CLARK CONTRACTING LIMITED

PITSTONE QUARRY RESTORATION

Environmental Statement:

Volume 1 Non-Technical Summary

Foreword

This document is submitted in support of the application for full planning permission in accordance with the provisions of the Town and Country Planning Act 1990 (as amended) for the "importation of inert material to enable improved restoration of Pitstone Quarry with enhanced landscaping and biodiversity measures, and to create a new outdoor recreation resource, with a network of footpaths, open water swimming lake, welfare units and car parking facilities, for use as suitable alternative natural green space (SANG)" ('the Proposed Development') on land at Pitstone Quarry, Pitstone (the 'Application Site' or 'Site'). The application is made on behalf of Clark Contracting Ltd ('the Applicant').

The ES has been prepared in accordance with the Town and County Planning (Environmental Impact Assessment) Regulations 2017 and comprises the following documents:

- A Non-Technical Summary (Volume 1), containing a brief description of the Proposed Development and a summary of the ES, expressed in non-technical language
- The Environmental Statement (ES) Main Report (Volume 2), which contains the detailed project description; an evaluation of the current environment in the area of the Proposed Development; the likely significant environmental impacts of the scheme; and details of the proposed mitigation measures which would alleviate, compensate for, or remove adverse impacts identified in the study. Volume 2 also includes a summary of the overall likely significant environmental impacts of the Proposed Development;
- Illustrative Figures (Volume 3) which contains all relevant schematics, diagrams and illustrative figures; and
- Technical Appendices (Volume 4), which includes details of the information used in the assessment, detailed technical schedules and, where appropriate, raw data.

Hard copies of the ES, as a four Volume set, are available at a cost of £200 by writing to AA Environmental Ltd, **Units 4 to 8, Cholswell Court, Shippon, Abingdon, Oxfordshire, OX13 6HX**. Alternatively, the Non-Technical Summary can be purchased on its own from the same point of contact for £15, with the entire ES available for purchase on a CD for £15.

Finally, all of the planning application documentation, including the ES, can be downloaded free of charge from the respective planning portal on either Buckinghamshire Council or Hertfordshire County Council's websites as well as from the dedicated webpage for the project https://pitstone-quarry.co.uk/

1. Introduction

1.1. The Site

1.1.1. Pitstone Quarry is located near to the villages of Pitstone, Marsworth, Bulbourne, and Aldbury and the town of Tring. It lies on the edge of the National Trust Ashridge Estate and the Chilterns National Landscape designated area. The site location is shown in Figure 1. The detailed site boundary is presented in Drawing 193352/ES/D/002.

1.1.2. The Site straddles the administrative areas of Buckinghamshire Council and Hertfordshire County Council. Approximately 39 ha of the site are in Buckinghamshire (to the north), and approximately 21 ha lie in Hertfordshire (to the south). The area that is within Buckinghamshire also lies within (and at the limit of) the Metropolitan Green Belt.

1.1.3. The site has a long history of mineral extraction, most notably as one of a number of local quarries supplying the chalk for the Castle Cement factory. The factory closed in 1991, however Castle Cement continued extraction. A detailed scheme of working and restoration was approved in 2000 by both planning authorities. The Clark group has been operating at the Site since 1999.

1.1.4. The Site is bordered by the Upper Icknield Way (B488) to the northwest and by Northfield Road to the southwest, whilst Pitstone Hill (part of the National Trust's Ashridge Estate) lies immediately to the east and Brook's Statnalls Wood skirts the northeastern perimeter.

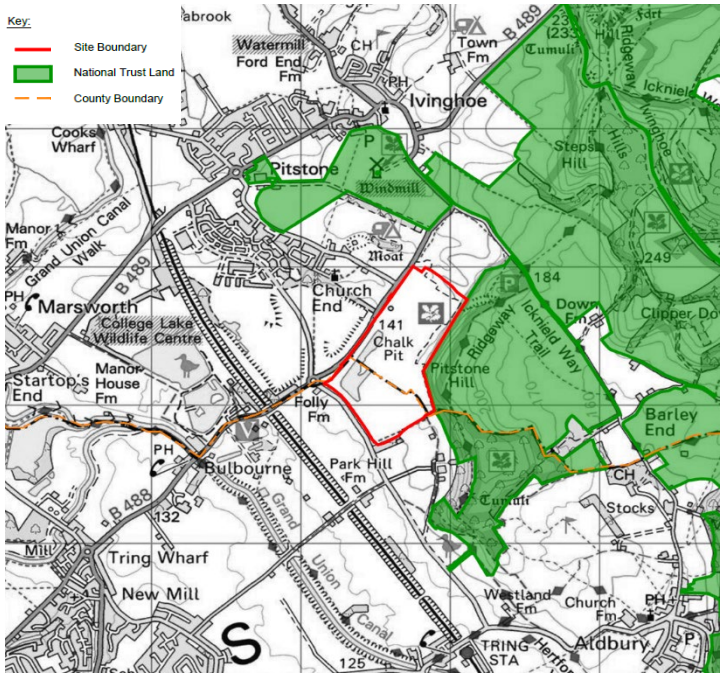

Figure 1 Site Location

1.1.5. The site is located in an area of important and nationally designated habitats, including a number of Sites of Special Scientific Interest (SSSI) and the Chilterns Beechwood Special Area of Conservation (SAC).

1.1.6. Pitstone Hill is a SSSI, which is contiguous with Aldbury Nowers SSSI that continues southwards from the southeastern most corner of the quarry. The SSSIs are noted for the botanically rich calcareous grassland, that has developed along the slopes of the escarpment (chalk downland), and for Aldbury Nowers, the citation includes ancient semi-natural woodland habitat. Brook's Statnalls Wood is also recorded by Natural England as Ancient and Semi-Natural Woodland.

1.2. The Applicant

1.2.1. The Clark group of companies is based in South Buckinghamshire. The firm supplies chalk from the quarry to farmers across the region and also chalk as an engineering fill to construction projects. In 2002, Clark Group formed Clark Contracting Limited (CCL) and has steadily expanded the scope of its services, from quarrying, into landfill, heavy plant and machine hire, aggregate sales, road haulage and construction.

1.2.2. The Clark Group has been undertaking mineral extraction at the site for in excess 25 years and has been progressing the delivery of the approved restoration design. In 2011, CCL acquired the land and has continued the production of high quality chalk and lime from the quarry. Subject to approval CCL would undertake the land engineering and infrastructure works. CCL have a formal agreement with the National Trust that on completion of the formation and infrastructure in a defined section that they will 'gift' the land to the National Trust, who will be responsible for its management and the development of the associated habitats.

1.2.3. CCL prides itself on its commitment to provide quality materials and completed projects. They provide an efficient, reliable quality service to farmers and construction in Buckinghamshire, Hertfordshire and the wider surrounding region.

1.3. The Proposed Development

1.3.1. The restoration design approved in 2000 is presented in Figure 2. It is a 'low level' restoration and seeks, on completion to restore the land back to agriculture by the spreading of retained topsoil across the finished formation. This is termed a 'low level restoration' and at Pistone is considered to provide poor integration with the surrounding landscape.

Figure 2 Approved 2000 Restoration

1.3.2. The scheme of working, restoration levels and delivery timelines are based on a maximum extraction rate of 50,000 tonnes per annum (tpa). Since the decline of the cement industry in the region, demand for chalk has fallen and rates of extraction reduced. CCL are extracting on average circa 22,500 tpa.

1.3.3. In summer 2023, topographical surveys showed that there remains at circa 580,000 m3 of chalk to be extracted. At the current rate of extraction it is anticipated that the extant restoration would not be completed until 2062, extending beyond the permitted timeline in the planning permissions.

1.3.4. As a consequence, CCL and the Pitstone Quarry project team re-assessed the approved scheme and sought to improve its integration into the important Chilterns National Landscape. The design proposes a revised formation level that:

- reconstructs the rolling chalk downland, re-connecting it to the highly valued surrounding landscape resource and context;
- supports outstanding and diverse new habitats; and
- optimises recreational access.

1.3.5. The proposed restoration design is presented in Figure 3 and on the Landscape Illustrative Masterplan drawing 12732-LU-XX-DR-L-107 and has been fully guided by the following objectives:

- To reduce the effects of the site on:
    - the Chilterns National Landscape;
    - Local Landscape Character Areas;
    - Ashridge Estate National Trust land; and
    - the Pitstone Hill and Aldbury Nowers Sites of Special Scientific Interest (SSSIs);

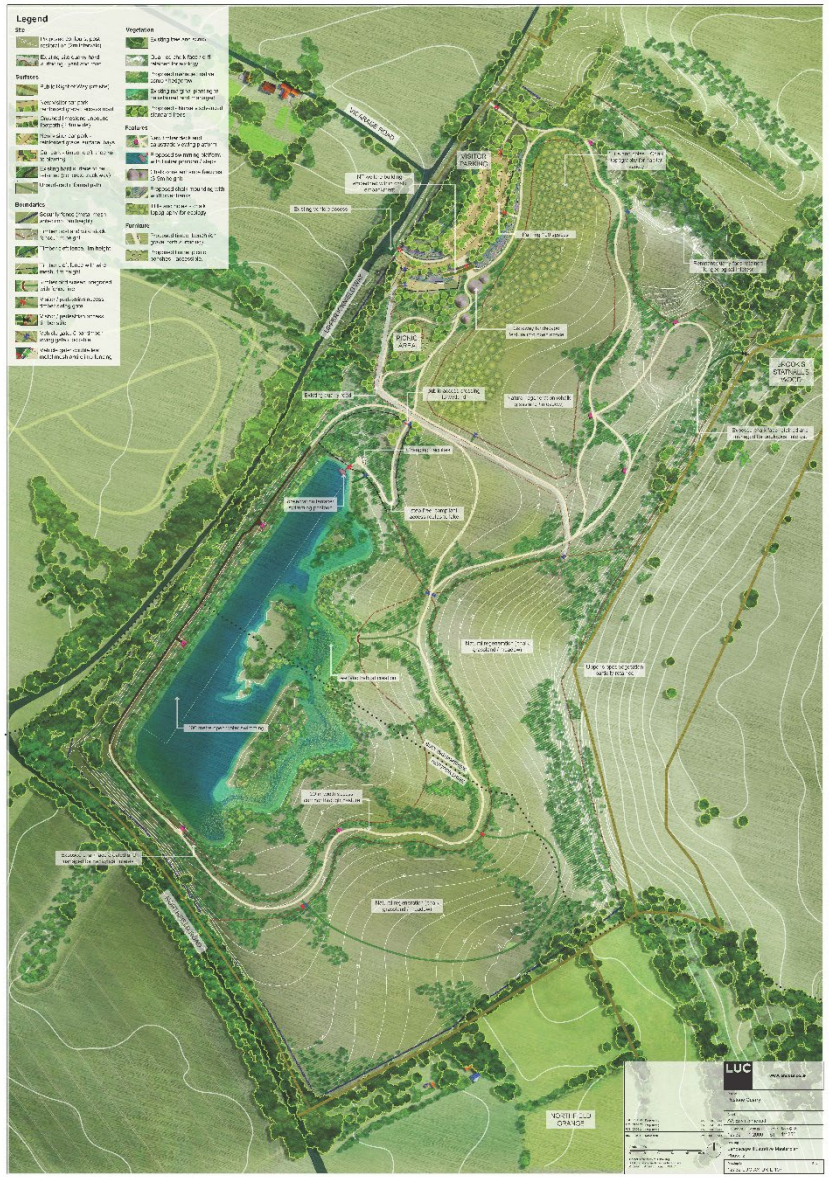

Figure 3 Proposed Pitstone Quarry Master Plan

- To reduce the effects of the quarry on key views from the surrounding landscape, including improving:
    - the role the site plays in forming a setting to the scarp, both in views towards and from the Chilterns National Landscape;
    - views from nearby recreational routes including the Ridgeway National Trail and Icknield Way trail; and
    - views from sensitive hilltops including Pitstone Hill, Steps Hill and Ivinghoe Beacon;
- To promote and sustain high quality and diverse terrestrial and wetland calcareous habitats, complementing and assisting in the protection of the SSSI and nearby Chilterns Beechwoods Special Area of Conservation (SAC); and
- To create a landscape restoration design which responds to current development pressures in the area and enhances the landscape, biodiversity value, and has physical and social recreational accessibility at its heart.

1.3.6. The site would be developed in two distinct phases. Phase 1 would cover the northern section (excluding the existing quarry yard) and the lake area along the western side of the quarry, extending to an area 32.95 ha in size. Phase 1 Landscape Illustrative Masterplan is presented in drawing 12732-LU-XX-DR-L-106.

1.3.7. Construction of the final landform in this phase would consist entirely of an engineering operation, involving the re-grading of existing excavated levels and use only of in situ chalk materials.

1.3.8. Phase 2 extends to the remaining 26.87 ha of the application site, and would comprise the southern area of the quarry, where the landform would be created using imported inert materials, plus the quarry yard (which would be the final area to be restored).

1.4. This Document

1.4.1. This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES), which has been prepared to accompany the planning application.

1.4.2. The NTS summarises the findings of an Environmental Impact Assessment (EIA) of the proposed scheme in non-technical language.

2. Alternatives Considered

2.1. Alternative Design Solutions

2.1.1. A number of alternative landscape/restoration design solutions have been considered for the Quarry, prior to the currently Proposed Development scheme being fixed. The design has been evolved through consultation with stakeholders, the evolution of the team, including the appointment of the landscape designer, Land Use Consultants, and a strategic collaboration with the National Trust.

2.1.2. Throughout the design evolution the following objectives have been consistent:

- Enhance the final restored landscape, re-connecting it with the Chiltern foothills and valleys, minimising and repairing the damage caused by the mineral workings including in the southern section of the quarry;
- Provide a biodiverse restoration scheme and a commitment to high quality restoration;
- Create a site wide chalkland with associated habitats; and
- Provide recreation opportunities promoting sustainable access for all, that can absorb a high intensity of use.

2.1.3. Design alternatives are presented in the AA Environmental Report 'Overview of Design Development' and illustrated in Figures 4a to d. The final design of the Proposed Development has taken account of national and local policy as well responding to local environmental conditions and feedback received through public consultation and stakeholder engagement.

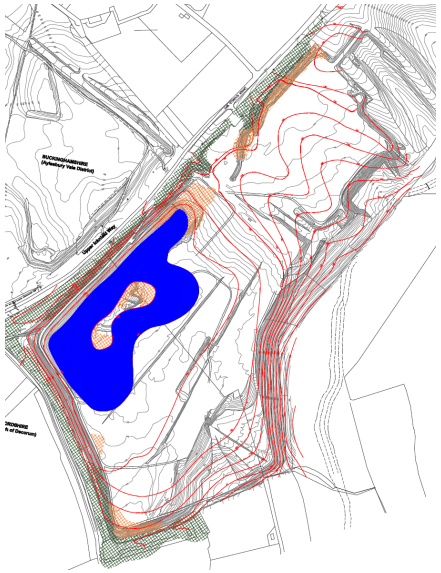

Figure 4a 2003 Proposed Restoration

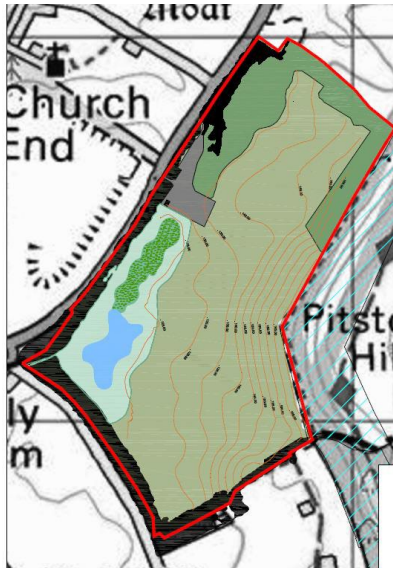

Figure 4b 2020 Propsoed Restoration

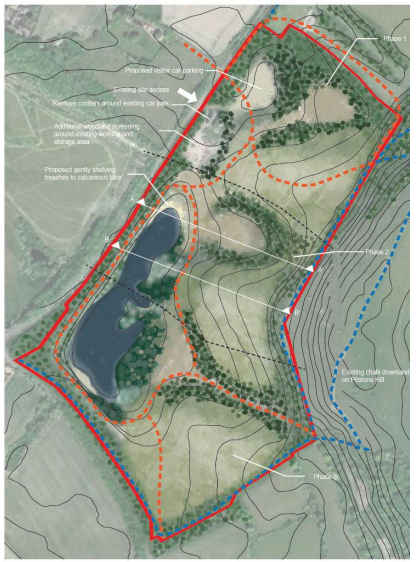

Figure 4c 2021 Proposed Restoration

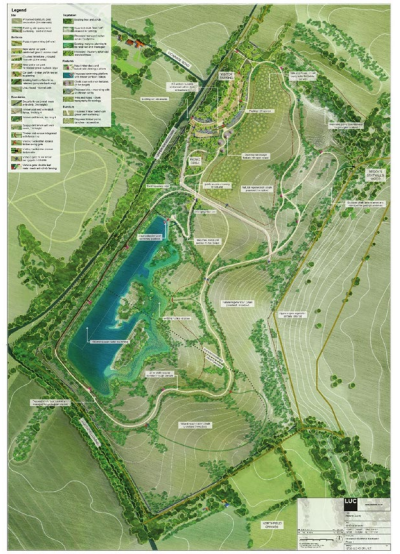

Figure 4d 2024 Proposed Restoration

3. Scheme Description

3.1. Restoration and key features

3.1.1. The restoration scheme is presented on the landscape master plan drawings 12732-LUC-XX-DR-L-106_Phase 1 Masterplan and 12732-LUC-XX-DR-L-107_Phase 2 Masterplan. The site delivers different areas of the site, with differing interests and features. The Design Principles and Materiality are presented in LUC Report 12732-LUC-SH-001.

3.1.2. The design provides different character areas of site, which serve to integrate the site into the wider landscape, providing controlled recreation and habitat enhancement. The differing areas of the site are presented in Figure 5.

3.1.3. The Proposed Development will be constructed by CCL and then the habitats created and restored and the site owned, managed and operated by the National Trust.

3.1.4. The Proposed Development would include a restored landscape of rolling chalk downland with coombe features, reintegrating the unnatural steep quarry slopes into the Chiltern Hills. There would be views across the lake and downland and views into the site from the surrounding hills, including from the Public Rights of Way, would be returned to a naturalistic environment.

3.1.5. For biodiversity value, there would be new habitats of rare chalk grassland, hedgerow, shrubs, trees, open water and wetland. Parts of the existing quarry face would be retained for its geological interest, wildlife benefit and to preserve an element of the industrial heritage of the site. The existing conifer plantation near the current quarry access road would be replaced with native broadleaved woodland to improve biodiversity.

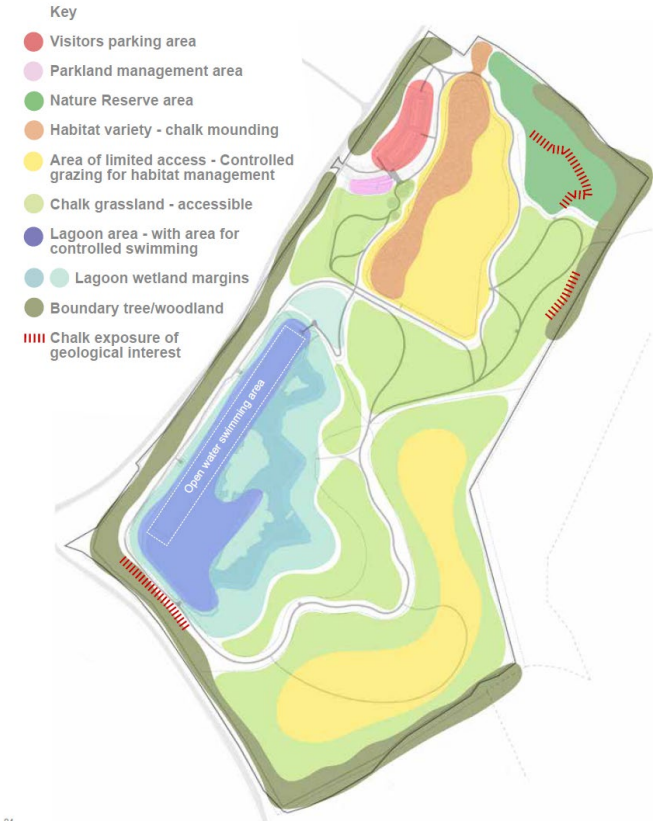

Figure 5 Site Character Areas

3.1.6. Recreational opportunities would be provided for local communities and visitors, including approximately 5.4km of new footpaths made available as part of the completed restoration. These would link to the existing public rights of way surrounding the site, adjoining the National Trust's Ashridge Estate.

3.1.7. It is proposed that these new routes would be established to provide walking circuits through the landscape. A circular route around the lake would enable access for all users, including wheelchairs and families. Viewing points, informal seating, and interpretation boards would also be incorporated for appreciation of the landscape and observing wildlife. The footpaths and key features proposed are presented in Figure 6. The internal footpaths connect to the wider Public Rights of Way at two locations in the north east and north west of the site, including linking to the Chilterns National Trail.

3.1.8. As part of the restoration scheme the lake would incorporate a 400m long open water swimming area along the western side. There would be a pontoon on the northern shore of the lake providing safe access to the water along with the provision of four small changing room pods. The works to the lake would also include deepening of some shallow areas and re-grading of shorelines to soften edges, and planting measures to improve and diversify the wetland habitat value of the eastern lagoon area and existing areas of regeneration around the island features.

3.1.9. Facilities would be available to support the outdoor recreation pursuits, including WC, changing rooms and welfare units. The facilities would primarily be accommodated in a low-level building embedded within a chalk embankment and with a green roof.

3.1.10. A new access road from the existing established Quarry entrance on the B488 would be created for visitors to a car park.

Figure 6 Internal Footpaths

3.1.11. There would an initial car parking provision for 60 cars following Phase 1 and a total provision of 120 car parking spaces by completion of Phase 2. The parking facilities include disabled parking, electric charging points, bicycle stands, and motorbike space. Parking spaces would be interspersed with trees to create

a naturalistic character. Timber rails, hedgerows and tree screens will be used to protect adjacent flora and landscaped areas.

3.1.12. Recreational facilities at the restored site would be available to the public for 365 days per year with parkland opening hours from 06:00 hours or dawn (whichever is the later) and with variable closing times (for safety reasons) of 18:00 hours from the start of November to the end of March and up to 20:00 hours or dusk (whichever is the earlier) from the start of April through to end of October.

3.1.13. During phase 2 of the restoration, Heavy Goods Vehicles (HGV) will cross the internal footpath network. Safe passage will be provided by a managed level crossing style access point.

3.1.14. For recreation and amenity purpose, the site would provide natural green space with footpaths and facilities for open water swimming for the local community and visitors to the area and wildlife observation areas, managed by the National Trust. A waymarking strategy with interpretation stations would facilitate legibility and navigation around the site.

3.2. Employment

3.2.1. Works to restore the Quarry are likely to require the employment of two extra members of permanent site staff by CCL. In addition, it is anticipated during Phase 1 that an average of up to five subcontracted staff will be working on site to support the CCL operations.

3.2.2. It is also anticipated that during Phase 1 that the National Trust will have up to four staff on site throughout the year managing planting and habitat reinstatement.

3.2.3. Once the site is open for recreational use then the National Trust envisage having a full time Ranger on site supplemented by additional resources managing the site in peak hours and maintaining habitats.

3.3. Access

3.3.1. The quarry is accessed via an existing purpose-built entrance from the B488 at the northern end of the quarry, about 100 m south of Vicarage Road which leads to Pitstone Village. The site access arrangement has the appropriate bell mouth radii and sightlines for the road conditions, and its construction includes a filter lane for traffic turning right into the quarry from the southerly (Tring) direction.

3.3.2. During the restoration phases the existing quarry access would be used for both visitor access to the new local recreational resource and for construction traffic associated with the CCL Operations.

3.3.3. Minor kerb line adjustments and widening would be made to the existing entrance point to assist with manoeuvring, visibility and prevention of potential conflicts between HGVs and visitor cars.

3.3.4. A new 5.5 m wide access road spur would be constructed to provide access to the visitor car park. The junction of the car park spur has been designed to require visitor cars leaving the parkland to give way to HGV traffic and with sufficient visibility for drivers to see incoming HGVs.

3.4. Construction

Phasing

Phase1

3.4.1. Phase 1 of the development will construct 32.95 ha of the parkland as shown on the Masterplan drawing for the Landscape Restoration. This would include approximately 3.6 km of new footpaths through the restored landscape; planting with native trees, shrubs and hedgerow and erection of fencing. Calcareous grassland would be created by a combination of seeding, planting and natural regeneration. Works in the lake would deepen some shallow areas and regrade the edges. The south-western section of the lake would be partially infilled and planted to create a more biodiverse wetland habitat. A jetty for swimming access to the lake would be installed on the northern shore.

3.4.2. Phase 1 would provide appropriate facilities at the car park area, comprising WC, changing and welfare space for swimmers and visitors, and this would be accommodated in a low-level building, embedded within a chalk embankment with a green roof, adjacent to the parkland gateway. This proposed design would provide an attractive, unobtrusive solution, fitting to its surroundings, and would be low-cost to run and maintain.

3.4.3. Phase 1 would require the working and placement of approximately 141,000 cubic metres of site derived chalk. The Phase 1 land formation works would take 2 years to construct.

Phase 2

3.4.4. The remaining 26.87 hectares in the south-east of the quarry would be restored during Phase 2 creating the complete landform and as shown on the Phase 2 Landscape Restoration Masterplan Drawing. This would include additional new footpaths; habitat creation in the same manner as for Phase 1, and erection of fencing.

3.4.5. Approximately 1.8 million cubic metres of inert materials, principally from the construction sector, would be imported to the site to form the landscape. The material would be imported under an Environmental Permit, strictly controlled by the site team, and regulated by the Environment Agency. The imported materials would be capped with 200,000 cubic metres of site-derived chalk. The placement of the chalk cap would create an appropriate substrate for the development of the calcareous grassland habitats.

3.4.6. The Phase 2 land formation works would take 15 years to construct and would commence on completion of the Phase 1 works, anticipated to be in 2027. Completion of all restoration activities is therefore anticipated in 2042.

Working Hours

3.4.7. Hours of working for the restoration phases (both phases 1 and 2) are proposed to be as follows:

Haulage

- 06:30 – 17:30 hours Monday to Friday;
- 06:30 – 14:00 hours Saturday;

- No working on Sundays and Bank Holidays;
- Haulage activities from 06:30 – 07:30 hours would be limited to arrival of staff and dispatch of HGVs from the yard.

Mineral working and construction/restoration activities

- 07:00 - 17:30 hours Monday to Friday;
- 07:00 – 14:00 hours Saturday;
- No working on Sundays or Bank Holidays;

3.4.8. Construction works between 07:00 – 08:00 hours and 17:00 – 17:30 hours would be limited to site mobilisation and demobilisation activities, e.g., maintenance and washdown of vehicles and arrival/departure of staff.

Working Methods

3.4.9. Working methods in both Phases would be mainly characterised by earthworks. In phase 1 chalk arisings (circa 141, 000 cubic metres) excavated from the Car park; the valley bottom; cliff face enhancement and lake enhancement would be used to create the new Phase 1 landforms.

3.4.10. In Phase 2, earthworks using imported inert minerals, principally from the construction sector, would be used to achieve an extension of the same rolling chalk grassland landform as already created in the northern part of the quarry in Phase 1, and to fully integrate the site with its surrounding landscape.

3.4.11. Prior to the placement of imported infill material, the existing chalk would be excavated to create a uniform basal level and stable side walls, and the basal level lined with an engineered geological barrier. The chalk would also be extracted to generate sufficient chalk to cap the imported fill material.

3.4.12. The land in phase 2 would be progressively restored from the north to the south in 5 sub-phases, with the imported materials being progressively capped with the site derived chalk, recreating calcareous chalkland. The progressive infilling from the north would allow the sub-phases to be consecutively integrated into, and accessed from Phase 1, as they become restored.

3.5. Operations

Post completion of Phase 1

3.5.1. Recreational access to the parkland would be established following completion of the Phase 1 restoration with 60 spaces in the car parking area being made available. The new car park would be managed by the National Trust, would be gated and would include provision for disabled parking (3.6 m wide spaces), electric charging points, bicycle stands, and motorbike space.

3.5.2. The open space of the new parkland area would be available to the public under the stewardship of the National Trust 365 days per year. Opening hours would be from 06:00 hours or dawn (whichever is the later) and with variable closing times (for safety reasons) of 18:00 hours from the start of November to the end of March and up to 20:00 hours or dusk (whichever is the earlier) from the start of April through to end of October.

3.5.3. Only managed access to the lake by open water groups would be allowed. There would be no informal or water sports use of the lake, other than activities that align with National Trust values.

Post completion of Phase 2

3.5.4. Upon completion of Phase 2 the car parking area would be enlarged to provide a total of 120 spaces (2.5 m x 5 m in size), together with commensurate additional provision for, disabled parking, electric charging points, bicycle stands, and motorbike space.

3.5.5. At this point the entire restored quarry, including fully installed footpath links and circuits, lake and open water swimming area, would become available to the general public as a new recreational parkland resource, and would be transferred to the full ownership and long-term stewardship of the National Trust.

3.6. Embedded Mitigation Measures

3.6.1. The Proposed Development has undergone an iterative design process that has sought to design out potential environmental issues from the outset and to include for features that enhance or mitigate potential impacts on the environment. Such design responses are termed “embedded mitigation”. Embedded mitigation applies to both the design of the restoration scheme and the construction processes. Key embedded mitigation includes, but is not limited to, those items summarised below:

Scheme Design

3.6.2. Key design features embedded into the restoration proposals include for:

- restoring the site as a parkland for biodiversity and public amenity benefit. Managing the land as a Suitable Alternative Natural Greenspace (SANG) would relieve recreational pressure on the Chilterns Beechwoods SAC / Ashridge Estate.
- re-shaping the contours through using excavated in situ chalk material and infill with inert material to re-create a more undulating, naturalistic landscape that integrates more appropriately into the Chiltern escarpment. Restoring the landform to a more naturalistic slope would reinforce the local character and result in an improvement to views from the surrounding hills.
- the creation of important ecological habitats of rare chalk grassland, open water and wetland, and extensive planting of hedgerow, scrub and trees. A limited extent of exposed quarry faces to the north east of the site, which are noted for their geological interest, would be retained. This would provide valuable wildlife habitat and nod to the industrial heritage of the site. Some areas of restored habitat would be inaccessible to the public and under a grazing regime, and a new nature reserve would be established along the north boundary.
- creation of areas of accessible landscape and over 5kms of gravel footpaths to create links with significant routes and destinations in the surroundings, including The Ridgeway, Icknield Way and the National Trust Ashridge Estate.
- creation of natural green spaces with facilities for open water swimming for the local community and visitors to the area, with wildlife observation areas. A waymarking strategy with interpretation stations will facilitate legibility and navigation around the site.

- picnic facilities that would be located in proximity to the entrance and parking area and at the interface between the northern part of the site and the lake. “Off-grid” accessible changing units would be provided by the lake side.
- the introduction of new topographical features of interest, associated with the car parking area, will provide a sense of arrival and a threshold as well as providing some level of screening of the proposed parking area from views from Pitstone Hill. These landforms would be dressed with crushed chalk and planted with chalk grassland flora. Conical chalk mounds would also be created as a playful nod to the industrial heritage of the site, and would be accompanied by interpretation boards telling the history of the site.
- boundary treatments which follow a hierarchical strategy providing stockproof fencing for management purposes within the site and security fencing along its boundaries. A range of gates for vehicle, pedestrian and maintenance access would be provided to suit the various requirements.
- reinstating features associated with the quarry operations back to landscape at the end of the Phase 2 works.
- retention and reinforcement of existing tree cover, primarily in relationship with the proposed car parking facilities, with only limited tree felling required (primarily affecting the non-native Lawson Cypress associated with the area by the site entrance).
- the retention of selected areas of chalk geology, including an area of exposed chalk face in the north of the site and a section of the quarry side wall in the north east. The chalk exposures at the site have high geological value and their retention within the design would enable them to be studied and used for educational purposes.

Construction Environmental Management

3.6.3. A bespoke Construction Environmental Management Plan (CEMP) would be developed for the delivery of the project, the purpose of which would be to manage, mitigate and report environmental effects of the project during construction. A Construction Management Plan, which sets the framework for the CEMP has been developed for the Planning Application and is included as an Appendix to the ES.

3.6.4. A CEMP for a project of this nature typically addresses the following key elements:

- drainage, water quality and hydrology;
- dust, emissions and odours;
- health and safety/site management;
- waste management;
- traffic management;
- ecology and natural features;
- cultural heritage; and
- contaminated material.

3.6.5. Phase 2 of the restoration process will operate in accordance with an approved bespoke Environmental Permit issued by the Environment Agency.

3.6.6. The Permit will ensure that the following measures and controls are implemented in addition to those set out in the CEMP:

- The construction and monitoring of a network of boreholes.

- Monitoring to be completed on a monthly basis for at least 1 year prior to any import activities, during the works, and following cessation of import activities for a minimum of 2 years;
- detailed design and risk assessments (hydrogeological and stability);
- requirements for the construction of a geological barrier between the underlying chalk and waste(proposed to be 1 m thick).
- detailed waste acceptance procedures and compliance testing;
- detailed working environmental controls including site run off and drainage; and
- control of emissions (noise and dust) and mud on road.

4. Methodology

Assessing Effects

4.1.1. The EIA has assessed the likely significant effects of the Proposed Development against the baseline conditions which have been established based on technical surveys and assessments.

4.1.2. Specific significance criteria have been prepared for each specialist topic for adverse and beneficial effects as required. Criteria for determining significance of an environmental effect are generally undertaken by evaluating the magnitude of the effect and the sensitivity of the receptor. In some cases the likelihood of the effect occurring is also considered.

4.1.3. For the purposes of undertaking the assessment in accordance with the EIA Regulations, effects that are determined to be "moderate" or greater are considered to be "significant" in EIA terms. Where significant adverse effects have been identified, appropriate mitigation and monitoring requirements have been proposed to ensure effects can be reduced to an acceptable level.

4.1.4. Intra-project effects or effect interactions (i.e. the combined effects of two or more separate impacts) have been considered within the assessment. Climate change has the potential to cause effect interactions with other environmental impact pathways by, for example, altering the future environmental baseline or sensitivity of receptors. The impacts of climate change are addressed as required in each topic Chapter.

4.1.5. Inter-project effects, or the cumulative effects of other existing or approved projects, were considered for relevant developments within 2kms of the site. In this case no relevant developments were identified.

5. Summary of Effects

5.1. Introduction

5.1.1. This section summarises the main findings of the EIA on a topic-by-topic basis.

5.2. Landscape and Visual Impact

5.2.1. The site lies on the western extent of the nationally important Chilterns Area of Outstanding Natural Beauty (AONB), now re-termed as National Landscape, as presented in Figure 7.

5.2.2. In terms of landscape effects the assessment undertaken concluded the landscape character as having a Medium Sensitivity to change.

5.2.3. The temporary impacts associated with the construction works to achieve the restoration scheme are considered to be of a temporary nature, and not dissimilar in scale, size and significance from the ongoing mineral extraction. Their duration is anticipated to be in line with the current planning consent (to 2042). Overall, the effect on landscape resource is considered to be Neutral and therefore not significant.

5.2.4. With respect to visual effects during construction a detailed assessment of sixteen viewpoints was undertaken. The assessment concluded that Views from a footpath running along the site's eastern boundary (viewpoints 5a and 5b) are predicted to experience slight/moderate effects during the restoration works. These are not considered to be significant due to the sub-phasing of the restoration works. Works would be limited to sections of the site and it is anticipated that their impact would be comparable to the existing quarrying operations.

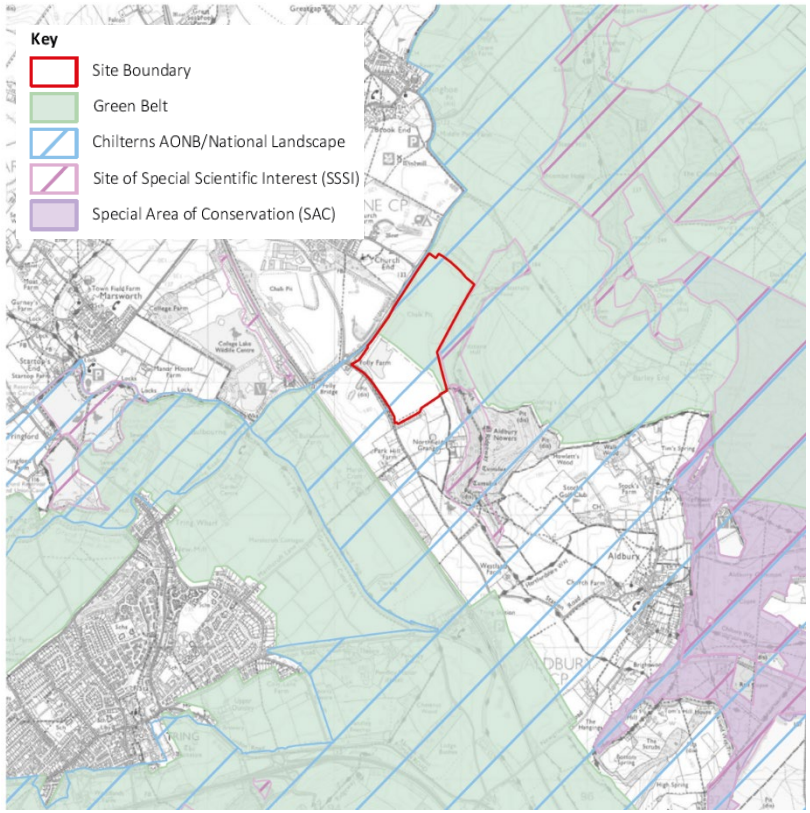

Figure 7 National Designations

5.2.5. Two further viewpoints (viewpoints 6b and 7) are predicted to experience slight/moderate effects during the restoration works. One of these two viewpoints is a footpath along the site's boundary and the other representative viewpoint is from the Ridgeway, some 170m to the East of the site boundary. Due to the works being

contained within sub-phases it is considered that the effects are not significant as these would be comparable to the impact of the current quarry operations, as experienced from other viewpoints. The remainder of visual receptors would be subject to slight or negligible adverse effects at worst and are therefore not considered to be significant.

5.2.6. Following the completion of the restoration proposals Effects of the current scheme on landscape resources, assessed at the end of the restoration phase and at a nominal 15 years post completion of the restoration, is considered to be Moderate to Major Beneficial.

5.2.7. For effects on visual amenity, the conclusion of the assessment is that overall effects at 15 years post completion of restoration works at the various different viewpoints would range from no change through to highly beneficial (nine viewpoints).

5.3. Ecology

5.3.1. The site lies within an area of important and sensitive ecological habitats, with nationally designated SSSI and SAC in close proximity of the site, as presented in Figure 7.

5.3.2. The assessment has been supported by ecological survey data of sufficient scope to assess likely significant effects on habitats and species. Consideration of impacts undertaken as part of the Air Quality assessment (reported in Chapter 11.0) allowed consideration of air quality effects on sensitive ecological receptors.

5.3.3. There are no nationally protected species of either fauna or flora identified as being impacted by the proposals. Potential impacts on important ecological features were identified and assessed. No significant effects as a result of either construction or operation of the Proposed Development were identified with most of the operational impacts assessed as minor beneficial.

5.3.4. Those effects that are identified as part of the construction phases would be experienced in any event during the ongoing mineral works and delivery of the extant restoration scheme. At current rates of mineral extraction these works are predicted to continue for over 30 years and therefore the Proposed Development is an opportunity to deliver ecological opportunities in some 12 years in advance of the current extant scheme.

5.3.5. The comprehensive package of new recreational opportunities and SANG may serve to relieve existing pressures on both Statutory and Non-Statutory designations and could provide a net benefit in the longer term.

5.3.6. The Masterplan for the restored site provides significant levels of new habitat creation and enhancement, and a Biodiversity Net Gain of 18.96% is predicted.

5.4. Geology, Hydrogeology and Land Contamination

5.4.1. An assessment of the likely significant effects of the Proposed Development upon geology, hydrogeology and land contamination has been undertaken. The effects have been informed by both quantitative and qualitative assessments.

5.4.2. The site overlies a Major Aquifer. Groundwater is shallow with flow to the north west. The lagoon is considered to be groundwater fed. The aquifer and lagoon are considered sensitive to pollution risks from the activities.

5.4.3. Following the assessment set out in Chapter 7.0, and taking into account the embedded mitigation in the design and construction proposed, no significant effects were identified on the geology and hydrogeology at the site.

5.4.4. The construction phase impacts are short-term and of local spatial extent; the magnitude of impact would be negligible to low and the significance of effects are considered to be minor adverse, which is not significant.

5.4.5. During construction phase, the site would be regulated by an Environmental Permit agreed with the Environment Agency. Appropriate measures would be implemented and audited through the permit.

5.4.6. The suitability of the proposed landfill scheme has been assessed by quantitative risk assessment and results indicate that under the expected normal operating conditions and in the unlikely event of receipt of non-compliant waste types (rogue loads), the landfill is unlikely to present a risk to groundwater quality and the surrounding hydrogeological regime.

5.5. Surface Water and Flood Risk

5.5.1. An assessment of the likely significant effects of the Proposed Development upon surface waters and flood risk has been undertaken and is reported in the ES.

Surface Water

5.5.2. A desk-based study has been undertaken to establish baseline conditions. There are no fluvial features on the site. The closest main river is a tributary of the Grand Union Canal known as Tring Bourne which lies circa 2.7 km west of Pitstone Quarry.

5.5.3. Principal risks to water quality during construction are risks from excess fine sediment, fuels and chemicals polluting waterbodies. A range of mitigation measures would be implemented to manage these pollution risks during construction. These measures would reduce potential impacts on water quality to a negligible level and therefore effects would not be significant.

5.5.4. During Phase 2 the construction (fill) operations would be required to comply with an Environmental Permit. The permit would require specific controls to be introduced to ensure that the operations do not present an unacceptable risk to water quality e.g. suitable storage of potentially polluting substances and bunding of tanks containing fuels / chemicals.

5.5.5. As the Proposed Development is being constructed, the enlarged area of impermeable surface has the potential to increase surface water run-off rates and volumes that would not otherwise occur. With the adoption of embedded mitigation measures, and the implementation of the drainage strategy, the surface water run-off experienced during the construction phases would have a negligible or minor adverse effect which is not significant.

Flood risk

5.5.6. The assessment has been informed by the findings of a Flood Risk Assessment and a preliminary Drainage Strategy produced specifically for the Proposed Development.

5.5.7. The risk of surface water flooding will be highest during the construction of Phase 2. Consequently, to reduce flood risk during construction works, a temporary drainage solution will be installed.

5.5.8. With the adoption of the proposed Drainage Strategy and embedded mitigation, the impact of flood risk is negligible and is not significant.

5.6. Transport

5.6.1. The assessment considered traffic impacts in three cases:

- First Year of development (construction works);
- Phase 2 works and partial recreational use; and
- Completion of Phase 2 works and full recreational use.

5.6.2. Traffic impacts associated with the initial construction phase would be temporary in nature and would vary over the course of the 2-year construction period dependent upon the nature of activities taking place. Traffic related environmental effects associated with construction would be no more than minor in nature. The assessment has concluded that effects would be negligible / minor adverse and not significant.

5.6.3. Traffic impacts associated with Phase 2 construction and the partial recreational use of the parkland were assessed as having a negligible or minor level of effect, which is not significant. The same assessment of effect was determined with respect to potential traffic and transportation impacts at the end of Phase 2 when the parkland is opened fully for recreational activities.

5.6.4. Potential air quality impacts from haulage were considered in the air quality impact assessment.

5.6.5. It is not anticipated that the Proposed Development would operate with any significant long term residual traffic related environmental effects.

5.7. Noise

5.7.1. Noise and vibration levels have been considered and assessed during the construction and operational phases of the Proposed Development. Relevant and appropriate noise and vibration guidance and standards have been used to determine the impact. The findings of the assessment have informed the design of the Proposed Development, such that any likely effect on existing noise sensitive receptors is minimised.

5.7.2. During the construction period best practical means would be employed to control noise and vibration generation, in accordance with appropriate standards. Measures taken may include choice of equipment, use of bunding and phasing to minimise noise impacts. Such mitigation measures would be defined within the Construction Environmental Management Plan (CEMP) which would be operated throughout the construction phase.

5.7.3. The assessment shows that there would be no significant noise impacts during the construction of the Proposed Development.

5.7.4. An assessment of the possible increase in noise from haul road traffic and HGV traffic on the local Public Highway has concluded

there would be a negligible impact and neutral non-significant effect.

5.7.5. A qualitative assessment of the impacts of noise on recreational users of Phase 1 was undertaken and concluded that noise impacts would at worst be minor in nature, short term and not significant.

5.8. Air Quality

5.8.1. During the construction period, there is potential for dust generation from the following processes:

- Transfer of site derived chalk across site
- Export of chalk
- Loading material onto trucks or conveyers
- Storage of materials
- Extraction of chalk using excavator
- Emissions from plant
- Screening to separate chalk into different sized products
- Import of fill material

5.8.2. Each of these processes has the potential to give rise to adverse effects on air quality either individually or in combination. As such, a number of mitigation measures have been identified and would be integrated into the CEMP. Following implementation of these measures the residual effects on air quality are considered to be negligible and not likely to be significant.

5.8.3. The air quality assessment from the construction works shows a low risk of adverse effect on the ecological SSSI adjacent to the site due to dust. There is no effect upon Ivinghoe Hills, Tring Reservoirs, Oddy Hill and Tring Park SSSI's. The risk of an adverse impact is highest on the adjacent SSSI, notably Pitstone Hill and Albury Nowers. This effect is consistent with the sites long term operation as a mineral quarry. This impact is considered to be a minor adverse effect (not significant). The effect is assessed as neutral when considered in the context of the extant restoration scheme.

5.9. Archaeology and Cultural Heritage

5.9.1. The assessment reviewed a number of desk-based resources. Additionally, a site walkover survey was conducted on 01/02/2024 in order to identify any archaeological features and to understand the baseline conditions within the Proposed Development Site.

5.9.2. The assessment identified no cultural heritage assets within the Proposed Development Site that would be directly impacted by the Proposed Development and that there is a low potential to encounter previously unrecorded archaeological remains of low to medium cultural significance during the construction of the proposed new spur road off the existing access and visitor parking.

5.9.3. In terms of indirect impacts on setting, the Proposed Development will change the present site from an active quarry to parkland, with new planting, footpaths and improved habitats for wildlife. The changes within the quarry are therefore expected to improve its character. Consequently, the settings of the designated heritage assets identified within the 1 km Outer Study Area are therefore

expected to be benefited by the Proposed Development, and no adverse setting impacts are predicted to arise.

5.9.4. Overall, once embedded mitigation was taken into account, effects were considered to range between negligible and minor beneficial.

5.10. Socio-Economics

5.10.1. The assessment has focused on socio economic impacts as a result of the Proposed Development on the local economy associated with construction phase employment, operational employment and recreational visitors.

5.10.2. The assessment initially considers the national and local policy context and the current socio-economic baseline, through the analysis of national socio-economic statistics.

5.10.3. The key findings of the assessment are that the Proposed Development would have a minor beneficial impact creating up to seven permanent long-term jobs either directly or via subcontracted services over the duration of the 17 year restoration. The effects could be significant for individual businesses and workers, particularly for those which are locally based.

5.10.4. During the operations phase the assessment findings indicate that the direct, indirect and induced employment and expenditure created by the Proposed Development is likely to have a minor beneficial long-term effect at the local level.

5.10.5. The assessment of the possible socio-economic impact of visitors to the Proposed Development on the local economy were also assessed. It was conservatively assessed that the possible economic contribution by visitors to the local economy could be minor beneficial in the long term.

5.11. Conclusion

5.11.1. The Proposed Development provides an opportunity to redefine the restoration strategy for Pitstone Quarry in such a way that it provides a more naturalistic landform, a new resource for public access, other opportunities for outdoor physical activity, and for wildlife benefit.

5.11.2. The new facility would enable improved connectivity of local communities to the countryside and engagement with nature, which are important additional benefits for the health and well-being of local communities. It would also have positive outcomes for the local economy through the provision of new suitable alternative natural green space that would assist the delivery of planned growth in the area without causing harm to other interests of acknowledged importance within the Chilterns National Landscape, namely the Chilterns Beechwoods SAC.

5.11.3. The ES has assessed and evaluated all potential significant, direct, indirect, inter project and intra project environmental effects of the Proposed Development. Where adverse effects have been identified, measures envisaged to prevent, reduce, and if appropriate offset these have been described.

5.11.4. No significant residual adverse environmental impacts have been identified from the assessments presented within the ES and in some instances the scheme has the potential to provide long term

benefits at a local level when compared to the extant restoration scheme.