The Great Grid Upgrade

BT-NG-020621-545-0279

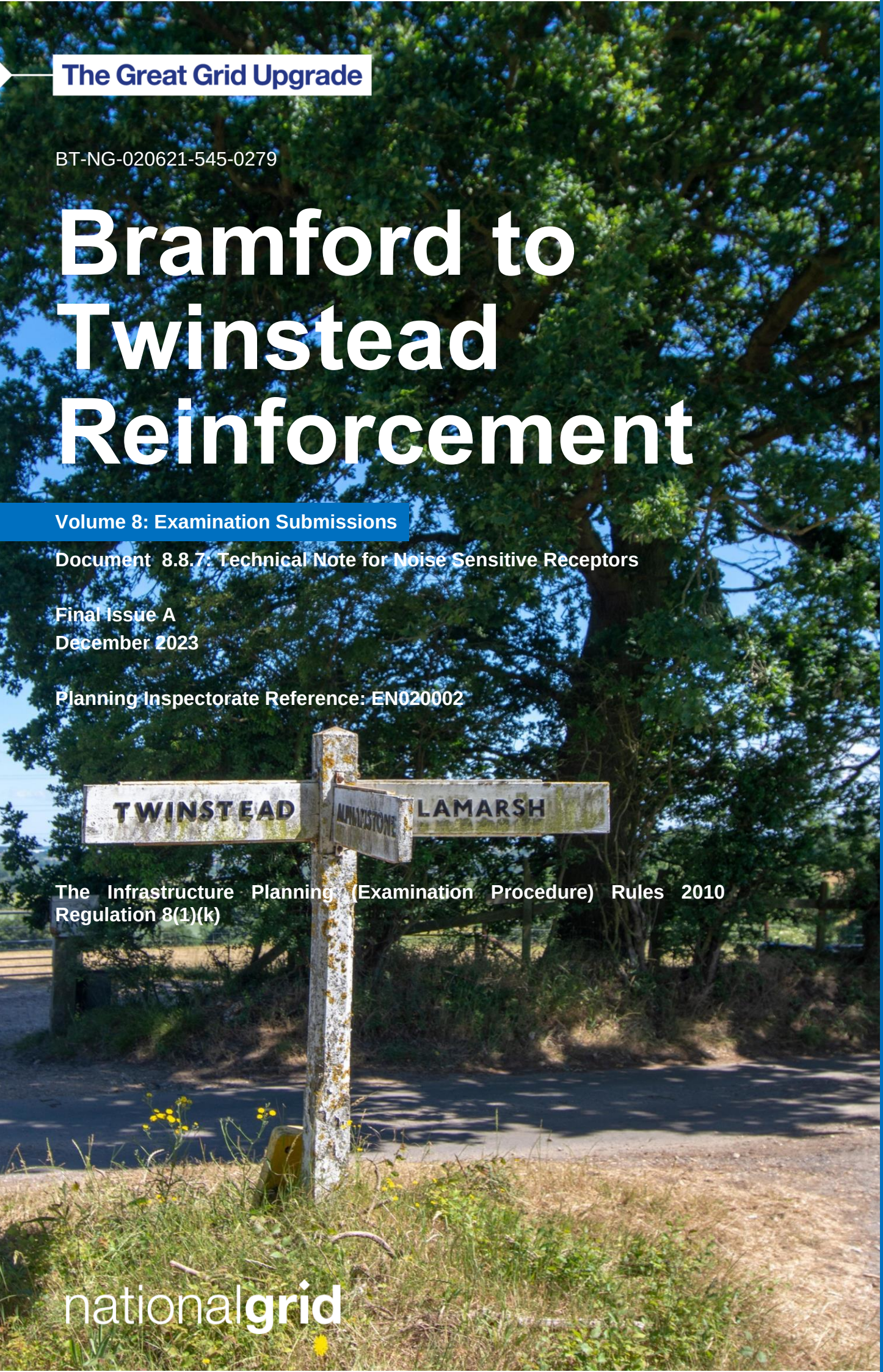
Bramford to Twinstead Reinforcement

Volume 8: Examination Submissions

Document 8.8.7: Technical Note for Noise Sensitive Receptors

Final Issue A
December 2023

Planning Inspectorate Reference: EN020002



The Infrastructure Planning (Examination Procedure) Rules 2010 Regulation 8(1)(k)

nationalgrid

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Contents

Executive Summary

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Based on the feedback, the Applicant has (in addition to its environmental impact assessment) undertaken a proportionate, more conservative precautionary further assessment of construction activities on local receptors.

This Technical Note presents the findings of the further assessment of potential construction noise impacts from the project during weekends and bank holiday periods. It uses a lower noise threshold (55 dBA) and also considers the likely duration of the relevant construction activity based on the Baseline Construction Schedule (see ES Appendix 4.2: Construction Schedule [**APP-091**]).

The further assessment has been conducted based on the methodology described in British Standard 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (British Standards Institution, 2014) and Design Manual for Roads and Bridges LA 111 Noise and Vibration (Highways England *et al.,* 2020).

The further assessment indicates that there are four additional specific construction activity locations, beyond those already identified in the Environmental Statement with regards to the standard daytime threshold, which may lead to construction noise levels at six noise sensitive receptors (NSR) in excess of the lower threshold for weekend working. The duration of all of these activities is relatively short and would not exceed the temporal requirements for significant effect in the Environmental Statement. As such, no significant adverse effects are expected to potential construction noise impacts from the project during weekends and bank holiday periods.

The further assessment (using the lower noise threshold) has identified a small number of NSR that could benefit from additional measures or commitments to reduce noise levels during construction. The Applicant has provided this list of NSR to the local planning authorities to obtain any feedback, including inviting those authorities to identify any additional NSR of concern. Once feedback has been received from all of the Local Planning Authorities, the list will be considered to see if any further measures or commitments could be applied to reduce the effects of construction activities on the identified NSR.

1. Introduction

1.1 Purpose of this Technical Note

1.1.1 Environmental Statement (ES) Chapter 14: Noise and Vibration [**APP-082**] assessed the likely significant effects that would occur during construction of the Bramford to Twinstead Reinforcement, hereafter 'the project'. This used a standard approach for assessing noise effects using the methodology set out in ES Chapter 14: Noise and Vibration [**APP-082**].

1.1.2 The assessment concluded that, without mitigation, there would be seven noise sensitive receptors (NSR) during daytime periods and 12 NSR during night-time periods which would experience significant noise effects during construction of the project using the Proposed Alignment during daytime periods, and a further four that could experience significant noise effects based on the flexibility provided by the Limits of Deviation (LoD) during daytime periods. Additional mitigation (outlined in Table 14.3 of Chapter 14: Noise and Vibration [**APP-082**]) was identified for these NSR and was secured through the Register of Environmental Actions and Commitments (**Document 7.5.2 (C)**).

1.1.3 The assessment presented in the ES was based on the proposed core working hours detailed in Schedule 3, Paragraph 7 (Construction) of the draft DCO (**Document 3.1 (F)**) and are as follows:

- *(1) Subject to sub-paragraphs (2) to (4), work may only take place between 0700 and 1900 Monday to Friday and between 0800 and 1700 on Saturdays, Sundays and Bank Holidays (the core working hours), unless otherwise approved by the relevant planning authority.*

1.1.4 During Examination, the Local Planning Authorities have sought to constrain the project working hours in order to reduce the noise and disruption to local residents, as detailed in:

- Braintree District Council Deadline 1 Submission – Local Impact Reports (LIRs) from local authorities (see PD2 in Annex F of the Rule 6 letter) [**REP1-039**];
- Suffolk County Council Deadline 4 Submission – Responses to comments on LIRs [**REP4-008**]; and
- Essex County Council/Braintree District Council Deadline 4 Submission – Response to Applicant's comments on BDC/ESS Local Impact Report and Other Documents [**REP4-049**].

1.1.5 Limiting the working hours would increase the risk to delivery of this Nationally Significant Infrastructure Project (NSIP) and would not be appropriate when there are a limited number of NSR within proximity to the Order Limits.

1.1.6 Therefore, instead of a project wide limitation on working hours, the Applicant has undertaken further assessment work to identify if there are any additional NSR, beyond those identified in the ES with regards to the standard daytime threshold, that would experience noise using lower thresholds and consideration of the duration of the construction activities that would occur. The Applicant can then consider the need for further measures that would seek to restrict noise at these specific discrete locations. This further work is the subject of this Technical Note.

2. Guidance and Methodology

2.1 Guidance

2.1.1 The Noise Policy Statement for England (NPSE) (Department for Environment, Food and Rural Affairs (Defra), 2010) sets out the long-term vision of Government noise policy to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

2.1.2 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

2.1.3 In its aims, the NPSE uses the key phrases 'significant adverse' and 'adverse'. The NPSE states in its explanatory note that there are two established concepts that are currently being applied to noise impacts, which are:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected; and
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

2.1.4 The NPSE then extends this concept to include:

- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

2.1.5 The NPSE notes that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to vary for different noise sources, receptors and times.

2.1.6 Although there are no statutory construction noise limits, British Standard (BS) 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (British Standards Institution (BSI), 2014) (BS 5228-1) and Design Manual for Roads and Bridges (DMRB) LA 111 Noise and Vibration (Highways England *et al.,* 2020) provide guidance deriving appropriate construction noise significance criteria.

2.2 Methodology

2.2.1 Construction noise impact magnitudes have been assessed in accordance with BS 5228-1 (BSI, 2014) and within DMRB LA 111 (Highways England *et al.,* 2020).

2.2.2 The further assessment is based on anticipated construction plant and methodologies provided by one of the Applicant's Framework Contractors based on similar projects. However, relatively worst-case assumptions have been applied where appropriate. As such, actual construction noise levels would be expected to be lower than those predicted.

2.2.3 Construction noise levels were calculated at NSR within the 300m study area in accordance with the methodology described in Annex F of BS 5228-1. The construction noise calculations provided in ES Appendix 14.1 Construction Noise and Vibration Data (**APP-082**) do not include mitigation. This was so that noise 'hot-spots' could be identified

and mitigation measures could be secured such that significant adverse effects would be avoided. However, the Applicant has committed to BPM being used to reduce construction noise levels from the project, at 'hot-spots' and otherwise within Section 14 of the CEMP (**Document 7.5 (C)**).

2.2.4 For the purposes of this assessment, it is assumed that minimum of 5 decibel (dB) attenuation could be readily achievable with BPM compared to the values presented in the ES. This is the equivalent of construction activities being partially screened from NSR (where works are fully screened, an attenuation of 10dB would be expected). Indicative mitigation measures identified in the ES have also applied to calculations where appropriate. As well as screening, BPM may also take the form of use of quieter plant or alternative methods. Additionally, the calculations assume typical worst-case assumptions, such as hard ground.

2.2.5 The predicted construction noise levels at NSR have been compared against the lowest guidance values described in BS 5228 1 for weekend periods i.e. 55dB as per Table 2.1, which is based on the criteria provided in Table E.1 of BS 5228-1 and DMRB. Although Table E.1 of BS 5228-1 does not provide a separate criteria for bank holidays, Table E.2 of BS 5228-1 indicates that they should be assessed as per weekend periods with regard to construction noise impacts.

Table 2.1 – BS 5228-1 Noise Thresholds

Assessment Category (hours)	**Threshold (dB $L_{Aeq,T}$)**
Night-time (23.00−07.00)	45
Evenings (19:00-23:00) and weekends i.e. Saturdays 13:00-23:00 and Sundays 07:00-23:00	55
Daytime (07.00−19.00) and Saturdays (07.00−13.00)	65

2.2.6 NSR, beyond those already identified in the ES, where predicted construction noise levels may exceed the threshold for weekends (55 dB $L_{Aeq,T}$) have been identified.

2.2.7 Significant effects from construction noise occur due to combination of both noise level and duration of activities. Based on the guidance from BS 5228-1 and the DMRB significant adverse effects are deemed to occur where the construction noise thresholds detailed in Table 2.1 for at least ten days in any 15 consecutive days or 40 days in any consecutive six months. Locations that experience exceedances for less than two weeks have been excluded from the assessment on the basis that these would be short duration.

2.2.8 The duration of the construction works affecting the identified NSR has then been compared against the temporal criteria to determine the likelihood of significant effects.

3. Assessment

3.1 Construction Activity Noise Levels

3.1.1 Table 3.1 provides threshold distances within which the 55dB $L_{Aeq,T}$ weekend threshold would be exceeded from the various construction activities. The assumed activity and plant data is as per those presented in ES Appendix 14.1 Construction Noise and Vibration Data [**APP-136**] but include 5dB attenuation for BPM. Additionally, the assessment considers the worst-case task for each construction activity.

Table 3.1 – Construction Activity Noise Levels and 55 dB $L_{Aeq,T}$ Threshold Distances

Construction Activity	Average Activity Sound Power Level, dBA	Distance Within Which 55 dB $L_{Aeq,T}$ May Be Exceeded, m
Overhead line/pylon construction	101	110
Underground cable construction	98	84
Overhead line/pylon removal	99	89
Grid supply point (GSP) substation construction	105	183
Cable sealing end (CSE) compound	102	127
Temporary access routes	102	122
Temporary construction compound	102	127

3.2 Affected Receptors

3.2.1 Table 3.2 details the specific construction activity locations and associated NSR at which the 55 dB $L_{Aeq,T}$ weekend threshold is expected to be exceeded, together with the anticipated duration of works based on the Baseline Construction Schedule (see ES Appendix 4.2: Construction Schedule [**APP-091**]).

3.3 Analysis

3.3.1 The further assessment shows that there are four specific construction activity locations (and six NSR), beyond those already identified in the ES with regards to the standard daytime threshold, which are likely to generate noise exceeding the 55 dB $L_{Aeq,T}$ threshold at nearby NSR during weekend or bank holiday periods for greater than a two week duration. However, at all of these locations, the duration of the exceedance would not be expected to exceed the temporal thresholds for a significant effect. They would, however, be considered an adverse effect.

Table 3.2 – Potentially Affected NSR During Weekend Periods

Activity	Specific Construction Activity Location	Noise Sensitive Receptor(s)	Approximate Distance to Receptor (m)	Anticipated Number of Exceedance Days		
				Total	In Six Consecutive months	In 15 Consecutive Days
Underground cable construction	Underground cable construction	Hill Farm House, Moat Lane, Lamarsh	58	19	19	6
		Annexe at Hill Farm, Moat Lane, Lamarsh	58	19	19	6
		Millfield House, Heath Road, Polstead	36	22	22	5
Overhead line /pylon removal	Pylon removal (PCB 64)	Hill View, Neyland Road, Assington	68	2	2	2
	Pylon removal (4YL004)	Hill Farm House, Burstall Hill, Burstall*	80	7	5	5
Temporary construction compound	Construction compound 5	Bramwell House, Colchester Road, Assington	25	22	5	5

*Receptor also identified in ES Chapter 14: Noise and Vibration [**APP-082**] in relation to a different activity (construction of pylon 4YL004A)

4. Conclusions

4.1.1 This Technical Note presents the findings of the further assessment of potential construction noise impacts from the project during weekends and bank holiday periods. Construction noise levels have been calculated and assessed in accordance with the methodologies described in BS 5228-1 and DMRB LA 111.

4.1.2 The further assessment has identified four specific construction activity locations (and six NSR), beyond those already identified in the ES with regards to the standard daytime threshold, where there are potential exceedances of the noise level threshold for weekend and bank holiday periods for a longer than two week duration. The duration of likely exceedance of the threshold level has been calculated for each activity and the duration of exceedance is not expected to exceed the temporal threshold for significance at any location. As such, significant adverse effects form construction activities during weekend and bank holiday periods are not expected.

4.1.3 The further assessment (using the lower noise threshold) has identified a small number of NSR that could benefit from additional measures or commitments to reduce noise levels during construction. The Applicant has provided this list of NSR to the local planning authorities to obtain any feedback or additional receptors of concern. Once feedback has been received from all of the Local Planning Authorities, the list will be considered to see if any further measures or commitments could be applied to reduce the effects of construction activities on the identified NSR.

References

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3. Assessment

3.1 Construction Activity Noise Levels

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3.2 Affected Receptors

3.2.1 Table 3.2 details the specific construction activity locations and associated NSR at which the 55 dB $L_{Aeq,T}$ weekend threshold is expected to be exceeded, together with the anticipated duration of works based on the Baseline Construction Schedule (see ES Appendix 4.2: Construction Schedule [**APP-091**]).

3.3 Analysis

3.3.1 The further assessment shows that there are four specific construction activity locations (and six NSR), beyond those already identified in the ES with regards to the standard daytime threshold, which are likely to generate noise exceeding the 55 dB $L_{Aeq,T}$ threshold at nearby NSR during weekend or bank holiday periods for greater than a two week duration. However, at all of these locations, the duration of the exceedance would not be expected to exceed the temporal thresholds for a significant effect. They would, however, be considered an adverse effect.

Table 3.2 – Potentially Affected NSR During Weekend Periods

Activity	Specific Construction Activity Location	Noise Sensitive Receptor(s)	Approximate Distance to Receptor (m)	Anticipated Number of Exceedance Days		
				Total	In Six Consecutive months	In 15 Consecutive Days
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*Receptor also identified in ES Chapter 14: Noise and Vibration [**APP-082**] in relation to a different activity (construction of pylon 4YL004A)

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4.1.1 This Technical Note presents the findings of the further assessment of potential construction noise impacts from the project during weekends and bank holiday periods. Construction noise levels have been calculated and assessed in accordance with the methodologies described in BS 5228-1 and DMRB LA 111.

4.1.2 The further assessment has identified four specific construction activity locations (and six NSR), beyond those already identified in the ES with regards to the standard daytime threshold, where there are potential exceedances of the noise level threshold for weekend and bank holiday periods for a longer than two week duration. The duration of likely exceedance of the threshold level has been calculated for each activity and the duration of exceedance is not expected to exceed the temporal threshold for significance at any location. As such, significant adverse effects form construction activities during weekend and bank holiday periods are not expected.

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References

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Department for Environment, Food and Rural Affairs (2010). Noise Policy Statement for England. London, UK.

Highways England, Transport for Scotland, Welsh Government and Department for Infrastructure (2020) Design Manual for Roads and Bridges LA 111 Noise and Vibration.

Figure 1
Noise Sensitive Receptors (including 55dB)

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS (INCLUDING 55DB) KEY PLAN
REGULATION 5(2)(a)
SHEET 1 OF 1
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Legend
- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation

Mid Suffolk District Council
Babergh District Council
Ipswich Borough Council
Braintree District Council
Colchester Borough Council
Tendring District Council

Bramford Substation
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Sheet 12
Sheet 13
Sheet 14

Section AB: Bramford Substation/Hintlesham
Section C: Brett Valley
Section D: Polstead
Section E: Dedham Vale Area of Outstanding Natural Beauty
Section F: Leavenheath/Assington
Section G: Stour Valley
Section H: Grid Supply Point Substation

Clare, Acton, Sudbury, Hadleigh, Ipswich, Market, Colchester, Colne Valley

255000
250000
245000
240000
235000
230000
225000

580000 585000 590000 595000 600000 605000 610000 615000

0 1 2 3 4 5 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1 Noise Sensitive Receptors (including 55dB) - Key Plan

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0_KeyPlan

A3

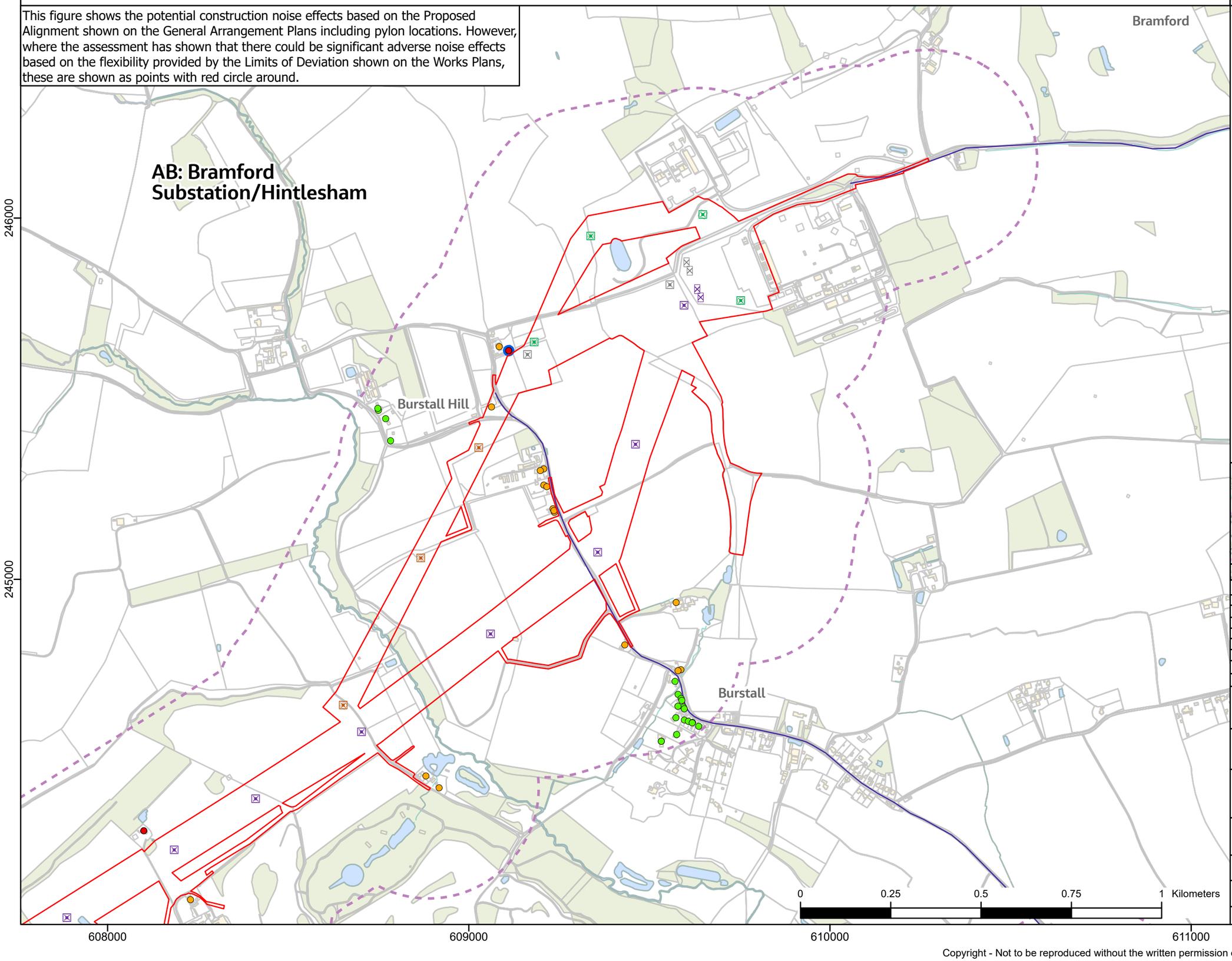
NG DRAWING No.

SCALE : 1:125000

SHEET NO.	NO. OF SHEETS	ISSUE:
1	1	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 1 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.



Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

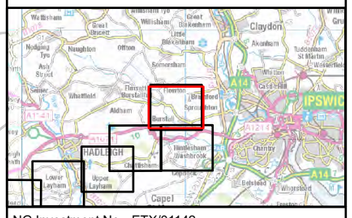
Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect

Non-residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect
- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

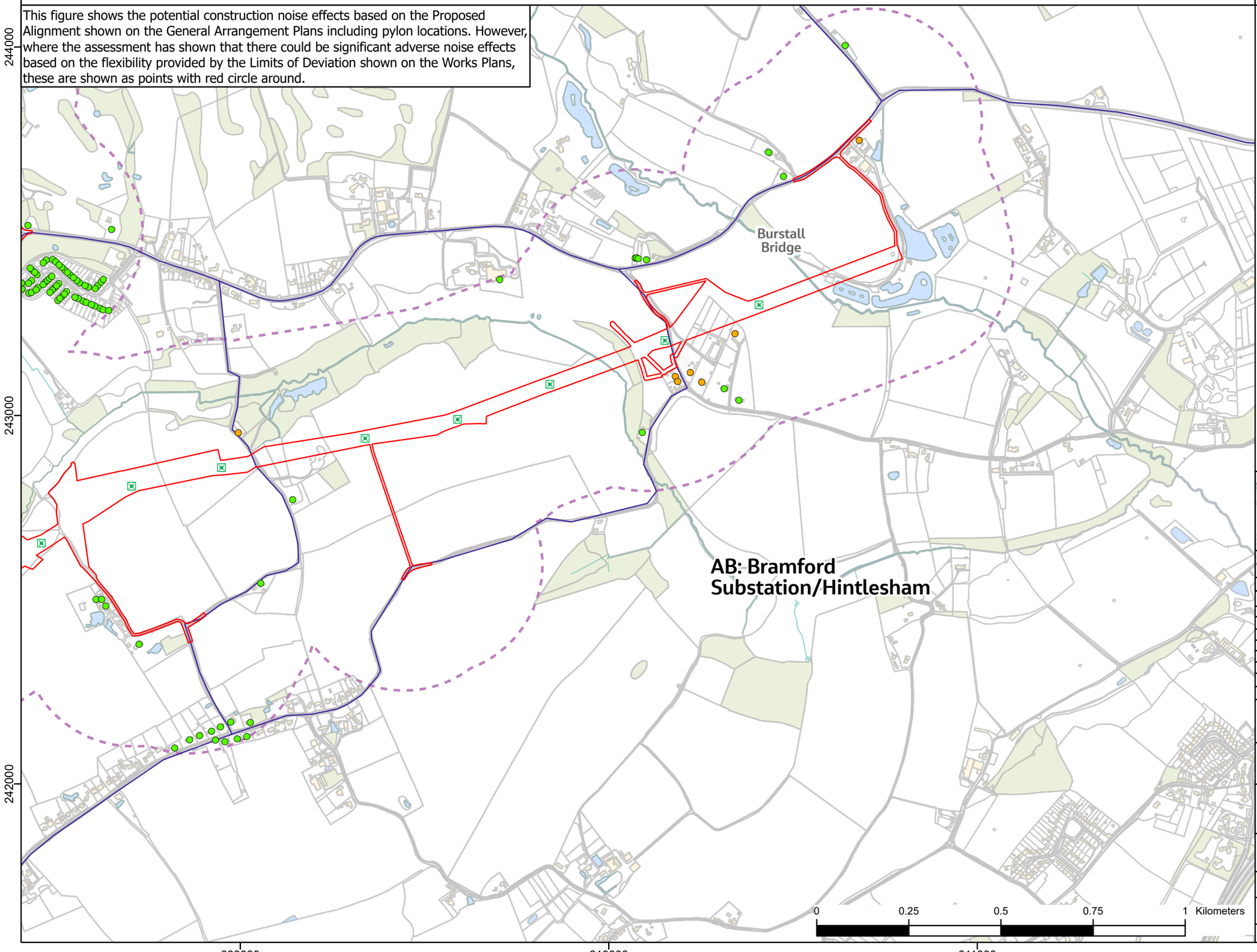
nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0			A3
NG DRAWING No.	SHEET NO.	NO. OF SHEETS	ISSUE:
SCALE : 1:10000	1	14	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 2 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.



Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect

Non-residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect
- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

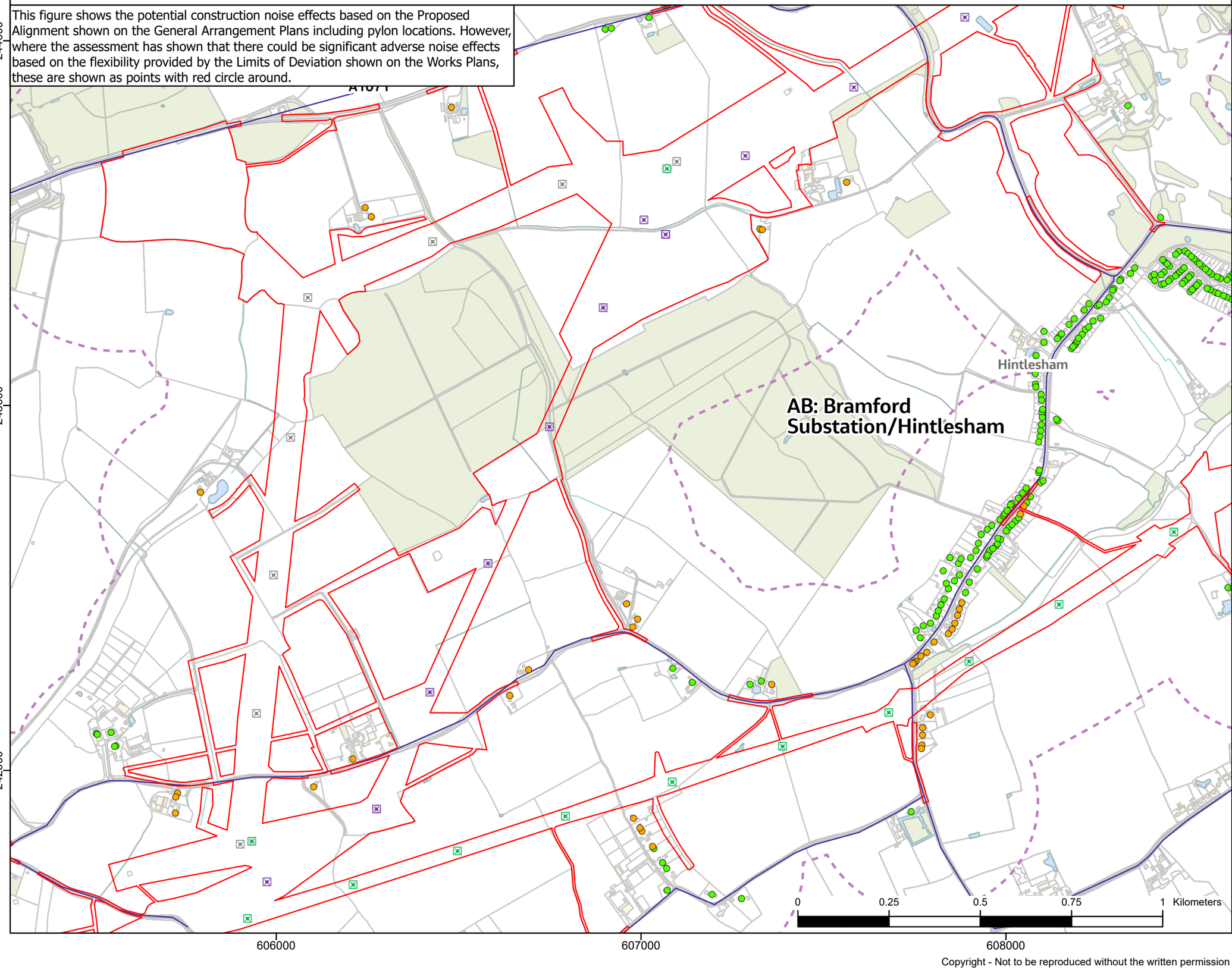
nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0			A3
NG DRAWING No.	SHEET NO.	NO. OF SHEETS	ISSUE:
SCALE : 1:10000	2	14	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 3 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.



Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

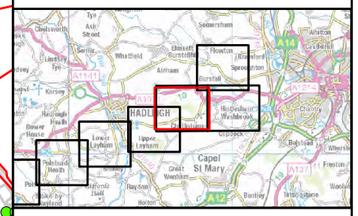
Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect

Non-residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect
- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

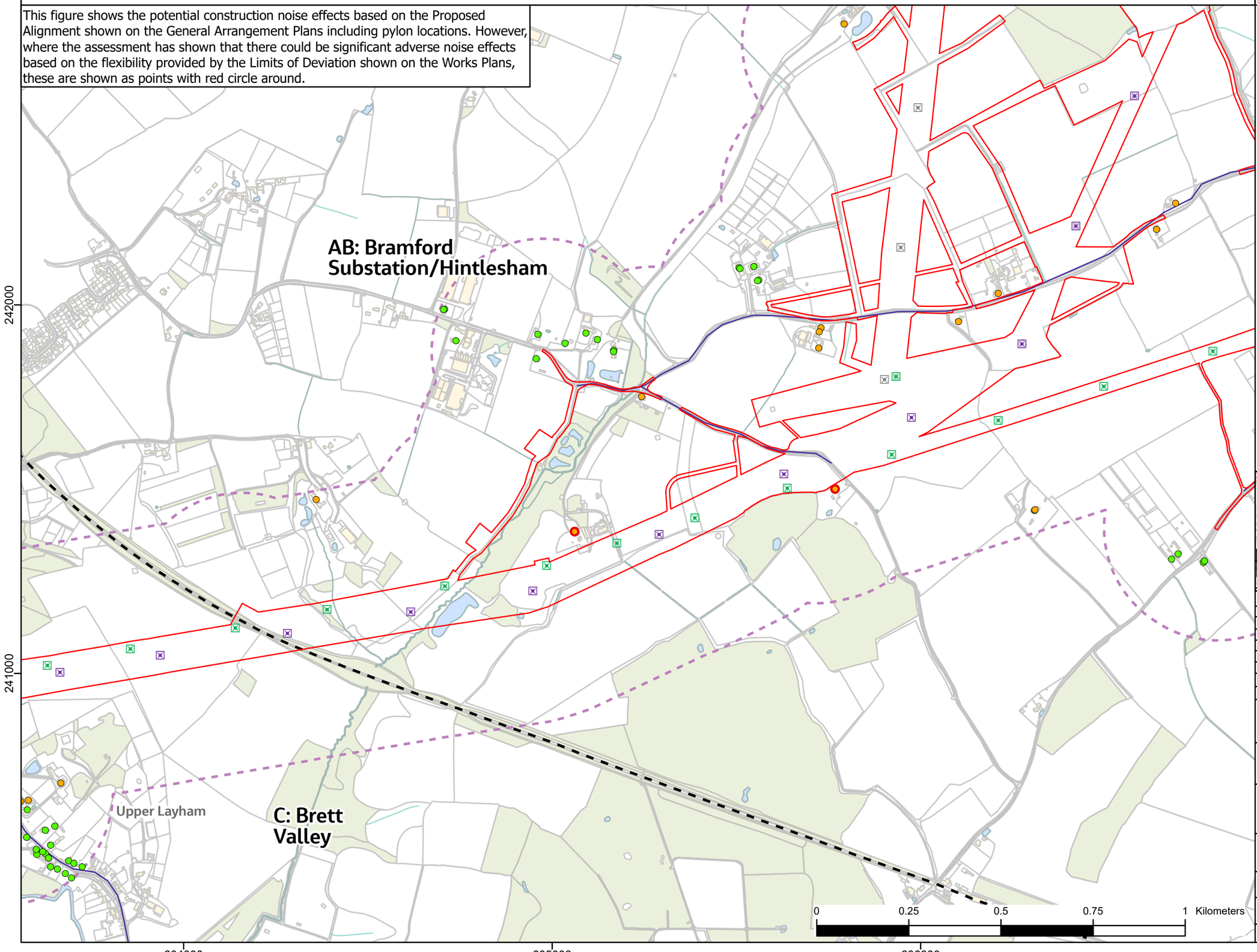
nationalgrid

TITLE: Figure 1 Noise Sensitive Receptors (including 55 dB)

CIRCUIT / SITE				GIS
Bramford – Pelham & Bramford – Braintree – Bulls Lodge				
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0				A3
NG DRAWING No.	SHEET NO. 3	NO. OF SHEETS 14	ISSUE: A	
SCALE: 1:10000				

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 4 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.



Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect

Non-residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
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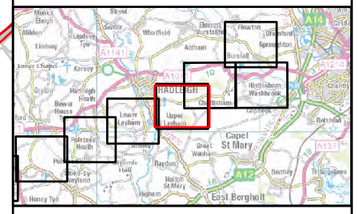
- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0			A3
NG DRAWING No.	SHEET NO. 4	NO. OF SHEETS 14	ISSUE: A
SCALE : 1:10000			

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 5 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.

C: Brett Valley

Lower Layham

D: Polstead

241000
240000
601000
602000
603000

0 0.25 0.5 0.75 1 Kilometers

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
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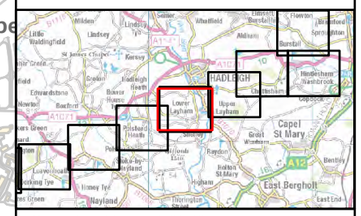
- No adverse effect

Non-residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect
- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1 Noise Sensitive Receptors (including 55 dB)

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0

A3

NG DRAWING No.

SHEET NO. 5

NO. OF SHEETS 14

ISSUE: A

SCALE : 1:10000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 6 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.

D: Polstead

Polstead Heath

E: Dedham Vale Area of Outstanding Natural Beauty

Dedham Vale East Cable Sealing End Compound

400kV

240000
239000

598000 599000 600000 601000

0 0.25 0.5 0.75 1 Kilometers

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect

Non-residential receptors

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- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0

A3

NG DRAWING No.

SCALE : 1:10000

SHEET NO. 6

NO. OF SHEETS 14

ISSUE: A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 7 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

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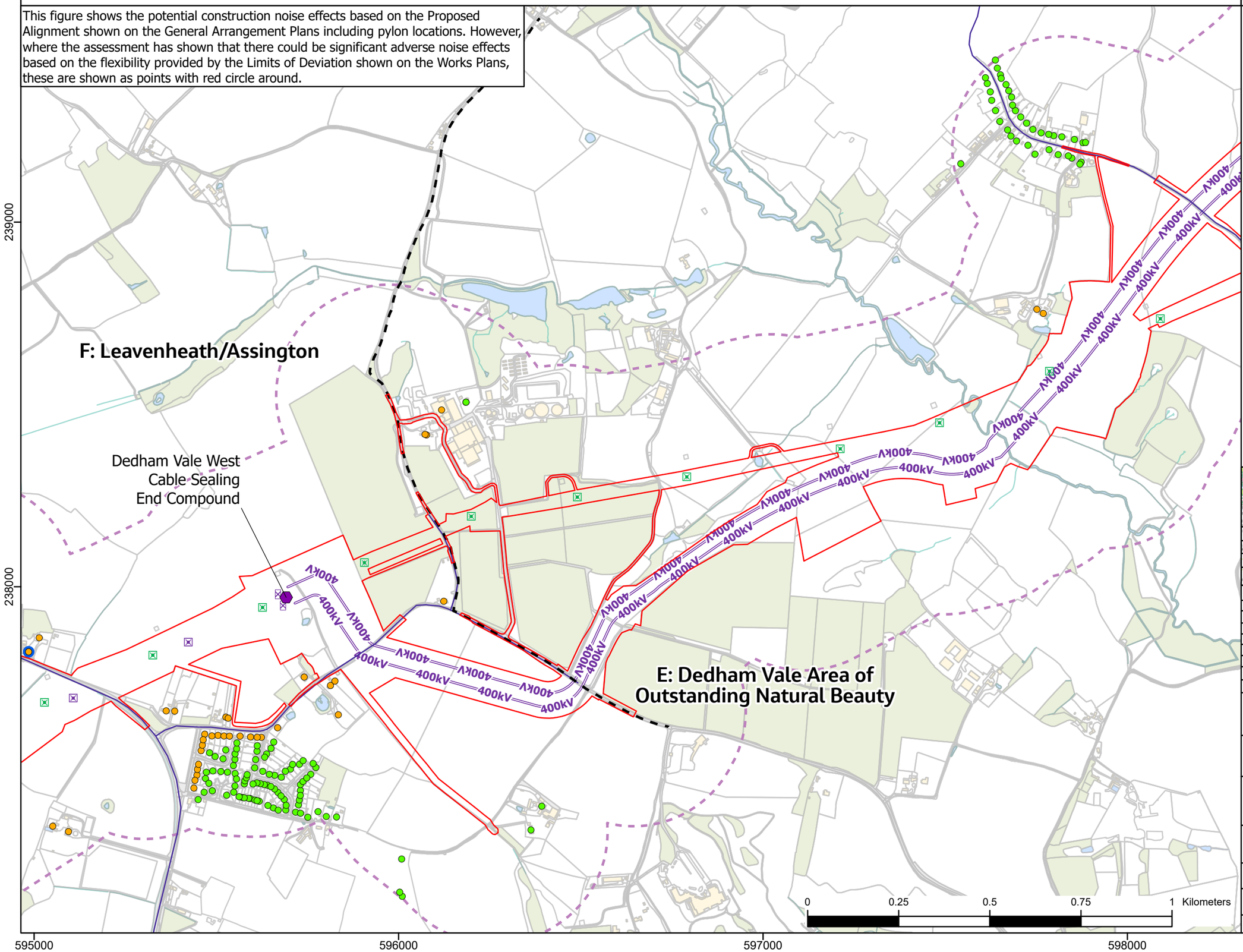

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
- Realignment of existing gantry
- Proposed cable sealing end compound
- Proposed grid supply point substation

Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect

Non-residential receptors

- Significant adverse effect (without mitigation)
- Adverse effect (without mitigation)
- No adverse effect
- Receptor where there is potential for noise levels to exceed 55 dBA (with mitigation)

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0

A3

NG DRAWING No.

SCALE : 1:10000

SHEET NO. 7

NO. OF SHEETS 14

ISSUE: A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 8 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

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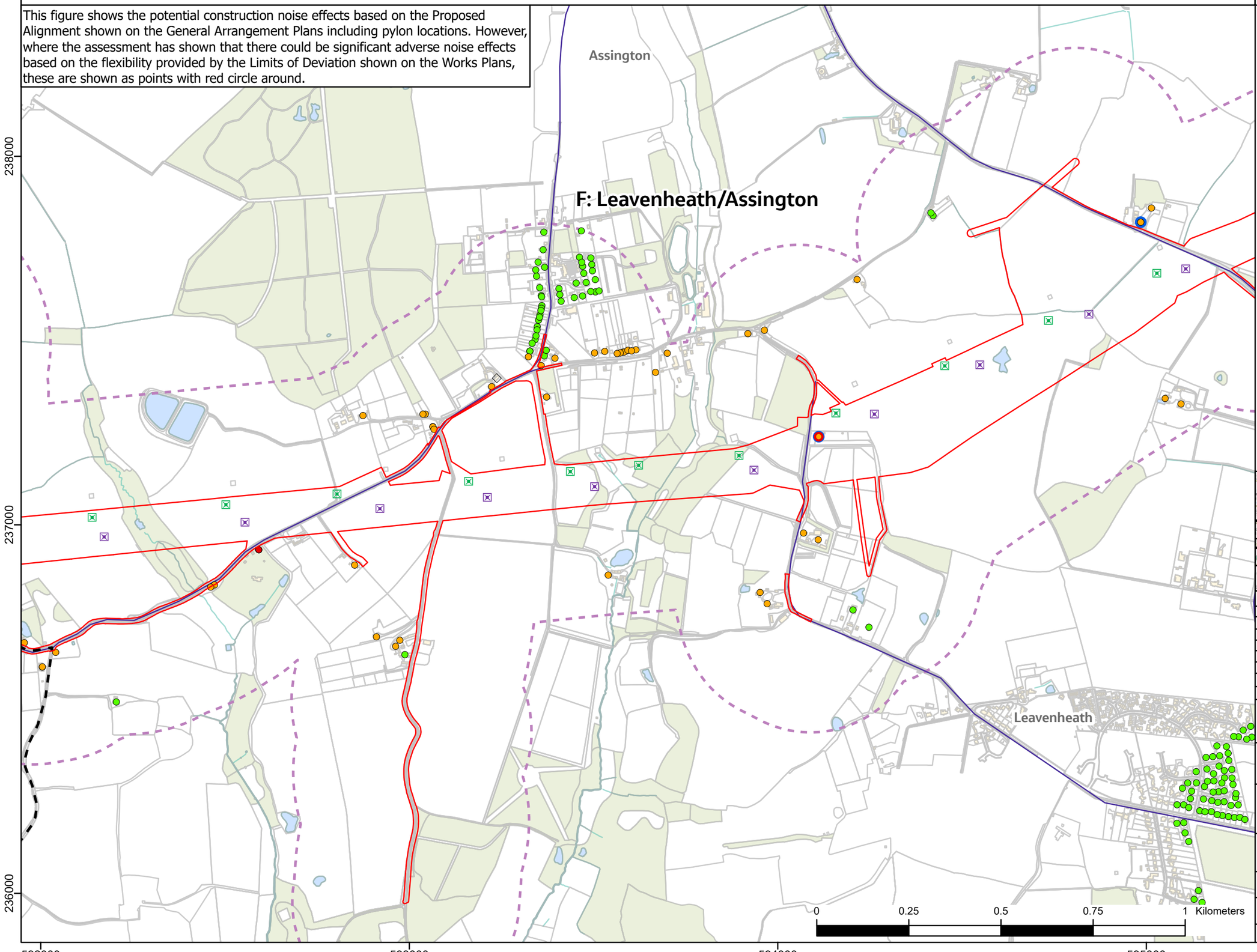

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
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Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
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Non-residential receptors

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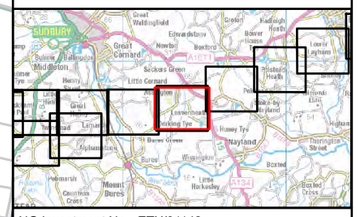

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 1 Noise Sensitive Receptors (including 55 dB)

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0			A3
NG DRAWING No.	SHEET NO. 8	NO. OF SHEETS 14	ISSUE: A
SCALE : 1:10000			

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 9 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

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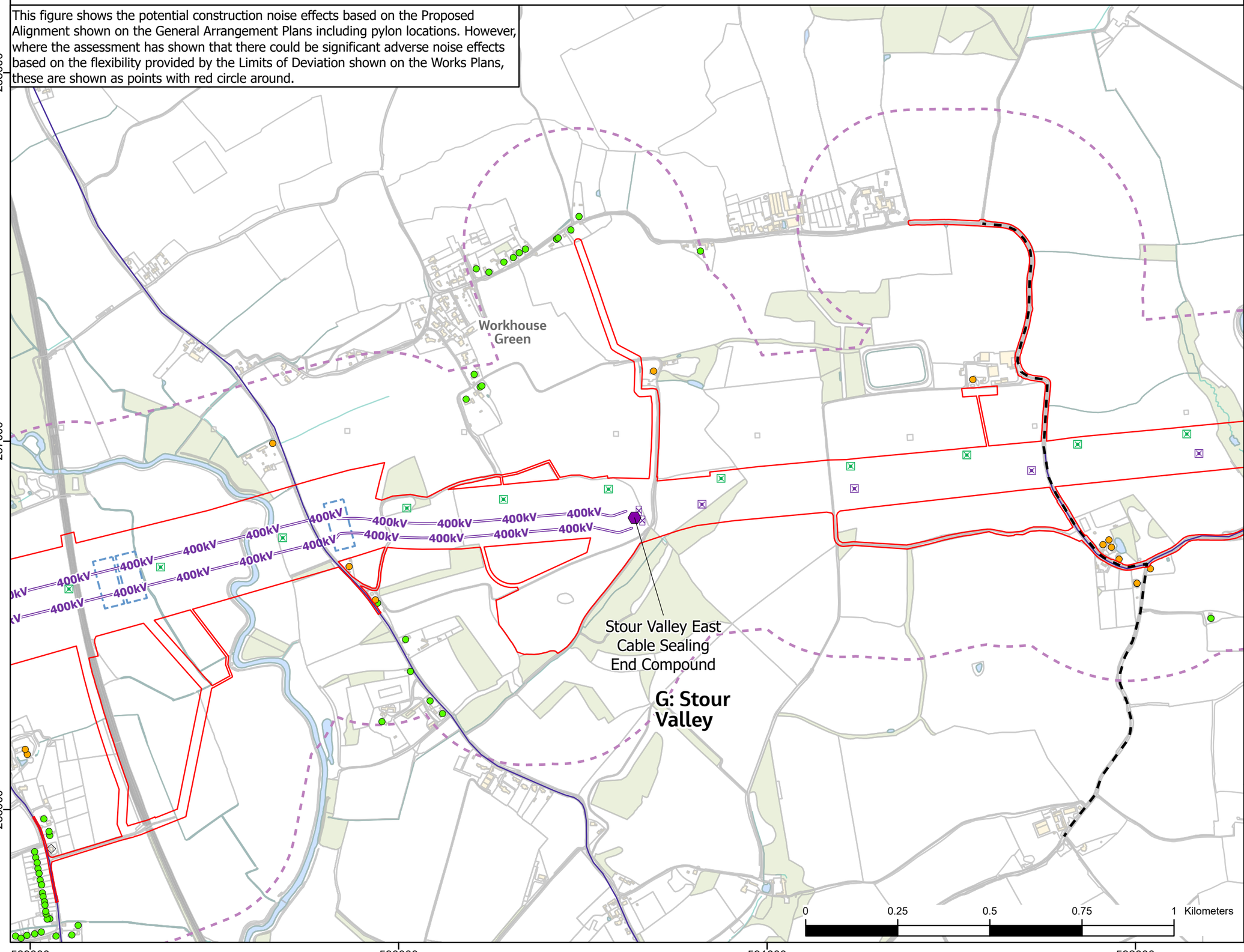

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
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- Realignment of existing pylon
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- Realignment of existing gantry
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Construction noise effects

Residential receptors

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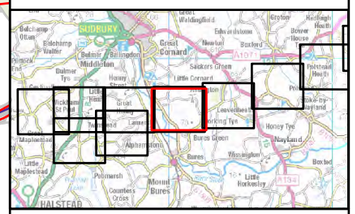

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1 Noise Sensitive Receptors (including 55 dB)

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0

A3

NG DRAWING No.

SCALE : 1:10000

SHEET NO.	NO. OF SHEETS	ISSUE:
9	14	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 10 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.

238000
237000
236000
586000
587000
588000
589000

G: Stour Valley

Twinstead

H: Grid Supply Point Substation

400kV

0 0.25 0.5 0.75 1 Kilometers

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
- Modification to existing pylon
- Realignment of existing pylon
- Removal of existing pylon
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Construction noise effects

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Non-residential receptors

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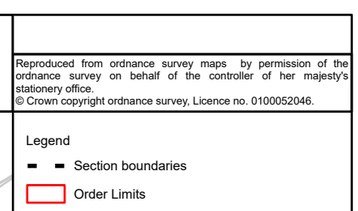

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE :	GIS
Bramford – Pelham & Bramford – Braintree – Bulls Lodge	
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0	A3

NG DRAWING No.	SHEET NO.	NO. OF SHEETS	ISSUE:
SCALE : 1:10000	10	14	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 11 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

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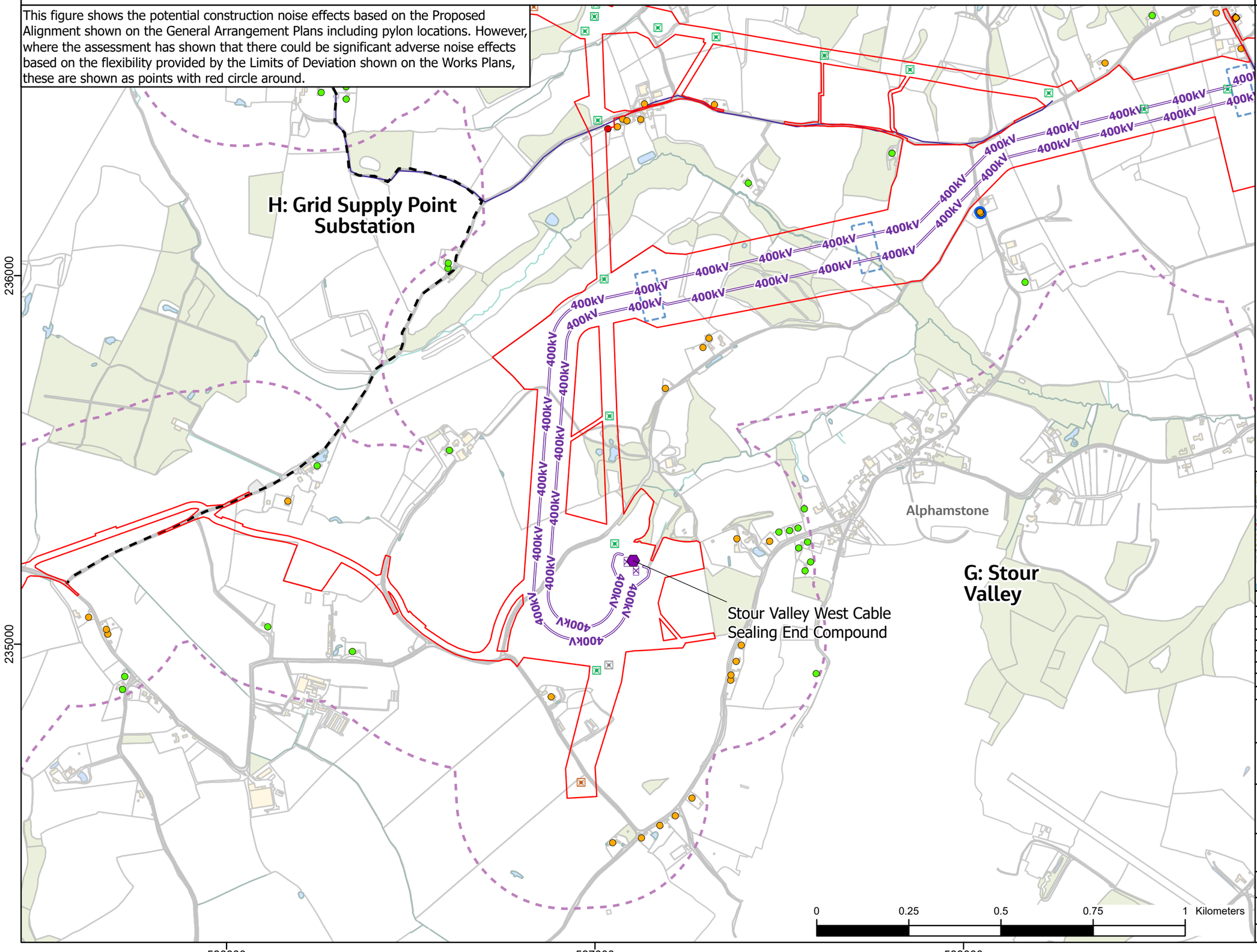

Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
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- Realignment of existing pylon
- Removal of existing pylon
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Construction noise effects

Residential receptors

- Significant adverse effect (without mitigation)
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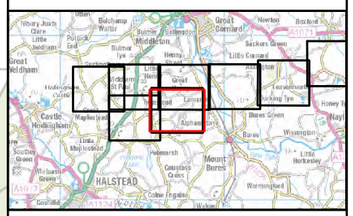


NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 1 Noise Sensitive Receptors (including 55 dB)

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0

A3

NG DRAWING No.

SCALE: 1:10000

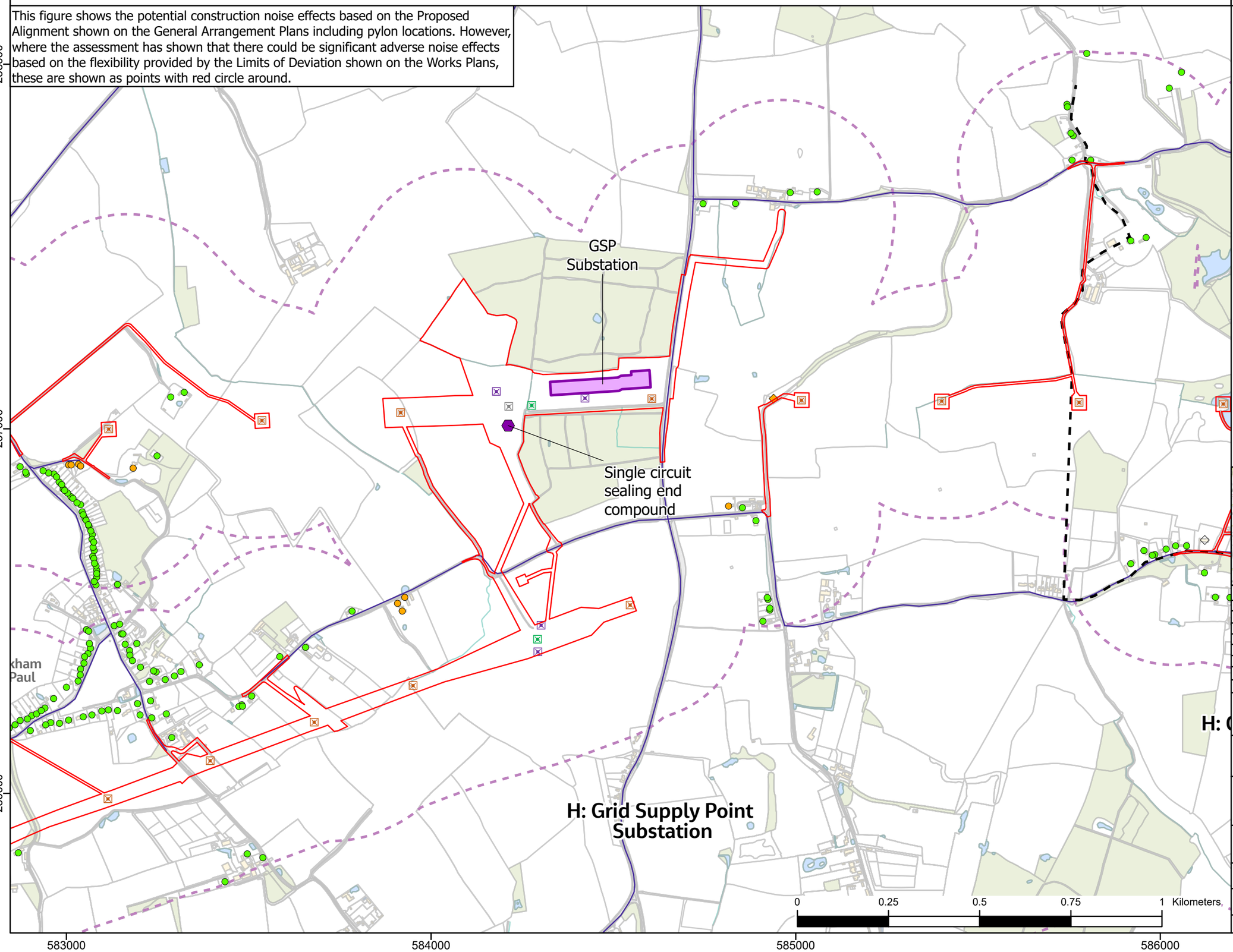
SHEET NO. 11

NO. OF SHEETS 14

ISSUE: A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 12 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

This figure shows the potential construction noise effects based on the Proposed Alignment shown on the General Arrangement Plans including pylon locations. However, where the assessment has shown that there could be significant adverse noise effects based on the flexibility provided by the Limits of Deviation shown on the Works Plans, these are shown as points with red circle around.



Legend

- Section boundaries
- Order Limits
- Noise study area (300m)
- Trenchless crossing pits
- Construction routes to the Strategic Road Network
- Proposed underground line
- Proposed pylons
- Proposed gantries
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- Realignment of existing pylon
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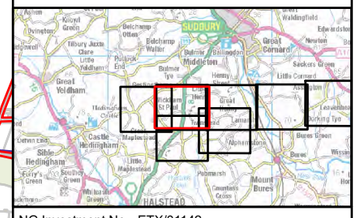

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ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1
Noise Sensitive Receptors
(including 55 dB)

CIRCUIT / SITE :	
Bramford – Pelham & Bramford – Braintree – Bulls Lodge	GIS
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0	A3

NG DRAWING No.	SHEET NO.	NO. OF SHEETS	ISSUE:
SCALE : 1:10000	12	14	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
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SHEET 13 OF 14
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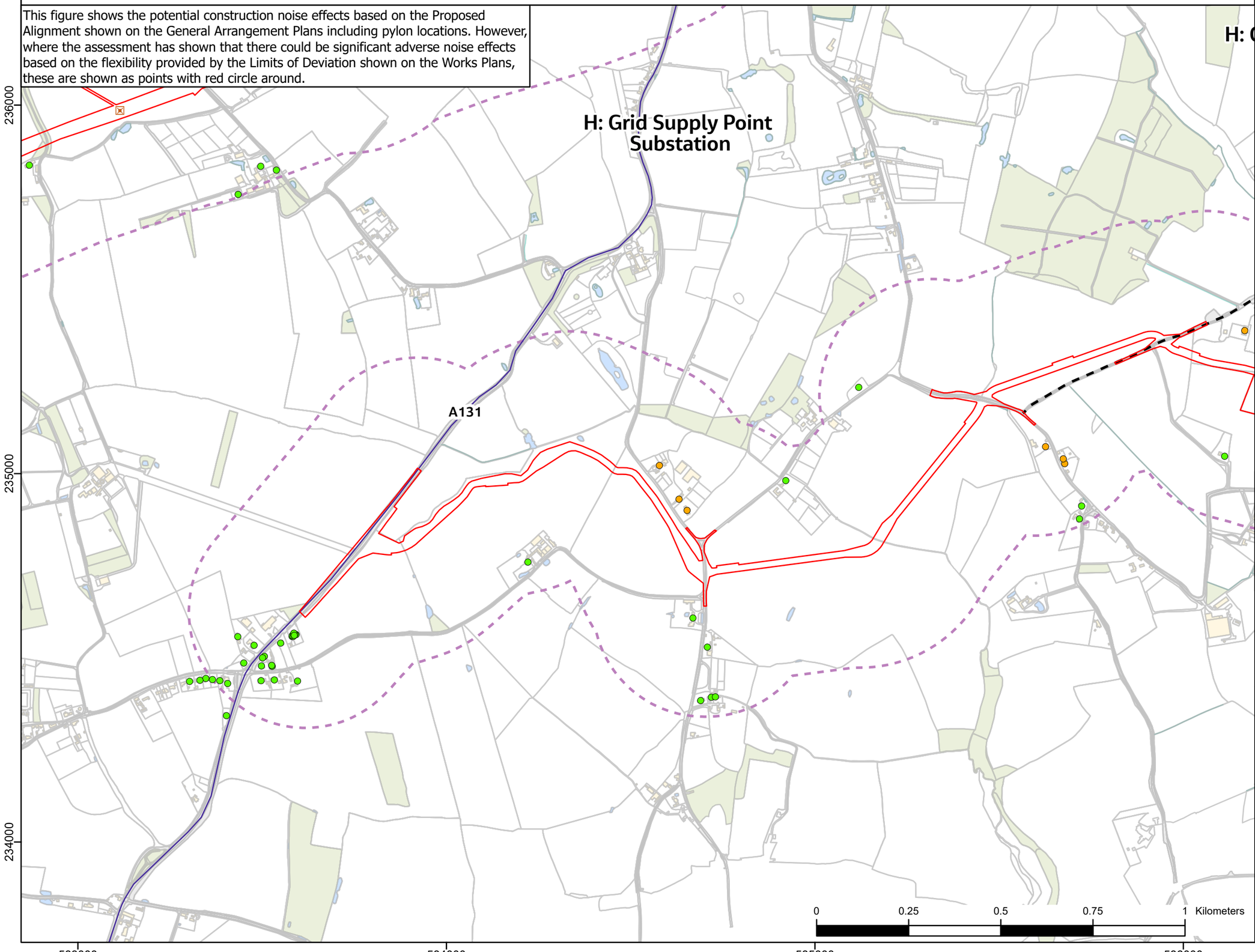

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ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	12/2023	Rev A for Deadline 6	PM	DG	CW

PROJECT: Bramford to Twinstead Reinforcement

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TITLE: Figure 1 Noise Sensitive Receptors (including 55 dB)

CIRCUIT / SITE				
Bramford – Pelham & Bramford – Braintree – Bulls Lodge				GIS
ORIGINATOR DRAWING NO. AAA_BTT_NSR_Figure_1_Rev0				A3
NG DRAWING No.	SHEET NO. 13	NO. OF SHEETS 14	ISSUE: A	
SCALE: 1:10000				

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
NOISE SENSITIVE RECEPTORS(INCLUDING 55 DB)
REGULATION 5(2)(a)
SHEET 14 OF 14
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

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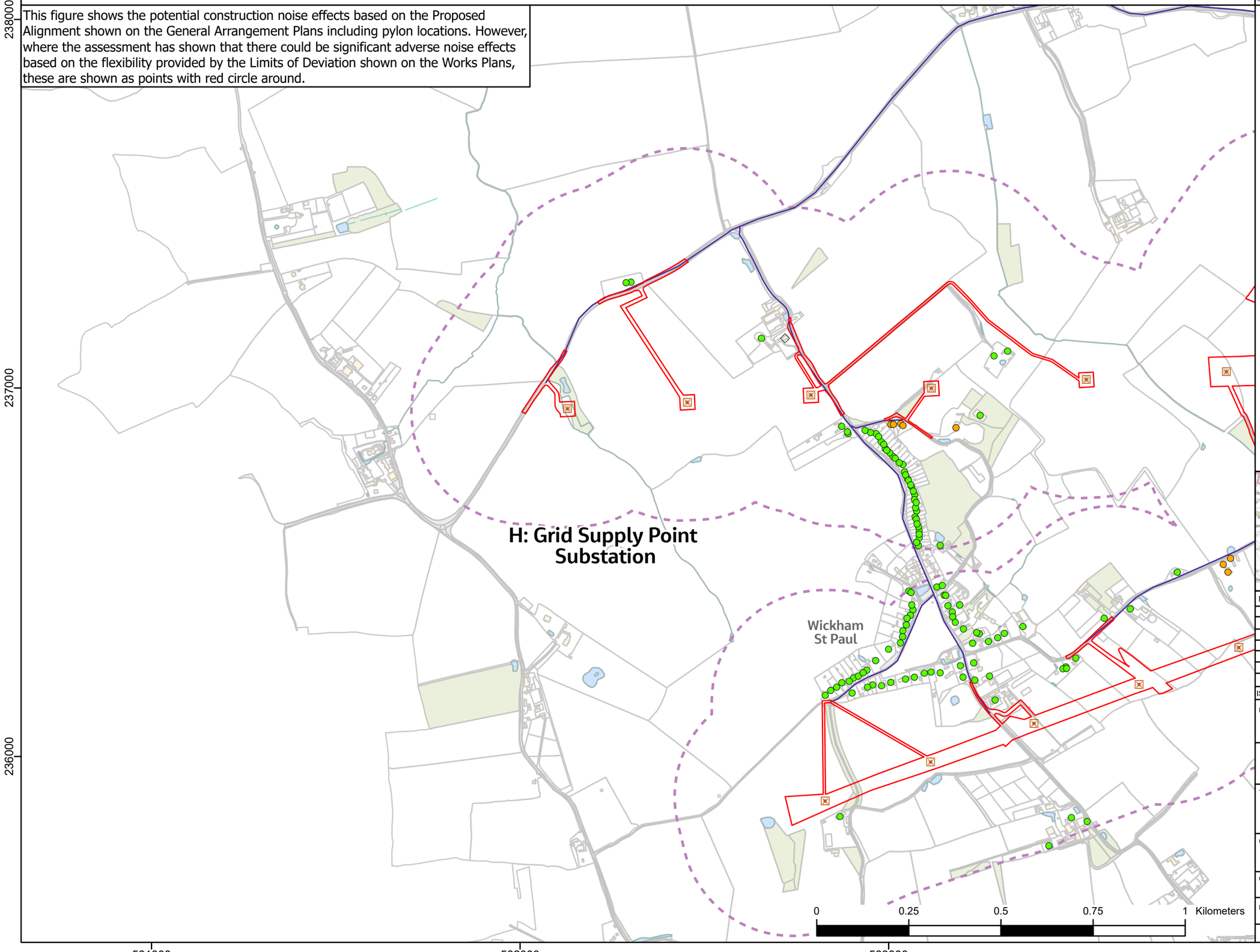

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SHEET NO.	NO. OF SHEETS	ISSUE:
14	14	A

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