreed at a later stage of design.
- Crossing methodology to be agreed with relevant authority.
- Refer to drawing AENC-LSTC-ENG-DWG-0004-11 (document reference 2.6.2) for the illustrative culvert construction details.



Cross Section A-A
Illustrative ducted cable cross section at watercourse
(one trench)
1:20



Cross Section B-B
Illustrative ducted cable long section at watercourse
(one trench)
1:50

A	AUG-2025	For DCO submission	OB	CK	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE DUCTED WATERCOURSE CROSSING
STANDARD DETAIL
REGULATION 5(2)(o)
SHEET 1 OF 1

nationalgrid

PINS Application Number EN020027

National Grid Drawing Reference AENC-MMAC-ENG-DWG-0085-08

Scale	Sheet Size	Sheet	Issue
As shown	A1	SHEET 1 OF 1	A

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE PRIMARY CONSTRUCTION COMPOUND ARRANGEMENT
REGULATION 5(2)(o)
SHEET 1 OF 1

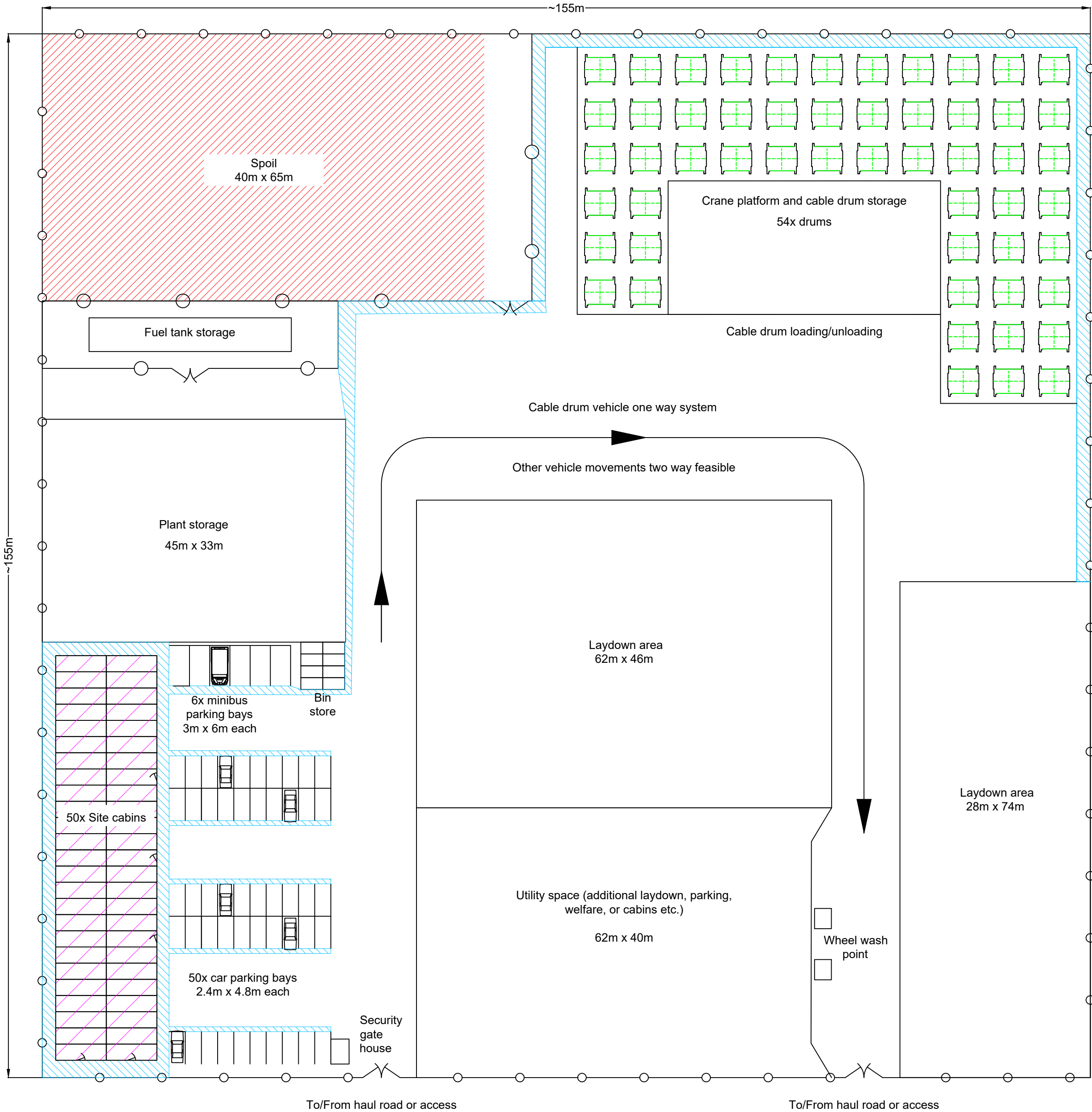
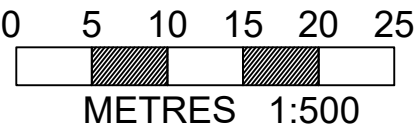
Application Document 2.6.1

LEGEND

- Pedestrian access
- Spoil
- Temporary fence
- Temporary gate
- Cable drum
- Site cabin areas

Notes

- These plans are illustrative and will sit within the Order Limits. Due to the need for future flexibility, National Grid will be applying for Order Limits and Limits of Deviation within its DCO, within which any final alignment would lie.
- For additional detail on the plan suites, please refer to the Guide to Plans (document reference 2.0), located in the Volume 2 of the DCO application.
- All dimensions are approximate and indicated in metres (m) unless noted otherwise.
- This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
- This drawing shows an illustrative primary construction compound, which will be in place during construction of the relevant aspects of the Project. Dimensions and layout arrangement are illustrative only. The design will vary according to the available area, the specific site constraints and the construction contractors requirements.
- Site cabins may be raised to take account for potential flooding at certain locations. Details to be agreed with relevant stakeholders.
- Drainage details are not included on the drawing. Subject to ground conditions, this may involve an attenuation pond and/or septic tank.
- This layout assumes that up to half of the cable drums required per section of cable served by each compound will be stored on site at any one time.
- The Order Limits around compounds have been increased to allow for up to a 50m (or equivalent) extension to the compound in both directions, to allow for flexibility of drum delivery methods (if required).



A	AUG-2025	For DCO submission	OB	CK	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE PRIMARY CONSTRUCTION
COMPOUND ARRANGEMENT
REGULATION 5(2)(o)
SHEET 1 OF 1

nationalgrid

PINS Application Number EN020027

National Grid Drawing Reference
AENC-MMAC-ENG-DWG-0085-09

Scale	Sheet Size	Sheet	Issue
1:500	A1	SHEET 1 OF 1	A

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE BATCHING COMPOUND ARRANGEMENT
REGULATION 5(2)(o)
SHEET 1 OF 1

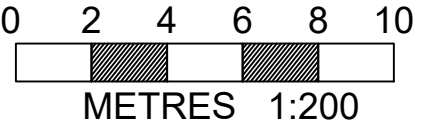
Application Document 2.6.1

LEGEND

- Soil bund
- Aggregate storage
- Batching equipment
- Pedestrian access
- Temporary fence
- Temporary gate

Notes

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- The proposed arrangement is shown for illustrative purposes only. Dimensions and the design may vary depending on site conditions and the contractor's requirements.
- Site cabins may be raised to take account for potential flooding at certain locations. Details to be agreed with relevant stakeholders.
- Drainage details are not included on the drawing. Subject to ground conditions, this may involve an attenuation pond and / or Septic Tank.



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Issue	Date	Remarks	Drawn	Checked	Approved

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
ILLUSTRATIVE BATCHING COMPOUND
ARRANGEMENT
REGULATION 5(2)(o)
SHEET 1 OF 1

nationalgrid

PINS Application Number				EN020027	
National Grid Drawing Reference				AENC-MMAC-ENG-DWG-0085-10	
Scale	Sheet Size	Sheet	Issue		
1:200	A1	SHEET 1 OF 1	A		

Soil bund for top soil strip 2m high

7m

62m

11m

90m

Batching equipment - allowed for 20m x 30m

Aggregate storage - approx. enough for 7 days assuming a 3m height and 240m³ a day

2x Car parking bays
2.4m x 4.8m each

2x Site cabins



THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE BRAMFORD SUBSTATION LAYOUT
REGULATION 5(2)(o)
SECTION B, SHEET 1 OF 1
MID SUFFOLK DISTRICT COUNCIL

Application Document 2.6.1

LEGEND

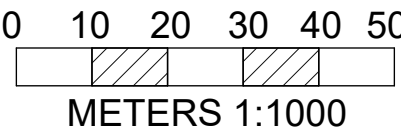
- Proposed equipment
- Existing equipment (National Grid)
- Proposed overhead line works
- Equipment to be removed
- Development works (Other schemes)
- Order Limits
- Substation permanent access

LIST OF ABBREVIATIONS

- PRR - Portable Relay Room
- CB - Circuit Breaker
- CT - Current Transformer
- VT - Voltage Transformer
- SA - Surge Arrester
- PI - Post Insulator
- ES - Earth Switch
- SGT - Supergrid Transformer
- DISC - Disconnect
- STATCOM - Static Synchronous Compensator
- SHR - Shunt Reactor
- DG - Diesel Generator
- SVC - Static Var Compensator
- DRC - Dynamic Reactive Compensator
- EV - Electric Vehicle
- GIS - Gas Insulated Switchgear
- QB - Quad Booster
- DNO - Distribution Network Operator

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved
A	AUG-2025	For DCO submission	SG	GB	KR

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE BRAMFORD SUBSTATION LAYOUT
REGULATION 5(2)(o)
SECTION B, SHEET 1 OF 1
MID SUFFOLK DISTRICT COUNCIL

nationalgrid

PINS Application Number

EN020027

National Grid Drawing Reference

AENC-MMAC-ENG-DWG-0085-11

Scale	Sheet Size	Sheet	Issue
1:1000	A1	SHEET 1 OF 1	A

LEGEND

Proposed equipment

Existing equipment (National Grid)

LIST OF ABBREVIATIONS

PRR

-

Portable Relay Room

CB

-

Circuit Breaker

CT

-

Current Transformer

VT

-

Voltage Transformer

SA

-

Surge Arrester

PI

-

Post Insulator

ES

-

Earth Switch

SGT

-

Supergrid Transformer

DISC

-

Disconnecter

STATCOM

-

Static Synchronous Compensator

SHR

-

Shunt Reactor

DG

-

Diesel Generator

SVC

-

Static Var Compensator

DRC

-

Dynamic Reactive Compensator

EV

-

Electric Vehicle

GIS

-

Gas Insulated Switchgear

QB

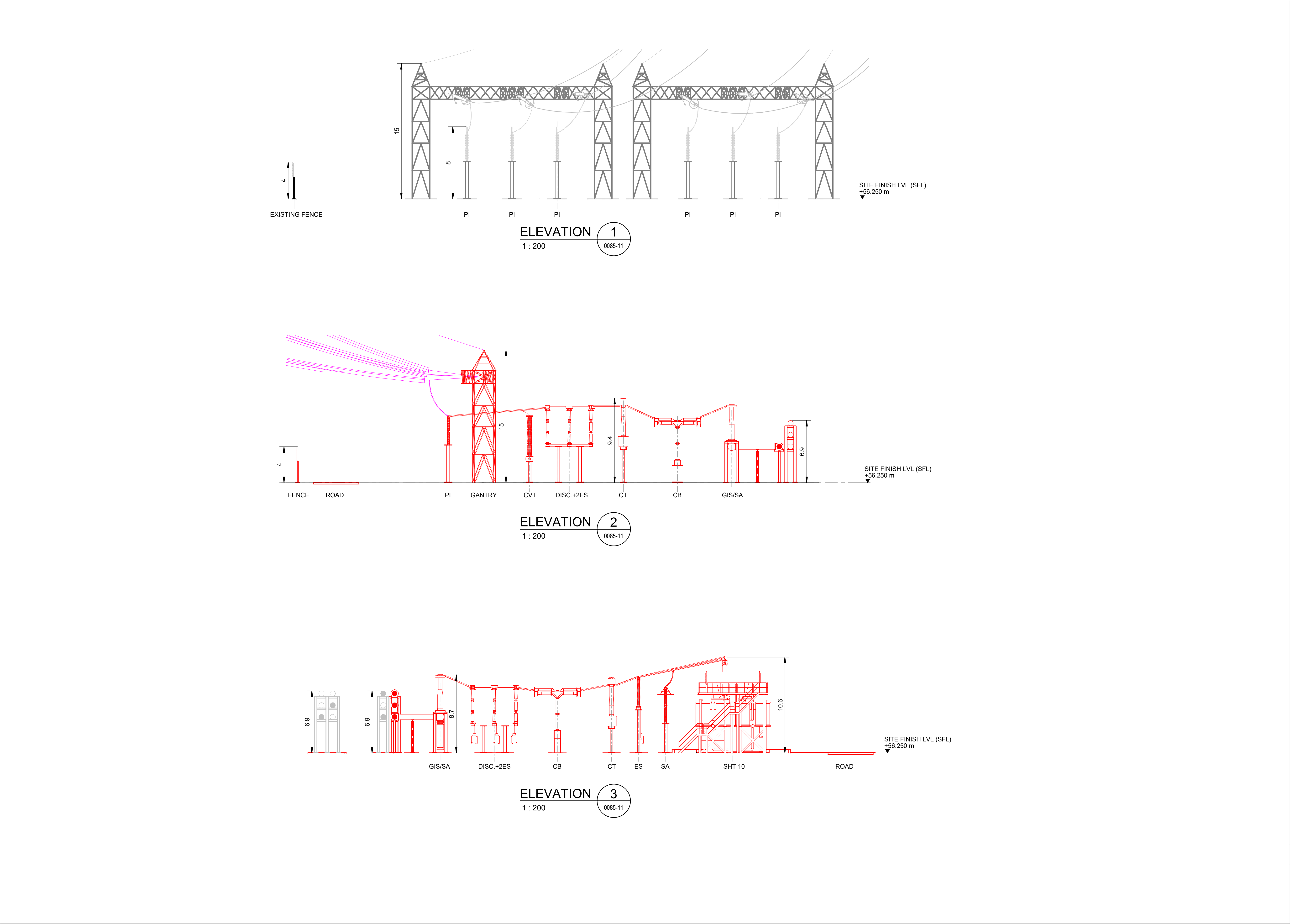
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Quad Booster

DNO

-

Distribution Network Operator



- Notes
1.

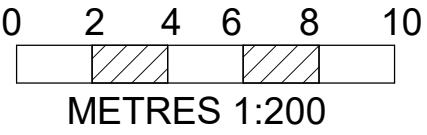
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5.

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Issue	Date	Remarks	Drawn	Checked	Approved

Title

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE BRAMFORD SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION B, SHEET 1 OF 2
MID SUFFOLK DISTRICT COUNCIL

nationalgrid

PINS Application Number			
EN020027			
National Grid Drawing Reference			
AENC-MMAC-ENG-DWG-0085-12			
Scale	Sheet Size	Sheet	Issue
1:200	A1	SHEET 1 OF 2	A

THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE BRAMFORD SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION B, SHEET 2 OF 2
MID SUFFOLK DISTRICT COUNCIL

Application Document 2.6.1

LEGEND

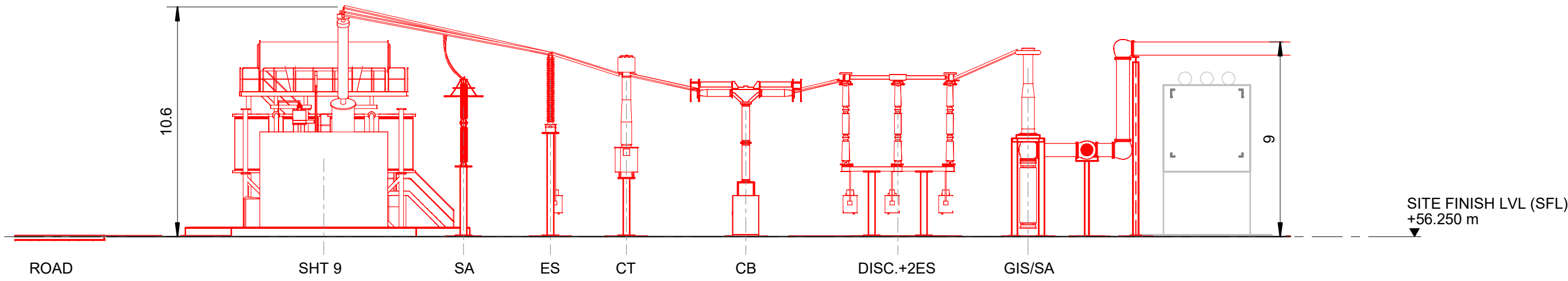
- Proposed equipment
- Existing equipment (National Grid)
- Proposed Overhead line works
- Development works (Other schemes)

LIST OF ABBREVIATIONS

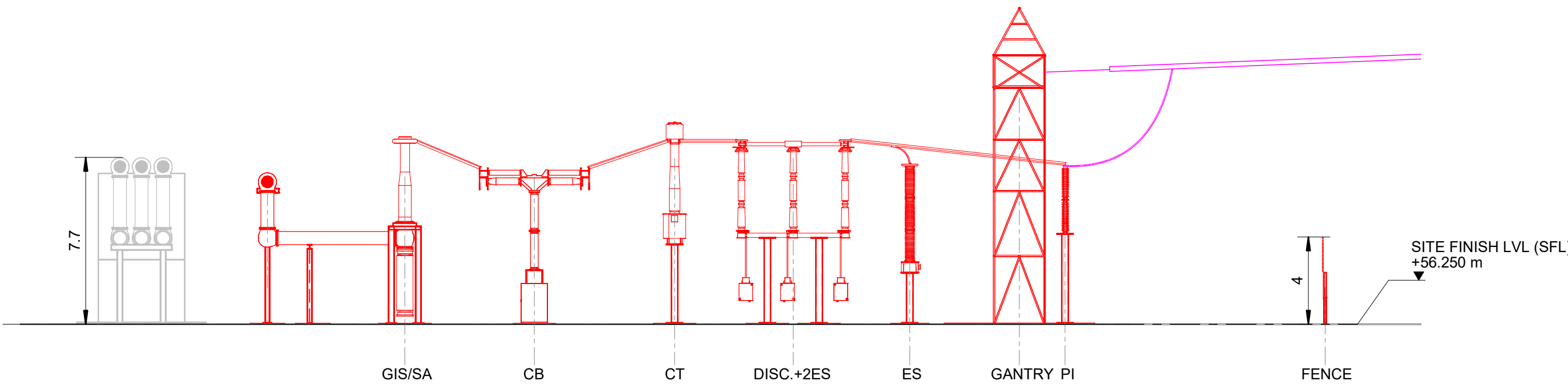
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- ES - Earth Switch
- SGT - Supergrid Transformer
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- SHR - Shunt Reactor
- DG - Diesel Generator
- SVC - Static Var Compensator
- DRC - Dynamic Reactive Compensator
- EV - Electric Vehicle
- GIS - Gas Insulated Switchgear
- QB - Quad Booster
- DNO - Distribution Network Operator

Notes

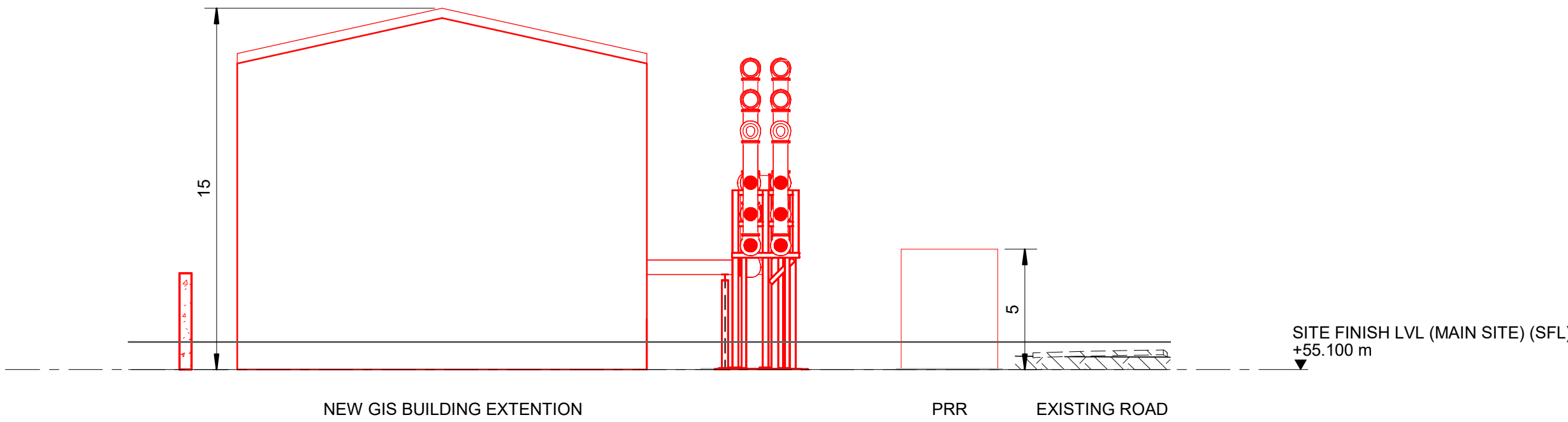
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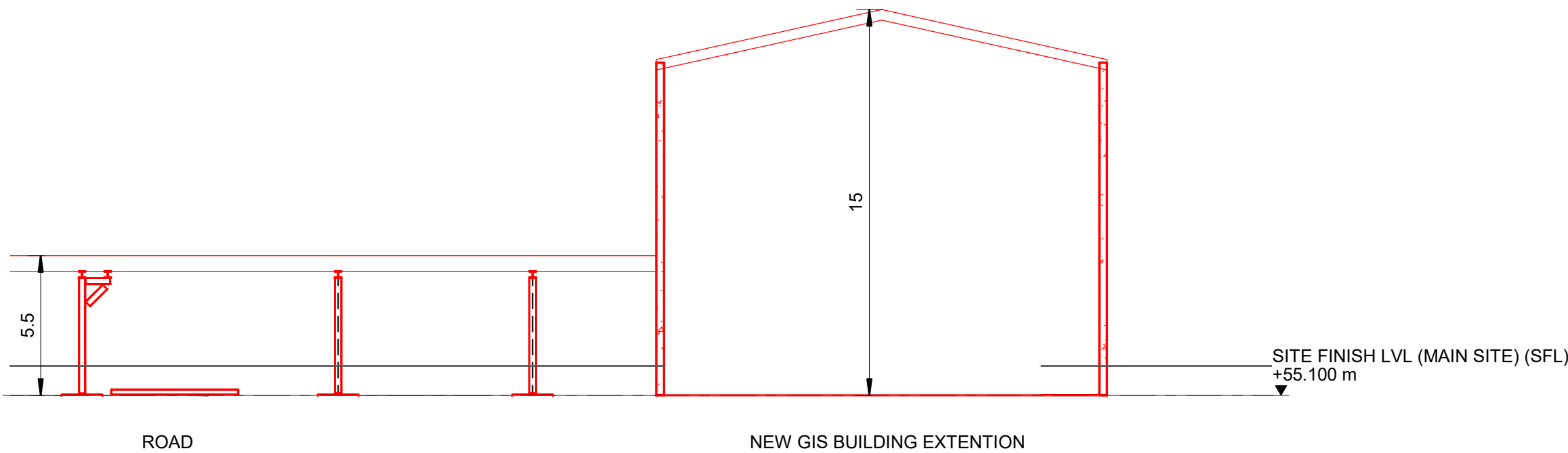
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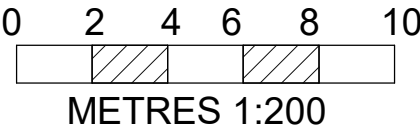
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ELEVATION 6
1 : 200



ELEVATION 7
1 : 200

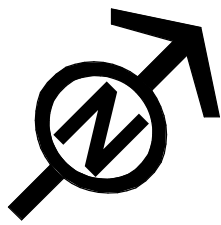


A	AUG-2025	For DCO submission	SG	GB	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE BRAMFORD SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION B, SHEET 2 OF 2
MID SUFFOLK DISTRICT COUNCIL

nationalgrid

PINS Application Number					
EN020027					
National Grid Drawing Reference					
AENC-MMAC-ENG-DWG-0085-12					
Scale	Sheet Size	Sheet	Issue		
1:200	A1	SHEET 2 OF 2	A		



THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS WENHAM GROVE
REGULATION 5(2)(o)
SECTION C, SHEET 1 OF 1
BABERGH DISTRICT COUNCIL

Application Document 2.6.1

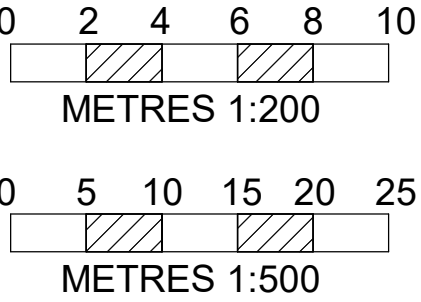
LEGEND	
	Proposed equipment
	Proposed overhead line/cable works
	CSE Compound permanent access

LIST OF ABBREVIATIONS

- 01 - 400kV Cable sealing end
02 - 400kV Surge arrester
03 - 400kV Earth switch
04 - Full line tension (FLT) gantry
05 - 400kV Post insulator
06 - Portable relay room (PRR)

Notes

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5. The voltage of the overhead line shown is 400kV.



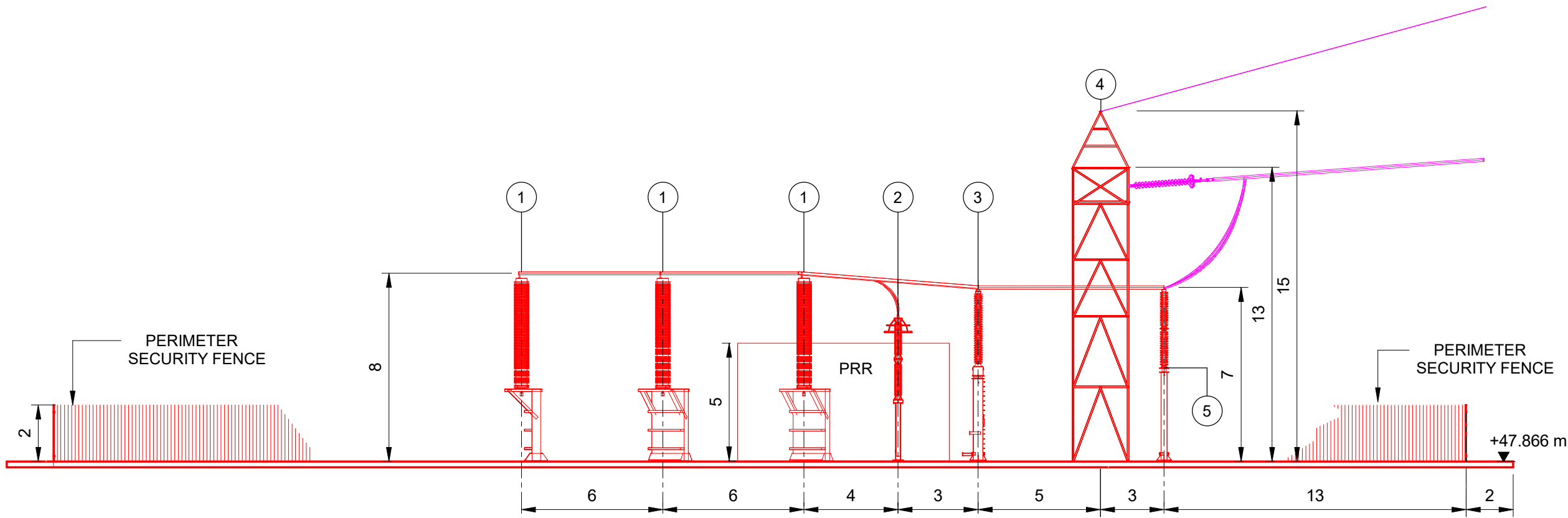
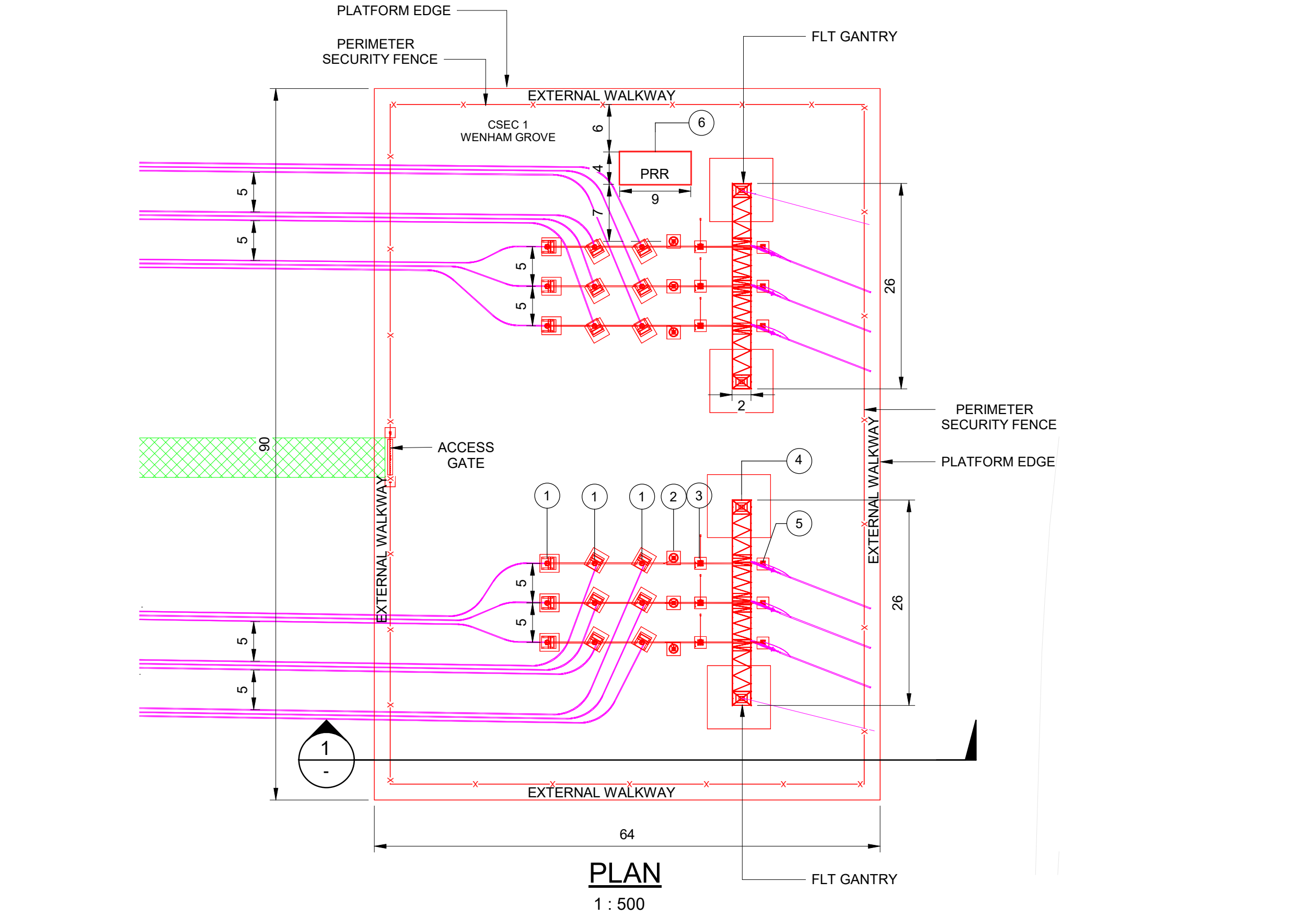
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Issue	Date	Remarks	Drawn	Checked	Approved
A	AUG-2025	For DCO submission	SN	GR	KR

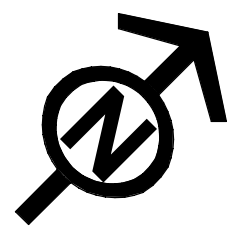
Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS WENHAM GROVE
REGULATION 5(2)(o)
SECTION C, SHEET 1 OF 1
BABERGH DISTRICT COUNCIL

nationalgrid

<u>PINS Application Number</u>		EN020027	
<u>National Grid Drawing Reference</u>			
AENC-MMAC-ENG-DWG-0085-13			
<u>Scale</u>	<u>Sheet Size</u>	<u>Sheet</u>	<u>Issue</u>
As shown	A1	SHEET 1 OF 1	A



ELEVATION 1
1 : 200



THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE EACN SUBSTATION LAYOUT
REGULATION 5(2)(o)
SECTION C, SHEET 1 OF 1
TENDRING DISTRICT COUNCIL

Application Document 2.6.1

LEGEND

- Proposed equipment
- Proposed overhead line works
- Substation permanent access
- Order Limits

LIST OF ABBREVIATIONS

- PRR - Portable Relay Room
- CB - Circuit Breaker
- CT - Current Transformer
- VT - Voltage Transformer
- SA - Surge Arrester
- PI - Post Insulator
- ES - Earth Switch
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- DISC - Disconnector
- STATCOM - Static Synchronous Compensator
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- EV - Electric Vehicle
- GIS - Gas Insulated Switchgear
- QB - Quad Booster
- DNO - Distribution Network Operator
- ET - Earthing Transformer

Notes

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0 12.5 25 37.5 50 62.5
METRES 1:1250

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A	AUG-2025	For DCO submission	VP	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE EACN SUBSTATION LAYOUT
REGULATION 5(2)(o)
SECTION C, SHEET 1 OF 1
TENDRING DISTRICT COUNCIL

nationalgrid

PINS Application Number				
EN020027				
National Grid Drawing Reference				
AENC-MMAC-ENG-DWG-0085-14				
Scale	Sheet Size	Sheet	Issue	
1:1250	A1	SHEET 1 OF 1	A	

THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE EACN SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION C, SHEET 1 OF 2
TENDRING DISTRICT COUNCIL

Application Document 2.6.1

LEGEND

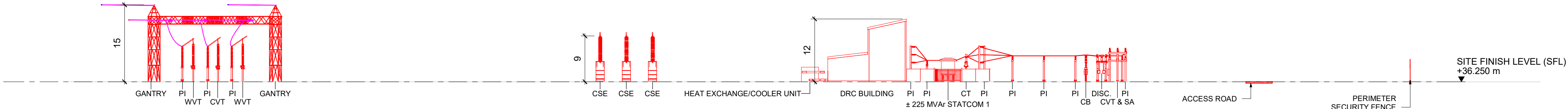
- Proposed equipment
- Proposed overhead line works

LIST OF ABBREVIATIONS

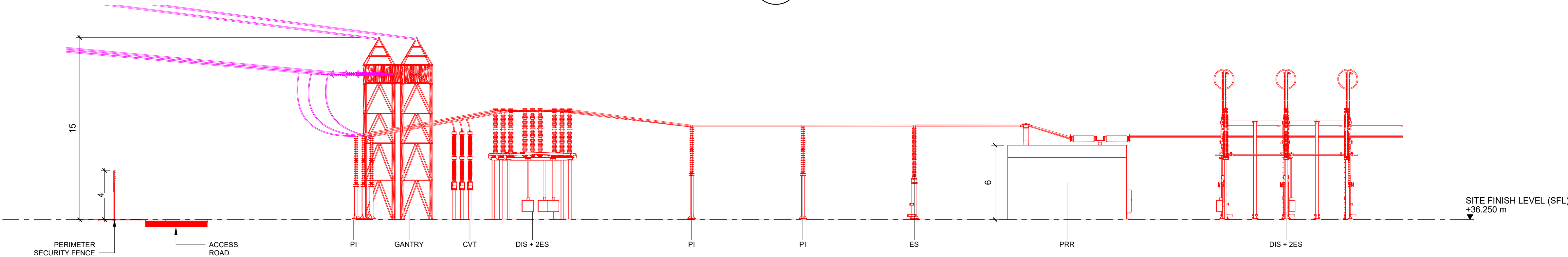
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- GIS - Gas Insulated Switchgear
- QB - Quad Booster
- DNO - Distribution Network Operator
- ET - Earthing Transformer

Notes

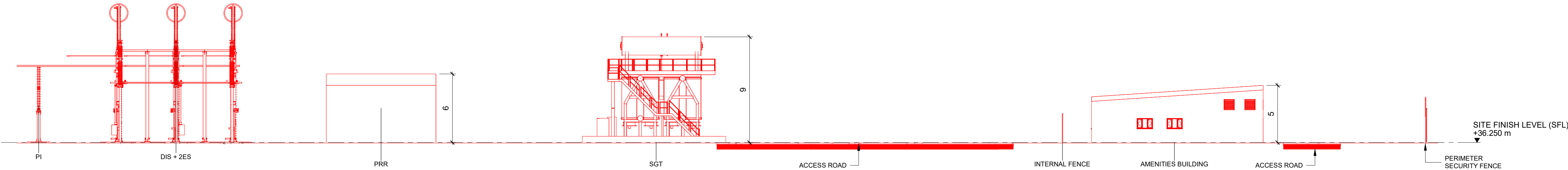
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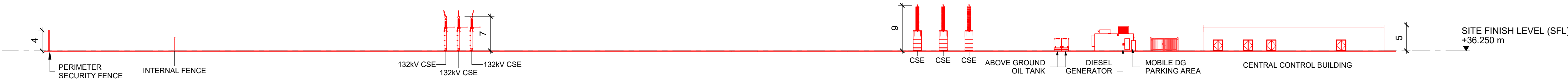
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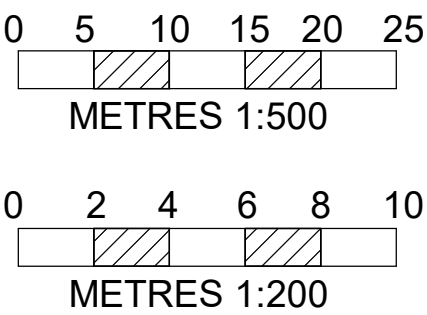
ELEVATION 2
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0085-14



ELEVATION 3
1 : 200
0085-14



ELEVATION 4
1 : 500
0085-14



A	AUG-2025	For DCO submission	VP	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE EACN SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION C, SHEET 1 OF 2
TENDRING DISTRICT COUNCIL

nationalgrid

PINS Application Number

EN020027

National Grid Drawing Reference

AENC-MMAC-ENG-DWG-0085-15

Scale	Sheet Size	Sheet	Issue
As shown	A1	SHEET 1 OF 2	A

THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE EACN SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION C, SHEET 2 OF 2
TENDRING DISTRICT COUNCIL

Application Document 2.6.1

LEGEND

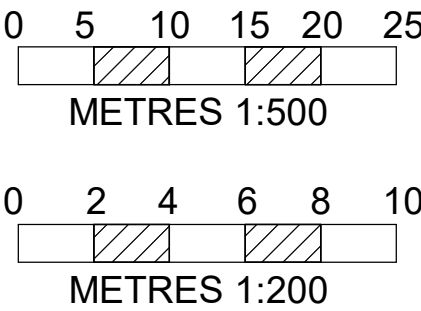
- Proposed equipment
- Proposed overhead line works

LIST OF ABBREVIATIONS

PRR	-	Portable Relay Room
CB	-	Circuit Breaker
CT	-	Current Transformer
VT	-	Voltage Transformer
SA	-	Surge Arrester
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EV	-	Electric Vehicle
GIS	-	Gas Insulated Switchgear
QB	-	Quad Booster
DNO	-	Distribution Network Operator
ET	-	Earthing Transformer

Notes

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THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE EACN SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION C, SHEET 2 OF 2
TENDRING DISTRICT COUNCIL

nationalgrid

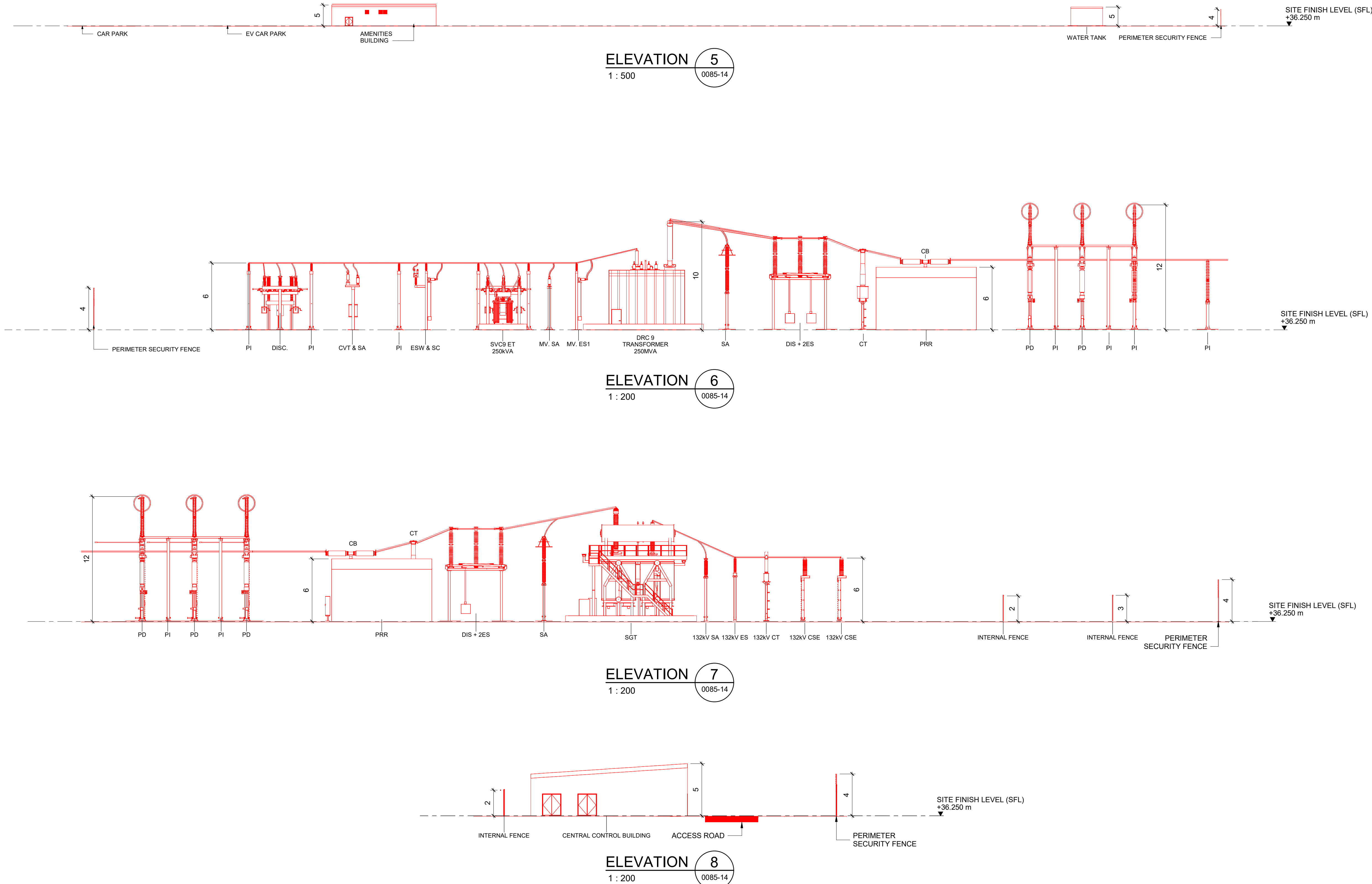
PINS Application Number

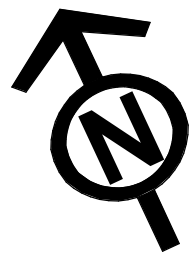
EN020027

National Grid Drawing Reference

AEENC-MMAC-ENG-DWG-0085-15

Scale	Sheet Size	Sheet	Issue
As shown	A1	SHEET 2 OF 2	A





THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS GREAT HORKESLEY - EACN SIDE
REGULATION 5(2)(o)
SECTION D, SHEET 1 OF 1
COLCHESTER CITY COUNCIL

Application Document 2.6.1

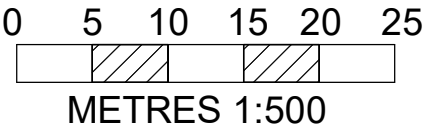
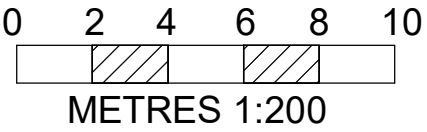
LEGEND	
	Proposed equipment
	Proposed overhead line/cable works
	CSE Compound permanent access

LIST OF ABBREVIATIONS

- 01 - 400kV Cable sealing end
02 - 400kV Surge arrester
03 - 400kV Earth switch
04 - Full line tension (FLT) gantry
05 - 400kV Post insulator
06 - Portable relay room (PRR)

Notes

1. These plans are indicative and will sit within the Order Limits. Due to the need for future flexibility, National Grid will be applying for Order Limits and Limits of Deviation within its DCO, within which any final alignment would lie.
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3. All dimensions are approximate and indicated in meter(m) unless noted otherwise.
4. This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
5. The voltage of the overhead line shown is 400kV.



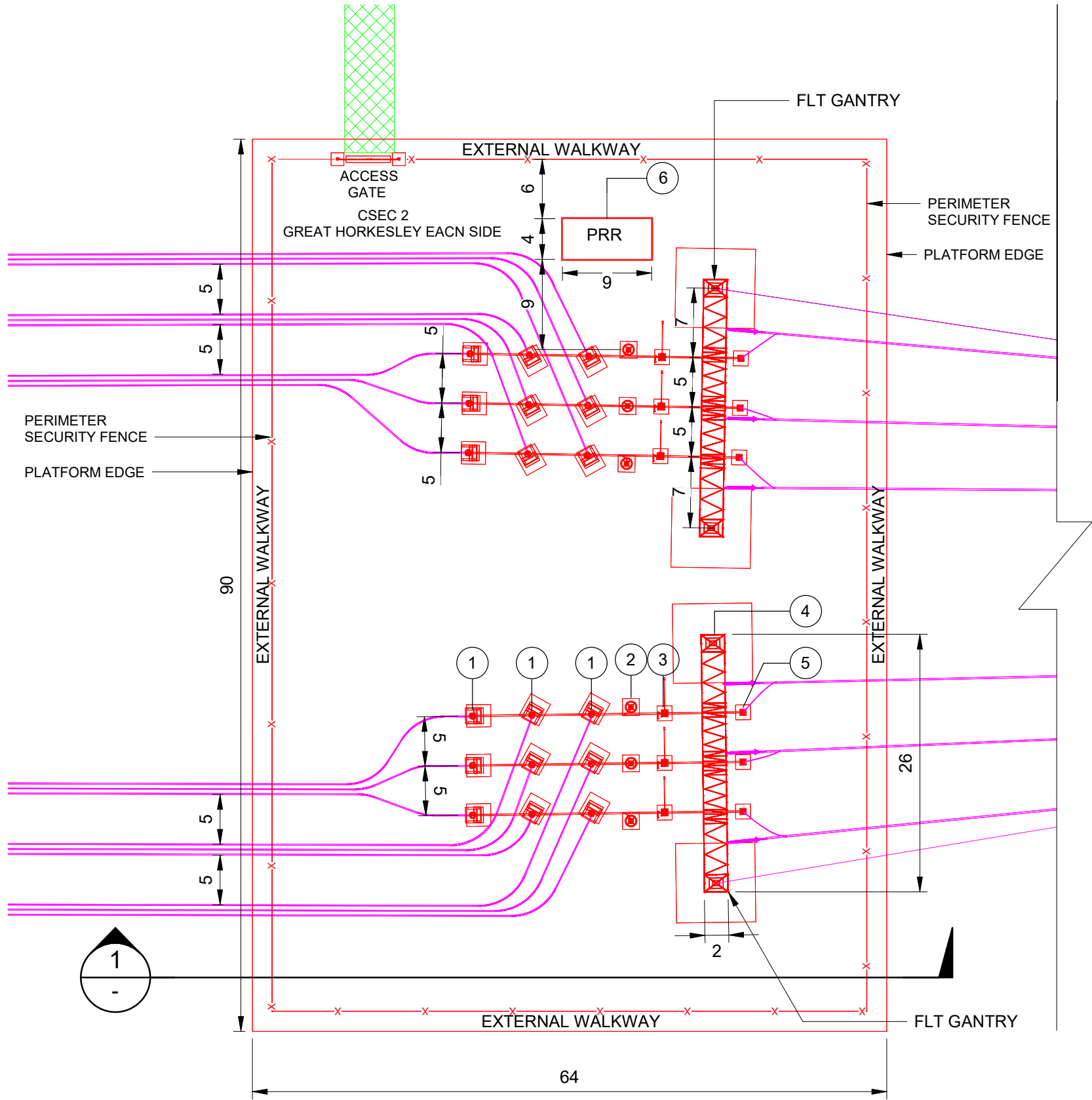
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Issue	Date	Remarks	Drawn	Checked	Approved
A	AUG-2025	For DCO submission	SN	GR	KR

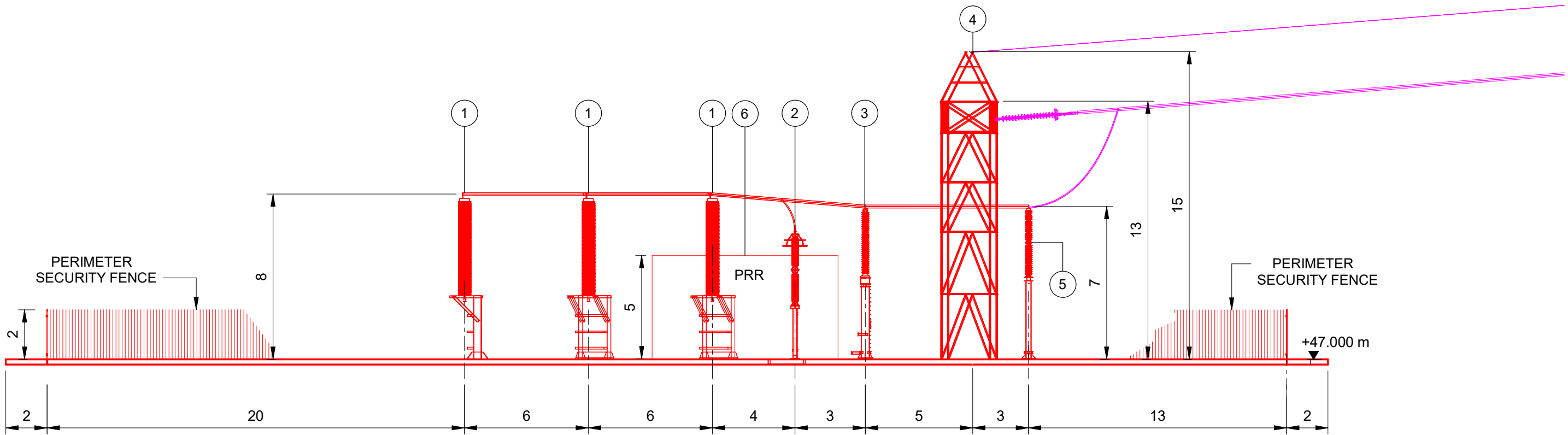
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THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS
GREAT HORKESLEY - EACN SIDE
REGULATION 5(2)(o), SECTION D
SHEET 1 OF 1, COLCHESTER CITY COUNCIL

nationalgrid

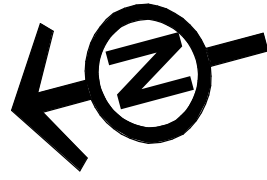
PINS Application Number EN020027			
National Grid Drawing Reference AENC-MMAC-ENG-DWG-0085-16			
Scale As shown	Sheet Size A1	Sheet SHEET 1 OF 1	Issue A



PLAN
1 : 500



ELEVATION
1 : 200



THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS GREAT HORKESLEY - TILBURY SIDE
REGULATION 5(2)(o)
SECTION D, SHEET 1 OF 1
COLCHESTER CITY COUNCIL

Application Document 2.6.1

LEGEND

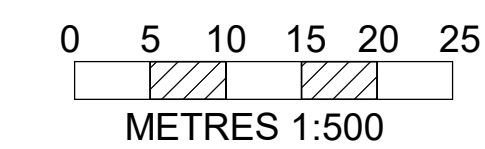
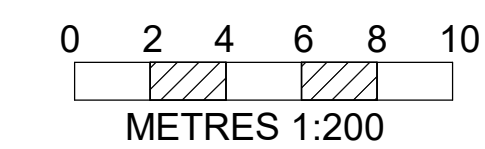
- Proposed equipment
- Proposed overhead line/cable works
- CSE Compound permanent access

LIST OF ABBREVIATIONS

- 01 - 400kV Cable sealing end
- 02 - 400kV Surge arrester
- 03 - 400kV Earth switch
- 04 - Full line tension (FLT) gantry
- 05 - 400kV Post insulator
- 06 - Portable relay room (PRR)

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- This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
- The voltage of the overhead line shown is 400kV.



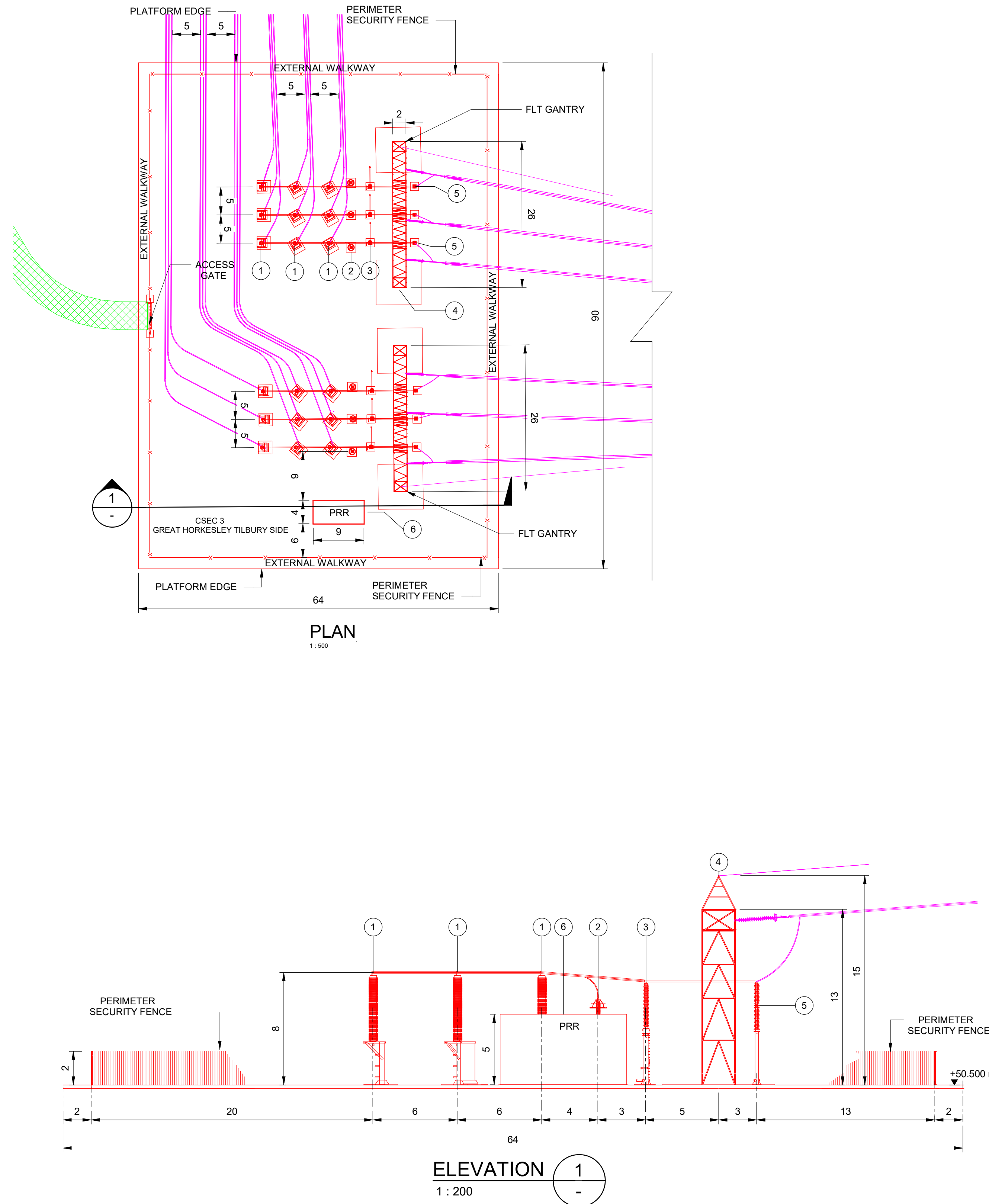
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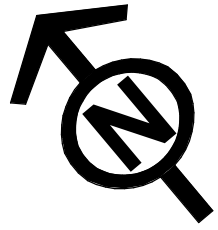
A	AUG-2025	For DCO submission	SN	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS
GREAT HORKESLEY - TILBURY SIDE
REGULATION 5(2)(o), SECTION D
SHEET 1 OF 1, COLCHESTER CITY COUNCIL

nationalgrid

PINS Application Number			
EN020027			
National Grid Drawing Reference			
AENC-MMAC-ENG-DWG-0085-17			
Scale	Sheet Size	Sheet	Issue
As shown	A1	SHEET 1 OF 1	A





THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS FAIRSTED - EACN SIDE
REGULATION 5(2)(o)
SECTION E, SHEET 1 OF 1
BRAINTREE DISTRICT COUNCIL

Application Document 2.6.1

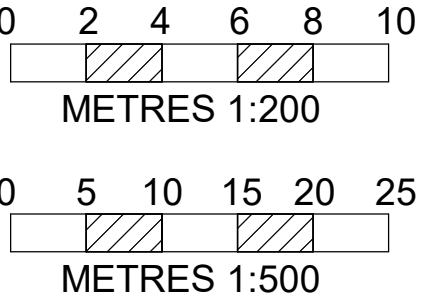
LEGEND	
	Proposed equipment
	Proposed overhead line/cable works
	CSE Compound permanent access

LIST OF ABBREVIATIONS

- 01 - 400kV Cable sealing end
02 - 400kV Surge arrester
03 - 400kV Earth switch
04 - Full line tension (FLT) gantry
05 - 400kV Post insulator
06 - Portable relay room (PRR)

Notes

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4. This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
5. The voltage of the overhead line shown is 400kV.



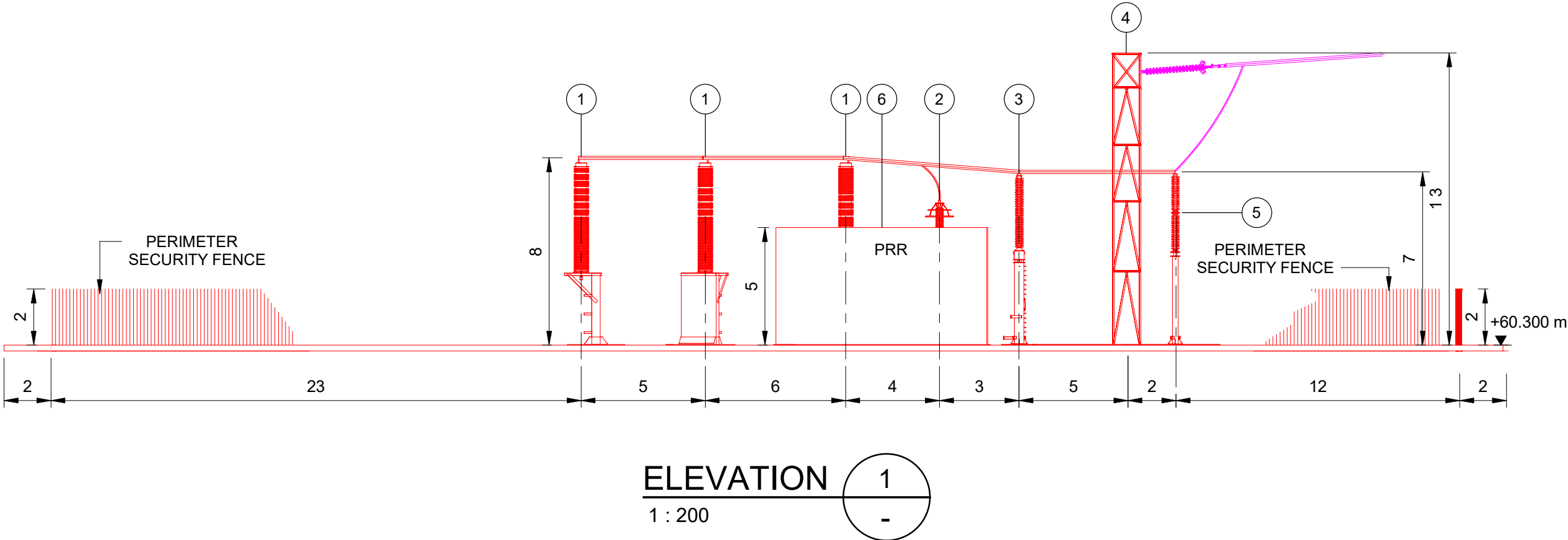
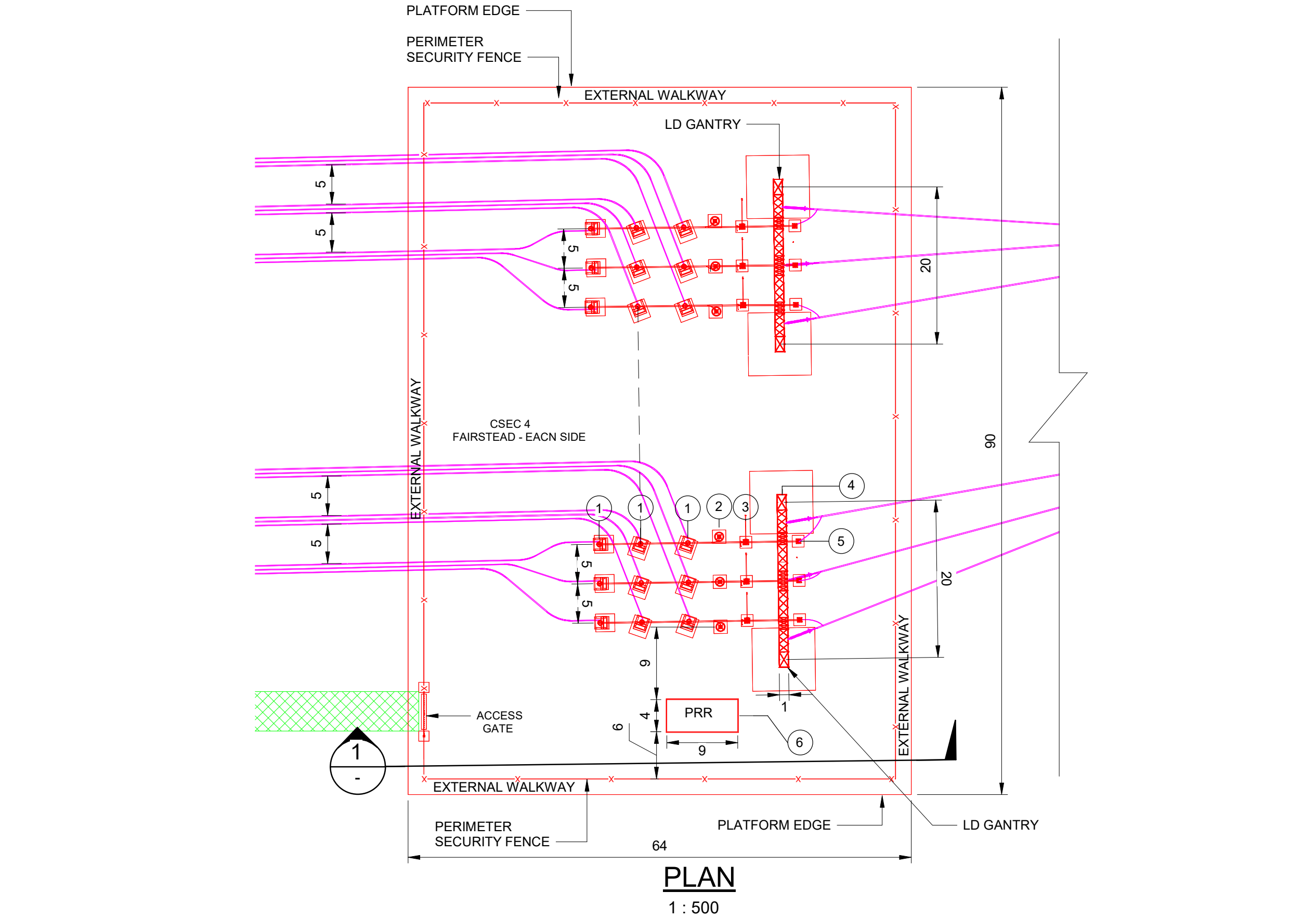
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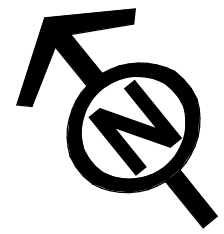
A	AUG-2025	For DCO submission	SN	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS
FAIRSTED - EACN SIDE
REGULATION 5(2)(o), SECTION E
SHEET 1 OF 1, BRAINTREE DISTRICT COUNCIL

nationalgrid

<u>PINS Application Number</u>		EN020027	
<u>National Grid Drawing Reference</u>			
AENC-MMAC-ENG-DWG-0085-18			
<u>Scale</u>	<u>Sheet Size</u>	<u>Sheet</u>	<u>Issue</u>
As shown	A1	SHEET 1 OF 1	A





THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS FAIRSTEAD - TILBURY SIDE
REGULATION 5(2)(o)
SECTION E, SHEET 1 OF 1
BRAintree DISTRICT COUNCIL

Application Document 2.6.1

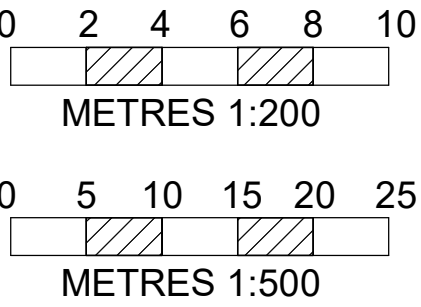
LEGEND	
	Proposed equipment
	Proposed overhead line/cable works
	CSE Compound permanent access

LIST OF ABBREVIATIONS

- 01 - 400kV Cable sealing end
02 - 400kV Surge arrester
03 - 400kV Earth switch
04 - Full line tension (FLT) gantry
05 - 400kV Post insulator
06 - Portable relay room (PRR)

Notes

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- For additional detail on the plan suites, please refer to the Guide to plans (document reference 2.0), located in Volume 2 of the DCO application.
- All dimensions are approximate and indicated in meter(m) unless noted otherwise.
- This drawing is scaled at paper size A1, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.
- The voltage of the overhead line shown is 400kV.



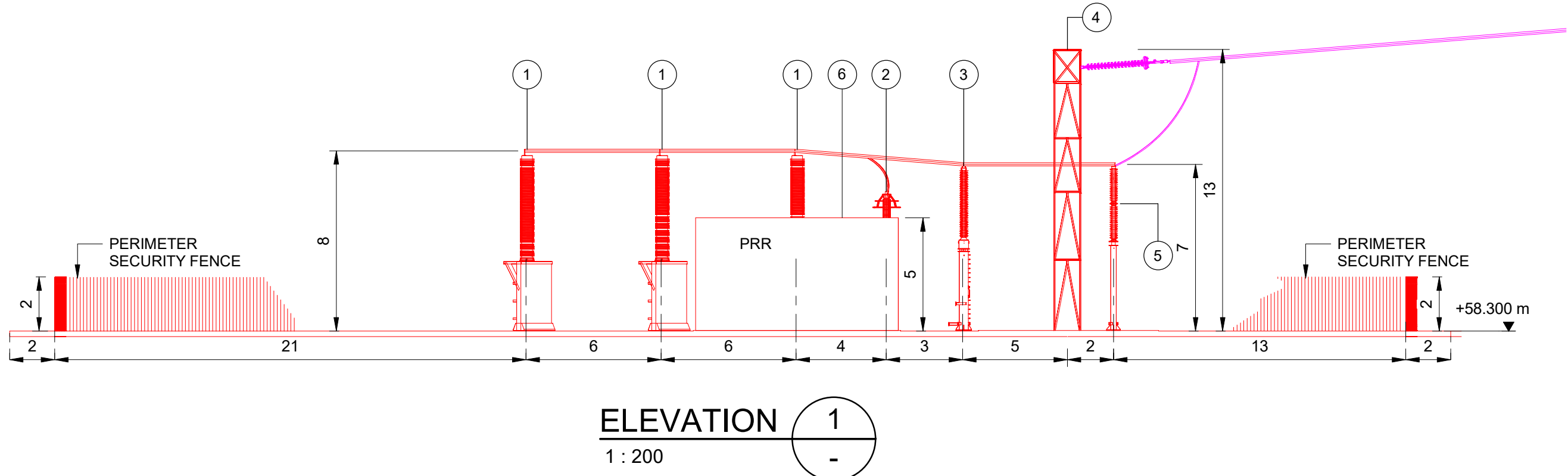
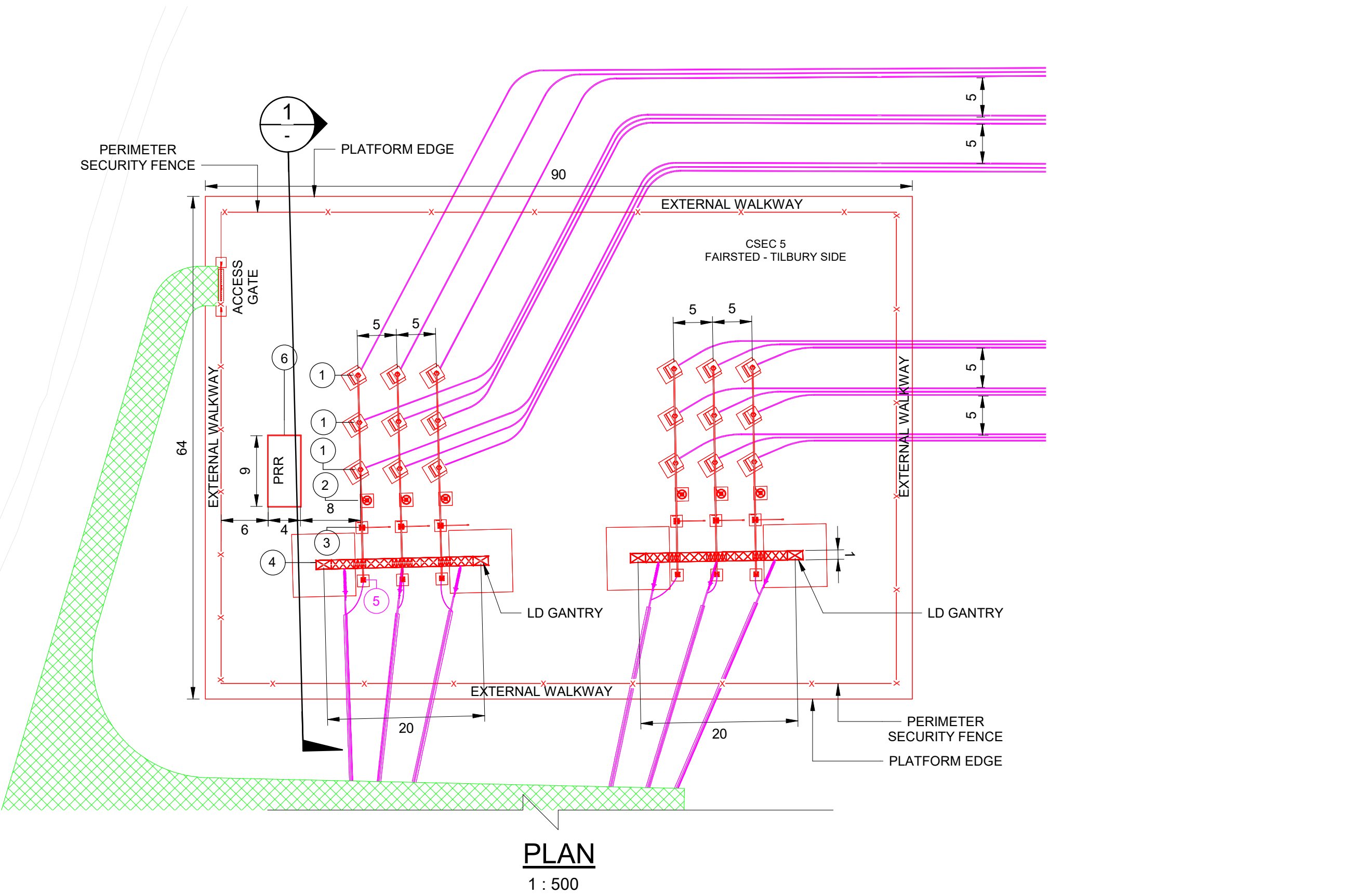
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A	AUG-2025	For DCO submission	SN	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS
FAIRSTEAD - TILBURY SIDE
REGULATION 5(2)(o), SECTION E
SHEET 1 OF 1, BRAintree DISTRICT COUNCIL

nationalgrid

PINS Application Number EN020027			
National Grid Drawing Reference AENC-MMAC-ENG-DWG-0085-19			
Scale As shown	Sheet Size A1	Sheet SHEET 1 OF 1	Issue A





THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE TILBURY NORTH SUBSTATION LAYOUT
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

Application Document 2.6.1

LEGEND

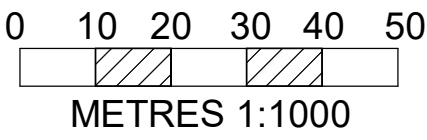
- Proposed equipment
- Proposed overhead line works
- Future equipment - Note 5
- Substation permanent access
- Order Limits

LIST OF ABBREVIATIONS

- PRR - Portable Relay Room
- CB - Circuit Breaker
- CT - Current Transformer
- VT - Voltage Transformer
- SA - Surge Arrester
- PI - Post Insulator
- ES - Earth Switch
- SGT - Supergrid Transformer
- DISC - Disconnector
- STATCOM - Static Synchronous Compensator
- SHR - Shunt Reactor
- DG - Diesel Generator
- SVC - Static Var Compensator
- DRC - Dynamic Reactive Compensator
- EV - Electric Vehicle
- GIS - Gas Insulated Switchgear
- QB - Quad Booster
- DNO - Distribution Network Operator
- ET - Earthing Transformer

Notes

- These plans are indicative and will sit within the order limits. Due to the need for future flexibility, National Grid will be applying for order limits and limits of deviation within its DCO, within which any final alignment would lie.
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- Denotes areas for future equipment requirements.
- The voltage of the overhead line shown is 400kV.



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Issue	Date	Remarks	Drawn	Checked	Approved
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THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE TILBURY NORTH SUBSTATION LAYOUT
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

nationalgrid

PINS Application Number					
EN020027					
National Grid Drawing Reference					
AENC-MMAC-ENG-DWG-0085-20					
Scale	Sheet Size	Sheet	Issue		
1: 1000	A1	SHEET 1 OF 1	A		

THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE TILBURY NORTH SUBSTATION ELEVATIONS
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

Application Document 2.6.1

LEGEND

- Proposed equipment
- Proposed overhead line works

LIST OF ABBREVIATIONS

PRR	-	Portable Relay Room
CB	-	Circuit Breaker
CT	-	Current Transformer
VT	-	Voltage Transformer
SA	-	Surge Arrester
PI	-	Post Insulator
ES	-	Earth Switch
SGT	-	Supergrid Transformer
DISC	-	Disconnecter
STATCOM	-	Static Synchronous Compensator
SHR	-	Shunt Reactor
DG	-	Diesel Generator
SVC	-	Static Var Compensator
DRC	-	Dynamic Reactive Compensator
EV	-	Electric Vehicle
GIS	-	Gas Insulated Switchgear
QB	-	Quad Booster
DNO	-	Distribution Network Operator
ET	-	Earthing Transformer

Notes

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0 5 10 15 20 25
METRES 1:500

A	AUG-2025	For DCO submission	SM	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE TILBURY NORTH SUBSTATION
ELEVATIONS
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

nationalgrid

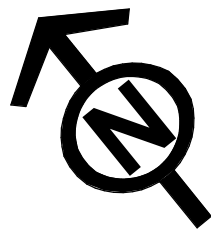
PINS Application Number

EN020027

National Grid Drawing Reference

AENC-MMAC-ENG-DWG-0085-21

Scale	Sheet Size	Sheet	Issue
1: 500	A1	SHEET 1 OF 1	A



THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS ZB - WARLEY SIDE
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

Application Document 2.6.1

LEGEND

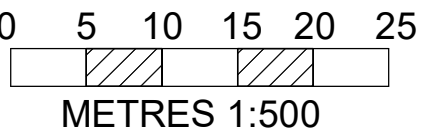
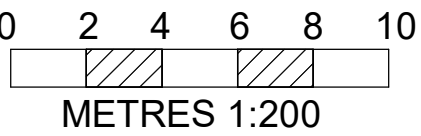
- Proposed equipment
- Proposed overhead line/cable works
- CSE Compound permanent access

LIST OF ABBREVIATIONS

- 01 - 400kV Cable sealing end
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- 03 - 400kV Earth switch
- 04 - Full line tension (FLT) gantry
- 05 - 400kV Post insulator
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- The voltage of the overhead line shown is 275kV.



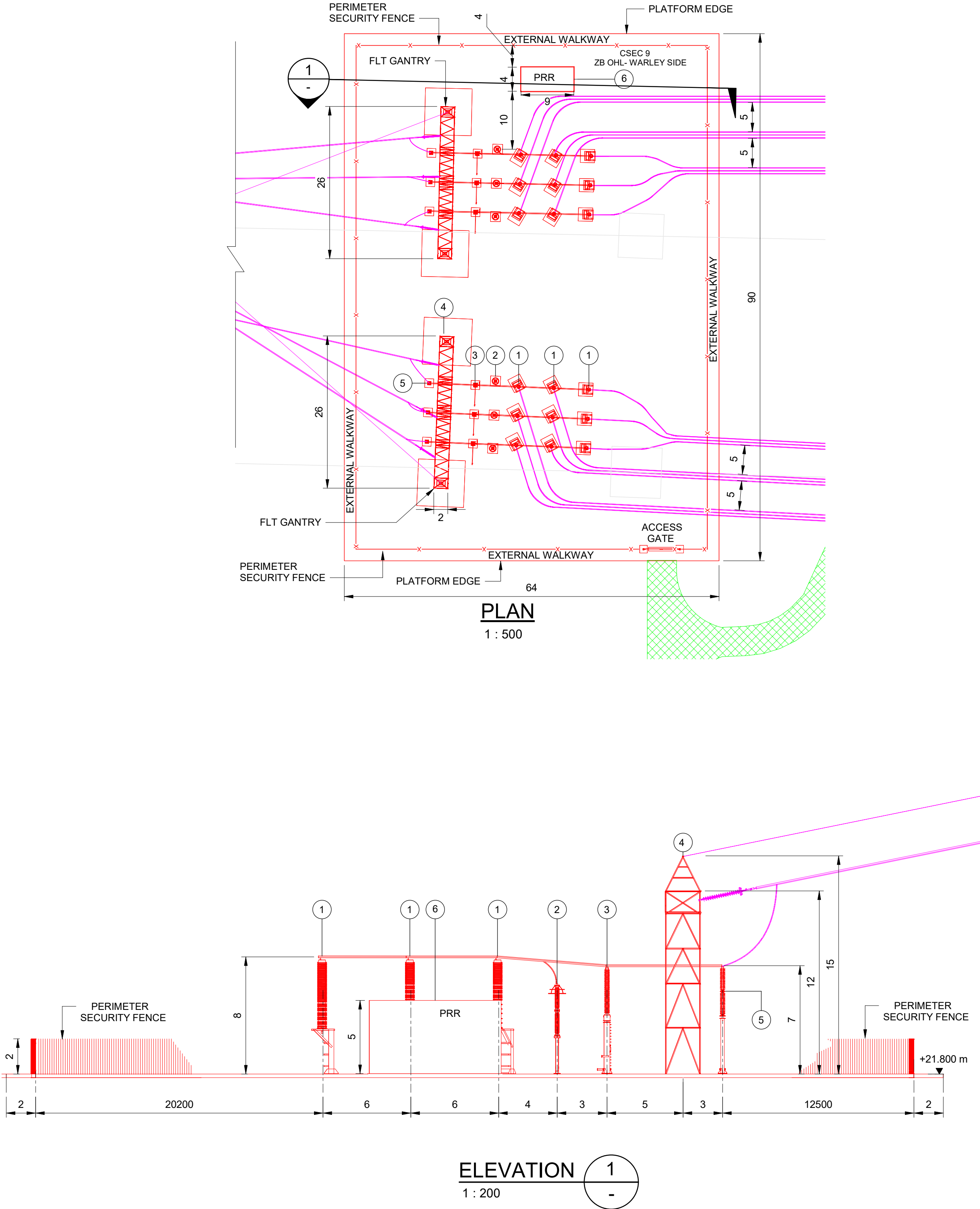
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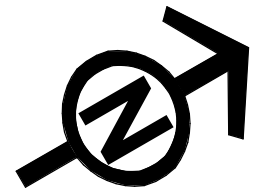
A	AUG-2025	For DCO submission	SN	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS ZB - WARLEY SIDE
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

nationalgrid

PINS Application Number			
EN020027			
National Grid Drawing Reference			
AENC-MMAC-ENG-DWG-0085-22			
Scale	Sheet Size	Sheet	Issue
As shown	A1	SHEET 1 OF 1	A





THE NATIONAL GRID (NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND LAYOUT & ELEVATIONS ZB - TILBURY SIDE
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

Application Document 2.6.1

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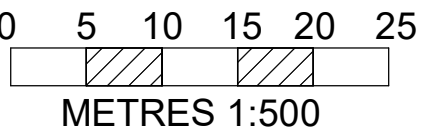
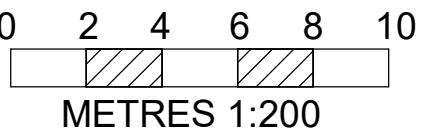
- Proposed equipment
- Proposed overhead line/cable works
- CSE Compound permanent access

LIST OF ABBREVIATIONS

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- 02 - 400kV Surge arrester
- 03 - 400kV Earth switch
- 04 - Full line tension (FLT) gantry
- 05 - 400kV Post insulator
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- The voltage of the overhead line shown is 275kV.



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A	AUG-2025	For DCO submission	SN	GR	KR
Issue	Date	Remarks	Drawn	Checked	Approved

Title
THE NATIONAL GRID
(NORWICH TO TILBURY) ORDER
DESIGN AND LAYOUT PLANS
INDICATIVE CABLE SEALING END COMPOUND
LAYOUT & ELEVATIONS ZB - TILBURY SIDE
REGULATION 5(2)(o)
SECTION H, SHEET 1 OF 1
THURROCK COUNCIL

nationalgrid

PINS Application Number			
EN020027			
National Grid Drawing Reference			
AENC-MMAC-ENG-DWG-0085-23			
Scale	Sheet Size	Sheet	Issue
As shown	A1	SHEET 1 OF 1	A

