



now part of



Millbrook Power Project

Non-material Change Application – Environmental Report

On behalf of **Millbrook Power Ltd.**



Project Ref: 45047 | Rev: AA | Date: May 2019

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 33 Bowling Green Lane, London, EC1R 0BJ
T: +44 (0)203 824 6600 E: london@peterbrett.com

Contents

Executive Summary	1
1 Introduction	2
2 Proposed non-material changes	4
2.1 Introduction	4
2.2 New GIS substation.....	4
2.3 Amendments to LLRS parameters	5
2.4 Plans.....	6
3 Environmental Screening	8
3.1 Introduction	8
3.2 Methodology	8
4 Updated Ecological Assessment.....	28
4.1 Introduction	28
4.2 Methodology	28
4.3 Summary of original assessment	28
4.4 Updated Assessment	30
4.5 Conclusions	32
5 Updated Water Quality and Resources Assessment	33
5.1 Introduction	33
5.2 Methodology	33
5.3 Summary of original assessment	33
5.4 Updated Assessment	34
5.5 Summary / Conclusions	36
6 Updated Landscape and Visual Impact Assessment.....	37
6.1 Introduction	37
6.2 Methodology	37
6.3 Summary of original assessment	38
6.4 Updated Assessment	38
6.5 Summary / Conclusions	40

Appendices

Appendix A	Plans and Figures
Appendix B	2019 Phase 1 Habitat Plan and Target Notes
Appendix C	Photomontages
Appendix D	Outline LEMMS (Rev 2)

This page is intentionally blank

Executive Summary

Following the granting of the Development Consent Order, Millbrook Power Limited (the Applicant) has undertaken further detailed design review of the Project parameters and has identified two minor, non-material changes which need to be made to the Order. These comprise:

- 1. Development of a new GIS substation; and
- 2. Amendments to baseline parameters of the low level restoration scheme (LLRS).

This report provides an overview of the potential impacts of the proposed changes and compares these potential impacts against the assessment of the likely environmental impacts in the certified Environmental Statement (ES) submitted to accompany the application for the Order.

All environmental topics considered in the certified ES were screened against both non-material changes. Where it is judged that there is no potential for new or different likely significant effects to arise this is summarised and justified. Where further assessment is required to determine new or different likely significant effects these assessments are presented in chapters 4-6 of this report.

The following topics are screened as not requiring updated assessments as the proposed changes do not have the potential to give rise to any significant effects different to those reported in the certified ES:

- Air Quality;
- Noise and Vibration;
- Ground Conditions
- Cultural Heritage; and
- Socio-Economics.

Accordingly, the environmental topics which have the potential to give rise to any likely significant effects which are new or different to those reported in the certified ES and are the subject of updated assessments are: ecology, water quality and resources, and landscape and visual.

The updated assessments are presented in this report. Compared to those reported in the certified ES, the likely new or different significant effects would either be reduced or would not result in any new or different significant effects. It is therefore considered that the proposed changes would constitute non-material changes.

1 Introduction

- 1.1.1 Millbrook Power Limited (MPL) applied for a development Consent Order (DCO) for the Millbrook Power Project ‘the Project’ in October 2018. The Millbrook Gas Fired Generating Station Order was subsequently granted by the Secretary of State for Business, Energy and Industrial Strategy on 13th March 2019 (Statutory Instrument No. 578) (the Order).
- 1.1.2 The Order grants development consent for the construction, operation and maintenance of the following (referred to as the ‘authorised development’):
- a new Power Generation Plant in the form of an Open Cycle Gas Turbine (OCGT) peaking power generating station, fuelled by natural gas with a rated electrical output of up to 299 MW. This is the output of the generating station as a whole, measured at the terminals of the generating equipment. The Power Generation Plant comprises of:
 - generating equipment including one Gas Turbine Generator with one exhaust gas flue stack and Balance of Plant (together referred to as the ‘Generating Equipment’), which are located within the ‘Generating Equipment Site’;
 - works to an existing access road and construction of a new access road to the Generating Equipment Site (the ‘Access Road’ and the ‘Short Access Road’);
 - a temporary construction compound required during construction only (the ‘Laydown Area’);
 - a new underground gas pipeline connection, to bring natural gas to the Generating Equipment from the National Transmission System (the ‘Gas Connection’). The Gas Connection also incorporates an Above Ground Installation (AGI) at the point of connection to the National Transmission System; and
 - a new electrical connection to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS) (the ‘Electrical Connection’), comprising an underground double circuit Tee-in. This would require one new tower (which will replace an existing tower and be located in the existing Grendon – Sundon transmission route corridor, thereby resulting in no net additional towers). This would also require two Sealing End Compounds (SEC)s, one located on each side of the existing transmission line, and both circuits would then be connected via underground cables approximately 500 m in length to a new substation (the ‘Substation’).
- 1.1.3 Following the granting of the Order, MPL, together with National Grid Electricity Transmissions plc (National Grid), have undertaken some further detailed design review which has identified two minor, non-material changes which need to be made to the Order. The proposed changes are described in detail in chapter 3 of this report and briefly comprise of:
- i. development of a new GIS substation; and
 - ii. amendments to parameters of the low level restoration scheme baseline works (LLRS).
- 1.1.4 This report is submitted to accompany a non-material change application (NMC Application) under the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 (‘the Regulations’). This report provides an overview of the potential significant environmental effects of the proposed changes and compares these to the certified Environmental Statement submitted to accompany the application for the Order (referred to as the ‘certified ES’, Peter Brett Associates LLP, October 2018) which reports the findings of the Environmental Impact Assessment (EIA).

- 1.1.5 This report demonstrates that the potential environmental effects associated with the proposed changes would either be reduced or would not result in any new or different likely significant environmental effects when compared to those reported in the certified ES. The proposed changes can therefore be described as non-material for the purpose of Part 1 of the Regulations.

- 1.1.6 This report includes the results of an environmental screening exercise (chapter 3) and updated assessments for those environmental topics which may have the potential to give rise to any likely significant effects which are new or different to those reported in the certified ES, namely, ecology (chapter 4), water quality and resources (chapter 5) and landscape and visual impacts (chapter 6).

2 Proposed non-material changes

2.1 Introduction

2.1.1 This chapter describes, in detail, the proposed non-material changes to the authorised development.

2.2 New GIS substation

2.2.1 In order to export electricity from the Generating Equipment to the NETS (which is operated by National Grid, the authorised development includes an Electrical Connection. The substation is authorised for development within Work No. 5 of the Order, adjacent to the Generating Equipment (Work No. 1A to 1D) and the sealing end compounds are authorised for development within Work No. 6. The Electrical Connection will be designed and constructed by National Grid.

2.2.2 As part of its project development process, National Grid has recently undertaken a contractor tender exercise for the construction of the substation. As part of this process National Grid identified a more efficient and economic solution for the Electrical Connection which differs from that included in the Order.

2.2.3 The proposed change to the authorised development comprises the construction of a gas insulated switchgear (GIS) substation to be located under the existing Grendon-Sundon 400Kv overhead line in the area authorised for the sealing end compounds within Work no. 6a. Connection would be via a double-tee connection using anchor bolts directly off the existing tower. As a result of this proposed change, there would no longer be a need for the following works:

- i. a substation within Rookery South pit, adjacent to the generating equipment (Work No. 5);
- ii. the sealing end compounds within Work No. 6(a); and
- iii. the removal and replacement of towers (Work No. 7).

2.2.4 The footprint of the proposed GIS substation would be entirely within the Order Limits and would comprise a single installation rather than two separate installations. The proposed GIS substation would be approximately 100m in length and 60m in width, compared to the authorised substation which could be up to 200m in length and 150m in width. The maximum height of the GIS substation would be 17m, which is the same as the maximum height for the authorised SECs (see Figures MBR04_DT1_SEC_T101 and 66-10865-MPL-C-002 in Appendix A)

2.2.5 The proposed GIS substation would be sited directly over a section of the Mill Brook watercourse. This is unavoidable, as the substation needs to be oriented on an east-west axis centred on the existing pylon. As such, a short section of the Mill Brook would be diverted around the substation.

2.2.6 The proposed GIS substation has a smaller footprint than the previously proposed AIS substation and the main components of the GIS substation are contained within a building. GIS substations are of a smaller footprint as they use gas to insulate the main switchgear components in a sealed environment, rather than air used in the AIS. Typically the gas used for insulation is non-flammable, non-toxic and does not present any explosion risk. A GIS substation has several advantages over AIS technology, including:

- **Main substation enclosed in a building:** This means that the components of a GIS substation are less sensitive to pollution and extreme weather events and is also more secure and offers better protection against trespass / damage.
 - **Length of construction:** Installing a GIS substation can often be faster than installing its AIS counterpart. This is largely due to the fact that GIS systems are smaller and weigh less. GIS systems also take up less space than AIS.
 - **Lower operation and maintenance costs:** GIS systems are significantly easier to care for on a regular basis as they offer front instead of rear access. They also contain their own integrated testing instruments. On average, GIS systems need only be visually inspected every four years or more. AIS systems should be visually inspected every year to two years. When inspected, all compartments of an AIS must be checked, unlike GIS where the individual compartments and elements are fully insulated and can be monitored.
 - **Safety:** Shorts, arc flashes and electrical failure are rare in GIS because all the interior elements are insulated, with only the cable compartment being accessible. As the parts are fully insulated, no cables or linkage can come in contact with the live parts. As the substation is sealed it can only be accessed by a trained engineer.
 - no works required to remove or replace the existing transmission tower; and
 - no need for a temporary diversion of the existing line or temporary tower whilst the works are installed.
- 2.2.7 It is also noted that the issue of developing an AIS vs GIS substation has previously been examined through the Progress Power (Gas Fired Power Station) Order 2015.
- 2.2.8 Although the Progress Power Project is geographically an unrelated development, the proposed plant and infrastructure (299MW Open Cycle Gas Turbine and associated gas and electrical connections) is comparable to the development consented at Millbrook.
- 2.2.9 The examination of the Progress Power Order looked carefully at a comparison between AIS and GIS technology, with both scenarios having been examined as part of the DCO process. The key aspect of this comparison comprised the differences in the overall land take and the visual impacts associated with AIS technology when compared with a GIS solution. The GIS solution demonstrated significantly smaller land take as well as a much less intrusive solution in the landscape when compared with the AIS solution.
- 2.2.10 No potential issues around increased health and safety risk from moving to a GIS solution were identified
- 2.2.11 The subsequent ExA's recommendation report focused on the Electrical Cable Connection and the associated infrastructure comprising the GIS solution and the AIS solution. Aspects associated with the preference to move to a GIS solution included a reduction in the land area required and associated compulsory acquisition.
- 2.2.12 The ExA's concluded that the benefits in meeting the national need for new generation capacity and to the local economy outweigh any remaining adverse effects of the proposal in the case of the GIS variant but did not outweigh the adverse effects of the AIS variant.

2.3 Amendments to LLRS baseline works

- 2.3.1 Rookery South Pit is the subject of an ongoing Low Level Restoration Scheme (LLRS) being undertaken by the landowner pursuant to a planning consent (application number BC/CM/2000/8) to restore the former clay workings, below pre-excitation ground levels, with

measures included in the restoration to enhance biodiversity and landscape (the LLRS Consent). The purpose of the LLRS is to use further winnable material to the south of Rookery South Pit to restore the land within the pit to a usable condition. This area to the south is described as the 'southern permitted extraction zone'; it is an area of unworked clay and soils which is contiguous with the pit and is included within the LLRS Consent.

- 2.3.2 Whilst the LLRS is proceeding independently of the Project, certain works are necessary before construction of the Project takes place. These works essentially comprise the creation of a level site or *platform* for the Power Generation Plant, the creation of drainage ditches to the south and east of the Power Generation Plant site and the creation of a secondary access along the batter of the exhausted southern permitted extraction zone to facilitate movements between the substation (located in the pit) and the SECs (located outside of the pit and under the existing electricity line). The environmental baseline described in the section 3.1 of the certified ES assumed that these stages of the LLRS would have been completed by the time the Project commenced construction. This was necessary to ensure the Project was assessed against a realistic and robust environmental baseline.
- 2.3.3 During the examination of the Order, the Examining Authority requested a note on the status of the LLRS and a description of the works assumed to comprise the environmental baseline. This evidence was submitted into the examination at Deadline 2 (dated April 2018, ref: REP2-011, entitled Additional Submission on The Current Status of Low Level Restoration Scheme Baseline Works for Millbrook Power). The submission included two plans, one showing the current state of completed works and one showing the anticipated state of the LLRS at the point of the start of construction for the Project. This second plan was sought to be certified through the DCO examination process, and a requirement was included in the Order the no part of the authorised development for the Project may commence until the LLRS baseline works (in accordance with this plan) are completed to the satisfaction of Central Bedfordshire Council (Requirement 20).
- 2.3.4 The certified plan shows that for the phase 2 works, the vast majority of the material in the 'southern permitted extraction zone' would need to be removed to create the platform for the Millbrook Project, drainage ditches and access track.
- 2.3.5 Since the end of the examination of the Order, the Applicant has been undertaking a construction review into the Project and has identified that the platform for the Power Generation Plant and the creation of drainage ditches to the south and east can be completed without the need to extract all material in the southern permitted extraction zone. As described above, National Grid requested the relocation of the substation from within Rookery South Pit to an area adjacent to the electricity transmission line meaning that the access between the substation and the sealing end compounds no longer needs to form part of the works for the Project.
- 2.3.6 As such, not all of the material from the southern extraction area needs to be excavated prior to construction of the Project.
- 2.3.7 For completeness, it should be noted that whilst it is not now envisaged that the whole of the southern permitted extraction zone will be utilised prior to the start of construction of the Project, the works still form part of the LLRS consent and, it is understood, will be implemented by the landowner pursuant to that consent.

2.4 Plans

- 2.4.1 The above changes are shown on the following plans:
- Millbrook Proposed Layout – 66 – 10865-MPL-C-002 Rev 2;
 - Land Plans – J0008128-100 and J0008128-102;

- Works Plans – J0008128-200-J, J0008128-201, J0008128-202, J0008128-203;
- Rights of Way, Streets and Access Plans: J0008128-300, J0008128-302; and
- Existing Site Layout Plan: J0008128.

3 Environmental Screening

3.1 Introduction

3.1.1 This chapter sets out the screening exercise undertaken to assess whether the non-material changes described in chapter 2 have the potential to give rise to new or different likely significant effects compared to those reported in the certified ES.

3.2 Methodology

3.2.1 All environmental topics considered in the certified ES have been screened to determine whether there would be any new or different likely significant environmental effects arising from the proposed non-material changes. For ease of reference, these topics are:

- Air Quality;
- Noise and Vibration;
- Ecology;
- Water Quality and Resources;
- Ground Conditions;
- Landscape and Visual Impacts;
- Traffic and Transport;
- Cultural Heritage;
- Socio-economics; and
- Other Issues Considered (Waste and Human Health).

3.2.2 Table 3.1 below sets out each topic in turn and describes any aspects of the proposed non-material changes which could give rise to new or different likely significant effects, against a summary of the original assessment presented in the certified ES.

3.2.3 In considering the potential for new or different likely significant effects, the changes have been assessed in the context of the magnitude of the proposed change and the key differences between the consented Project and proposed changes and the conclusions of the certified ES.

3.2.4 New or different likely significant effects have been considered for construction and operation against both of the proposed non-material changes (GIS substation and amendments to LLRS baseline works). Potential effects during decommissioning have not been described separately as they were considered to be no greater than construction, as per the assessment methodology reported in the certified ES.

3.2.5 Where it is considered that there is no potential for new or different likely significant effects to arise this is described in Table 3.1 below. Where further assessment is required to determine new or different likely significant effects these assessments are presented in chapters 4-6 of this report.

3.2.6 A search of the National Infrastructure Planning register of applications and a search of Central Bedfordshire Council's planning applications register has been undertaken. No new

- applications have been registered for Nationally Significant Infrastructure Projects or major planning applications that would be required to be considered in the assessment of cumulative effects.
- 3.2.7 However, where relevant, potential new or different likely significant cumulative effects arising from the changes to LLRS baseline works have been considered. These effects could arise as a result of ongoing LLRS works being undertaken at the same time as construction or operation of the Project.

Table 3.1 – Screening and Summary of Potential Likely Significant Effects

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
Air quality			
New GIS substation	No	<p><u>Construction</u></p> <p>The GIS substation would be of a smaller scale to the combined footprint of the consented SECs and AIS substation described in the certified ES and the Order and similar construction methods and plant would be used in the construction of both options. As such, no additional emissions of dust are predicted during the construction of the GIS substation compared to the consented SECs or AIS substation.</p> <p>All construction works for the GIS substation would take place within the authorised Order limits and therefore distance from construction works to nearest sensitive receptors are as reported in chapter 6 of the certified ES.</p> <p>Additionally, there would potentially be lower generation of dust from the Project Site (as defined in the certified ES) as a whole as there would no longer be a requirement to construct the AIS substation, new transmission tower and electrical connection diversion. Therefore the effects of dust from construction of the GIS substation can be assumed to be as assessed and presented in the chapter 6 of certified ES (no likely significant effects).</p> <p>Construction of the GIS substation would not give rise to any new or different likely significant effects compared to the certified ES.</p> <p><u>Operation</u></p> <p>As per the Millbrook Power Project Scoping Opinion (2014), operational impacts on air quality from the Electrical Connection were scoped out of the EIA. The proposed development of a GIS substation will not alter this position as none of the new infrastructure proposed would give rise</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		to emissions to the air as part of their operation, as per the authorised development. Given the above, the findings presented in the ES remain the same and no new or different likely significant effects are anticipated on air quality as a result of operation of the GIS substation compared to the certified ES.	
Change to LLRS baseline works	No	<p><u>Construction & Operation - Project in isolation</u></p> <p>If the southern extraction area is not totally excavated before construction of the Project, this will have no bearing on the conclusions of the ES (no likely significant effects) in relation to air quality.</p> <p><u>Cumulative</u></p> <p>There is the potential for ongoing LLRS works (e.g. extraction of material from the southern extraction area) to occur simultaneously with construction or operation of the Project which could potentially result in additional generation of dust. However, applying the embedded mitigation described in chapter 6 of the certified ES, there are expected to be no effects arising from the construction of the Project from deposition of dust.</p> <p>Any LLRS works would also need to abide by a protocol to limit dust deposition such that there would be no likely significant effects.</p> <p>The certified ES does not identify any potential for dust emissions as a result of the operation of the Project.</p> <p>Based on professional judgement and experience there are not anticipated to be any new or different likely significant effects from construction related dust deposition cumulatively on sensitive receptors.</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
Noise and vibration			
New GIS substation	No	<p><u>Construction</u></p> <p>The GIS substation would be of a smaller scale to the combined footprint of the consented SECs and AIS substation described in the certified ES and the Order and similar construction methods and plant would be used in the construction of both options.</p> <p>All construction works for the GIS substation would take place within the authorised order limits and therefore distance from construction works to nearest sensitive receptors are as reported in chapter 7 of the certified ES.</p> <p>Therefore, the construction effects for the GIS substation would be as reported in chapter 7 of the certified ES for the Electrical Connection (no likely significant effects).</p> <p><u>Operation</u></p> <p>As stated in Table 7.9 of the certified ES, operational noise from the Electrical Connection was scoped out of the EIA based on the assumption that there is no discernible operational noise from the AIS substation outside of the compound. The conductors and circuit breakers of the GIS substation would be encased, rather than ‘open’ in the AIS and would therefore benefit from more acoustic insulation. Therefore, during normal operation there would be no discernible operational noise outside of the GIS substation compound and therefore the conclusions of the ES to scope this element out of the assessment holds true.</p> <p>Given the above, the findings presented in the ES remain the same and no new or different likely significant effects would occur compared to those reported in the certified ES.</p>	No
Change to LLRS baseline works	No	<p><u>Construction (Project in isolation)</u></p> <p>The future topography of the completed LLRS was not factored in to the assessment of construction noise effects from the Project as it did not have a significant bearing on</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>construction noise effects at nearest sensitive receptors. Therefore, if the southern extraction area is not totally excavated before construction of the Project, this will have no bearing on the findings reported in the certified ES (no likely significant effects) in relation to construction noise.</p> <p><u>Operation (Project in isolation)</u></p> <p>The future topography of the completed LLRS was factored into noise models used in the prediction of operational noise effects reported in the certified ES. This topography assumed that the entire southern extraction area was excavated. However, leaving the materials in the extraction area partly in situ would not influence noise levels at the nearest sensitive receptor. Although noise propagation characteristics may be altered through changing the modelled topography, this would not cause additional reflection of noise given the soft, absorbing nature of the clay face of the extraction area. Additionally, the proposed change in topography of the extraction area is not directly related to any of the nearest sensitive receptors, which would experience no discernible changes in noise characteristics as a result of altering the topography.</p> <p>There would be no change in effect at receptors and therefore no new or different likely significant effects.</p> <p><u>Cumulative</u></p> <p>There is the potential for increased noise levels at receptors as a result of construction of the Project and ongoing LLRS works occurring simultaneously.</p> <p>However, baseline noise levels reported in the certified ES (and therefore forming the EIA baseline) were measured whilst construction of the LLRS was taking place. Noise from the LLRS construction activities therefore already form part of the EIA baseline, against which construction and noise from the Project has been assessed. No likely significant effects from construction noise from the Project are reported in the ES.</p> <p>There may be a slight increase in noise levels over construction activities for the Project in</p>	

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		isolation if the two were to happen at the same time. However, these are likely to be associated with a small number of additional excavators / earth moving plant on site which would likely result in negligible overall increases in construction noise.	
Ecology			
New GIS substation	Yes	<p><u>Construction</u></p> <p>As stated in chapter 8 of the certified ES, part of the authorised development, including the consented AIS substation is within Rookery Clay Pit Country Wildlife Site (CWS). By removing the need for the AIS substation, there would be less direct land take from the CWS. The assessment presented in chapter 8 of the certified ES concludes that habitats within Rookery South Pit are of limited ecological value. Therefore, although there would be a slight improvement, this change would not result in new or different likely significant beneficial effects.</p> <p>The GIS substation would impact an area of undesignated semi-mature broadleaved woodland plantation, located towards the western boundary of the site, south of South Pilling Farm. Appendix 8.1 (Phase 1 habitat survey) states that there is evidence of recent management including tree thinning that had created a glade (semi-improved neutral grassland) with adjoining scattered scrub. The baseline presented in the ES also assumes that some of this vegetation would need to be cleared due to the construction of the electrical connection. As set out in the ES, Para 8.9.13 “the area of trees which require clearance has been reduced to 0.17 ha (85 m x 20 m).”</p> <p>Approximately 0.23ha additional loss of woodland would be required as a result of the GIS substation. However, the total loss of woodland will be mitigated by the planting of approximately 8,790m² of new woodland and 3,590m² of scrub and grassland matrix around the</p>	Yes

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>Project, as shown in Appendix 2 of the Outline Landscape and Ecology Mitigation and Management Strategy (LEMMS) Rev 2 (Appendix D). The final LEMMS which will be secured pursuant to Requirement 3 of the DCO and will be based on the Outline LEMMS and will take into consideration the final layout and design including the GIS. Furthermore, it should be noted that a Section 106 Agreement has been agreed with, amongst others, the local planning authority and the Forest of Marston Vale Trust for the Applicant to provide a financial contribution towards its reforestation programme to further mitigate any loss of woodland.</p> <p>At the time the authorised development begins construction in 2020, it is assumed that great crested newts and reptiles will be absent from the base of the Rookery South Pit and surrounding area following completion of the LLRS translocation and implementation of measures to ensure that the base of the pit remains free of ecological constraints.</p> <p>In addition, a series of appropriate management measures will be implemented during the construction of the proposed development, to avoid a breach of legislation associated with notable and protected species, including nesting birds, reptiles, great crested newts, and foraging and commuting bats.</p> <p>These assurances would remain valid during construction of the GIS substation.</p> <p>However, given the time elapsed between the submitted application and this NMC Application, as well as the fact that the GIS substation would require additional tree removal and is micro-sited in a slightly different location to the SECs, an additional Phase 1 top-up survey and updated assessment has been undertaken and is presented in chapter 4 of this report to further assess the potential for new or different likely significant effects.</p> <p><u>Operation</u></p> <p>As stated in the chapter 8 of the certified ES, ecological effects during the operational phase of the Project are limited to the potential impacts from emissions of NOx, nitrogen and acid</p>	

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>deposition on sensitive habitats.</p> <p>As outlined in the air quality section of this table, the proposed GIS substation would not give rise to any emissions to air during operation and this aspect has been scoped out of assessment.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	
Change to LLRS baseline works	No	<p><u>Construction and Operation (Project in isolation and cumulatively)</u></p> <p>The southern extraction area was found to be of limited ecological value, as reported in Chapter 8 of the certified ES. Additionally, the existing reptile fencing currently at the Project Site would be left in-situ to prevent species re-colonising the base of the pit from the southern extraction area during construction and operation of the Project. The Applicant understands that this will be achieved through an existing great crested newt licence held by the existing landowner which has been extended to 2026 to ensure that the base of Rookery South pit is kept free of newts.</p> <p>Whether the extraction area is totally excavated prior to construction of the Project, or at a later date, has no consequence on the ecological assessment findings reported in the certified ES as the area is of limited ecological value and the original assessment assumed that the whole area would be removed. Therefore no new or different likely significant effects would arise.</p>	No
Water Quality and Resources			
New GIS substation	Yes	<p><u>Construction</u></p> <p>Currently, the Mill Brook passes immediately to the west of the Electrical Connection and a tributary of the Mill Brook passes directly beneath the Electrical Connection. The north east</p>	Yes

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>corner of the proposed GIS substation would be located over a small stretch of the Mill Brook. As the consented SECs do not lie directly over the Mill Brook, there is the potential for new or different likely significant effects to arise as a result of construction of the GIS substation. As such, an updated assessment of potential likely significant effects on water quality and resources has been undertaken and is presented in Chapter 5 of this Environmental Report.</p> <p><u>Operation</u></p> <p>As described in chapter 9 of the certified ES, the SECs will give rise to an increase in the impermeable ground area within the catchment of the Mill Brook tributary, thereby increasing surface water run-off to the watercourse. However, the surface water drainage would be managed by soakaways on the perimeter of the SECs. The proposed GIS (0.6 ha) is larger than the SECs (0.32 ha), however, there is sufficient space to accommodate appropriate surface water run off/soakaways for the new substation within the area being sought for Work 6a. It is also noted that Requirement 7 of the Order states:</p> <p><i>7.—(1) Each of numbered works 1, 2, 3A, 5 and 6 must not commence until, for that numbered work, written details of the surface and foul water drainage strategy, which shall incorporate appropriate elements of the low level restoration scheme drainage strategy where applicable, for the construction and operational phases of the authorised development have been submitted to and approved by Central Bedfordshire Council.</i></p> <p>In discharging this requirement, the Applicant will have due regard to the new layout of the Project as amended by this NMC Application.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated during operation.</p>	

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
Change to LLRS baseline works	No	<p><u>Construction and Operation</u></p> <p>Specific elements of the LLRS forming the baseline of the water quality and resources assessment presented in the certified ES are:</p> <ul style="list-style-type: none"> ■ excavation to form an attenuation pond within the north west area of Rookery South Pit, sized to provide sufficient storage to accommodate the 1 in 100 year rainfall event (plus climate change) and cater for a 1 in 10 year (plus climate change) event following within one week of the 1 in 100 year (plus climate change) rainfall event; ■ re-profiling of the base of the Rookery South Pit such that surface water run-off sheds towards the attenuation pond; ■ in addition to re-profiling the base of the Rookery South Pit, an interceptor channel will have been constructed to intercept surface water run-off and convey it to the attenuation pond; ■ surface water run-off that collects within the Rookery South Pit attenuation pond will be pumped to Rookery North Pit as a strategic attenuation facility at a rate of 100 l/s and to Mill Brook at a rate of 23 l/s in accordance with an existing Consent to Discharge (surface water flows). Water will be discharged from Rookery North Pit back to the attenuation pond in Rookery South Pit at a rate of no more than 23 l/s¹; ■ The normal water level within Rookery North Pit will have been drawn down from 36 m to 35 m AOD to allow Rookery North Pit to be used as a strategic attenuation facility. 	No

¹ This consent is dated May 1998 and was awarded to City and St James Property (now O&H Properties Ltd). O&H retains responsibility for the maintenance of the surface water drainage infrastructure implemented as part of the LLRS.

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>The majority of these works are now complete and were undertaken as part of Phase 1 of the LLRS. Even if all of the material is not excavated from the southern extraction area ahead of construction of the Project, this would not prevent any of the measures above being implemented such that an adequate surface water management strategy could be put in place. Therefore, there would be no new or different likely significant effects and the findings presented in the certified ES remain the same.</p> <p>Cumulative</p> <p>No effects on water quality and resources were identified as a result of the Project. Any works undertaken as part of the LLRS would need to have due regard to water quality and resources and ensure no detrimental effects. Therefore, it is considered that there would not be any significant cumulative effects as a result of ongoing LLRS works and the Project.</p>	
Ground Conditions			
New GIS substation	No	<p><u>Construction</u></p> <p>The GIS substation would be of a smaller scale to the combined footprint of the consented SECs and AIS substation described in the certified ES and the Order and similar construction methods and plant would be used in the construction of both options. It would be within the Order limits and therefore in an area with the same ground conditions as assessed and presented in the certified ES. The proposed changes would not introduce new sources of contamination. Therefore, the impacts remain as assessed and presented in the certified ES (not significant).</p> <p><u>Operation</u></p> <p>In order to determine appropriate design solutions for foundations and any associated infrastructure design, additional structure specific Phase 2 ground investigations will be</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>undertaken, which will further inform the appropriate risk assessments and the need for any site specific mitigation measures, which is sufficiently addressed with implementation of Requirement 8 of the DCO.</p> <p>This would still be the case with the development of the GIS substation and in discharging Requirement 8, the Applicant would have due regard for the revised Project layout.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	
Change to LLRS Baseline Works	No	<p><u>Construction and Operation</u></p> <p>No new or different likely significant effects would arise as a result of leaving some of the southern extraction area in situ. Slope stability and integrity would be ensured by the re-grading of southern and western boundaries of the Rookery Pit to an acceptable standard, even if the permitted extraction area remains partly in-situ. Therefore the conclusions of the ES (no likely significant effects) remain valid.</p>	No
Landscape and Visual			
New GIS substation	Yes	<p><u>Construction</u></p> <p>Visual impacts from construction related plant, such as cranes, are likely during the construction of the proposed GIS substation. However, this will be temporary in nature and of a similar scale to construction plant which would have been required for the SECs and AIS substation. Additionally, the extent of visual change in this view composition during construction would be less, as there is no longer a requirement for the AIS substation, erection of the temporary and permanent transmission towers, dismantling the existing tower and diversion of the overhead line, meaning there would be less visual change taking place and that visual change would occur across less of the view composition.</p>	Yes

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>As stated in the ES Para. 11.7.35, there is likely to be clearance of approximately 2,075m² of existing woodland and coppicing of approximately 1,310m² of existing woodland as a result of the electrical connection construction.</p> <p><u>Operation</u></p> <p>The AIS substation would no longer be required within Rookery South Pit. The GIS substation will not require a new or temporary relocated transmission tower to be constructed as it would connect to the existing transmission tower (ZA378). The proposed GIS substation will be located in the same area as the SECs, on the land set aside for Works No. 6, and, although covering a larger area, would be within the maximum height parameters of the SECs.</p> <p>Chapter 11 of the certified ES states that Viewpoint 14, on Footpath 7 to the south of the Project Site would experience significant adverse impacts due to the new transmission tower and SECs. It is likely that this effect would be reduced slightly, due to fewer built and infrastructure elements in the view resulting in a 'cleaner' appearance of the Project, although this would not be to the extent that there would be any change to the significance of predicted effects.</p> <p>As the GIS substation has a different appearance and is in a slightly different location to the SECs, and there is no longer a need for the AIS substation or new transmission tower, an updated assessment has been undertaken of the potential new or different likely significant landscape and visual effects arising from the construction and operation of the newly proposed GIS substation.</p> <p>This is supported by new photomontages of VP14 including the GIS substation in Appendix C of this report.</p>	

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
Change to LLRS Baseline Works	No	<p><u>Construction and Operation</u></p> <p>The baseline photographs used for photomontages presented in the DCO Application show the LLRS southern extraction area in-situ. Therefore, there would be no change to the baseline of the visual assessment and no new or different likely significant effects compared to those reported in the certified ES.</p> <p><u>Cumulative</u></p> <p>If there are ongoing LLRS works taking place at the same time as construction or operation of the Project, there is potential for additional cumulative effects to arise, primarily as a result of additional earth moving plant being present within Rookery South Pit. However, this would be of a temporary nature and the plant would be relatively small scale (e.g. excavators as opposed to large cranes). The construction plant would add a small number of similar vehicles into the Rookery South Pit. Therefore no new or different likely significant effects are anticipated compared to those reported in the certified ES.</p>	No
Traffic and Transport			
New GIS substation	No	<p><u>Construction</u></p> <p>Construction routes for the Electrical Connection were described in chapter 12 of the certified ES which stated that there would be an equal split of traffic accessing the Electrical Connection from the north (via Green Lane and Rookery South Pit) and the south (via Station Lane). 34 average daily construction movements were assumed to access the Electrical Connection from Station Lane (Table 12.22 in the certified ES). The certified ES concludes that this represents a minimal increase in baseline traffic flows on the local network and well below the level at which likely significant effects could occur.</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>As there is no longer the requirement for the AIS substation in Rookery South Pit, there is no longer a requirement to access the Electrical Connection from the north via Green Lane. Although there would be an increase in the number of vehicle movements from the south via Station Lane to build out the new GIS substation compared to the SECs (50 vs 34), this would still represent an insignificant increase in baseline traffic flows and overall construction traffic for the Electrical Connection build out would decrease compared to the consented scheme. Therefore, there are not anticipated to be any new or different likely significant effects and the conclusions of the ES remain valid (negligible effects). Additionally, the final construction traffic routes will be agreed with the Local Planning Authority through the final Construction Traffic Management Plan (DCO Requirement 11). In discharging this requirement, the Applicant will have due regard to the new Project layout.</p> <p>As there is no longer the requirement for a temporary diversion of the existing overhead line, there would no longer be a requirement to temporarily close Footpath 14 to the south of the Project Site. Any effects would therefore be reduced from negligible to no effect. This change is not significant.</p> <p><u>Operation</u></p> <p>Chapter 12 of the certified ES states that even during the higher traffic generating periods, all operational phase movements are so low that they are well below the level at which changes can be perceived, and that they are therefore not significant. On this basis, this element was scoped out of the EIA. This has been confirmed by National Grid, who anticipate that there would only be a requirement for annual maintenance visits to the GIS substation. The proposed changes would therefore not result in further operational traffic.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	
Changes to LLRS Baseline Works	No	<p><u>Construction and Operation</u></p> <p>As there is no longer the requirement for the AIS substation in Rookery South Pit, there is no</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>longer a requirement for the access track between the Rookery South Pit and the SECs. Therefore, even though this access track is being removed as part of the proposed amendments to the LLRS baseline works, there would be no change to the impacts or effects reported in the certified ES in terms of traffic movements.</p> <p><u>Cumulative</u></p> <p>There is the potential for ongoing LLRS works to occur simultaneously with construction of the Project, which would result in a small number of additional earth moving vehicles with Rookery South Pit. However, these vehicles would remain within Rookery South Pit for the duration of the works and would not be transporting material on and off-site via the local road network. Therefore, there would be no increase in local road traffic and no new or different likely significant effects compared to those reported in the certified ES.</p>	
Historic Environment			
New GIS substation	No	<p><u>Construction</u></p> <p>Chapter 13 of the certified ES concludes that there was the potential for the Electrical Connection to impact on as yet unrecorded, non-designated assets of low sensitivity and of local significance. However, Requirement 9 (Archaeology) of the Order requires a written scheme of archaeological investigation (WSI) and excavation fieldwork to be undertaken for Works No. 6, 3A, 4A and 7(a) prior to construction.</p> <p>As per the conclusions in chapter 13 of the certified ES, providing Requirement 9 is discharged appropriately, no likely significant residual effects on heritage assets are anticipated as a result of construction of the Electrical Connection. As the GIS substation is within the same authorised Order Limits and would also be subject to Requirement 9, no new or different likely significant effects are anticipated on heritage assets.</p> <p>The WSI will take account of the layout and micro-siting of the GIS substation and design the</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>intrusive works accordingly.</p> <p><u>Operation</u></p> <p>Two Grade II Listed Buildings (Millbrook Station and South Pilling Farm) are located within the vicinity of the proposed GIS. It is unlikely that the setting to these buildings will be affected due to the proposed changes, as the GIS substation would be within the maximum height parameters of the SECs and is sited within the order limits already identified for work no. 6. In addition, the new transmission tower is no longer required and the proposed GIS will be located in an area amongst woodland, further limiting any potential impacts on the setting of the listed buildings.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	
Change to LLRS Baseline Works	No	<p>If the southern extraction area is not totally extracted before construction of the Project, this will have no bearing on the conclusions of the certified ES (no likely significant effects) in relation to archaeology and cultural heritage. This is because the extraction area has limited archaeological potential and the original assessment assumed that, if necessary it would be subject to investigation prior to removal. This is still the case.</p> <p>The Written Scheme of Investigation and associated intrusive works which are secured as Requirement 9 (Archaeology) of the Order may still include areas within the southern extraction area, as required.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
Socio-economics			
GIS substation	No	<p>Development of a GIS substation would not significantly alter the construction or operational workforce, profile, spend and associated socio-economic effects as they would all be very similar to the consented development of SECs</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	No
Change to LLRS Baseline Works	No	<p>If the southern extraction area is not totally extracted before construction of the Project, this will have no bearing on the findings presented in the certified ES (no likely significant effects) in relation to socio-economics. This is because the assessment presented in the certified ES did not consider the LLRS work as it assumed that this would be done independently of the Project and before commencement of construction.</p>	No
Other issues considered			
New GIS substation / Change to LLRS Baseline Works	No	<p><u>Waste</u></p> <p>There is likely to be the same or less waste during the construction phase of the proposed development, as the GIS will be a smaller facility to the AIS and there is now no requirement for the SECs or transmission tower. Operational waste would not be altered.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p> <p>If the southern extraction area is not totally extracted before construction of the Project, this will</p>	No

Topic/Change description	Potential for new or different likely significant environmental effects?	Screening appraisal	Updated assessment required?
		<p>have no bearing on the findings presented in the certified ES (no likely significant effects) in relation to waste. No material from the southern extraction are would be treated as waste or transported off-site.</p>	
	<p>No</p>	<p><u>Human Health</u></p> <p>Electromagnetic Fields</p> <p>Electric fields diminish within the vicinity of earthed objects and structures. The proposed GIS substation would be surrounded by an earthed metal fence and consequently the electric field outside of this fence due to the GIS equipment it encloses would comply with International Commission on Non-Ionizing Radiation Protection (ICNIRP) exposure guidelines for the public. Therefore, the electric field due to the proposed GIS will be compliant with the public exposure limits.</p> <p>For the reasons set out above, any construction related impacts, such as dust, noise, pollution and contamination that pose a threat to human health are not anticipated to be more than those reported in the certified ES and will be managed through the implementation of the Construction Environmental Management Plan (CEMP).</p> <p>AIS vs GIS</p> <p>Shorts, arc flashes and electrical failure are rare in GIS because all the interior elements are insulated, with only the cable compartment being accessible. As the parts are fully insulated, no cables or linkage can come in contact with the live parts. As the substation is sealed it can only be accessed by a trained engineer. There are no additional health and safety concerns with a GIS substation compared to an AIS.</p> <p>Given the above, the findings presented in the certified ES remain the same and no new or different likely significant effects are anticipated.</p>	<p>No</p>

4 Updated Ecological Assessment

4.1 Introduction

- 4.1.1 This Chapter of the Environmental Report presents an updated ecological assessment which has been undertaken to assess whether there will be any new or different likely significant ecological effects in relation to the proposed development of the GIS substation and the changes to the LLRS. It has been undertaken with reference to the Ecological Impact Assessment (EclA) reported in Chapter 9 of the certified ES.
- 4.1.2 This updated assessment is also informed by an ecological walkover survey undertaken of the area proposed for the GIS substation in February 2019. It sets out the measures that will be implemented to avoid and manage adverse effects on ecological features in relation to relevant legislation and policy.

4.2 Methodology

- 4.2.1 An extended Phase 1 habitat survey was undertaken of land proposed for the GIS substation (within Work package No. 6a) on 28th February 2019, in accordance with the Phase 1 Habitat survey methodology (JNCC, 2010). The aim of the survey was to identify any key changes in the main habitats present and their nature conservation value since previous surveys were undertaken in 2014 and 2017 (reported in the certified ES), and to update the assessment of their potential to support protected and/ or notable species. The main habitat types were identified and mapped, with reference to the previous survey results, and their descriptions were recorded as Target Notes. The extent of the 2019 Phase 1 habitat survey and resulting Target Notes are shown on Figure 1.0 in Appendix B.

4.3 Summary of original assessment

Ecological baseline

- 4.3.1 The EclA in the certified ES was based on a suite of ecological surveys undertaken by a third party in 2014, and an updated extended Phase 1 Habitat survey undertaken by PBA in April 2017.
- 4.3.2 The EclA (PBA, October 2017) recorded the following habitats in Works No. 6a: broadleaved plantation woodland; semi-improved neutral grassland; a wet ditch (Mill Brook); scattered scrub; ephemeral/ short perennial vegetation; and improved grassland. These habitats were considered to be common and widespread and of 'less than local' importance for nature conservation.
- 4.3.3 The Broadleaved Plantation Woodland was semi-mature, dominated by poplar species *Populus* sp. and ash *Fraxinus excelsior*. The shrub layer was described as being relatively dense with frequent hawthorn *Crataegus monogyna*, and the ground flora was sparse. It was considered unlikely that the woodland would be classified as a Habitat of Principal Importance (HPI) for nature conservation. Recent tree thinning had created a glade within the woodland which supported semi-improved neutral grassland, ruderal vegetation, and scrub. Whilst habitats within the glade had some suitability for common reptile species, no evidence of reptiles was found during targeted surveys undertaken in 2014.
- 4.3.4 The Broadleaved Plantation Woodland comprised suitable foraging and commuting habitat for bats. Desk study information and surveys undertaken in 2014 confirmed that three buildings within South Pilling Farm (located c. 240 m to the north of the proposed GIS, outside of the consented DCO boundary) supported a number of small non-breeding summer roosts of common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus Pygmaeus*, and

unidentified pipistrelle *Pipistrellus* sp. bats, brown long-eared *Plecotus auritus* bats, and possibly a *Myotis* sp. bat. The 2014 bat activity surveys demonstrated that the majority of bat activity surrounding South Pilling Farm was focussed on the access road to the north; however, common pipistrelle bats were recorded within and along the eastern edge of the Broadleaved Plantation Woodland in Works No. 6a.

- 4.3.5 A U-shaped flowing ditch (identified as the Mill Brook) was located at the eastern edge of the Broadleaved Plantation Woodland in Works No. 6a (c. 5m wide, with a channel depth of c. 2m and a water depth of c. 5cm). The ditch was heavily shaded by shrubs dominated by hawthorn, and no emergent macrophytes were recorded. The ditch was considered to be of poor suitability for water vole *Arvicola amphibious* due to a lack of forage and the shallow depth of water; and no evidence of this species was found during a targeted survey of the Mill Brook in 2014. Immediately east of the Mill Brook was a strip of semi-improved neutral grassland with scattered scrub where grass snake *Natrix natrix* and common lizard *Zootoca vivipara* were recorded during targeted surveys undertaken in 2014.
- 4.3.6 Surveys undertaken in 2014 confirmed the presence of a small population of great crested newts (GCN) (identified as Population A) in a ditch located c. 140m to the north of the proposed GIS (beyond the consented DCO boundary) in land surrounding South Pilling Farm. This ditch was identified as Pond C. Woodland, semi-improved grassland, ruderal and scrub habitats within 250m of Pond C (including those that occurred in Works No. 6a) were considered to provide suitable terrestrial habitat available for use by this population of GCN.

Impact Assessment

- 4.3.7 The certified ES assumed that a 0.17 ha area of trees (85m x 20m) within the Broadleaved Plantation Woodland in Works No. 6a would be temporarily lost due to the Electrical Connection, and that the woodland edge (which had been found to be used by commuting and foraging bats) would be retained. The Outline Landscape and Ecological Mitigation and Management Strategy (Revision 1) (Appendix 11.2 of the ES (PINS Reference REP2-004)) also assumed that the area of woodland temporarily lost due to the installation of the SECs in Works No. 6a would be replanted with appropriate native species on completion of the Electrical Connection. No direct impacts on the Mill Brook were reported.
- 4.3.8 The ecological features (including habitats, bat populations, reptile populations and great crested newt metapopulations) within the area required for the Electrical Connection were not considered to be of sufficient ecological value to trigger the need for an impact assessment, as they were common and widespread. No impact assessment was therefore undertaken, and no likely significant ecological effects were reported.
- 4.3.9 Ecological measures were nevertheless incorporated into the detailed design for the Project (see Outline Landscape and Ecological Mitigation and Management Strategy (Revision 1) (PINS Reference REP2-004)) or implemented during the construction phase (through the Outline CEMP (PINS Reference REP5-003)) to avoid, reduce or manage potential adverse effects on habitats and protected species in relation to relevant policy and legislative requirements. This included the following measures which are relevant to the ecological features in Works No. 6a:
- sensitive lighting design to avoid/ reduce light spill on habitats used by foraging and commuting bats;
 - new structurally diverse and species-rich woodland planting;
 - ecological enhancement of surface water management ditches and pond creation;
 - application of a precautionary mitigation method statement or derogation licence for GCN during construction (the likelihood of encountering GCN was considered to be low);

- sensitive timing of vegetation clearance and pre-works checks; and
- displacement of reptiles from works areas through sensitive habitat manipulation.

4.4 Updated Assessment

4.4.1 No notable changes in the condition or status of ecological features within Works No. 6a were identified during the 2019 walkover survey, compared with the 2014 and 2017 survey results. The results of the 2019 walkover survey are presented in Figure 1.0 in Appendix B.

4.4.2 The habitats recorded in the certified ES remained present and were still considered to be suitable for foraging and commuting bats, GCN, reptiles, and breeding birds (and low suitability for water vole). The value of the ecological features present was unchanged (i.e. 'less than local' importance for nature conservation) and this does not therefore trigger the need for an updated impact assessment.

4.4.3 However, a consideration of the following potential new effects on ecological features as a result of the proposed GIS substation has been undertaken:

- permanent loss of a larger area (0.4 ha) of trees and grassland/ ruderal vegetation within the Broadleaved Plantation Woodland compared with that in the consented DCO (0.17 ha), which is suitable for foraging and commuting bats, and comprises part of the terrestrial habitat resource for GCN Population A;
- permanent loss of a section of woodland 'edge' habitat along the eastern edge of the Broadleaved Plantation Woodland used by foraging and commuting bats; and
- realignment of the Mill Brook, which has low suitability for water vole.

4.4.4 These are considered below in turn.

Broadleaved Plantation Woodland

4.4.5 As was the case in the certified ES and the Outline Landscape and Ecological Mitigation and Management Strategy, any existing woodland or planting lost during construction of the Electrical Connection (including the proposed GIS substation) would be replanted with appropriate native species. There is also proposed woodland belt planting to link existing plantations within the Project Site. Together, this will compensate for the area of permanent tree loss associated with the proposed GIS and will ensure no overall net loss of woodland habitat in accordance with relevant planning policy.

Mill Brook

4.4.6 The proposed GIS substation would be sited directly over a section of the Mill Brook at the eastern edge of the Broadleaved Plantation Woodland. A localised diversion of a c. 50 m section of this watercourse would therefore be necessary (see Chapter 5 of this report). The detailed design and construction works for the diversion works would be undertaken by National Grid. It will be informed by an ecological assessment of the Mill Brook to ensure that the diverted section (which will comprise an open, naturalised channel) will incorporate features of biodiversity value and opportunities for ecological enhancement. It is expected that the diversion works will follow standard construction method statements approved by the Lead Local Flood Authority (LLFA) which will include appropriate measures for sensitively drawing down water and undertaking fish rescue as necessary.

4.4.7 Measures to avoid and manage the potential for adverse effects on water quality during construction and decommissioning will be set out in the construction method statements which

will be submitted as part of the consent for works within the watercourse corridor (see Chapter 5 of this report). Chapter 5 of this report states that the potential for the contamination of surface water resulting from the flushing of silts and hydrocarbons from areas of hardstanding is unchanged from the certified ES, and that these potential effects will be controlled through the implementation of embedded mitigation measures, as set out in the certified ES. No adverse ecological effects due to changes in water quality in Mill Brook are therefore expected.

Bats

- 4.4.8 The eastern edge of the Broadleaved Plantation Woodland (including the Mill Brook) was found to function as a foraging/ commuting feature for common pipistrelle bats (PBA, 2017). This habitat feature will be fragmented by the proposed GIS substation, and measures are therefore required to ensure that the Broadleaved Plantation Woodland would continue to provide suitable bat foraging and commuting habitat. Considering the typical behaviour of common pipistrelle bats, this is likely to be achieved through the new tree planting around the new GIS substation and along the diverted section of Mill Brook.
- 4.4.9 The reduction in bat foraging resources as a result of tree and shrub loss will be compensated through replacement tree planting and the proposed woodland belt planting detailed in the Landscape and Ecology Mitigation and Management Strategy (Rev 2). The detailed design of the localised diversion of Mill Brook is not yet determined but will be informed by ecological considerations including bats.
- 4.4.10 Whilst new lighting will be installed in the Broadleaved Plantation Woodland around the proposed GIS building, this was also the case for the SECs which formed part of the Order as originally consented. Sensitive lighting design (e.g. measures set out in the outline CEMP (PINS Reference REP2-003) and Outline Lighting Strategy (PINS Reference APP-045) will avoid/ minimise illumination of the surrounding woodland and adjacent Mill Brook. These habitats will therefore remain suitable for foraging and commuting bats.
- 4.4.11 No adverse effects on foraging and commuting bats are therefore expected as a result of the development of the GIS substation.

Great crested newts (GCN)

- 4.4.12 Development of the proposed GIS substation would result in the permanent loss of a greater area of the terrestrial habitat resource available for GCN populations compared with the consented SECs (approximately 0.4ha compared to 0.17ha). The certified ES considered the likelihood of encountering GCN during construction of the Electrical Connection to be low. This was based on the small scale of habitat loss and the presence of more suitable terrestrial habitat for GCN within closer proximity to Pond C. Using Natural England's Rapid Risk Assessment Tool, the likelihood of an offence being committed was 'highly unlikely'.
- 4.4.13 In light of the larger scale of habitat loss associated with the proposed GIS substation, the likelihood of an offence being committed is now classified as 'likely'. However, as stated in the certified ES, the need for a derogation licence in order to proceed with construction of the Electrical Connection would be determined prior to construction. As part of this, appropriate working methods will be implemented to avoid harm to individual GCN (as described in the certified ES and Outline CEMP). Given the larger scale and permanent habitat loss associated with the proposed GIS substation, additional habitat creation/ enhancements are likely to be required on the western side of Mill Brook to mitigate/ compensate for the loss of terrestrial habitat resources for GCN. This will be determined through the detailed design of the proposed GIS undertaken by National Grid, and agreed with Natural England as part of a derogation licence application as necessary. No adverse effects on the favourable conservation status of GCN Population A are therefore expected.

Water Vole

- 4.4.14 As was the case in the certified ES, the Mill Brook was considered to have low suitability for water voles during the 2019 survey due to limited foraging resources (the watercourse was heavily shaded), shallow water, and moderate flow. Water vole is therefore considered likely to remain absent from this watercourse. Whilst the localised diversion of the Mill Brook as part of the proposed GIS substation would result in the temporary loss and disruption of a habitat of low suitability for water vole; no adverse effects on this species are therefore expected. Nevertheless, ecological input to the detailed design of the Mill Brook diversion will ensure that the diverted section of Mill Brook is suitable for water vole.
- 4.4.15 As a precautionary measure given the age of the 2014 survey data, and in light of the direct effects on the Mill Brook associated with the proposed GIS substation, any requirement for a pre-works check to confirm the continued absence of water vole will be considered and determined prior to construction. If required, this should be undertaken in the spring and/ or autumn preceding the diversion works. In the unlikely event that water vole is found to be present, appropriate management measures will be implemented (including licensing, as appropriate) to avoid causing harm to water voles during site clearance and construction.

Ecological management measures (in relation to legislation and policy)

- 4.4.16 The ecological measures set out in 4.3.9 above to avoid, reduce or manage potential adverse effects on habitats and protected species in relation to relevant legislation and policy remain applicable to the proposed GIS. These will be implemented through the Landscape and Ecology Mitigation and Management Plan and the CEMP. The details of relevant legislation and planning policy is reported in Appendix 2.8 of the certified ES (PINS Reference APP-036).

4.5 Conclusions

- 4.5.1 The proposed non-material changes will not result in any new or different likely significant effects on ecological features compared to those reported in the certified ES.
- 4.5.2 Implementation of additional measures to avoid, reduce, or manage effects on habitats and protected species will ensure that the proposals for the GIS substation are aligned with relevant policy and legislative requirements.
- 4.5.3 No new likely significant ecological effects are therefore expected as a result of the proposed non-material changes either during construction/ decommissioning or operation. No project specific mitigation is therefore required in relation to the proposed non-material changes in addition to the relevant elements of the embedded design mitigation described in the certified ES.

5 Updated Water Quality and Resources Assessment

5.1 Introduction

- 5.1.1 The application for the Order was supported by a Flood Risk Assessment (FRA) (PINS Reference APP-029) and an assessment of the likely significant effects of the Project upon water quality, water resources, hydrology and flood risk (Chapter 9 of the certified ES).
- 5.1.2 Chapter 9 of the certified ES considers:
- the Power Generation Plant;
 - the Gas Connection and;
 - the Electrical Connection.
- 5.1.3 This updated assessment considers the potential for new or different likely significant effects to arise from the proposed non-material change of developing a new GIS substation in the NMC Application when compared to the certified ES. Therefore, only the Electrical Connection has been considered in this updated assessment as neither the hydrology of the Power Generation Plant or Gas Connection would be altered by the proposed non-material change.

5.2 Methodology

- 5.2.1 The methodology reported within section 9.5 of Chapter 9 of the certified ES is consistent with current best practice relating to the assessment of likely significant effects associated with water quality, water resources, hydrology and flood risk. This included a site walkover survey by a suitably qualified hydrologist, desk based study of hydrological records, hydraulic modelling and assessment of potentially significant effects through consideration of their magnitude, duration and nature (i.e. reversible or irreversible) and also the geographic context (i.e. highly localised or widespread).
- 5.2.2 This updated assessment has therefore been undertaken in accordance with the methodology set out in the certified ES.
- 5.2.3 Additionally, a site walkover survey and a review of topographic survey of the area proposed for the GIS substation was undertaken in February 2019 to characterise the hydrological context of the area.

5.3 Summary of original assessment

- 5.3.1 In terms of the construction stage, the certified ES identified increased surface water run-off and contamination of surface waters as potential likely significant effects. However, the assessment concluded that these potential effects would be controlled by embedded mitigation, including temporary measures to intercept and control surface water run-off and the routing of silt-laden run-off to sumps/silt traps (as set out in the outline CEMP (outline CEMP (PINS Reference REP2-003)), such that effects would be negligible and therefore not significant.
- 5.3.2 In terms of potential effects arising during operation, the certified ES identified (i) increased impermeable area within the catchment of the Mill Brook associated with the SECs, leading to increased surface water run-off, and (ii) contamination of surface water resulting from the flushing of silts and hydrocarbons from areas of hardstanding within the substation

compound. The certified ES concluded that these effects would be controlled by embedded mitigation measures, such as SuDS and oil interceptors, such that effects would be negligible and therefore not significant.

5.4 Updated Assessment

5.4.1 The proposal to develop a GIS substation has been reviewed within the context of Chapter 9 of the certified ES and the findings and conclusions summarised below for both the construction and operational phases of the Project. As set out in the certified ES, the decommissioning phase of the Project would have similar effects upon the environment as those during the construction stage and, therefore, similar measures to reduce effects are likely to be proposed. The potential effects of the decommissioning phase upon water quality, water resources, hydrology and flood risk are therefore anticipated to be negligible and so not significant and are not therefore considered further as part of this updated assessment.

Construction/decommissioning

5.4.2 As per Table 3.1 of this report, the GIS substation would be smaller than the combined footprint of the SECs and the AIS substation and the nature of construction activities would be fundamentally the same. Therefore the likely significant effects upon surface water run-off and surface water quality remain largely unchanged.

5.4.3 However, the north east corner of the proposed GIS substation encroaches into the Mill Brook corridor, such that localised diversion of the watercourse would be necessary. Diversion works have the potential to (i) impact upon the capacity of the channel, alter the flow regime and give rise to a temporary increase in localised flood risk and (ii) give rise to the contamination of surface waters as a result of spilled petrochemicals from construction plant and the mobilisation of silts during earthworks operations, leading to increased silt loading in watercourses.

5.4.4 The site walkover survey undertaken in February 2019 confirmed that:

- the Mill Brook at this location comprises a relatively minor channel (c. 5m wide) (Photo 1 below), draining a small and predominantly rural catchment;
- normal flows/water levels are relatively low (on account of the geology of the catchment and therefore the limited baseflow component);
- the diversion/realignment of the channel would be limited to a relatively short reach (c.50m) of the watercourse; and
- the works would be implemented using standard construction techniques (i.e. over-pumping of flows where necessary);



Photo 1 – Mill Brook viewed downstream in vicinity of location of proposed GIS substation

- 5.4.5 Prior to construction works, it would be necessary to submit an application to the LLFA for consent for works within the watercourse corridor (as required by the Land Drainage Act 1991). As part of this process, it would be necessary to (i) demonstrate that the capacity of the diverted reach of watercourse is no less than the current watercourse and (ii) submit construction method statements, to include details of steps to be taken to minimise adverse impacts upon the water environment. Any potential effects associated with the diversion works will therefore be controlled by measures set out within the LLFA consent application and by working in accordance with method statements, such that they would be negligible and therefore not significant.
- 5.4.6 Initial discussions with the LLFA have been relatively positive. They have confirmed that they support the proposed diversion, rather than culverting and they are broadly in support of the assessment presented in this chapter. The Applicant is not aware of any reason why consent under the Land Drainage Act 1991 would not be granted.

Operation

- 5.4.7 The proposal to locate the GIS substation to the south of the Power Generation Plant, outside of Rookery South Pit, in the area reserved for Works No. 6 (as set out in Section 2.2 of this Environmental Report) would result in an increase in the impermeable area within the catchment of the Mill Brook, thereby increasing surface water run-off to the watercourse. However, as set out in the FRA and Chapter 9 of the certified ES, surface water run-off arising from areas of hardstanding associated with electrical connection infrastructure located outside Rookery Pit will be managed using soakaways. Although the footprint of the GIS substation is larger than the consented SECs, this is still considered an appropriate method of surface water management. Similarly, the potential for the contamination of surface water resulting from the flushing of silts and hydrocarbons from areas of hardstanding is unchanged and these potential effects will be controlled through the implementation of embedded mitigation measures, as set out in the ES and outline CEMP.

5.5 Summary / Conclusions

- 5.5.1 Based on the updated assessment, it is concluded that the proposed non-material change to revise the design and location of the substation does not alter the potential effects reported in the certified ES in respect of water quality, water resources, hydrology and flood risk. Although localised diversion of the Mill Brook may introduce new potential construction effects, these would be controlled using embedded mitigation measures as set out in the certified ES and CEMP, so that there would be no new or different likely significant effects. The conclusions of the ES are therefore unchanged.

6 Updated Landscape and Visual Impact Assessment

6.1 Introduction

- 6.1.1 As the GIS substation has a different appearance and is in a slightly different location to the SECs, and there is no longer a need for the AIS substation or new transmission tower, an updated assessment has been undertaken of potential new or different likely significant landscape and visual effects arising from the construction and operation of the newly proposed GIS substation.

Scoping of Landscape and Visual Receptors

- 6.1.2 The only landscape receptor (of those reported in the certified ES) which is likely to be noticeably affected by the proposed amendment is ‘woodlands, trees and hedgerows.’ This receptor has therefore been taken forward for further assessment in Section 6.4 of this report below.
- 6.1.3 All other landscape receptors which were assessed in the Landscape and Visual Impact Assessment (LVIA) in Chapter 11 of the certified ES were determined as receiving landscape effects that would not be significant, and the changes set out in the NMC Application would not alter these findings. Therefore, the other landscape receptors have not been assessed further in this updated assessment.
- 6.1.4 The full range of viewpoints and the resulting views they have of the development authorised under the Order are shown in the ‘Photographs and Photomontages’ (PINS Reference APP-051) submitted to accompany the Application for the Order.
- 6.1.5 As shown in the photomontages, visual effects arising from the changes set out in the NMC Application are only likely to be clearly noticeable in people’s views from VP14: Footpath 7, near the Vehicle Proving Ground.
- 6.1.6 People’s views from the other locations used in the visual assessment in the LVIA of the certified ES would either not have a view of the changes set out in the NMC Application, or alternatively the visual changes due to the changes set out in the NMC Application would be barely perceptible in the view and would be marginally less than those visual changes which had been previously assessed. This is because the existing transmission tower which would have been removed by the Project would instead remain in place and there would no longer be a new transmission tower and SEC compounds added to the view. It is therefore considered that the other visual receptors assessed in the LVIA of the certified ES would not noticeably be affected by the changes set out in the NMC Application and, therefore, these receptors have not been considered further in this Environmental Report.

6.2 Methodology

- 6.2.1 The methodology used for the additional assessment of landscape and visual effects is the same as that used for the LVIA in the certified ES (section 11.5, Chapter 11, PINS Reference APP-033).

6.3 Summary of original assessment

Landscape Receptor: Woodlands, Trees and Hedgerows of the Site

- 6.3.1 The original assessment, presented in Chapter 11 of the certified ES stated that main potential sources of landscape effects during construction of the Project would be earthworks, site clearance works, removal of vegetation (in the case of the Gas Connection and Electrical Connection), presence of construction traffic, the presence of construction site lighting and the temporary diversion of footpaths. Significant adverse, and temporary, landscape effects were identified upon Woodlands, Trees and Hedgerows, arising due to the loss of vegetation required to facilitate the works.
- 6.3.2 In the initial years of operation, the landscape effects on Woodland, Trees and Hedgerows would reduce to being not significant but remain minor adverse as the new planting would not yet be effective landscape features. However, by year 15 the landscape effects would change to beneficial and significant, due to the maturing of the new woodland areas and hedgerows planted as a result of mitigation planting for the Project which would more than compensate for any vegetation lost during construction.

Visual Receptor: People's Views from VP14

- 6.3.3 Significant and adverse, but temporary, visual effects were determined for people's views at VP14: Footpath 7, to the south of the Power Generation Plant site during construction and decommissioning, arising from visibility of the construction / decommissioning activity including earthworks, site clearance works, removal of the existing transmission tower, removal of vegetation, construction traffic, and the presence of construction site lighting.
- 6.3.4 During operation, visual effects on people's views from VP14 were determined as significant and adverse, arising because the Project, including the Power Generation Plant and Electrical Connection (new transmission tower and SEC compounds), would be prominent in the middle ground of the view.

6.4 Updated Assessment

Landscape Receptor: Woodlands, Trees and Hedgerows of the Site

Construction / decommissioning

- 6.4.1 The amount of vegetation required to be cleared during construction of the Electrical Connection is likely to be increased due to the proposed GIS substation (0.4ha compared to 0.17ha).
- 6.4.2 However, given the magnitude of change brought about by the proposed non-material amendment and considered in the overall context of the Project the assessment of landscape effects upon this receptor, which is of medium sensitivity, at construction / decommissioning stages would remain as previously assessed in the LVIA of the certified ES:
- *Power Generation Plant*: moderate magnitude of change, adverse at construction but beneficial at decommissioning, and therefore of a Moderate level of significance (significant);
 - *Gas connection*: slight magnitude of change, adverse, and therefore of a Minor level of significance (not significant); and

- *Electrical connection*: moderate magnitude of change, adverse at construction but beneficial at decommissioning, and therefore of a Moderate level of significance (significant).

Operation

6.4.3 There would be no further changes to woodlands, trees and hedgerows of the Project Site as a result of the changes set out in the NMC Application during operation or at 15 years after planting. The assessment of landscape effects on this receptor therefore remain as those previously assessed, which are summarised below:

- *Power Generation Plant*: moderate magnitude of change, adverse during operation but beneficial at decommissioning, and therefore of Moderate levels of significance (significant);
- *Gas connection*: negligible magnitude of change, adverse, and therefore not significant during operation; and no change at 15 years after planting; and
- *Electrical connection*: slight magnitude of change, adverse during operation but beneficial at 15 years after planting, and therefore of a Minor level of significance (not significant).

Visual Receptors: People's Views from VP14

Construction / decommissioning

6.4.4 Adverse visual effects from the visibility of construction related plant, such as cranes, would occur during the construction of the proposed GIS substation. However, this will be temporary in nature and of a similar scale to construction plant which would have been required for the SECs. Additionally, there is likely to be a lesser extent of visual change in the composition of the view from VP14 during construction and decommissioning, as there would no longer be a requirement for construction of the AIS substation, erection of the temporary and permanent transmission towers, dismantling the existing transmission tower and diversion of the overhead line; meaning that there would be less visual change taking place and that visual change would occur across less of the view composition.

6.4.5 However, the assessment of effects upon people's views at VP14, a visual receptor which is of medium sensitivity, would remain as previously assessed in the LVIA of the certified ES at construction / decommissioning:

- *Power Generation Plant*: adverse visual change which would be of a major magnitude of change, and therefore of a Major level of significance (significant) during construction; and a moderate magnitude of change, and therefore of a Moderate level of significance (significant) at decommissioning;
- *Gas connection*: moderate magnitude of change, adverse, and therefore of a Moderate level of significance (significant) at construction; and
- *Electrical connection*: adverse visual change which would be of a major magnitude of change, and therefore of a Major level of significance (significant) during construction; and a moderate magnitude of change, and therefore of a Moderate level of significance (significant) at decommissioning.

Operation

6.4.6 New photomontages of the view composition at VP14 have been prepared to illustrate the changes proposed in the NMC Application, including the GIS substation (see Appendix C of this report). The photomontages demonstrate that the GIS substation would sit well below the

woodland trees which are seen behind it, and that the new built structures of the Project would be set slightly further away from the viewer at VP14 than the consented SECs would have been. The existing pylon would remain in the view, albeit with a new arrangement of cable connections perceptible against the sky. Less fencing would be seen in the view as a result of the changes set out in the NMC Application, however the slightly increased removal of woodland would be perceptible in the view.

6.4.7 Although the GIS substation would include more solid built mass (e.g. office and stores building) and there would be additional loss of woodland in this view, as a result of the substation's height set against woodland backdrop and the simpler, 'cleaner' appearance of the built infrastructure elements, on balance it is considered that there would be no new visual effects, and that the effects upon people's views from VP14, during operation and at 15 years after planting, would remain as those previously reported in the LVIA of the certified ES. These are summarised below:

- *Power Generation Plant*: adverse visual change which would be of a major magnitude of change, and therefore of a Major level of significance (significant) during construction; and a moderate magnitude of change, adverse, and therefore of a Moderate level of significance (significant) at 15 years after planting;
- *Gas connection*: slight magnitude of change, adverse, and therefore of a Minor level of significance (not significant) during operation; and no change at 15 years after planting; and
- *Electrical connection*: adverse visual change which would be of a moderate magnitude of change, and therefore of a Moderate level of significance (significant) during operation; and a slight magnitude of change, adverse, and therefore of a Minor level of significance (not significant) at 15 years after planting.

6.5 Summary / Conclusions

6.5.1 Although the GIS substation has a different appearance and is in a slightly different location to the SECs, and there is no longer a need for the AIS substation or new transmission tower, the updated landscape and visual impact assessment has determined there would be no new or different likely significant landscape and visual effects arising from the construction/decommissioning and operation of the proposed development in the NMC Application compared to those reported in the certified ES.