02 September 2016

Dear Mr Pitt

Details to discharge conditions of planning permission NWB/14CM034
Extension to Mancetter Quarry, Quarry Lane, Mancetter

I refer to your recent submissions and our various discussions regarding the above.

I have sought the observations of the relevant consultees and can advise as follows.

**Condition 5 (Protected Species Mitigation Strategy)** – The submitted Phase 2 Works Protected Species Mitigation Strategy contained within document reference 406.04520.00052 dated September 2016 is satisfactory in respect of Phase 2 of the development, subject to the points raised by Lois Browne in her email dated 31st August 2016 being taken into account, thus allowing the condition to be discharged in part. The approved strategy (or any variation so approved) shall thereafter be implemented in full. The approved scheme of works will require review and possible revision before works commence beyond Phases 2.

**Condition 6 (Construction and Environment Management Plan)** – The submitted Phase 2 Construction and Environment Management Plan contained within document reference 406.04520.00052 dated September 2016 is satisfactory in respect of Phase 2 of the development, subject to the points raised by Lois Browne in her email dated 31st August 2016 being taken into account, thus allowing the condition to be discharged in part. The approved CEMP (or any variation so approved) shall be implemented throughout the development in accordance with the approved details. The approved scheme of works will require review and possible revision before works commence beyond Phases 2.

**Condition 9 (Soil Handling and Management Plan)** – the submitted soil handling and management plan (PSL REF: M13.133(d).R.001) is satisfactory, thus allowing the condition to be discharged. The approved plan (or any variation so approved) shall be implemented in full.

**Condition 11 (Restoration Scheme)** – the submitted Phase 2 restoration and aftercare
scheme (PSL REF : M13.133(d).R.002) is satisfactory, thus allowing the condition to be discharged in part. The approved restoration plans (or any variation so approved) shall be carried out in accordance with the approved timetable for implementation. Additional restoration schemes will be required to be submitted for approval before works commence on further phases of the development.

**Condition 46 (Aftercare Scheme)** – the submitted restoration and aftercare scheme (PSL REF : M13.133(d).R.002) is satisfactory, thus allowing the condition to be discharged in part. The scheme (or any variation so approved) shall be implemented accordingly. Additional aftercare schemes will be required to be submitted for approval before works commence on further phases of the development.

If you have any queries or wish to discuss the content of this letter please do not hesitate to contact me.

Yours sincerely

Matthew Williams
Senior Planner
Warwickshire County Council
Development Group
PO Box 43
Shire Hall
Warwick
CV34 4SX

For the attention of Matthew Williams Esq

DP/AW/2081/8

17 June 2016

Dear Matthew

PLANNING PERMISSION REFERENCE NWB/14/CM034

PROPOSED EXTENSION TO MANCETTER QUARRY, WARWICKSHIRE

APPLICATION FOR THE APPROVAL OF DETAILS RESERVED BY CONDITIONS

In accordance with the requirements of the above planning permission, and on behalf of our client Tarmac Trading Limited, please find enclosed for your approval details reserved by conditions 5, 6, 9, 11, and 46.

I also enclose a cheque for the sum of £97.00, representing the fee for the application.

The submitted details include the following:

Conditions 5, 6 – Protected Species Mitigation Strategy and CEMP for Phase 2 operations - Prepared by SLR
Conditions 9, 11 and 46 – Soils Handling and Management Plan, Detailed Restoration Plan (Phase 2), Aftercare Plan (Phase 2) – Prepared by Pleydell Smithyman Limited

In relation to the requirements of the conditions, whilst the individual details enclosed should be self-explanatory, I would note the following:

- In relation to Condition 7, a LEMP was submitted for the Phase 1 operations. However owing to the fact that there are no biodiversity enhancements in Phase 2 away from the western landform, and that all of the landscaping / habitat creation works associated with the western landform will effectively occur after it has been constructed and not on a phased basis, an updated LEMP was not considered necessary to be produced at this juncture. A revised LEMP for the whole western landform will be prepared for implementation upon completion of its construction.
I trust the submitted details meet with your approval, and look forward to receiving confirmation accordingly at your earliest convenience.

Should you have any queries, please do not hesitate to contact myself in the first instance.

Yours sincerely

DAVE PITT

enc
Extension of Mineral Workings and Consolidation of Operations at Mancetter Quarry, Quarry Lane, Mancetter, North Warwickshire

Phase 2 Works

Planning Reference: NWB/14CM034

Condition 5 - Protected Species Mitigation Strategy

Condition 6 – Construction and Environment Management Plan

406.04520.00052

May 2016
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DRAWINGS

Drawing 1 - Phase 2 Works – Protected Species and Quarry Development

Drawing E4a – Great Crested Newt – EPS Licence Version (Fencing and Receptor Site)

Drawing 2 – Phase 2 Works - CEMP

APPENDICES

Appendix A – Summary of Phase 1 activities and Site Enhancement.
1.0 INTRODUCTION

In April 2015, Warwickshire County Council (WCC), the Mineral Planning Authority (MPA) granted planning permission in respect of the extension of mineral workings and consolidation of operations at Mancetter Quarry, Quarry Lane, Mancetter, Warwickshire (National Grid Reference: SP 30918 95184).

The permission was subject to pre-commencement conditions, of which Conditions 5 and 6 relate to ecological issues and which are reproduced below in Table 1.

Table 1 – Ecological Planning Conditions (5 and 6)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition 5.</td>
<td>The development hereby permitted shall not be commenced until a protected species mitigation strategy for each phase specified in Drawing No M095/00045 (hereinafter referred to as a &quot;Phase&quot; in these conditions) has been submitted to and approved in writing by the Mineral Planning Authority. The submitted strategy must include details of updated survey work and mitigation measures relating to bats, great crested newts, reptiles, badgers and nesting birds including the timing of works, exclusion, compensation measures, details of supervision by a suitably qualified ecologist and monitoring arrangements. The approved strategy (or any variation so approved) shall thereafter be implemented in full.</td>
</tr>
<tr>
<td>Reason:</td>
<td>To ensure that protected species are not harmed by the development.</td>
</tr>
<tr>
<td>Condition 6.</td>
<td>The development hereby permitted shall not be commenced in a Phase until a Construction and Environment Management Plan (&quot;CEMP&quot;) for that Phase has been submitted to and approved in writing by the Mineral Planning Authority. The submitted CEMP shall include:</td>
</tr>
<tr>
<td>a)</td>
<td>risk assessment of potentially damaging construction activities;</td>
</tr>
<tr>
<td>b)</td>
<td>identification of biodiversity protection zones;</td>
</tr>
<tr>
<td>c)</td>
<td>practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction;</td>
</tr>
<tr>
<td>d)</td>
<td>the location and timing of sensitive works to avoid harm to biodiversity features;</td>
</tr>
<tr>
<td>e)</td>
<td>the times during construction when specialist ecologists need to be present on site to oversee works;</td>
</tr>
<tr>
<td>f)</td>
<td>responsible persons and lines of communication;</td>
</tr>
<tr>
<td>g)</td>
<td>the role and responsibilities on site of an ecological clerk of works; and</td>
</tr>
<tr>
<td>h)</td>
<td>use of protective fences, exclusion barriers and warning signs.</td>
</tr>
<tr>
<td>The approved CEMP (or any variation so approved) shall be</td>
<td></td>
</tr>
</tbody>
</table>
implemented throughout the construction period in accordance with the approved details.

**Reason:** In accordance with NPPF and to ensure that no protected species are harmed.

WCC advised that the preparation of the CEMP and LEMP should follow guidance provided by **BS 8583:2015 Biodiversity – Guidance for businesses on managing the risks and opportunities** and **BS 42020:2013 Biodiversity — Code of practice for planning and development**.

A short report was requested by WCC in respect of the actions required as part of Phase 1 of the works which is enclosed as Appendix A.

1.1 **Other Relevant Conditions**

Other conditions are of relevance in respect of the issues encompassed by Conditions 5 and 6 above and the various schemes should be read in conjunction with this document, namely:

- Condition 3 - Water Management Plan;
- Condition 8 and 36 – Dust Control;
- Condition 9 – Soil handling and conservation;
- Condition 11 – Landscape Proposals, Restoration and Habitat Creation;
- Condition 40 – Pollution Control – water; and
- Condition 47 – Five Year Aftercare (Phase 2).

1.2 **Scope**

Conditions 5 and 6 require appropriate schemes to be developed prior to the commencement of the relevant phase of works. Following consultation with Lois Browne, Planning Ecologist with Warwickshire County Council Ecology Department (on 22/4/15) it was confirmed that details relating to the later phases could be submitted at the appropriate time before their implementation, as opposed to all of the information being provided in one document for the whole scheme at the onset.

The advantage of the above approach is that consideration of ecological protection and enhancement measures remains iterative and live. The planning of each stage of the development can take advantage and reflect lessons learnt previously and encompass the findings of update surveys and the granting of licences.

This report has been prepared by SLR Consulting Limited (SLR) on behalf of Tarmac to discharge:

1. **Condition 5 in respect of Phase 2 of the quarry development only.** Outline details of Phase 2 were provided in the Phase 1 submission as a rolling programme of earth works was envisaged which were subject to in principle approval from WCC. This
The document provides further details on the EPS Licence (Great Crested Newt) granted in March 2016 and information relating to other protected species (specifically bats, reptiles, badgers and nesting birds).

2. **Condition 6 in respect of Phase 2.** This document provides an assessment of risk and the control measures which would be implemented to ensure that works take full account of existing interests and that adjacent areas of interest are protected; and

1.3 **Document Structure**

This report is organised in respect of the relevant phases of quarry development. The three issues relating to the conditions (i.e. protected species and CEMP) are then considered in turn.

It should be noted that although the Protected Species Strategy (PSS), CEMP and LEMP are presented separately there is strong cross-over of the relevant issues and as such this document should be read as a whole and made available on site and to relevant parties such as contractors.
2.0 SUMMARY OF DEVELOPMENT PROPOSALS

The permitted development comprises of a south-western extension to Mancetter Quarry.

The site has a combined area of approximately 96 hectares, with 73 hectares constituting the existing quarry area, and approximately 23 hectares constituting the proposed extension.

Most of the site, including the operational area of Oldbury Quarry and the restored Jubilee Quarry, is located south of Purley Chase Lane. Part of the site, Purley Quarry, is located north of Purley Chase Lane. The site is accessed by Quarry Lane, which leads from the B4111/ Nuneaton Road. Mancetter Quarry has been in existence for in excess of 100 years. Mancetter Quarry is a key source of diorite, which is a rare hard stone, with high anti-skid properties. The stone has a high polished stone value (PSV) and is used in specialist surfacing materials, including on roads near school crossings, roundabouts and motorway junctions.

At present, the site has a remaining life of approximately three years at an output of approximately 300,000 – 400,000 tonnes per annum. The applicant proposes to extend the quarry to the west of the site. It is anticipated that this would extend the life of the existing quarry by seven to eight years. This will ensure that the quarry can operate until 2025, as per the current permission.

The extension to the site requires the removal of soils and overburden shales, which are proposed to be utilised to create an attractive permanent landform feature to the west of the extension area (referred to as the western landform). The proposed extension area is anticipated to release in the region of 2 million tonnes of additional mineral reserves (diorite stone).

2.1 Quarry Development - Phasing

Phase 2 – Plan Reference M096/00047

Phase 2, as detailed on plan reference M095/00047, is contiguous with Phase 1, and provides for the continued development of the extension area moving northwards with the continuation of works to the proposed western landform.

Phase 2 releases approximately 2-3 years’ supply of mineral reserves at current output rates. These continue to be extracted over phase 3.

Phase 3 – Plan Reference M095/00048

Phase 3, as detailed on plan reference M095/00048, is contiguous with Phase 2, and provides for the continued development of the extension area moving northwards with the continuation of works to the proposed western landform.

Phase 3 releases approximately approximately 2.5-3 years’ supply of mineral reserves at current output rates. These continue to be extracted over phase 4.

Phase 4 – Plan Reference M095/00049

Phase 4, as detailed on plan reference M095/00049, is contiguous with Phase 3, and provides for the continued extraction of the mineral reserves released through Phase 3, with the finalisation of works to the proposed western landform.
2.2 Summary of Ecological Enhancement

Impacts on Valued Ecological Receptors (VER’s) have been assessed as part of the Ecological Impact Assessment (2014) which accompanied the Environmental Statement.

The EcIA concluded that impacts on VER’s would be relatively minor due to the dominance of arable habitats and the relatively small extent (and comparative poor quality) of the grassland, hedgerow, woodland and pond resource.

It is important to recognise that the creation of the new western landform and completion of nature conservation-led restoration of the wider quarry would result in significant habitat gains.
3.0 PROTECTED SPECIES STRATEGY (CONDITION 5)

Drawing 1 shows the Phase 1 habitat plan for the south-west extension area. Particular receptors are numbered (001, 002 etc) to enable consideration to be given to the relevant issues and these are referenced in the text below and Table 2.

The Phase 2 works will involve an area of land extending to approximately 14 hectares and the following activities:-

1. Removal of an area (8 ha) of permanent pasture (0014) through the stripping of soils and overburden placement commencing in July 2016;

2. Height reduction of 300m of hedgerow (0013) and 171m of hedgerow (0018) in February 2016 and eventual removal from July 2016 onwards following completion of the licensed newt capture period (60 days);

3. Hand removal of gorse and localised groups of mature hawthorn (0012) in advance of the 2016 nesting bird season (Feb 2016);

4. Four ash trees within hedge length (0013) would need to be removed in advance of the 2016 nesting bird season of which two are mature and have bird nest boxes;

5. Stripping of soils and placement of over-burden would take place in arable fields (0021); and


**Great Crested Newt**

Potential impacts on GCN in respect of Phase 2 works at Mancetter Quarry have been the subject of detailed consideration. An impact on terrestrial habitats is predicted to occur for the following reasons and as such a licence application was made to Natural England in August 2015 which was granted in March 2016.

Drawing E4a provides the approved proposed scheme of temporary (drift - in blue) and longer term amphibian exclusion fencing (in red). The temporary fencing will be removed after the 5 “clear days” have been achieved. The longer term perimeter fencing will remain for 3 years (i.e. until there has been a period of 12 months habitat establishment on the western landform). A spring clearance commenced on the 20th April 2016 and is expected to be completed by the end of June. The key elements of the licence are:-

- 60 days trapping effort with five days hand searches at appropriate times;

- Prior to translocation, enhancement of the receptor site by the construction of two hibernacular, pond restoration and the creation of woodland refugia (log piles); and

- The case for not including arable land situated within 250m of breeding ponds was made by SLR and accepted by Natural England.

Replacement breeding and terrestrial habitats will be provided by the habitats created within the western landform. There will be short term exclusion of GCN from habitats whilst these works are undertaken. The receptor area has been enhanced to increase carrying capacity in respect of GCN until barrier fences can be removed and colonisation takes place.
At the time of writing 130 GCN have been trapped and relocated. The EPS area encompasses all of the terrestrial habitats affected by Phase 2 works and as such no additional mitigation works in respect of GCN are deemed to be required.

**Breeding Birds**

As the Phase 2 earth moving works are due to commence during the bird breeding season it has been necessary to undertake the following works in advance to remove nesting potential:

- Continued cultivation of remaining arable land (0021) to ensure no nesting potential for birds such as skylark;
- Keeping the pastureland (0014) grazed by sheep until newt fencing commenced to attain low sward heights;
- Removal of nest boxes in the ash trees outside of the nesting period (0011); and
- Managing down hedgerows 0013 and 0018 by removal of top growth which could support nests and by hand removal of localised gorse and hawthorn (0012).

Hedgerows were reduced in height before the nesting season and the mature trees and associated nest boxes at 0011 were removed as part of the climb and inspect surveys for bats.

The removal of gorse / hawthorn (0012) was undertaken by hand outside of the nesting period during the late autumn and winter months of 2015/2016.

**Badger (0016 and 0019)**

A watching brief has been maintained in respect of the setts at 0019 and 0016 involving regular inspections.

The location of the sett (0016) has been confirmed using GPS and is well buffered in retained woodland from adjacent land use activities. Two camera traps were established for a period of one week at the end of March 2016. The results showed that the sett is active (small family group – around five individuals) and that at that time badgers were exiting to forage in pastureland to the north east away from the development site.

Sett 0019 is disused by badger.

In the event that the situation changes then appropriate action would be taken. In the event that the sett at 0019 was to become subject to active use then an appropriate course of action would be implemented to ensure compliance with relevant legislation. This may include the need for a licence from Natural England.

**Reptiles**

The likelihood of encountering significant numbers of reptiles during the GCN clearance is considered to be very low. Refuge based surveys during 2014 did not record the presence of reptiles in the Phase 2 area / where the licensed GCN translocation is proposed.

Reptile refuges (roofing felt) x 50 have been deployed along the interface between the dry pond and woodland edge. This number was considered sufficient, taking into account the short length, and also the presence of pitfall buckets and carpet tiles.
The refuges have been checked during daily visits to check pitfall traps and carpet tiles in spring of 2016. No reptiles have been recorded over 35+ visits, despite optimum weather conditions.

**Bats**

A prior daytime inspection of mature ash trees (0011) was undertaken by a licensed batworker and qualified arboriculturalist / climber from SLR and Sheffield Tree Care on 14th September 2015. The survey concluded that there were no features associated with the trees which could be used for roosting. It was recommended that the young ivy be cut and left for a period of one week to wither prior to sectional felling.

The trees were felled in sections in early March 2016 by arboricultural contractors trained in bat conservation following prior cutting of ivy at the base. No evidence of any occupation by bats was found during this exercise.
### Table 2 – Summary of Phase 2 Works and Ecological Issues (see Drawing 1)

<table>
<thead>
<tr>
<th>Timing and Duration</th>
<th>Description of Works</th>
<th>Habitat Receptors (See Drawing 2)</th>
<th>Potential for Impacts on Protected Species</th>
<th>Control / RAMS measures / Licensing measures.</th>
<th>Proposed Survey Updates</th>
<th>Likely Residual Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter 2015 to Summer 2016 Months</td>
<td>Phase 2 extraction (north west of Phase 1).</td>
<td>Code 0011 Breeding Birds</td>
<td>Breeding Birds</td>
<td></td>
<td></td>
<td>Bats</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mature trees (x 4).</td>
<td>Hedgerows (0013 and 0018), gorse / hawthorn (0012) in pastureland and arable land (0021) would reduced in height or removed outside of the nesting season (March to August inclusive).</td>
<td></td>
<td>No significant adverse residual effects are predicted.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Code 0012 Scattered gorse and hawthorn in field.</td>
<td>Great Crested Newt</td>
<td></td>
<td></td>
<td>Badger</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Boundary hedgerows (0022) are protected by the new bridleway diversion and fenced corridor.</td>
<td></td>
<td>Badger sett re-inspections prior to earth moving.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Code 0013 Mature Hedgerow (303m)</td>
<td>Breeding Birds</td>
<td></td>
<td></td>
<td>Ground-nesting Birds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Code 0013, 0014, 0015, 0017 and 0020)</td>
<td>UPDATE – Hedgerows 0013 and 0018 were reduced in height in Feb 2016 and the gorse / hawthorn 0012 was removed by hand before the 2016 nesting season. The nest boxes and trees themselves (0011) were removed prior to the 2016 nesting season.</td>
<td></td>
<td>Walkover survey prior to works in arable fields.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Code 0014 Permanent pasture</td>
<td>Badger</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Code 0016, 0019)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Code 0015, 0017 and 0020 Ponds</td>
<td>Bats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Code 0011 - trees)</td>
<td>GCN / Reptiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subject to a licence application to Natural England (see Drawing E4a). Reptile refuges x 50 will also be employed around pond margins and woodland edges and these will be</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
supporting small populations of GCN.

**Code 0018**
Native hedgerow no trees (c. 173m).

**Code 0016**
Badger Sett in mature woodland.

**Code 0019**
Potential badger sett.

**Code: 0021**
Arable field.

**Code: 0022**
Perimeter hedgerows and trees.

checked during the newt translocation. Any reptiles found will be relocated into the GCN receptor area. A record will be made.

**UPDATE - EPSL newt licence received and implemented. Reptile refuges deployed. No reptiles recorded to date. At the time of writing 130 GCN have been translocated into the enhanced receptor area.**

**UPDATE -** Badger setts 0016 and 0019 were re-inspected on 30th March 2016 and inspections continue.

Sett 0016 remains active. The sett in this location is >30m from any Phase 2 works and is considered to be sufficiently distant and buffered by woodland not to require a closure licence. A TAF fence will be in place to discourage badgers from entering land where earth moving would take place.

Set 0019 is dis-used.

All setts would be re-inspected prior to a soil strip and woodland removal (Phase 3 works) and if necessary appropriate licensing and mitigation implemented.
Bats

Mature trees at 0011 would be subject to a climbing inspection (September 2015). If the finding of the CIS was inconclusive then this would be followed by dusk and dawn surveys to determine presence of bats. If roosts are present then a Natural England licence would be obtained.

UPDATE – the relevant trees were subject to a CIS and this found no evidence of roosts or potential. Precautionary measures such as prior cutting of ivy and sectional felling were implemented.
4.0 CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN FOR PHASE 2 WORKS (CONDITION 6).

See Drawing 2 and the Protected Species Strategy for Phase 2 (Section 3.0).

The CEMP including plans will be kept on site and made accessible to all personnel.

Ecological advice and supervision would be undertaken by a suitable experienced and qualified ecologist who is a Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) at the appropriate grade.

4.1 Risk assessment of Potentially Damaging Construction Activities

The Phase 2 works would be separated from features such as perimeter hedges and retained ponds by either the long term amphibian fencing or by the new fenced bridleway corridors (see Drawing 2).

4.2 Identification of Biodiversity Protection Zones

Of the above, the most important areas to avoid indirect impacts are:-

- Accidental damage to longer term TAF fencing. Fencing checks are a condition of the NE licence.

4.3 Practical Measures to Avoid or Reduce Impacts during Construction

The following measures are recommended to avoid or reduce impacts during construction:-

- Ensure proper briefing of machine operators;
- Install high visibility mesh along sensitive boundaries; and
- Ensure adequate dust and pollution control measures.

4.4 The Location and Timing of Sensitive Works to avoid Harm to Biodiversity Features

The Phase 2 works would commence from July 2016. Where the timing of these works could foreseeably affect ecological receptors (e.g. breeding birds) then advance measures have been undertaken.

4.5 Responsible Persons and Lines of Communication

The Phase 2 works will have a dedicated ecological advisor appointed by Tarmac. All ecologists working on the project would be experienced and Members of the Chartered Institute of Ecology and Environmental Management (CIEEM) at the appropriate grade.

4.6 Use of Protective Fences, Exclusion Barriers and Warning Signs

As stated previously, high visibility mesh would be established to protect the TAF fencing from accidental damage.
5.0 CONCLUSIONS

Protected Species Strategy (Condition 5)

A detailed assessment of the likely impacts on protected species and the actions proposed in respect of avoidance and mitigation measures and updates to surveys has been provided in respect of Phase 2 of the Mancetter Quarry extension.

Provided that the measures are followed and there is close engagement of an Ecological Clerk of Works (ECOW) then impacts are considered to be minor when compared to the scale of the habitat creation which is proposed.

CEMP (Condition 6)

Measures to ensure the protection of adjacent areas and features of value have been proposed.
6.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Tarmac; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.
Hand searches e.g. of Fencing Works and Pond Enhancement

New Stock fenced Bridleway Corridor either side bordered by Arable of negligible value to GCN

Perimeter TAF - no buckets or refuges. Barrier required due to temporary drift fencing being removed to the south. Fencing would deter GCN from entering new western landform habitats during establishment (construction phase)

Pitfall Trap density across 10ha:
Fencing length total = 2293.85m
(1 pitfall per 10m) = 229 pitfalls
Per 10ha = 23 pitfalls / ha

Access Point 1

Access Point 2

Void / Bare ground provides barrier to north-east of Woodland

Cliff edge

Newt grid across width of tracks to prevent access

Newt grid across track to prevent access
### Appendix A – Report of Actions (Phase 1)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Task</th>
<th>Requirement</th>
<th>Action/Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – Protected Species Strategy</td>
<td>Removal of 001, 002, 005a. Golf Course Corner.</td>
<td>Tool box talk for operator. Habitat manipulation (staged mowing), refuge re-location and hand searches of grassland triangle, hedgerow and ditch before end of October 2015.</td>
<td>Mowing down during 2015. Searches on 5/10/15 and 7/10/15. No GCN or reptiles found.</td>
</tr>
<tr>
<td>5</td>
<td>Removal of 001, 002, 005a. Golf Course Corner.</td>
<td>Walkover for badger setts in October 2015 during PMOW works.</td>
<td>None found within the Zone of Influence of Phase 1 works.</td>
</tr>
<tr>
<td>5</td>
<td>001,002,003,004,005a/b</td>
<td>Nesting Birds.</td>
<td>Work undertaken outside of nesting season.</td>
</tr>
<tr>
<td>5</td>
<td>Restoration works in main quarry</td>
<td>No protected species related issues were considered to require specific actions.</td>
<td>n/a</td>
</tr>
<tr>
<td>6 - CEMP</td>
<td>Off-site features – 006 (Golf Course LWS and hedgerows – 005b)</td>
<td>The golf course 006 is protected by the new bridleway corridor and fence. Most of 005b is protected by the other new bridleway corridor with the exception of a short length which was taped off to prevent loss.</td>
<td>Hedgerows and remaining golf course features retained and protected from indirect effects. Walkover in November to check netting tape in place.</td>
</tr>
<tr>
<td>7 - LEMP</td>
<td>002 – GCN Receptor Ponds</td>
<td>GCN breeding site enhanced.</td>
<td></td>
</tr>
<tr>
<td>----------</td>
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</tr>
<tr>
<td></td>
<td>Two ponds enhanced in spring 2016 and two hibernacular constructed. These ponds are protected by perimeter TAF and form part of the GCN receptor. Increased diversity of egg-laying plants to be planted in spring 2016.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>003 – Woodland Habitats</td>
<td>GCN retained terrestrial resource enhanced.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birch woodland which has been thinned by 10% and augmented by the planting of a wider range of species. Ash has been replaced with hazel.</td>
<td></td>
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</tr>
<tr>
<td>7</td>
<td>Other Species</td>
<td>Alternative and enhance opportunities for roosting / nesting by bats and birds.</td>
<td></td>
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<td>---------------------------------------------------------------------------------</td>
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<tr>
<td></td>
<td>Owl / Kestrel Box erected plus three bat boxes and four bird boxes.</td>
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<td></td>
</tr>
</tbody>
</table>
Summary and Introduction:

This document provides information to discharge conditions 9 of the Pre-Commencement of Planning Permission ref: NWB/1CM034.

Condition 9: Soil Handling & Management Plan

The following sheets provide information to satisfy:

Condition 9: The development hereby permitted shall not be commenced until a detailed soil handling and management plan has been submitted to and approved in writing by the Mineral Planning Authority. The submitted scheme shall include details of temporary storage areas and permanent placement locations. The approved scheme shall be adhered to and implemented in full.

Reason: To ensure the integrity of soils and secure a satisfactory standard of restoration.
Soil Stripping

Soils shall be stripped in progressive bands across the Western Landform Deposition Area commencing in the north and moving southwards as depicted in yellow on Figure 2. Materials Excavation Plan - Soil Strip and Excavation Areas, opposite. Soils are to be stripped to a total depth of 1.2m for soils that are sandy loam in texture and 0.3m for the remaining soils that consist of heavy clays. Topsoil of both soil types, upper subsoil and lower subsoil will be all be kept separate both during stripping, storage and subsequent replacement. The heavy clay subsoils below the clay topsoils are not intended to be stripped and stored as these are not desirable for subsequent use within the final restoration profile. Instead, sufficient sandy overburden material has been identified within the site lying beneath the sandy loam soils (on average some 1.1m in depth) to provide a better subsoil substitute within the final restoration profiles that are both freer draining, as well as providing subsoils of lower nutritional value and acidic in nature for use within the restoration of area returned to conservation/acidic grassland.

All soil stripping to be undertaken by an excavator standing on the surface of the soil, digging each soil horizon to their maximum depth and loading into wheeled dump trucks for transportation to either soil storage mounds, or to direct placement wherever feasible. Transport vehicles will only run on the basal clay layer or placed overburden and shales.

Phase 2 Western Landform (North) Soil Strip

These works include stripping Heavy Clay Topsoil, Sandy Loam Topsoil, Upper and Lower Subsoils and Sandy Overburden from the northern half of Phase 2 Western Landform in proximity to Oldbury Farm, including linking access roads and the footprint of Phase 2 Soil Bunds. See Figure 3. Materials Excavation Plan - Soil Type and Figure 5. Phase 2 - Soil Storage Location below.

This will enable the placement of soils and overburden into these bunds and allow for the rapid deposition of overburden and shales within the northern area to restoration formation levels which will be subsequently soiled and restored to an agricultural field, along with conservation grassland areas and a small section of woodland. These operation will also allow the whole of this northern landform to be restored to both productive agricultural and conservation uses early within this phase of the development which are in proximity to dwellings located in this section of the Western landform.

Strip ~ 11,600m³ Heavy Clay Topsoil from the northern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund HCL TS001 for subsequent restoration of the Phase 2 and 3 woodland areas on completion of overburden and subsoil placement.

Strip ~ 11,700m³ of Loamy Topsoil from the northern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund L/S TS002 for the restoration of the Phase 2 and 3 agricultural and conservation grassland areas on completion of overburden and subsoil placement.

Strip ~11,700m³ of Loamy Upper Subsoil from the northern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund L/S USS003 for restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of overburden and lower subsoil placement.

Strip ~17,800m³ of Loamy Lower Subsoil from the northern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund L/S LSS002 for restoration of Phase 2 and 3 agricultural, conservation grassland and woodland areas on completion of overburden placement.

Strip ~29,600m³ of Sandy Overburden from the northern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund SOB001 for restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of shale placement.
Phase 2 Extraction Area Soil Strip

Strip ~ 5,700m³ of Heavy Clay Topsoil from footprint of Phase 2 Extraction Area and place in temporary storage within Bund HCl T5001 to allow extraction of overburden and shales for placement onto footprint of Phase 2 Western Landform commencing with the northern area adjacent to Oldbury Farm.

Phase 2 Western Landform (North) Bulk Earthworks

Progressively strip ~ 214,000m³ of overburden and shales from Phase 2 Extraction Area and place within the northern area of Phase 2 to complete bulk infilling to restoration profiles.

Phase 2 Western Landform (North) Soil Replacement

Remove ~28,700m³ of Sandy Overburden from Bund SOB001 for restoration of northern area of Phase 2 agricultural and conservation grassland areas on completion of shale placement.

Remove ~8,500m³ of Loamy Lower Subsoil from Bund L/S LSS002 for restoration of northern area of agricultural, conservation grassland and woodland areas on completion of overburden placement.

Remove ~10,700m³ of Loamy Upper Subsoil from Bund L/S USS003 for restoration of northern area of Phase 2 agricultural and conservation grassland areas on completion of lower subsoil placement.

Phase 2 Western Landform (South) Soil Strip

Strip and direct place ~8,600m³ of Loamy Topsoil from southern area of Phase 2 for restoration of northern area of Phase 2 agricultural and conservation grassland areas on completion of upper subsoil placement.

Strip remaining ~900m³ of Loamy Topsoil from the southern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund L/S TS002 for the restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of overburden and subsoil placement.

Strip and direct place ~2,400m³ of Heavy Clay Topsoil from southern area of Phase 2 for restoration of northern area of Phase 2 woodland areas on completion of lower subsoil placement.

Strip remaining~400m³ of Heavy Clay Topsoil from southern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund HCl TS001for restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of overburden and lower subsoil placement.

Strip remaining ~9,500m³ of Loamy Upper Subsoil from the southern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund L/S USS003 for restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of overburden and lower subsoil placement.

Strip remaining ~24,600m³ of Loamy Lower Subsoil from the southern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund L/S LSS002 for restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of overburden placement.

Strip remaining ~41,000m³ of Sandy Overburden from the southern half of Phase 2 Western Landform soil strip area and place in temporary storage within Bund SOB001 for restoration of Phase 2 and 3 agricultural and conservation grassland areas on completion of shale placement.
Phase 2 Western Landform (South) Bulk Earthworks

Progressively strip ~ 504,000m³ of overburden and shales from Phase 2 Extraction Area and place within the southern area of Phase 2 to complete bulk infilling to restoration profiles.

Phase 2 Western Landform (South) Soil Replacement

Remove ~26,700m³ of Sandy Overburden from Bund SOB001 for restoration of southern area of Phase 2 agricultural and conservation grassland areas on completion of shale placement.

Remove ~16,900m³ of Loamy Lower Subsoil from Bund L/S LSS002 for restoration of southern area of Phase 2 agricultural, conservation grassland and woodland areas on completion of overburden placement.

Remove ~7,100m³ of Loamy Upper Subsoil from Bund L/S US003 for restoration of southern area of Phase 2 agricultural and conservation grassland areas on completion of lower subsoil placement.

Remove ~8,000m³ of Loamy Topsoil from Bund L/S TS004 for restoration of southern area of Phase 2 agricultural and conservation grassland areas on completion of upper subsoil placement.

Remove ~5,400m³ of Heavy Clay Topsoil from Bund HCl TS001 for restoration of southern area of Phase 2 woodland areas on completion of lower subsoil placement.

Phase 2 Western Landform (South) Bulk Earthworks

Strip ~ 6,100m³ of Heavy Clay Topsoil from footprint of Phase 3 Extraction Area and place in temporary storage within Bund HCl TS001 to allow extraction of overburden and shales for placement onto footprint of Phase 3 Western Landform.

Phase 3 Western Landform Bulk Earthworks

Progressively strip ~ 656,000m³ of overburden and shales from Phase 3 Extraction Area and place within Phase 3 Western Landform (360,000m³) and within Quarry Void (296,000m³) to complete bulk infilling to restoration profiles.

Phase 3 Western Landform Soil Replacement

Remove remaining ~13,700m³ of Sandy Overburden from Bund SOB001 for restoration of Phase 3 agricultural and conservation grassland areas on completion of shale placement.

Remove remaining ~17,000m³ of Loamy Lower Subsoil from Bund L/S LSS002 for restoration of Phase 3 agricultural, conservation grassland and woodland areas on completion of overburden placement.

Remove remaining ~3,400m³ of Loamy Upper Subsoil from Bund L/S US003 for restoration of Phase 3 agricultural and conservation grassland areas on completion of lower subsoil placement.

Remove remaining ~4,600m³ of Loamy Topsoil from Bund L/S TS004 for restoration of Phase 3 agricultural and conservation grassland areas on completion of upper subsoil placement.

Remove remaining ~18,400m³ of Heavy Clay Topsoil from Bund HCl TS001 for restoration of Phase 3 woodland areas on completion of lower subsoil placement.

Phase 3 Extraction Area Soil Strip

Strip ~ 6,100m³ of Heavy Clay Topsoil from footprint of Phase 3 Extraction Area and place in temporary storage within Bund HCl TS001 to allow extraction of overburden and shales for placement onto footprint of Phase 3 Western Landform.

Phase 3 Western Landform Bulk Earthworks

Progressively strip ~ 656,000m³ of overburden and shales from Phase 3 Extraction Area and place within Phase 3 Western Landform (360,000m³) and within Quarry Void (296,000m³) to complete bulk infilling to restoration profiles.

Phase 3 Western Landform Soil Replacement

Remove remaining ~15,700m³ of Sandy Overburden from Bund SOB001 for restoration of Phase 3 agricultural and conservation grassland areas on completion of shale placement.

Remove remaining ~17,000m³ of Loamy Lower Subsoil from Bund L/S LSS002 for restoration of Phase 3 agricultural, conservation grassland and woodland areas on completion of overburden placement.

Remove remaining ~3,400m³ of Loamy Upper Subsoil from Bund L/S US003 for restoration of Phase 3 agricultural and conservation grassland areas on completion of lower subsoil placement.

Remove remaining ~4,600m³ of Loamy Topsoil from Bund L/S TS004 for restoration of Phase 3 agricultural and conservation grassland areas on completion of upper subsoil placement.

Remove remaining ~18,400m³ of Heavy Clay Topsoil from Bund HCl TS001 for restoration of Phase 3 woodland areas on completion of lower subsoil placement.

Phase 3 Western Landform (South) Bulk Earthworks

Progressively strip ~ 656,000m³ of overburden and shales from Phase 3 Extraction Area and place within the southern area of Phase 3 to complete bulk infilling to restoration profiles.

Phase 3 Western Landform (South) Soil Replacement

Remove remaining ~15,700m³ of Sandy Overburden from Bund SOB001 for restoration of Phase 3 agricultural and conservation grassland areas on completion of shale placement.

Remove remaining ~17,000m³ of Loamy Lower Subsoil from Bund L/S LSS002 for restoration of Phase 3 agricultural, conservation grassland and woodland areas on completion of overburden placement.

Remove remaining ~3,400m³ of Loamy Upper Subsoil from Bund L/S US003 for restoration of Phase 3 agricultural and conservation grassland areas on completion of lower subsoil placement.

Remove remaining ~4,600m³ of Loamy Topsoil from Bund L/S TS004 for restoration of Phase 3 agricultural and conservation grassland areas on completion of upper subsoil placement.

Remove remaining ~18,400m³ of Heavy Clay Topsoil from Bund HCl TS001 for restoration of Phase 3 woodland areas on completion of lower subsoil placement.
Figure 5. Phase 2 - Soil Storage Location
Figure 6. Phase 3 - Soil Storage Location
Soil handling

Soil handling will adhere to relevant recommendations within Defra’s Construction Code of Practice for the Sustainable Use of Soils on Construction Sites and the document referenced within it ‘MAFF Good Practice Guide For Handling Soils’, these include the requirements that:

- Soil resources are not being exported from site;
- Topsoil, subsoil and overburden will be kept separate during stripping, storage and re-spreadining;
- Dump trucks and excavators will be used for all soil movements;
- Soils will be stripped and placed using a loose tipping method;
- Soils will be stripped in narrow bands across the area, the band width is to be determined by the jib length of the mechanical excavator used;
- Dump trucks will not run on topsoil or subsoil thus avoiding compaction;
- The mechanical excavator will stand on the soil horizon previously stripped (again to avoid compaction);
- Soil and general traffic over soil will be avoided; and
- Soils will not be handled or moved during unfavourable weather conditions or when soil moisture content is too high.

Soils will only be handled when they are in a reasonably dry and friable condition; when they are least susceptible to lasting damage by compaction and smearing. Therefore a ‘closed season’ for handling soil shall normally be adopted between November and March. At all other times soils shall only be stripped and handled when they are in a dry and friable condition and below their Lower Plastic Limit. The Lower Plastic Limit being defined, within the Defra Guidance for the Successful Reclamation of Mineral and Waste Sites (as referenced within the current guidelines as Construction Code of Practice for the Sustainable Use of Soils on Construction Sites) as “the water content of the soil at which it changes from being brittle to plastic”.

Soil handling shall cease during rain, sleet or snow. If sustained heavy rainfall (e.g. >10mm in 24 hours) occurs during soil stripping operations, work must be suspended and not restarted until the ground has had at least a full dry day or it meets the agreed moisture criteria (such as a specified soil moisture content). The following criteria shall be applied:

- In light drizzle soil handling may continue for up to 4 hours unless the soils are already too moist.
- In light rain soil handling must cease after 15 minutes.
- In heavy rain and intense showers, handling shall cease immediately.
- After rain has ceased soil tests shall be applied to determine when handling may restart, provided that the ground is free from puddles.
- Soils will not be moved during dry and windy weather conditions, to avoid dust particles causing a nuisance to nearby properties and local industries.

Anticipated Restoration Soil Profiles:

<table>
<thead>
<tr>
<th>Restoration Profiles</th>
<th>Agricultural Grassland</th>
<th>Acid Grassland / Heathland</th>
<th>Woodland Planting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topsoils</td>
<td>0.30m</td>
<td>0.18m</td>
<td>0.64m</td>
</tr>
<tr>
<td>Upper Subsoil Depths</td>
<td>0.47m</td>
<td>0.10m</td>
<td>0.00m</td>
</tr>
<tr>
<td>Lower Subsoil Depths</td>
<td>0.00m</td>
<td>0.50m</td>
<td>0.22m</td>
</tr>
<tr>
<td>Sandy Overburden</td>
<td>1.00m</td>
<td>0.59m</td>
<td>0.00m</td>
</tr>
</tbody>
</table>
Soil Storage

Soils will be stripped on a phase by phase basis which, once in a suitable condition to move, will be used to create temporary bunds along the western edge of the phase 2 western landform development area, or will be directly placed for restoration within the northern restoration area.

Soil material which is to be moved to temporary soil storage bunds shall be in a dry and friable condition, this will ensure the soil structure is maintained in the best possible condition (within the parameters of the existing soil characteristics). Therefore as stated above if the weather conditions are adverse then the soil stripping operations should cease and only recommence once the weather improves and the soil dries out sufficiently.

Typically the soils will be placed into bunds as detailed below:

1. Soil to be placed in small heaps by a dump truck.
2. A LGP tracked dozer/excavator will then level the mounds into one landform.
3. The bund will be firmed up by the LGP dozer running across the surface or by using the excavator bucket.
4. For larger bunds a second (or third) pile of mounds may be added on top of the levelled first row if required and within the height restrictions.
5. Once the planned height is reached the top and side surfaces are compacted and regraded to allow the bund to shed water.

Soil Replacement

There may be some stripped soils that may be temporarily stored and at the earliest opportunity used to implement the restoration scheme, which will be progressed in phases in accordance with the proposed phased working strategy.

Soils should be carefully handled, handling kept to a minimum and the processes monitored to ensure that the soils retain structure, and remain un-compacted and well-aerated. If these factors are not maintained then soil can become waterlogged, suffer anaerobism and result in poor establishment.

1. Soil should be replaced using the loose tipping method. This involves:
2. Loosening of the surface on which the soil is to be placed, i.e. with a winged-tine ripper.
3. For distances greater than 25m soils should be loaded from the storage area to a dump truck by a hydraulic excavator with a toothed bucket.
4. For distances less than 25m the soil bunds will be dozed out using a LGP tracked bulldozer.
5. The dump truck will deposit the soil at the intended surface.
6. An Excavator will spread the soil to the required depth in strips to prevent the excavator running over the newly placed soils.
Summary and Introduction:

This document provides information to discharge conditions 11 and 46 of the Pre-Commencement of Planning Permission ref: NWB/1CM034.

**Condition 11**: Detailed Restoration Scheme (Phase 2)

**Condition 46**: Detailed Aftercare Scheme (Phase 2)

The document is to be read in conjunction with Dwg: M095_00050 which shows the proposed final restoration landform and habitat types as well as Dwg: M095_00045 which shows the proposed block phasing of the full quarry development.
The following sheets provide information to satisfy:

**Condition 11:** The development hereby permitted shall not be commenced [within a phase] until a detailed restoration scheme [for that phase], based upon the concept restoration plan, has been submitted to and approved in writing by the Mineral Planning Authority. The submitted scheme shall include details of planting schemes and habitat creation. Following approval the restoration plans shall be carried out in accordance with the approved timetable for implementation.

**Reason:** In order to ensure satisfactory and timely restoration of the site.

**Condition 46:** Within three months of the replacement of any topsoil or final soil cover or the completion of restoration works within a Phase, whichever is sooner, a detailed aftercare scheme for the area included in that Phase shall be submitted to the Mineral Planning Authority for approval. The scheme shall specify the steps to be taken and the time period(s) in which they are to be taken. Following approval in writing by the Mineral Planning Authority the scheme (or any variation so approved) shall be implemented accordingly.

**Reason:** To ensure the satisfactory and early restoration and aftercare of the site.

**Phase 2 Detailed Restoration Proposals**

Restoration habitat types to include:

- Agricultural Grassland
- Acid Grassland/Heathland
- Pond/Ditch Edge Habitat
- Hedgerow Planting

For phased implementation of subsequent restoration phases (2-4) please refer to dwg: M095_00045
Information to satisfy condition 11 and 46: Detailed Restoration and Aftercare Scheme - Phase 2

Phase 2 Detailed Seeding Proposals - Agricultural Grassland Habitat:

Total Area to be Planted on Site = 33,800m² = 33.8 Ha

Agricultural grassland will form a key part of the restoration of the western landform providing suitable and varied grazing land.

The grassland will be managed to promote species diversity of both flora and fauna. The EM26 - Emorsgate Standard Old Fashioned Grazing Mixture has been selected.

EM26 - Standard Old Fashioned Grazing Mixture:

<table>
<thead>
<tr>
<th>%</th>
<th>Agrostis castellana - Highland Bent</th>
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<tbody>
<tr>
<td>3</td>
<td>Cynosurus cristatus - Crested Dogstail</td>
</tr>
<tr>
<td>9</td>
<td>Dactylis glomerata - cocksfoot</td>
</tr>
<tr>
<td>12</td>
<td>Festuca rubra - Strong-creeping Red-fescue</td>
</tr>
<tr>
<td>35</td>
<td>Lolium perenne - Perennial Ryegrass</td>
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<tr>
<td>6</td>
<td>Phleum bertolonii - Small Cat's-tail</td>
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<tr>
<td>9</td>
<td>Poa pratensis - Smooth-stalked Meadow-grass</td>
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<tr>
<td>12</td>
<td>Schedonorus pratensis - Meadow Fescue</td>
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<tr>
<td>3</td>
<td>Trifolium pratense - Red Clover</td>
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<td>2</td>
<td>Trifolium repens - Small Leaved White Clover</td>
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</tbody>
</table>

Sowing rate: 4g/m² = ~135.2 kg of seed

Specification:

- Spray 3 weeks after soil replacement to ensure killing off of any latent weeds within the upper soil profile.
- Prior to seeding the topsoil layer is to be disced and power harrowed to a depth of 200mm to create a homogenous well-broken, non-compacted tilth of 50mm.
- Stones and deleterious material exceeding 100mm in diameter to be removed before cultivation.
- Seeds to be sown according to manufacturers instructions at a rate of ~4g/m².
- Seeds to be British and preferably of local provenance.
- All cultivations will only be undertaken during dry ground and weather conditions.

General Maintenance:

- A cutting regime based on a cut to 50-75mm height in early Summer for the first year where possible.
- Re-seeding of failed areas where necessary.
- One visit per annum until final restoration of the quarry has been completed (approximately 3.5 years), when the 5 year aftercare scheme will commence.
- Visits to include encouraging the development of the scrages / marginal areas.
- Removal of noxious weeds may also be necessary.

Note: The phase 2 restoration areas will be managed through a cutting regime as above until the completion of subsequent restoration phases when the 5 year aftercare period will begin.

5 Year Aftercare Programme:

<table>
<thead>
<tr>
<th>Management Activity</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
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<tr>
<td>Spot treatment control of noxious weeds with broadleaved herbicide (Mid Summer)</td>
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<td>Mowing with cuttings left in situ (July)</td>
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<td>Selective mowing (Late Summer)</td>
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<td>Mowing of ‘rides’ to establish contrasting heights of herbage (Late Summer)</td>
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<tr>
<td>Possible reseeding of failed areas</td>
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Note: the 5 year aftercare period will commence on successful establishment of the habit.
Information to satisfy condition 11 and 46: Detailed Restoration and Aftercare Scheme - Phase 2

Phase 2 Detailed Seeding Proposals - Acid Grassland / Heathland Habitat:

Total Area to be Planted on Site = 18,740m² = 18.74Ha

Much of the restoration grassland will be restored to acid grassland/heathland mosaic to create suitable habitat for the range of faunal species present on the site.

The grassland will be managed to promote species diversity of both flora and fauna. Toppilts on 20-30% of the Phase 2 area will be substituted for loamy upper and lower subsoils to promote low pH heathland conditions. This is to take place in isolated areas on free draining slopes. Translocated brash material from a local donor site will be spread to provide an appropriate local seed source to establish a heathland and heather mix. If material cannot be obtained from a local donor site a source will be found of the same soil and habitat type.

The use of green hay from a local donor site would be considered as an additional establishment technique to either supplement areas which have been seeded and/or where diversity is lower than expected.

The EM7A - Emorsgate Meadow Mixture for Acid Soils has been selected for the remaining areas, sown into prepared topsoil.

EM7A - Meadow Mixture for Acid Soils:

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<td>Sowing rate: 4g/m² = ~74.96 kg of seed</td>
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Specification:

- Spray 3 weeks after soil replacement to ensure killing off of any latent weeds within the upper soil profile. Remove any weeds using repeated cultivation.
- Prior to seeding the topsoil layer is to be disced and power harrowed to a depth of 200mm to create a homogenous well-broken, non-compacted tilth of 50mm.
- Stones and deleterious material exceeding 100mm in diameter to be removed before cultivation.
- Seeds to be sown according to manufacturers instructions at a rate of ~4g/m².
- Seeds to be British and preferably of local provenance.
- All cultivations will only be undertaken during dry ground and weather conditions.
- Translocated brash material to be spread over proposed heathland areas (20-30% of total area).

General Maintenance:

- A grassland cutting regime based on a cut to 50-75mm height following seed head production.
- Heathland areas to be left uncut within the first year and spot treated to remove invasive weeds to promote species establishment.
- Re-seeding of failed areas where necessary.
- One visit per annum until final restoration of the quarry has been completed (approximately 3.5 years), when the 5 year aftercare scheme will commence.
- Visits to include encouraging the development of the scapes / marginal areas.
- Removal of noxious weeds may also be necessary.
- On final restoration, grassland will be selectively grazed within areas to encourage the development of poached micro-habitat within areas of damp ground that would lead to the development of tussocky grassland.

Habitat Area

<table>
<thead>
<tr>
<th>Management Activity</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
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</thead>
<tbody>
<tr>
<td>Spot treatment control of noxious weeds with broadleaved herbicide (Mid Summer)</td>
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<td>Selective mowing (Late Summer)</td>
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<td>Selective grazing (Summer)</td>
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<td>Possible reseeding of failed areas</td>
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</tbody>
</table>

Note: the 5 year aftercare period will commence on successful establishment of the habit.
Information to satisfy condition 11 and 46: Detailed Restoration and Aftercare Scheme - Phase 2

**Phase 2 Detailed Seeding Proposals - Pond Edge / Ditch Habitat:**

Total Area to be Planted on Site = 2,032 m² = 2.03 Ha

Where ponds/ditches are located within the Phase 2 restoration area, a more focused pond edge seed mixture will be applied to enhance biodiversity opportunities.

Localised annual management of the wet margins through the removal of weed growth will encourage the development of a good perennial ground cover which on successful development can be managed as grassland.

**EP1 - Pond Edge Mixture:**

<table>
<thead>
<tr>
<th>#</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Achillea ptarmica - Sneezewort</td>
</tr>
<tr>
<td>2</td>
<td>Angelica sylvestris - Wild Angelica</td>
</tr>
<tr>
<td>0.2</td>
<td>Caltha palustris - Marsh marigold</td>
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<tr>
<td>1</td>
<td>Eupatorium cannabinum - Hemp Agrimony</td>
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<tr>
<td>2.6</td>
<td>Filipendula ulmaria - Meadowsweet</td>
</tr>
<tr>
<td>1</td>
<td>Geum rivale - Water Avenys</td>
</tr>
<tr>
<td>4</td>
<td>Iris pseudacorus - Yellow Iris</td>
</tr>
<tr>
<td>1</td>
<td>Lotus pedunculatus - Greater Birdsfoot Trefol</td>
</tr>
<tr>
<td>1</td>
<td>Lycopus europaeus - Gypsywort</td>
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<tr>
<td>0.5</td>
<td>Lythrum salicaria - Purple Loosestrife</td>
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<tr>
<td>2.5</td>
<td>Ranunculus acris - Meadow Buttercup</td>
</tr>
<tr>
<td>0.5</td>
<td>Scrophularia auriculata - Water Figwort</td>
</tr>
<tr>
<td>1</td>
<td>Silene flo-cuculi - Ragged Robin</td>
</tr>
<tr>
<td>0.2</td>
<td>Succisa pratensis - Devil’s Bit Scabious</td>
</tr>
<tr>
<td>1.5</td>
<td>Vicia cracca - Tufted Vetch</td>
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<tr>
<td>10</td>
<td>Agrostis capillaris - Common Bent</td>
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<tr>
<td>4</td>
<td>Alopecurus pratensis - Meadow Foxtail</td>
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<tr>
<td>1</td>
<td>Anthoxanthum odoratum - Sweet Vernal-grass</td>
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<tr>
<td>1</td>
<td>Briza media - Quaking Grass</td>
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<tr>
<td>36</td>
<td>Cynosorus cristatus - Crested Dogstail</td>
</tr>
<tr>
<td>1</td>
<td>Deschampsia cespitosa - Tufted Hair-grass</td>
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<tr>
<td>24</td>
<td>Festuca rubra - Slender-creeping Red-fescue</td>
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<tr>
<td>3</td>
<td>Hordeum secalinum - Meadow barley</td>
</tr>
</tbody>
</table>

**Sowing rate**: 4g/m² = ~8.1 kg of seed

**Specification:**
- Remove any weeds using repeated cultivation
- Prior to seeding cultivate the surface vegetation and harrow to a depth of 200mm to create a homogenous well-broken, non-compacted tilth of 50mm.
- Stones and deleterious material exceeding 100mm in diameter to be removed before cultivation.
- Seeds to be surface sown according to manufacturers instructions at a rate of ~4g/m².
- Seeds to be British and preferably of local provenance

**General Maintenance:**
- The pond edge will be subject to localised annual management for the first 5 years where weed growth is to be cut back.
- Re-seeding of failed areas where necessary.
- One visit per annum until final restoration of the quarry has been completed (approximately 3.5 years), when the 5 year aftercare scheme will commence.
- To provide variation and enhance the vegetation structure, short sections of vegetation should be removed, thinned or cut back every 2-3 years in rotation.
- Removal of noxious weeds may also be necessary.
- On successful development a seasonal management regime of grazing should be carried out in line with Phase 1 restoration grassland/heathland.

**5 Year Aftercare Programme:**

<table>
<thead>
<tr>
<th>Management Activity</th>
<th>Y1</th>
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<th>Y3</th>
<th>Y4</th>
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Note: the 5 year aftercare period will commence on successful establishment of the habit.
Information to satisfy condition 11 and 46: Detailed Restoration and Aftercare Scheme - Phase 2

Phase 2 - Hedgerow Planting:

Total Distance = 215 linear m = 0.215km

The northern agricultural field is to be planting with a boundary hedgerow.

Planting is to be in accordance to the below species mix being planted at a rate of 6-linear m.

<table>
<thead>
<tr>
<th>Hedgerow Species Mix</th>
<th>%</th>
<th>Species</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>Acer campestre - Field Maple</td>
<td>40-60cm</td>
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<td></td>
<td>40</td>
<td>Crataegus monogyna - Hawthorn</td>
<td>40-60cm</td>
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<td>10</td>
<td>Rosa canina - Dog Rose</td>
<td>40-60cm</td>
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<td>10</td>
<td>Sambucus nigra - Elder</td>
<td>40-60cm</td>
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<td></td>
<td>10</td>
<td>Corylus avellana - Hazel</td>
<td>40-60cm</td>
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<td></td>
<td>5</td>
<td>Ilex aquifolium - Holly</td>
<td>40-60cm</td>
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<tr>
<td></td>
<td>20</td>
<td>Prunus spinosa - Blackthorn</td>
<td>40-60cm</td>
</tr>
</tbody>
</table>

Total N° = 1,290

Hedgerow Trees

Quercus robur - Oak | 100-120cm

Total N° = 43

Hedgerow trees to be planted at intervals of 15m along the course of the hedgerow, planted either as individuals or in groups of two or three.

- Generally, all planting will be undertaken in a double-staggered row (set 0.5m apart) with plants distributed 300mm apart along each row (6 plants per linear metre).
- Stock of 40-60cm 1-1 transplants will be used, except for Quercus robur (Oak) hedgerow trees, where 100-120cm high stock will be used.
- Planting will take place between December and April.
- All plants will be protected from stock and rabbit grazing, either by individual guards or by protective fencing, depending upon the length and location of the hedge to be protected. All plants will be planted using notch-planting techniques.

- Following the 1st growing season, each winter a failed ‘beating up’ inspection will take place to ensure a 85% overall stocking density.
- This will include replacement of dead/diseased/dying plant stock, replacement/straightening of tree guards and stakes, removal of herbaceous vegetation from tree guard interiors, re-pegging and any further works deemed necessary to ensure successful establishment.
- To control weeds and allow proper growth and prevent unwanted succession by invasive species, each spring one application of an approved glyphosate will be applied to margins and/or additional spot spraying of any unwanted vegetation. If necessary and depending on the severity or amount of vegetation, encroaching vegetation will be strimmed or hand weeded (March, May and September).
- During years 1 to 3, three maintenance visits will be made per annum (March, May and September).
- During years 4 to 5, two maintenance visits will be made per annum (May and September).
- During May and September visits, any dead, dying or diseased species are to be taken out and removed off site and replaced during the following planting season (December to April) to ensure an 85% overall stock density by years 5 and 10.