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**GREAT CRESTED NEWT METHOD STATEMENT
FOR DEVELOPMENT LICENCE APPLICATION**

At

Kingmoor

Wrexham Industrial Estate
Bryn Lane
Wrexham
LL13 9UT

NGR: SJ 39675 50371

Prepared for: Natural Resources Wales
Written by: Toby Hart, UES Managing Director

A handwritten signature in black ink, appearing to read 'Toby Hart', is positioned below the text 'Written by: Toby Hart, UES Managing Director'.

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CONTENTS

BACKGROUND AND SUPPORTING INFORMATION.....	3
A. EXECUTIVE SUMMARY	3
B. INTRODUCTION	4
B.1 Background to activity / development.....	4
B.2 Full details of proposed works on site that are to be covered by the licence	4
B.3 Actions requiring licensing	5
C. SURVEY AND SITE ASSESSMENT	6
C.1 Existing information on great crested newts at the survey site	6
C.2 Statutory sites notified for the species (SSSIs or SACs) within 10km.....	6
C.3 Objectives of the survey.....	6
C.4 Scaled plan / map of survey area.....	6
C.5 Site / habitat description.....	6
C.6 Field survey(s)	12
C.7 Survey results.....	14
C.8 Interpretation / evaluation of survey results	18
D. IMPACT ASSESSMENT.....	19
D.1 Short-term impacts: disturbance	19
D.2 Long-term impacts: site modification	19
D.3 Long-term impacts: site loss	19
D.4 Long-term impacts: fragmentation and isolation.....	19
D.5 Post-development interference impacts	19
D.6 Predicted scale of impact.....	20
DELIVERY INFORMATION – MITIGATION, COMPENSATION AND MONITORING	21
E. WORKS TO BE UNDERTAKEN.....	21
E.1 Great crested newt capture and exclusion	21
E.2 Great crested newt habitat.....	25
E.3 Mechanisms for ensuring delivery of mitigation and compensation measures ..	27
E.4 Mitigation contingencies.....	28
E.5 Biosecurity risk assessment.....	28
F. POST-DEVELOPMENT SITE SAFEGUARD.....	29
F.1 Habitat / site management and maintenance	29
F.2 Population monitoring	29
F.3 Post-development mitigation contingencies	30
F.4 Mechanism for ensuring delivery of post-development works	30
G. TIMETABLE OF WORKS	31
H. LAND OWNERSHIP – MITIGATION SITE / COMPENSATION SITE	36
H.1 Mitigation site / compensation site ownership	36
H.2 Mitigation site / compensation ownership post construction	36
I. DECLARATION	37
J. REFERENCES.....	38
K. ANNEXES	39
K.1 Pre-existing survey reports	39
K.2 Raw survey data.....	39
APPENDICES.....	40
Appendix 1 – Site plan.....	40
Appendix 2 – Pond plan	41
Appendix 3 – HSI scores	42
Appendix 4 – Amphibian fencing plan.....	43
Appendix 5 – Landscape plan	44



BACKGROUND AND SUPPORTING INFORMATION

A. EXECUTIVE SUMMARY

Kingmoor is a 25.4ha parcel of land located on the eastern side of Wrexham Industrial Estate. It has been previously used for agricultural grazing, silage cultivating and some industrial activities. The land is currently vacant and is no longer in use. The development proposals are for the construction of three industrial units with associated parking and access roads, as approved under planning permission P/2023/0280 issued by Wrexham Borough Council on 5th July 2024. A significant area of habitat along the southern and eastern site boundaries is due to be retained as an ecological compensation area (see Appendix 1 – Site plan).

A separate planning application (P/2023/0640) and European protected species licence (S093997-1) have already been secured to enable the pond creation works within the ecological compensation area to commence ahead of the main development.

This licence is required to permit the exclusion and translocation of great crested newts (GCNs) *Triturus cristatus* from the working area. The GCN population within the working area will be translocated to the ecological compensation area, also located within the site boundary.

There are three ponds (Ponds 1, 2 and 4) and three ditches (Ditches 1 – 3) within the working area, and three ponds (Ponds 3, 5 and 6) and one ditch (Ditch 6) within the ecological compensation area. A further forty-seven mapped ponds and nine mapped ditches were identified within 500m of the main site (see Appendix 2 – Pond plan).

During the surveys a medium population of GCN was recorded in Ponds 3, 4, 5, 6, 24 and 26 (combined peak adult count of forty-nine). However, several ponds did not have access granted, therefore, it is likely the GCN population in the area will be higher. The peak count of adult GCN onsite was thirty-three individuals which infers that the development site hosts a medium GCN population. GCNs were recorded onsite in Ponds 3 – 6; of which only Pond 4 is due to be removed and Ponds 3, 5 and 6 are due to be retained as part of the proposed development.

A suite of mitigation measures are proposed as part of this licence application, including the implementation of a trapping and translocation scheme. In addition, a number of habitat enhancements will be carried out in the ecological compensation area, including twenty new ponds and enhanced terrestrial habitat. The ponds will be subject to 30 years of monitoring surveys and the ecologically enhanced areas will also be managed and monitored for GCN suitability, as well as other wildlife such as bats, birds and other common amphibians.

The development will be subject to regular internal and external compliance visits, including monitoring surveys of the created and enhanced terrestrial and aquatic habitats. If the results of the monitoring surveys are unfavourable, any remedial measures that are required will be identified by the licensed GCN ecologist and will be arranged in conjunction with the landowner.



B. INTRODUCTION

B.1 Background to activity / development

Kingmoor is a 25.4ha parcel of land located on the eastern side of Wrexham Industrial Estate. It has been previously used for agricultural grazing, silage cultivating and some industrial activities. The land is currently vacant and is no longer in use. The development proposals are for the construction of three industrial units with associated parking and access roads, as approved under planning permission P/2023/0280 issued by Wrexham Borough Council on 5th July 2024. A significant area of habitat along the southern and eastern site boundaries is due be retained as an ecological compensation area (see Appendix 1 – Site plan).

A separate planning application (P/2023/0640) and European protected species licence (S093997-1) have already been secured to enable the pond creation works within the ecological compensation area to commence ahead of the main development.

The development is proposed in part for reasons of overriding public interest and for socio-economic reasons. The site has been allocated for employment development in Wrexham's Unitary Development Plan (UDP) 1996-2005 (adopted February 2005). The UDP 'provides for a significant amount of employment land at a variety of locations to ensure sufficient potential for inward investment, service sector diversification and the expansion/relocation of existing businesses. Its employment policies, together with other policies, which seek to maximise access to local facilities, are consistent with the Council's aims of reducing poverty and unemployment and promoting equal opportunities.'

The benefits arising from the proposal predominantly include the provision of long-term employment opportunities in an area of high unemployment. The proposed works will also indirectly benefit the local community, for example bringing work and custom to local tradesmen, shops and restaurants / cafes, both in the construction and operational phases of the development.

B.2 Full details of proposed works on site that are to be covered by the licence

Planning permission for the development has been approved by Wrexham Borough Council (reference P/2023/0280). The permission is for:

- Outline permission (all matters reserved except for means of access) for erection of up to 3 warehouse and distribution units (use class B8) and;
- Full planning permission for demolition, means of access, earthworks, drainage, landscaping, ecology zone and relative ecological mitigation measures, and ancillary works

A separate planning application (P/2023/0640) and European protected species licence (S093997-1) have been secured for the enabling works within the ecological compensation area in the eastern field. The proposed works are being undertaken in connection with the development of the main site and include the:

- Creation of twenty new ponds
- Retention of an existing pond
- Creation of two new ditches



B.3 Actions requiring licensing

This licence is required to permit the destruction of suitable terrestrial habitat and three existing ponds onsite, with one being a confirmed GCN breeding pond. These ponds will be destroyed in order to facilitate the construction of three industrial units with associated car parking and access roads. Of the 25.4ha development boundary, approximately 11.4ha (45%) of the site will be retained or subject to habitat creation and enhancement. This will include the retention of three existing ponds, all of which are confirmed GCN breeding ponds, and the creation of twenty ponds and two ditches. In addition, two ponds / shallow ephemeral scrapes and three swales will also be created within the open mosaic habitat within the southern section of the site.

Prior to the destruction of the ponds, translocation of GCN to the ecological compensation area will take place. Amphibian fencing will be erected with the installation of pitfall traps around the entirety of the working area. This will include semi-permanent fencing around the working area boundary to prevent the movement of GCN entering the site. Temporary drift fencing will be erected to compartmentalise the site and therefore maximise the capture probability of amphibians on the site.

C. SURVEY AND SITE ASSESSMENT

C.1 Existing information on great crested newts at the survey site

A desk study was carried out during a preliminary ecological appraisal (PEA) of the main site undertaken by UES in 2021, which included a protected species records search. The search was carried out by COFNOD – North Wales Environmental Information Service to a radius of 2km around the main site.

GCNs have been recorded on numerous occasions in the local area, including within the ponds onsite. The records returned are not specific to each pond and detail combined results from previous GCN surveys undertaken between 1992 and 2016. All records show small to medium sized counts, with a maximum count of 48 adults.

GCN surveys were carried out by UES in 2022 in order to establish whether any populations of GCNs are present in the land surrounding the main site. The survey results are provided later in this report.

C.2 Statutory sites notified for the species (SSSIs or SACs) within 10km

There are two statutory sites within 10km of the site which are designated for GCNs. These include:

- Johnstown Newt Sites SAC, located 8.3km southwest from the development site.
- Stryt Las a'r Hafod SSSI, located 8.3km southwest from the development site.

C.3 Objectives of the survey

The objectives of the GCN surveys carried out in 2022 were to:

- Establish the presence / absence of GCN in the ponds selected for survey
- Assess the size class of the population likely to be affected by the development
- Evaluate the potential impacts of the development project on GCN and associated habitats (if present)
- Provide advice on any potential requirement for mitigation or compensation.

C.4 Scaled plan / map of survey area

See Appendix 1 – Site plan and Appendix 2 – Pond plan.

C.5 Site / habitat description

Aquatic habitats

There are six ponds within the ownership boundary, of which three (Ponds 1, 2 and 4) are located within the working area and are due to be lost in order to facilitate the development, and three (Ponds 3, 5 and 6) are located within the ecological compensation area and will be retained as part of the proposed development.



There are also four ditches within the ownership boundary which will all be retained as part of the proposed development; Ditches 1 – 3 are located within the working area and Ditch 6 is located within the ecological compensation area.

A further forty-seven offsite mapped ponds are located within 500m of the proposed development site. Most of these ponds are situated within areas of woodland, amenity grassland or agricultural land. The majority of the offsite waterbodies to the east and north are well connected to the site via agricultural hedgerows and treelines. There are some minor barriers such as large, open pastoral fields and country roads, but these are not considered to be significant enough to prevent amphibian movement. The offsite waterbodies to the west and south have greater barriers to movement due to the busy Wrexham Industrial Estate being situated here.

Permission to gain access to undertake surveys of the offsite ponds was sought by FI Real Estate Management through a letter; however, of the forty-seven offsite ponds located within 500m of the proposed development site, only seven were granted access.

3.5.1 Onsite ponds and ditches (within the working area)

Pond 1 – Grid reference: SJ 39177 50299

This pond is located near the centre of the site directly west of the track which runs north to south in the middle of the site. The pond is a large open body of water that is believed to be a man-made fishing pond (as evidenced by the presence of a liner, anecdotal evidence from previous surveys of the site and from talking to adjacent landowners); however, the current presence of fish is uncertain. The pond was over 0.5m deep at the time of the survey and is likely over 1m deep within the centre. The pond measures approximately 2600m². No submerged vegetation was observed. The emergent vegetation present consists of reedmace *Typha sp.*, hard rush *Juncus inflexus*, soft rush *Juncus effusus*, Cypress sedge *Carex pseudocyperus*, water forget-me-not *Myosotis scorpioides* and great willowherb *Epilobium hirsutum*. There is also a sparse matt of a waterweed *Elodea sp.* and spiked water milfoil *Myriophyllum spicatum* present on the pond. The banks comprise scattered broadleaved trees and scrub including pedunculate oak *Quercus robur*, grey willow *Salix cinerea* and hawthorn *Crataegus monogyna*. Within the understory dog rose *Rosa canina* and oxeye daisy *Leucanthemum vulgare* were observed. This pond will be removed as part of the development.

Pond 2 – Grid reference: SJ 39346 50292

This pond is located within the broadleaved woodland in the centre of the site. The pond measures approximately 2050m². The water was at least 0.5m deep at the time of the survey. No submerged vegetation was observed. The emergent vegetation was minimal consisting of small amounts of reedmace. The mature tree canopy consisted of pedunculate oak, silver birch *Betula pendula* and *Populus sp.* The scrub understory comprised dog rose, hawthorn and bramble. The diverse mix of ground flora consisted of lords-and-ladies *Arum maculatum*, cleavers *Galium aparine*, common nettle *Urtica dioica*, broadleaved dock *Rumex obtusifolius*, spurge-laurel *Daphne laureola*, cock's foot *Dactylis glomerata*, spear thistle *Cirsium vulgare*, creeping buttercup *Ranunculus repens*, self-heal *Prunella vulgaris*, common sorrel *Rumex acetosa*, common mouse-ear *Cerastium fontanum* and marsh thistle *Cirsium palustre*. Small quantities of hard rush and great willowherb were observed in the surrounding margins. The emergent and marginal vegetation present provides an abundance of egg-laying opportunities. This pond will be removed as part of the development.



Pond 4 – Grid reference: SJ 39362 50525

This pond is located within the northern section of the site. The pond measures approximately 1100m². It is a large field pond that is surrounded by dense goat willow *Salix caprea*, grey willow, hawthorn, bramble and dog rose scrub. As with Pond 3, this pond is in a late successional stage and is being heavily encroached by swamp vegetation. Minimal submerged vegetation was observed including common duckweed *Lemna minor* and floating sweet-grass *Glyceria fluitans*. The emergent vegetation present includes reedmace, soft rush, water plantain *Alisma plantago-aquatica*, water horsetail *Equisetum fluviatile*, great willowherb and cypress sedge. The northern and western banks are predominantly willow scrub with a ground flora composed of reedmace, hard rush, soft rush, glaucous sedge *Carex flacca*, cypress sedge, common hogweed *Heracleum sphondylium*, fleabane *Pulicaria dysenterica*, bramble, and clustered dock *Rumex conglomeratus*. This pond will be removed as part of the development.

Ditch 1 – Grid reference: SJ 38995 50382

This ditch runs adjacent to the western and northern site boundaries. Observed submergent flora consisted of common duckweed and fool's watercress *Helosciadium nodiflorum*. Emergent flora consists of reedmace, great willowherb and reed canary grass *Phalaris arundinacea*. This ditch will be retained as part of the development.

Ditch 2 – Grid reference: SJ 39505 50471

This ditch flows northwards, adjacent to the eastern site boundary and has been divided into three sections. Water levels measure approximately 10cm deep or less with widths ranging from 50cm to 1m. This ditch will be retained as part of the development.

The southern section measures approximately 220m in length with a depth of 10cm. This section is heavily shaded by dense vegetation; however, the immediate banks are bare. Species present include bramble, hawthorn, willow, reedmace, great willowherb, soft rush, cock's foot, alder *Alnus glutinosa*, fool's watercress, marsh-bedstraw *Galium palustre* and lesser celandine *Ficaria verna*.

The central section measures approximately 175m in length with a depth of 8-9cm. The immediate banks are open with limited surrounding scrub. The margins of this section are the same as the southern section; dominated by rushes and grasses with some leaf litter. Additional species include fleabane, common couch *Elymus repens*, false oatgrass *Arrhenatherum elatius* and Yorkshire fog *Holcus lanatus*.

The northern section measures approximately 95m in length with a depth of 10cm. This section is dominated by dense bramble scrub with occasional beech *Fagus sylvatica* saplings. The other species present are the same as both the southern and northern sections.

Ditch 3 – Grid reference: SJ 39240 50606

This ditch flows east, adjacent to the northern site boundary. No submerged vegetation was observed. The only floating vegetation present was common duckweed. The immediate banks are composed of ivy *Hedera helix* with a mature broadleaved woodland canopy. Marginal species include hart's-tongue fern *Asplenium scolopendrium*, lords-and-ladies, scaly male-fern *Dryopteris affinis*, hawthorn, pedunculate oak, ash *Fraxinus excelsior*, elder *Sambucus nigra*, rose *Rosa sp.*, bluebell *Hyacinthoides non-scripta*, daffodil *Narcissus sp.*, wood avens *Geum urbanum*, lesser celandine and crocus *Crocus sp.* Areas of rock and concrete substrate



alongside a concrete culvert are present on the western section from the neighbouring site. This ditch will be retained as part of the development.

3.5.2 Onsite ponds and ditches (within the ecological compensation area)

Pond 3 – Grid reference: SJ 39458 50286

This pond is located within the south-eastern section of the site. The pond measures approximately 1600m². There is little open water present which has a maximum depth of approximately 30cm. The pond is a large field pond surrounded by dense willow and bramble scrub. The pond has been completely encroached by swamp vegetation and is lacking areas of open water. The floating vegetation observed includes common duckweed. Reedmace is the most dominate species within the vegetation with emergent willow *Salix sp.* in the centre. Species included bittersweet *Solanum dulcamara*, cypress sedge, lesser water parsnip *Berula erecta*, water horsetail *Equisetum fluvatile*, wild angelica *Angelica sylvestris* and gypsywort *Lycopus europaeus*. The swamp vegetation is similar to that within Pond 4, however, hard rush, fool's watercress and water plantain were also observed. This pond will be retained as part of the development.

Pond 5 – Grid reference: SJ 39582 50191

This pond is located within the south-eastern corner of the site. The pond appears to have been created for the previous use of the site and has a steep-sided basin amongst an area of dense scrub. The pond measures approximately 600m² and has a maximum depth of 30cm. No submerged vegetation was observed. Floating vegetation includes common duckweed, stonewort *Charales sp.* and fool's watercress. The emergent vegetation present is composed of reedmace, hard rush and jointed rush *Juncus articulatus*. The banks of the pond are sloped with marginal vegetation including silver birch, willow, hawthorn, bramble, spear thistle, hard rush, creeping buttercup, jointed rush, sedge *Carex sp.* and broad buckler-fern *Dryopteris dilatata*. The location is secluded with no disturbance. There is an abundance of egg-laying opportunities amongst the emergent and marginal vegetation. This pond will be retained as part of the development.

Pond 6 – Grid reference: SJ 39574 50368

This pond is located within the eastern field. The pond measures approximately 345m². The pond is almost completely shaded by encroaching goat willow and grey willow scrub. The pond is shallow and has a large drawdown zone of emergent vegetation. The pond was completely damp but lacked any standing water at the time of the walkover survey, however the pond is known to hold standing water in the winter. Emergent species present within the drawdown zone include reedmace, bittersweet, redshank *Persicaria maculosa*, gypsywort, cypress sedge, soft rush, marsh bedstraw and hard rush. A band of marginal vegetation surrounds the pond, although it is limited where dense willow scrub dominates. Marginal species include great willowherb, silverweed *Argentina anserina*, creeping thistle *Cirsium arvense*, tufted vetch *Vicia cracca*, meadow vetchling *Lathyrus pratensis*, false fox sedge *Carex otrubae*, curled dock *Rumex crispus*, floating sweet-grass, reed canary grass and stinging nettle.

Ditch 6 – Grid reference: SJ 39777 50040

This ditch is less than 10cm deep with no marginal or aquatic vegetation present. However, the ditch is surrounded by unmanaged dense scrub and scattered broadleaved trees. The scrub and tree species present include pedunculate oak, hawthorn, bramble, rose, blackthorn



and willow. The ground flora includes lords-and-ladies, cleavers, ivy, stinging nettle and false oat-grass.

3.5.3 Offsite ponds and ditches (with access granted)

Pond 24 – Grid reference: SJ 39907 50094

This pond is located approximately 230m south-east from the site boundary. The pond measures approximately 300m². No submerged vegetation was observed. Floating vegetation consisted of small areas of common duckweed. The emergent vegetation consisted of a single crack willow *Salix fragilis*. Marginal vegetation consisted of hard rush, broadleaved dock, pendulous sedge *Carex pendula* and two mature pedunculate oaks.

Pond 25 – Grid reference: SJ 39622 50029

This pond is located approximately 140m south from the site boundary. The pond measures approximately 850m². No submerged or floating vegetation was present. Emergent vegetation consists of reedmace, hard rush and willow. Marginal vegetation includes soft rush, bramble, mature crack willows, pedunculate oak, hawthorn, crested dog's-tail *Cynosurus cristatus*, cock's foot, ivy, creeping buttercup, remote sedge *Carex remota*, *Epilobium* spp., broadleaved dock and meadow buttercup *Ranunculus acris*. This pond is fed by Ditch 7b which is less than 5cm deep.

Pond 26 – Grid reference: SJ 39731 49881

This pond is located approximately 320m south from the site boundary. The pond measures approximately 600m². No submerged vegetation was observed. The floating vegetation present includes floating sweet-grass, water starwort *Callitriche palustris* and brooklime *Veronica beccabunga*. Emergent vegetation observed includes hard rush, soft rush, reedmace, willow, floating sweet-grass and brooklime. Marginal species include hawthorn, creeping buttercup, jointed rush, bramble, common nettle, spear thistle, *Epilobium* spp., cleavers, ivy, a mature pedunculate oak, broadleaved dock, blackthorn and lords-and-ladies.

Pond 29 – Grid reference: SJ 39330 49953

This pond is located approximately 240m south from the site boundary. The pond measures approximately 700m². The pond has limited accessibility; however, can be viewed in its entirety from the south. No submerged or floating vegetation was observed. The emergent vegetation present includes soft rush, pedunculate oak and reedmace. The marginal vegetation present includes hawthorn, bramble, willow, garden privet *Ligustrum ovalifolium*, dandelion *Taraxacum officinale* agg., soft rush, reedmace, common mullein *Verbascum thapsus*, common vetch *Vicia sativa*, common ragwort *Jacobaea vulgaris*, creeping cinquefoil *Potentilla reptans*, foxglove *Digitalis purpurea*, oxeye daisy, wild cherry *Prunus avium*, blackthorn and silver birch.

Pond 30 – Grid reference: SJ 39254 49951

This pond is located approximately 240m south from the site boundary. The pond measures approximately 600m². No submerged or floating vegetation was observed. The emergent vegetation consisted predominantly of reedmace. The marginal vegetation observed includes bramble, hard rush, silver birch, dogwood *Cornus sanguinea*, willow, hawthorn, garden privet, wild cherry, creeping thistle, common knapweed *Centaurea nigra* and tufted hair grass *Deschampsia cespitosa*.



Pond 31 – Grid reference: SJ 39117 50074

This pond is located approximately 90m south from the site boundary. The pond measures approximately 1600m². No submerged vegetation was observed. The only floating vegetation present was a small number of poor-quality water lily *Nymphaea sp.* The emergent vegetation solely composed of reedmace. The marginal and bankside vegetation includes silver birch, hard rush, soft rush, willow, bramble, *Epilobium spp.*, dogwood, red fescue *Festuca rubra*, fleabane, orchid *Dactylorhiza sp.* and crack willow.

Pond 34 – Grid reference: SJ 38944 49896

This pond is located approximately 355m south from the site boundary. The pond measures approximately 600m². No aquatic vegetation is present. The emergent vegetation is dominated by reedmace and yellow iris *Iris pseudacorus*. The marginal vegetation is composed of a thin strip of scrub and trees including brambles, non-native pine *Pinus sp.*, willow, elder, wild cherry, garden privet, yellow variegated archangel *Lamium galeobdolon*, dogwood, alder and silver birch.

Ditch 7a – Grid reference: SJ 39581 49904

This ditch is located approximately 140m south from the site boundary. The ditch ranges from 10cm to 15cm deep at its deepest point, which transitions into a drier area towards the southern section. It is considered that the northern section of the ditch dries annually. The water quality is poor; therefore, no aquatic or emergent vegetation is present. The marginal and bankside vegetation are predominantly scattered scrub with scattered broadleaved trees. The marginal species present include hawthorn, pedunculate oak, hart's-tongue fern, brooklime, lesser water-parsnip, hard rush and soft rush.

Ditch 7b – Grid reference: SJ 39702 50054

This ditch is located approximately 215m south from the site boundary. The ditch ranges from 15cm to 20cm deep at its deepest point. No submerged or floating vegetation is present. The emergent vegetation includes hard rush and brooklime. Marginal vegetation is composed solely of broadleaved dock *Rumex obtusifolia* and common nettle.

Ditch 8 – Grid reference: SJ 39794 49884

This ditch is located approximately 265m south-east from the site boundary which connects to Ditch 6 at the northernmost point. The ditch runs northward and is less than 5cm deep. Large dry sections are present along the ditch which is covered by a hedgerow. Multiple mature scattered broadleaved trees are present along the ditch. No submerged or emergent vegetation is present. The species present along the ditch include willow, hawthorn, bramble, rose, blackthorn, lords-and-ladies, creeping buttercup, broadleaved dock and soft rush.

Terrestrial habitats

The land parcel has an area of approximately 25.4ha and was formerly used for industrial and agricultural purposes, prior to being left unmanaged for several years. The site contains large semi-improved species-rich grassland fields interspersed with ponds, small stands of woodland, hedgerows and scattered trees. Large areas of the site have succeeded into dense scrub and areas of bare ground and ephemeral / short perennial are present on previously developed land within the south-eastern section of the site. The south-western section of the site contains an area of amenity grassland and a large hardstanding compound used to store



vehicles. A shallow stream runs along the northern site boundary and wet ditches are present along the western and part of the eastern site boundaries.

The 'eastern field' comprises two agricultural grassland fields that are divided and bordered by hedgerows and trees. A dry and unvegetated ditch runs along part of the eastern boundary a pond surrounded by willow scrub is present within the northernmost field.

Overall, the habitats on site are broadly suitable for sheltering, foraging and commuting GCN.

C.6 Field survey(s)

The survey methodology followed that of Natural England's GCN mitigation guidelines (2001).

Presence / absence surveys were carried out of Ponds 3, 5, 6, 24, 26, 34 and Ditch 1 in 2022 to inform the planning application of the proposed development. Other ponds in the local surrounding area could not be surveyed at the time due to access restrictions or they did not require a survey due to negative eDNA results confirming absence.

C.6.1 Surveyors

The surveys were carried out by the following surveyors:

- Toby Hart BSc MCIEEM PIEMA, UES Managing Director. Toby is licensed by Natural Resources Wales to disturb, take and handle great crested newts under licence number S086784/1
- Tom Kenwright BSc MSc ACIEEM, UES Senior Ecologist. Tom is licensed by Natural Resources Wales to disturb, take and handle great crested newts under licence number S092335/1.
- Alasdair Grubb BSc ACIEEM, UES Senior Ecologist. Alasdair is licensed by Natural Resources Wales to disturb, take and handle great crested newts under licence number S090926-1.
- Daniel Smith BSc MScRes, UES Ecologist. Daniel is licensed by Natural Resources Wales to disturb, take and handle great crested newts under licence number S091929/1.
- Mark Halliwell MBiol, UES Senior Ecologist
- Robert Mooney MSc, UES Graduate Ecologist
- Noah Fulton BSc, UES Graduate Ecologist
- Jacob Miller BSc, UES Graduate Ecologist
- James Stubbs BSc, UES Sub-contractor
- Mark Jeffries, UES Sub-contractor
- Jenny Gibbs, UES Administrator

All surveyors have the knowledge, skills and experience identified within CIEEM's "Competencies for Species Survey: Great Crested Newt" (2013) or were under the supervision of a surveyor with the required competencies.

C.6.2 Survey timings

Standard presence / absence surveys require four site visits, however when presence has been confirmed, a further two visits are required to assess the size of the population within a pond. These survey visits were carried out on the following dates:



Table 1 - Survey dates

Date	Site visit number							
	Pond 3	Pond 4	Pond 5	Pond 6	Pond 24	Pond 26	Pond 34	Ditch 1
21-22/03/2022	1	1	1	-	-	-	-	-
23-24/03/2022	-	-	-	-	1	1	-	-
07-08/04/2022	-	-	-	-	-	-	1	-
11-12/04/2022	2	-	2	1	-	-	-	-
19-20/04/2022	-	2	-	2	2	2	-	-
26-27/04/2022	3	3	3	3	3	3	-	1
01-02/05/2022	4	4	4	4	4	4	-	2
06-07/05/2022	5	-	5	-	-	-	-	-
07-08/05/2022	-	-	-	-	-	-	2	3
10-11/05/2022	-	5	-	-	-	-	3	-
21-22/05/2022	-	-	-	5	5	5	4	4
28-29/05/2022	6	6	6	-	-	-	5	5
13-14/06/2022	-	-	-	6	6	6	6	6

All six site visits were conducted during the recommended survey period for GCN (mid-March to mid-June). All visits took place during suitable weather conditions.

C.6.3 Survey methods

Surveys used a combination of at least three of the four recommended survey methods (bottle trapping, netting, torching and egg searching), as detailed in the below subsections (C.6.1 – C.6.4). Netting would only be used as a last resort where other methods were inappropriate and where no damage to egg laying habitat would be caused. All amphibian species observed during the surveys were recorded, along with their gender and life stage if possible to determine.

Bottle traps

Bottle traps are placed around the margins of the pond and are left overnight, before collecting them early the following morning. Where safe to do so, traps were set all around the pond at a density of one trap per two metres of shoreline. Some studies indicate that bottle trapping is the most reliable method for detecting the presence of GCN, and it is especially useful for surveying turbid or vegetation-covered ponds. This method also allows the accurate identification of any amphibians caught. Bottle trapping was not used where there was a risk of disturbance by people or animals, or when the overnight air temperature dropped below 5°C, or during very hot weather when water temperatures were high and dissolved oxygen levels low.

Torching

GCNs can be searched for at night using a powerful torch. In clear ponds this can be a very effective way of detecting and counting newts during the breeding season, but this method can be limited in heavily vegetated or turbid ponds. Where possible, the entire margin of the ponds was walked once, slowly checking for newts. Surveys only took place when the night air temperature was > 5°C and there was no or little wind or rain to disturb the water's surface.



Netting

GCNs can be captured by sampling the area around the pond edge using a long-handled net. Where undertaken, there was at least 15 minutes of netting per 50m of shoreline. Netting was undertaken with care so as to minimize damage to beds of submerged aquatic vegetation which may contain newt eggs and / or larvae. It was only carried out as a last resort due to the damage it can cause to amphibians and their habitat.

Egg search

All native newts lay eggs singly on submerged leaves of aquatic plants and other suitable submerged items. Careful examination of pond vegetation can therefore be used to establish the presence of newts in a pond during the breeding season. GCN eggs can be distinguished from other newt species' eggs, therefore enabling species-specific presence / absence to be determined.

C.6.4 Survey constraints

Permission to gain access to undertake surveys of the offsite ponds was sought by FI Real Estate Management through a letter; however, of the forty-seven offsite ponds located within 500m of the proposed development site only seven were granted access. This limitation was considered and taken into account within the evaluation and recommendations sections of the survey report.

Pond 6 was dry during the last survey visit. Five visits were able to fully survey the pond, and visits 4 and 5 found no GCN present. Therefore, it is not considered to be a significant limitation to the survey.

Access to Pond 34 was not granted during the 4th visit due to security issues with the third-party land owner. The other five visits found no presence of GCN and the eDNA only had 1 out of 12 replicates which suggests that the pond is used by a low number of GCN or used on a transient basis. Therefore, it is not considered to be a significant limitation to the survey.

A water shrew *Neomys fodiens* was found within one of the bottle traps in Ditch 1 during the 4th visit, therefore, no further bottle trapping was undertaken during visits 5 and 6. However, torching, netting and a terrestrial refugia search were still undertaken which meets the recommendations set out in Natural England's GCN Mitigation Guidelines (2001). This is not considered to be a significant limitation to the survey.

C.7 Survey results

There are three ponds (Ponds 1, 2 and 4) and three ditches (Ditches 1 – 3) within the working area, and three ponds (Ponds 3, 5 and 6) and one ditch (Ditch 6) within the ecological compensation area. A further forty-seven mapped ponds and nine mapped ditches were identified within 500m of the main site (see Appendix 2 – Pond plan).

Most of the offsite ponds are situated within areas of woodland, amenity grassland or agricultural land. The majority of the offsite ponds to the east and north are well connected to the site via agricultural hedgerows and treelines. There are some minor barriers such as large, open pastoral fields and country roads, but these are not considered to be significant enough to prevent amphibian movement. The offsite ponds to the west and south have greater barriers to movement due to the busy Wrexham Industrial Estate being situated here.



Permission to gain access to undertake surveys of the offsite ponds was sought by FI Real Estate Management via a letter, however access was only granted to seven of the offsite ponds.

Water samples were taken from the ponds and ditches which had not returned positive GCN presence on 19th April 2022. No water samples were taken from Ponds 3, 4, 5, 24 and 26 for eDNA analysis as GCN presence had already been confirmed during the first presence / absence survey. Presence of GCN was confirmed through eDNA sampling for Pond 34 and Ditch 1. No evidence of GCNs was found in Ponds 1, 2, 25, 29, 30, 31 and Ditches 2, 3, 6, 7A, 7B and 8. These ponds and ditches also returned negative eDNA results. GCNs are not considered to be present within these ponds and ditches.

Details of the ponds and ditches that confirmed presence of GCN through either presence / absence surveys or eDNA sampling are as follows:

C.7.1 Pond 3

Pond 3 achieved a HSI score of 0.95 (excellent) (see Appendix 3 – HSI scores). A maximum count of eight GCNs was observed on a single visit. This represents a small-sized population. No eggs or juveniles were recorded during the survey period; however, as adults of both sexes were recorded, it is assumed the pond is used for breeding. A peak count of thirty-seven smooth newt *Lissotriton vulgaris* was recorded in the pond. Common frogs *Rana temporaria* and common toads *Bufo bufo* were also recorded in low numbers. No fish were recorded.

Table 2 – Survey results for each site visit at Pond 3

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	21-22/03/2022	2
2	11-12/04/2022	0
3	26-27/04/2022	6
4	01-02/05/2022	8
5	06-07/05/2022	4
6	28-29/05/2022	0

C.7.2 Pond 4

Pond 4 achieved a HSI score of 0.87 (excellent). A maximum count of six GCNs was observed on a single visit. This represents a small-sized population. No eggs or juveniles were recorded during the survey period; however, as adults of both sexes were recorded, it is assumed the pond is used for breeding. Smooth newts, common frogs and common toads were also recorded in low numbers. No fish were recorded.

Table 3 – Survey results for each site visit at Pond 4

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	21-22/03/2022	1
2	19-20/04/2022	4
3	26-27/04/2022	5
4	01-02/05/2022	6
5	10-11/05/2022	3
6	28-29/05/2022	0



C.7.3 Pond 5

Pond 5 achieved a HSI score of 0.94 (excellent). A maximum count of thirteen GCNs was observed on a single visit. This represents a medium-sized population. No eggs or juveniles were recorded during the survey period; however, as adults of both sexes were recorded, it is assumed the pond is used for breeding. A peak count of fifteen smooth newt was recorded in the pond. Common frogs and common toads were also recorded in low numbers. No fish were recorded.

Table 4 – Survey results for each site visit at Pond 5

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	21-22/03/2022	2
2	11-12/04/2022	5
3	26-27/04/2022	5
4	01-02/05/2022	6
5	06-07/05/2022	13
6	28-29/05/2022	4

C.7.4 Pond 6

Pond 6 achieved an HSI score of 0.87 (excellent). A maximum count of six GCNs was observed on a single visit. This represents a small-sized population. GCN eggs were recorded during the presence / absence surveys which confirms the pond is used for breeding. Smooth newts, common frogs and common toads were also recorded in low numbers. No fish were recorded. The pond was dry during the final visit on 13th/14th June.

Table 5 – Survey results for each site visit at Pond 6

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	11-12/04/2022	0
2	19-20/04/2022	3
3	26-27/04/2022	6
4	01-02/05/2022	0
5	21-22/05/2022	0
6	13-14/06/2022	0

C.7.5 Pond 24

Pond 24 achieved an HSI score of 0.78 (good). A maximum count of eight GCNs was observed on a single visit. This represents a small-sized population. No eggs or juveniles were recorded during the survey period; however, as adults of both sexes were recorded, it is assumed the pond is used for breeding. Smooth newts and palmate newts *Lissotriton helveticus* were also recorded in low numbers. No fish were recorded.

Table 6 – Survey results for each site visit at Pond 24

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	23-24/03/2022	8
2	19-20/04/2022	8
3	26-27/04/2022	7



4	01-02/05/2022	2
5	21-22/05/2022	1
6	13-14/06/2022	0

C.7.6 Pond 26

Pond 26 achieved an HSI score of 0.86 (excellent). A maximum count of eight GCNs was observed on a single visit. This represents a small-sized population. GCN eggs were recorded during the presence / absence surveys which confirms the pond is used for breeding. Smooth newts, common frogs and common toads were also recorded in low numbers. No fish were recorded.

Table 7 – Survey results for each site visit at Pond 26

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	23-24/03/2022	8
2	19-20/04/2022	0
3	26-27/04/2022	0
4	01-02/05/2022	0
5	21-22/05/2022	2
6	13-14/06/2022	1

C.7.7 Pond 34

Pond 34 achieved an HSI score of 0.81 (excellent). An eDNA survey was undertaken of the pond in April 2022. The pond returned a positive result, indicating that GCNs are present. However, no GCN were recorded during the presence / absence surveys. The eDNA results were returned as 12/12 replicates which indicates GCN are present for a long period of time; however, as no individuals were recorded during the presence / absence surveys, the pond must only support a very low population of GCN. Only a single adult smooth newt and a low number of frog tadpoles were recorded during the presence / absence surveys. No fish were recorded.

Table 8 – Survey results for each site visit at Pond 34

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	07-08/04/2022	0
2	07-08/05/2022	0
3	10-11/05/2022	0
4	21-22/05/2022	0
5	28-29/05/2022	0
6	13-14/05/2022	0

C.7.8 Ditch 1

Ditch 1 achieved an HSI score of 0.62 (average). An eDNA survey was undertaken of the ditch in April 2022. The ditch returned a positive result, indicating that GCNs are present. However, no GCN were recorded during the presence / absence surveys. The eDNA results were only returned as 1/12 replicates which indicates GCN are only using the ditch on a transient basis. This consideration is supported as no individuals were recorded during the presence / absence



surveys. Only a single adult common frog was recorded during the survey visits. A water shrew was found within one of the bottle traps in Ditch 1 during the 4th visit, therefore, no further bottle trapping was undertaken during visit 5 and 6. However, torching, netting and terrestrial refugia search were still undertaken which meets the recommendations set out in Natural England's GCN Mitigation Guidelines (2001). This is not considered to be a significant limitation to the survey.

Table 9 – Survey results for each site visit at Ditch 1

SITE VISIT N ^o	DATE	MAX. ADULT GCN COUNT
1	26-27/04/2022	0
2	01-02/05/2022	0
3	07-08/05/2022	0
4	21-22/05/2022	0
5	28-29/05/2022	0
6	13-14/06/2022	0

C.8 Interpretation / evaluation of survey results

During the surveys a medium population of GCN was recorded in Ponds 3, 4, 5, 6, 24 and 26 (combined peak adult count of forty-nine). However, several ponds did not have access granted, therefore, it is likely the GCN population in the area will be higher. The peak count of adult GCN onsite was thirty-three individuals which infers that the development site hosts a medium GCN population. GCNs were recorded onsite in Ponds 3 – 6; of which only Pond 4 is due to be removed and Ponds 3, 5 and 6 are due to be retained as part of the proposed development.

Pond 4 is located in the northern section of the site is the only breeding pond that will be removed as part of the development. This population of GCNs is likely to use the terrestrial habitats onsite, especially the woodland and hedgerows during their terrestrial phase when foraging, commuting, sheltering and hibernating. This can be confirmed as GCN were recorded under the artificial refugia located in the woodland near Pond 1 during the reptile presence / absence surveys on the development site at Kingmoor.



D. IMPACT ASSESSMENT

D.1 Short-term impacts: disturbance

The proposed development will result in the loss of areas of suitable foraging and commuting habitat for great crested newts, namely dense scrub and grassland, as well as a confirmed GCN breeding pond (Pond 4) within the working area. As such, increased disturbance on the site from the presence of vehicles, contractors and machinery will occur during these works.

Amphibians using the site during the construction phase of the development would be at risk of direct harm (e.g. through excavation work or vegetation clearance) or indirect harm (e.g. through becoming trapped in open excavations). This impact would be negative, could last for the duration of the construction period and is of a high magnitude as it could result in death of numerous individuals. Given that the site is known to support a medium sized population of GCNs, this is considered to be a major negative impact at a county level.

D.2 Long-term impacts: site modification

The proposed development will result in the modification of habitats within the ecological compensation area; however, these will comprise habitat retention, creation and enhancement works. As such, the residual impact on GCN is anticipated to be a minor positive change at a local level.

D.3 Long-term impacts: site loss

The proposed development will result in the loss of areas of suitable foraging and commuting habitat for great crested newts. Despite this, the layout for the site has been designed to incorporate significant habitat retention, including the retention of habitats at the site boundaries, which will continue to act as ecological corridors and commuting routes for amphibians. Ponds 1, 2 and 4 will be removed as part of the development; however, only Pond 4 was found to be in use by GCNs with the other ponds being used by common amphibian species only. The level of habitat retention, specifically maintaining habitat linkages through ecological corridors at the site boundaries and the retention of three of the four on site ponds used by GCNs, will reduce the impact on GCN. However, without mitigation, it is considered that the operation of the site will result in a moderate negative impact at a county level.

D.4 Long-term impacts: fragmentation and isolation

The layout for the site has been designed to incorporate significant habitat retention, including the retention of habitats at the site boundaries, which will continue to act as ecological corridors and commuting routes for amphibians. As such, it is considered that there will be no fragmentation or isolation as a result of the proposed development and the movement of GCNs within the local area will not be detrimentally affected.

D.5 Post-development interference impacts

GCNs and other amphibians using the site during the operational phase of the development have the potential to fall and become trapped within gully pots installed on site. The potential for this impact is reduced given that ecological corridors containing suitable sheltered



commuting habitat will be retained at all site boundaries and will continue to provide connectivity between the site and the surrounding landscape, reducing the need and likelihood of amphibians commuting across the developed areas. However, without mitigation, it is considered that the operation of the site will result in a minor negative impact at a county level.

D.6 Predicted scale of impact

Overall, without mitigation, it is considered that the proposed development could result in a high magnitude impact on GCN at a county level, therefore it is of major significance.



DELIVERY INFORMATION – MITIGATION, COMPENSATION AND MONITORING

E. WORKS TO BE UNDERTAKEN

E.1 Great crested newt capture and exclusion

E.1.1 Fencing and pitfall traps

The working area will be fenced with temporary amphibian fencing prior to the start of any works on site (except for vegetation management works to facilitate the fence installation). The fencing will prevent amphibians from entering the construction area during the development works. Newt grids will be installed in three locations within the perimeter fence, to enable vehicular access whilst preventing amphibians from accessing the site. See Appendix 4 – Amphibian fencing plan for the proposed location of the newt grids.

Drift fencing will also be used to compartmentalise the site and therefore maximise the capture probability of amphibians on the site. The proposed fencing plan has been designed to reduce impacts on GCNs prior to trapping, by avoiding densely vegetated areas to reduce the amount of vegetation clearance that will be required to install the fencing, hence reducing the risk of disturbance or injury to GCNs. In order to facilitate the installation of the fencing, removal of dense scrub vegetation above 10cm in height along the proposed fence line will be undertaken under the supervision of a licenced ecologist, or an ecologist appointed as an accredited agent who is deemed sufficiently experienced by the licence holder. The removal of vegetation above 10cm in height has no potential to adversely impact GCNs provided it is undertaken sensitively under ecological supervision. If any areas are deemed to have the potential to adversely impact GCNs, these areas will be retained and only removed following the granting of the licence. Following the approval of the GCN licence, the remaining vegetation below 10cm in height will be removed and the fencing will be installed.

Drift fencing will also be installed around the three onsite ponds that are due to be removed. Pitfall traps will be installed at a rate of one per 5-10m along the interior of all perimeter fencing, and on both sides of internal drift fencing. With a minimum of one per 5m within pond compartments. In addition, carpet tile refugia will also be installed adjacent to pitfall traps to further increase the capture rate.

Two large areas of hardstanding are currently present on site, neither of which will be surrounded by perimeter fencing. The reason being that both areas provide negligible quality habitat for GCNs and will need to be used and accessed during the trapping period. The hardstanding within the western section of the site is currently, and will continue to be used for the storage of vehicles. The hardstanding within the eastern section of the site will be used as the site compound for the construction phase of the development, where the site office and facilities will be sited, in addition to vehicles, material and spoil. Given the very low suitability of this area for GCNs and the difficulty of installing pitfall traps, it is not considered necessary to fence and trap this area as part of the translocation exercise. However, as the stored materials could be used by sheltering GCNs if they were to access this area whilst in use, the following mitigation measures are proposed:

- The area will be fitted with on-way amphibians fencing, installed at an angle that would allow GCNs to leave this area (in the unlikely event that any are present at the time of fence installation and will be trapped within as a result) but not enter. See Appendix 4 for fence location.



- Carpet trap refugia will be installed along the interior of the one-way fencing at a rate of 1 per 10m. These artificial refugia will be checked as part of the 60-90 day trapping and translocation process and amphibians encountered will be moved outside of the fenced area to the ecological compensation area.

The ecological compensation area is not accessible from the east and the only vehicular access to the area is from Bryn Lane and through the proposed development site. Given the delay in receiving planning approval, which has caused uncertainty of whether the trapping and translocation exercise will be completed in 2024 or partly completed and then paused and continued in 2025, there will need to be continuous access to the ecological compensation area during the trapping period to facilitate ongoing habitat creation and management works. To facilitate this, it is proposed that an access route will be created across the site to link the two areas of hardstanding. This will be achieved through the installation of drift fencing on either side of the proposed route. This narrow access route will then be subject to two-stage vegetation clearance to facilitate a comprehensive finger-tip search by a suitably licenced ecologist (or their accredited agent) to locate and remove any GCNs or other amphibians present. Given the small area that will be used and the proposed mitigation measures, it is considered that GCNs are very unlikely to be present within this area and it is considered that the access route does not need to be subject to trapping or translocation and can be used to facilitate vehicular access to the ecological compensation area during the ongoing trapping and translocation exercise. The access route will make use of an existing hardstanding access track where possible and will be subject to minimal traffic, kept to the minimum required to facilitate the habitat creation works within the ecological compensation area, further reducing the likelihood of GCNs being present within.

The presence / absence surveys concluded that the local area supports a medium population of GCN. However, a large percentage of ponds in the local area could not be surveyed and previous trapping schemes in Wrexham Industrial Estate have captured more GCN than anticipated. Therefore, it is possible that the local area may support a large population of GCN. The pitfall traps will be open for an initial period of 60 nights (based on the assumption of a medium sized population of GCNs) where temperatures and weather conditions are suitable for GCN trapping (i.e. above 5°C and without frost). Trapping will only be undertaken when newts are active and will not be undertaken when newts are potentially hibernating. The traps will be checked daily by a suitably licensed and experienced ecologist. Any GCNs or other amphibians found in the traps will be released into suitable areas of cover within the ecological compensation area which will act as a GCN receptor site. Trapping will continue until 5 consecutive nights without capture have taken place i.e. more than 60 nights trapping will be required unless nights 56 to 60 have no captures. However, if over 100 individual GCN are captured overall during the 60 days trapping, it will be assumed that the site supports a large sized population. Therefore, the trapping period will be extended to 90 days. Similar to the medium sized population methodology, trapping will continue until 5 consecutive nights without capture have taken place i.e. more than 90 nights trapping will be required unless nights 86-90 have no captures. However, this will be on a compartment-by-compartment basis. For example, a 60-day trapping period can be achieved for a single compartment if no GCN are being captured between night 56 and 60 within that specific compartment.

Fencing and trapping material specifications

The perimeter fencing material will be semi-permanent, stabilised against ultraviolet (UV) damage and designed to last up to 5 years. An example product is the Caudon Semi-Permanent Newt Fencing.



The internal drift fencing material will be stabilised against UV damage and designed to last up to 2 years. Example products include the Caudon Temporary Newt Fencing Polythene or the Temporary Geo-Textile Newt Fencing from Wildlife Fencing.

Example pitfall traps and carpet tiles include the Caudon Pitfall Trap 5.6L Circular and the Caudon Amphibian Refuge 500x500mm.

All pitfall traps will be fitted with the following:

- Mammal ladder – to allow small mammals that might fall into the pitfall traps to escape, whilst not allowing any amphibians to escape.
- Polystyrene float – to provide refuge for mammals or amphibians and prevent drowning in the event of a flooded pitfall trap.
- Vegetation – such as leaf litter gathered from site and placed in each trap to provide shelter for amphibians from opportunistic predators (e.g. corvids) and to maintain damp and cool conditions during periods of hot weather.

If any of the above are found to be absent from a pitfall trap during the trapping or translocation period, they will be replaced immediately from a collection of spares. If this isn't possible, the specific pitfall trap will be closed (sealed with a lid) until the necessary material can be sourced.

The supplier / make or models of fencing, bucket traps and carpet tiles are to be determined at the time based on availability etc. However, all material used will be sourced from a reputable supplier (such as Caudon or Wildlife Fencing), will be compliant with the requirements of the English Nature Great Crested Newt Mitigation Guidelines (2001) and will be approved by the project ecologist prior to installation

Maintenance of fence line

Following its installation, both the perimeter and external fencing will be reviewed by a suitability experienced ecologist to confirm that it has been installed correctly. Any issues will be recorded and rectified immediately and prior to the commencement of the trapping and translocation period.

Throughout the active trapping and translocation period, both the perimeter and internal drift fencing will be subject to daily inspections to ensure that they remain intact and functional, with no potential points of access for amphibians. Any repairs required will be implemented within 24 hours. If the trapping and translocation period needs to be temporarily postponed over winter due to unsuitable trapping conditions. The fence and pitfall traps will be subject to an inspection every two week, to ensure that the fence remains intact and functional and no pitfall traps remain open. Any repairs required will be implemented within 24 hours and any open or damaged pitfall traps will be repaired or removed immediately.

Throughout the construction phase of the development, the fence will be checked daily by the site manager and will be inspected monthly by a suitability qualified ecologist. Any issues will be recorded and rectified within 24 hours.

All inspections of the fencing will include an inspection of the newt grids, to ensure that they have not been filled with soil or any other material and that they continue to function as a barrier to GCN movement.



E.1.2 Removal of drift fencing and pre-commencement mitigation

Following the completion of the trapping and translocation period, but prior to any vehicle or plant access, or the commencement of any works on the site, a toolbox talk will be given to all staff and contractors. The talk will include species identification, ecology, and legal protection of UK amphibians. Site staff and contractors will be instructed not to interfere or access the ecological compensation area, unless with the permission of the site manager or ecologist, or to undertake habitat enhancement works as previously approved. Additionally, a final destructive search of any features which could shelter GCNs will be undertaken to ensure that no amphibians are present within the fenced area. The drift fencing in the centre of site will then be removed in suitable weather conditions (i.e. when night time temperatures exceed 5°C) under ecological supervision.

The ring fencing and newt grids at the perimeter of the site will be left in place until the works on site are complete, and it will be checked daily by the site manager or appointed member of staff, with monthly checks by the project ecologist. If any amphibians are found within the construction area during the works, they will be moved to the GCN receptor site within the ecological compensation area.

E.1.3 Trapping of ponds

Pond 4 which was found to contain a small population of breeding GCNs (max count of 6), will be removed to facilitate the proposals. In addition to compartmentalisation of this pond using drift fencing and the trapping of this compartment with pitfall traps and refugia, the pond will also be subject to a period of aquatic bottle trapping and netting. The pond will be subject to 10 nights of bottle trapping, in addition to netting of the pond immediately prior to setting traps and immediately after checking traps. The bottle traps will be deployed at a density of at least one trap per 2m of shoreline and will only take place when night-time air temperatures are greater than 5°C. Bottle trapping will continue until 5 consecutive nights without capture have taken place i.e. more than 10 nights trapping will be required unless nights 6-10 have no captures.

It is considered that the proposed level of aquatic bottle trapping and terrestrial pitfall and refugia trapping is sufficient given the small number of GCNs observed using this pond during the population size class assessment surveys (max count of six individuals), and considering that the bottle trapping is due to be undertaken at a time of year when newts are unlikely to be encountered in the pond. If works onsite are delayed and bottle trapping is undertaken when newts are more likely to be present within the waterbody (mid-February to August inclusive) then an increased survey effort of 30 nights trapping will be undertaken.

No GCNs were observed within Ponds 1 or 2 and both ponds returned negative eDNA results, indicating that GCNs are not using either pond. Despite this, the ponds are used by common amphibian species such as smooth newts, common frog and common toad, and their remains some, albeit limited potential for GCNs to use these ponds once the site has been compartmentalised with drift fencing, due to a temporary reduction in habitat availability. As such, the above methodology being applied to Pond 4 will also be applied to Ponds 1 and 2 but with a reduced survey effort and only 10 nights of bottle trapping required regardless of the time of year. Bottle trapping will continue until 5 consecutive nights without capture have taken place i.e. more than 10 nights trapping will be required unless nights 6-10 have no captures.

Following the completion of both aquatic bottle trapping and pitfall trapping within pond compartments, the ponds will be drained and infilled. All ponds will be subject to netting prior



to draining and all drainage works will be overseen by a licenced ecologist. Screens with a fine mesh (<1.5mm) will be fitted to any pumps used to drain the water, to prevent any remaining newts (or other wildlife) from being drawn through the pump. Following drainage and prior to infilling, the basin of the pond and vegetation and other debris will be searched for amphibians.

E.2 Great crested newt habitat

E2.1 Receptor site modification, enhancement or creation

Aquatic habitat

To compensate for the loss of Pond 4 which is used as a GCN breeding pond, and Ponds 1 and 2 that are used by other common amphibian species, an additional twenty ponds of varying shape, size and depth will be created within the 'eastern field'. These ponds will be designed and managed to provide a range of ecological niches, from shallow ponds that dry out on occasion to deep ponds that retain water all year round. Through a mix of initial planting and natural colonisation, it anticipated that the ponds will support a range of botanical communities, ensuring an abundance and diversity of egg laying opportunities and invertebrate prey on which GCNs and other amphibians can forage. Pond creation works are detailed in full in licence S093997-1.

In addition to these ponds, two ponds / shallow ephemeral scrapes and three swales will also be created within the open mosaic habitat within the southern section of the site. The swales are part of the development's sustainable drainage plan and will be connected to the surface-water draining system. Although these aquatic features aren't being designed solely for amphibians, it is expected that they will provide some foraging and breeding opportunities.

Two ditches will also be created as part of the proposals. At this stage, it cannot be determined if these ditches will hold sufficient water to provide suitable breeding opportunities for GCNs, however there remains some potential and they will still increase the ecological niches present on site, increasing the availability of plants and invertebrate species and increasing the overall value. Ditch creation works are detailed in full in licence S093997-1.

The ponds currently present within the site boundary are in different stages of succession and provide different niches and conditions, supporting a greater diversity of species than they would if they were all of the same age, size and depth. Pond 6 is in a late stage of succession and is largely dry, with a small area of standing water and significant cover from willow scrub. Ephemeral, late-stage ponds provide optimal conditions for many aquatic invertebrate species, a nationally scarce example is the mud snail *Omphiscola glabra*. This pond will largely be retained and subject to minimal management. Some selective scrub clearance however will be undertaken every three years, to ensure that no more than 75% of the ponds' margins are heavily shaded, preventing the pond from drying completely and failing to function as an aquatic habitat.

The ponds are primarily being designed and created to provide suitable breeding opportunities for GCNs, however some of the ponds will be designed and managed to target other species.

Terrestrial habitat



The linear features at the site boundaries and a 10m buffer are to be retained as part of the site layout in order to provide ecological linkages for GCNs and other amphibian species to continue commuting between the site and offsite habitats within the wider landscape. Whilst areas of suitable GCN and amphibian terrestrial habitat will be lost in the form of semi-improved grassland, dense scrub, hedgerows and small sections of woodland, large areas of suitable habitat within the southern section of the site will be retained and enhanced and the eastern section of the site is being subject to significant habitat creation and enhancement to create an ecological compensation area that will be managed long term with an emphasis on its suitability to support GCNs. Of the 25.4ha development boundary, approximately 11.4ha (45%) of the site will be retained or subject to habitat creation and enhancement. This includes the creation or planting of wildflower grassland, marshy grassland, tussocky rough grassland, scrub, hedgerows, an orchard, marginal planting, ditches and ponds. Additionally, an area of open mosaic grassland and unimproved lowland meadow within the southern section of the site will be retained and enhanced. All of the proposed habitat creation and enhancement will provide high-quality terrestrial habitat for GCNs and other amphibians.

Hibernacula

As an additional ecological enhancement targeting GCNs, ten amphibian hibernacula will be created on site, six of which will be located within the ecological compensation area and the other four within the retained open mosaic habitat within the southern section of the site.

They will be created by excavating pits in the ground (500mm depth, 2000mm length, and 1000mm width). Ideally, these pits will then be filled using materials already present on site, including hay, brash, cut timber / logs and brick / rock hard-core, or the materials can be sourced from elsewhere if necessary. The pits will be piled up to a height of approximately 1000mm above ground level. Hibernacula will then be loosely capped with topsoil and turfed over, ensuring that access is still available through to the lower layers at the margins. These works will need to take place during the winter when amphibians are hibernating, or under ecological supervision

The proposed habitat retention, creation and enhancement are mapped at Appendix 5 – Landscape plan. Full details of the future management of the aquatic and terrestrial habitats on site are detailed within the landscape and ecology management plan (LEMP) submitted as part of this application.

E2.2 Temporary loss of breeding sites, resting places

There will be no temporary loss of breeding sites or resting places.

E2.3 Destruction of breeding sites, resting places

The proposed development will result in the loss of areas of suitable foraging and commuting habitat for great crested newts, namely dense scrub and grassland, as well as a confirmed GCN breeding pond (Pond 4). However, this will be replaced by significant habitat creation and enhancement as part of the proposed works within the ecological compensation area, as detailed in section E.2.1.

E2.4 Scaled maps / plans

See Appendix 5 – Landscape plan.



E.3 Mechanisms for ensuring delivery of mitigation and compensation measures

E3.1 Measures to ensure compliance with this method statement

The initial mitigation measures all require a suitably licensed and experienced ecologist to either carry out the works or supervise, which will ensure that they are carried out in accordance with the method statement.

A compliance audit will be carried out each year following the initial works to ensure that the site managers are complying with the method statement and habitat management measures. The proposed works are considered to fall into tier 2 of NRW's compliance audit guidance tiers.

It will therefore be the responsibility of the site owners and / or lease holders to appoint an ecological consultant to annually undertake an internal audit of compliance with the licence requirements.

The appointed internal audit ecological consultant is responsible for:

- defining appropriate (key) performance indicators that will inform an inspection, utilising the NRW audit template.
- determining the minimum number of assessment visits required to demonstrate compliance.
- defining what documentation, including logs, will be required to inform inspections; and
- progressing remedial or contingency actions identified during audit.
- reporting back to the developer and NRW.

Non-compliance identified by the internal auditor needs to be given full consideration in compliance reports. Where non-compliance is identified, this should be assessed, noted and described in the report. In addition, information should be provided about any decisions regarding non-compliance, as well as any action that may be required.

All licensees are required to submit an NRW licence report form at the end of the project. Projects requiring compliance audits will also need to report against performance indicators. In all cases, additional reports may be submitted as supplementary information.

The compliance audit must also ensure that the biosecurity risk assessment is adhered to.

E3.2 Ensure that sufficient land has been acquired for compensation purposes

The land proposed for habitat enhancement and compensation in connection with this licence application is all within the same ownership. A separate planning application and European protected species licence have already been secured to enable to pond creation works within the 'eastern field' to progress ahead of the main development.

The landowner details are as follows:

FI Real Estate Management
Canal Mill
Botany Brow
Chorley
Lancashire



PR6 9AF

Contact Ms Emily Armstrong (Senior Development Manager)

Telephone: 01257 263 010

Email: earmstrong@fi-rem.com

E3.3 Ensure that designs of subsequent development are newt friendly

Future developments are not envisaged after the completion of the proposed works for this application.

E3.4 Provide sufficient resources

The applicant is responsible for ensuring the initial mitigation and habitat enhancement measures, as well as the required monitoring and auditing visits, are undertaken in accordance with this licence.

E.4 Mitigation contingencies

The mitigation and compensation measures detailed in sections E.1 and E.2 require a suitably licensed and experienced ecologist to either carry out the works or supervise and advise, which will ensure that they are carried out in accordance with this method statement. If the works are not carried out to the ecologist's satisfaction, they will be immediately identified and addressed at the time of the works.

E.5 Biosecurity risk assessment

A biosecurity risk assessment has been prepared and submitted to the local planning authority to discharge a condition for the planning application for the pond and ditch creation within the ecological compensation area. This biosecurity risk assessment includes the biosecurity measures to be implemented during the ongoing management and monitoring programme. The measures detailed in the biosecurity risk assessment will be implemented during the works.



F. POST-DEVELOPMENT SITE SAFEGUARD

F.1 Habitat / site management and maintenance

Each habitat on site will require a certain level of establishment, maintenance and monitoring to ensure that they are providing the ecosystem function required of them. Full details of the proposed habitat management are detailed within the LEMP. The habitats onsite will be maintained and monitored for a period of 30 years.

The responsibility for the initial habitat creation works lies with the landowner / developer / licensee (FI-REM) and the contractors appointed to carry out those works at the time of the development. They will be responsible for ensuring that the habitat creation works are carried out in accordance with this document, the LEMP and the GCN EPS mitigation licence issued by NRW.

An ecological monitoring review will be undertaken in the third year following initial habitat creation, to allow for a review of the ongoing management plan and to allow for remedial changes to the management plan to be implemented based on an informed assessment of the conditions on site. This ecological monitoring will involve a walkover and detailed botanical survey by a suitably experienced ecologist. Information recorded during the walkover survey will be submitted to the local records centre and can be provided to the LPA upon request.

Subsequent management of the habitats on site will be the responsibility of the appointed management company / owners of the site. They must ensure that the ongoing measures detailed within the LEMP are implemented. They will also be responsible for monitoring the establishment of habitats as well as monitoring them for any changes affecting their quality or function. An annual meeting must be held to discuss these issues and whether any remedial works are necessary to restore the habitats to a satisfactory standard. This meeting should be held from late summer to winter, so that the habitats can be assessed when in flower (e.g. wildflower meadows) and to allow for the required remedial works to be arranged. The results of the GCN monitoring surveys will also be used to identify the need for remedial measures and changes to the management plan to benefit GCNs.

F.2 Population monitoring

Following the completion of the trapping and translocation exercise, the retained and newly created ponds will be subject to monitoring surveys for a period of 30 years, to assess whether the great crested newt population has responded favourably to the mitigation, and to inform ongoing long-term habitat management. Monitoring surveys will start the next available survey period following the completion of the trapping and translocation exercise. Monitoring will involve population size class assessment surveys, utilising the industry standard bottle trapping, netting and torching methodology, for all retained and newly created ponds, involving six survey visits each year across mid-March and June (inclusive). The results of the monitoring surveys will be submitted annually to Natural Resources Wales and the local ecological records centre COFNOD.

The responsibility for commissioning ecological monitoring lies with the site management / owner and must be undertaken by suitably qualified and licensed GCN ecologists.

The results of the monitoring will be reported through the Wales GCN Monitoring Scheme with results uploaded annually by 30th June. The results will also be used to identify the need for remedial measures and changes to the management plan to benefit GCNs.



F.3 Post-development mitigation contingencies

If the results of the monitoring surveys are unfavourable, any remedial measures that are required will be identified by the licensed GCN ecologist and will be arranged in conjunction with the landowner.

F.4 Mechanism for ensuring delivery of post-development works

The site will be subject to 30 year ecological compliance plan which will commence immediately following the start of construction works or initial habitat creation works, whichever occurs first, unless specified otherwise.

An ecology cooperative is being established that will involve FI-REM, United Environmental Services (as an ecological consultant), North Wales Wildlife Trust and Enfys Ecology Ltd. Butterfly Conservation and Amphibian and Reptile Conservation will also be invited to be members of the cooperative as advisors. Furthermore, whilst Wrexham Borough Council's Ecologist and NRW won't be members of the cooperative, their expertise and advice will be regularly sought from the cooperative.

Through the cooperative, Enfys Ecology and the North Wales Wildlife Trust will be appointed as the management company responsible for undertaking the ongoing habitat management works as detailed within this document, and the LEMP. They must ensure that the ongoing measures detailed within LEMP are implemented.

The responsibility and management of the ecology area will be transferred to the proposed co-operative specified above before the commencement of the operational phase of the proposals. Formal appointments will be made with the cooperative members to formalise these arrangements. In the event of the co-operative being dissolved, the responsibility and management shall be transferred to a body that accords with the definition of "responsible" under Part 7 of the Environment Act 2021.



G. TIMETABLE OF WORKS

ACTIVITY	COMMENTS	TIMINGS
<i>Initial habitat establishment and enhancements</i>		
Pond and ditch creation works within the ecological compensation area have already been undertaken under a separate EPS licence S093997-1. Works are being undertaken under supervision of an ecological clerk of works where necessary.		
<i>Mitigation measures</i>		
Initial vegetation removal along amphibian fence line	Removal of vegetation above 10cm in height that won't have any adverse impact on GCNs. Strictly under the supervision of a licenced ecologist or accredited agent.	ASAP
Removal of remaining vegetation along amphibian fence line and fingertip search	Removal or remaining vegetation below 10cm in height. Strictly under the supervision of a licenced ecologist or accredited agent, who will also undertake a fingertip search.	ASAP following approval of licence application and prior to the installation of fencing.
Installation of amphibian fencing, pitfall traps and carpet tile refugia	Under supervision / approval of appointed ecologist.	ASAP following approval of licence application and prior to the commencement of any works on site.
GCN trapping and translocation exercise	Pitfall traps to be open for an initial period of 60 days where temperatures and weather conditions are suitable for GCN trapping. The traps will be checked daily by a suitably licensed and experienced ecologist. Any GCNs or other amphibians found in the traps will be released into suitable areas of cover within the ecological compensation area. Trapping will continue until 5 consecutive nights without capture have taken place. If over 100 individual GCN are captured overall during the 60 days trapping, the trapping period will be extended to 90 days.	ASAP following approval of licence application and prior to the commencement of any works on site. To be undertaken when temperatures and weather conditions are suitable for GCN trapping (i.e. above 5°C and without frost).
Checks of amphibian fencing	To be checked daily by the site manager (during the construction phase of the development, with monthly checks by the project ecologist (from installation until removal)	For as long as the fence is installed.
Trapping of ponds	Ponds 1, 2 and 4 will be subject to 10 nights of bottle trapping and netting, when night-time air temperatures are greater than 5°C. Bottle trapping will continue until 5 consecutive nights without capture have taken place. If works onsite are delayed and bottle trapping of Pond 4 is undertaken when newts are more likely to be present within the waterbody (mid-February to August inclusive) then an	ASAP following approval of licence application and prior to the commencement of any works on site. To be undertaken when temperatures and weather conditions are



	increased survey effort of 30 nights bottle trapping will be undertaken.	suitable for GCN trapping (i.e. above 5°C and without frost).
Removal of internal drift fencing	The drift fencing will be removed in suitable weather conditions under ecological supervision, prior to the start of works onsite.	Following the completion of the trapping exercise and prior to start of development works.
Hand search and removal of potential refugia	Hand search and removal of refugia by / under the supervision of a licenced ecologist or their accredited agent.	
Toolbox talk	Provided to contractors prior to the start of construction works.	
Removal of perimeter fencing	The perimeter fencing will be removed in suitable weather conditions under ecological supervision.	Following the completion of the development works within the fenced area.
<i>Habitat establishment and enhancements – see LEMP for further details</i>		
Tree, scrub and hedgerow planting	To be carried out by an appropriately experienced contractor. Specified species to be used.	During the development, although planting between October and March is preferred.
Sowing of wildflower, tussocky and marshy grassland	Preparatory ground works and sowing to be carried out by appropriately experienced contractor. Specified seed mixes to be used.	During the development, March to April, or September to October.
Remedial works to existing ponds	Removal of 80% of existing scrub around retained ponds. Undertaken using hand tools under ecological supervision. Arisings used to create log / brash piles adjacent to ponds.	November to February.
Planting of oxygenating plants within ponds	Planted within 10 of the newly created ponds in the second year following establishment, once water levels have settled and it can be determined which ponds hold sufficient water.	In second year following establishment.
Open mosaic habitat creation	Breaking up of concrete. Creation of spoil mounds. Agitation of substrate. Creation of sand banks. As directed by onsite ecologist.	Within a year of completion of development works or removal of site compound.
Existing open mosaic habitat	Creation of two sand banks. Creation of bare-ground scrapes and two ephemeral pond scrapes. Under the supervision and direction of the onsite ecologist.	During development, November to February.
Creation of amphibian hibernacula and log piles	Including excavation of pits and filling with suitable materials, before capping with topsoil and turf. Under the supervision and direction of the onsite ecologist.	During the development, October to February.
<i>Ongoing habitat management and maintenance – see LEMP for further details</i>		



Tree / hedge plant establishment assessment	Inspection of newly planted trees / hedgerows to monitor establishment after first growing season. Any trees deemed not to be in sufficient health / sufficiently well-established are to be replaced by the planting contractor.	After first full growing season, in late summer when leaves are still present to provide indication of tree health.
Initial pruning of hedgerows and scrub	To establish dense, bushy growth	Two years after planting. January to February.
Subsequent pruning of hedgerows	To establish dense, bushy growth. Pruning should aim to achieve a height of around 3m and a width of around 2m.	Once every three years following the initial pruning. January to February.
Weed suppression of sown grasslands	To decrease competition for target wildflower species: Prolific weeds (thistles, docks and dominant grasses)	The first April after sowing.
Initial mowing of wildflower grassland	To prevent nutrient enrichment. Sward is to be cut down to 40 – 75mm. Cuttings are to be left <i>in situ</i> for 48 hours, then collected and piled up in designated composting areas.	End of October after first year of sowing; this will allow flower to set seed and amphibians to move towards hibernation sites.
Ongoing mowing of wildflower grassland.	Removal of litter or debris from mowing area and checking for sheltering wildlife underneath. Sward is to be cut down to 40 – 75mm. Cuttings are to be left <i>in situ</i> for 48 hours, then collected and piled up in designated composting areas. During each cut, the sward should be monitored for establishing weeds, including brambles, and these should be uprooted, cut back or use of appropriate herbicide.	May and October, annually.
Ongoing tussocky grassland management	Minimal maintenance required to form tussocks and rank structure. Monitoring for establishing weeds and scrub to be undertaken and uprooted / cut back if required. Mowing may be required every 2-3 years: done on a rotational basis so that no more than 50% of area is mown in any one year.	October as required and agreed with project ecologist.
Ongoing management of marshy grassland	Removal of litter or debris from mowing area and checking for sheltering wildlife underneath. Sward is to be cut down to 40 – 75mm. Cuttings are to be left <i>in situ</i> for 48 hours, then collected and piled up in designated composting areas. During each cut, the sward should be monitored for establishing weeds, including brambles, and these should be uprooted, cut back or use of appropriate herbicide.	October, annually.
Mowing of access paths through grassland in	2m width path mown to minimise risk of use by wildlife.	Monthly mowing from April to September inclusive.



designated ecology zone		
Ongoing pond and wet ditch management	Water level monitoring to ensure no leaks. Hydrological advice and remedial works may be required. Monitoring for invasive species colonisation, including great reedmace. Control may be required as advised by project ecologist. Monitoring scrub encroachment. Ponds and banks to feature no more than 20% scrub cover. To be removed by cutting and treatment with herbicide or uprooting where required. Monitoring of algal blooms. To be raked off if required.	Ongoing monitoring. At least twice per year during first 3 years from creation. April and August. Annually between June and August. October to February, as required. If and when algal blooms develop.
Scrub coppicing	Most mature 10% areas of dense scrub to be highlighted by annual management meeting and subjected to coppicing: cutting to ground level with hand tools, and arisings piled up or chipped.	Annually, October to February.
Ongoing open mosaic management	Monitoring for invasive species colonisation. Control measures undertaken if required. Monitoring of dominant ruderals. Control measures required if dominance not controlled by natural processes. Monitoring of scrub control, at discretion of project ecologist or appointed management company. Continued presence of bare ground required; creation of new areas as initial areas become vegetated. Monitoring of sward height: 50% of area varied sward 20mm – 150mm. To be controlled by natural processes, but remedial action may be required if not.	Annually, June to August. Second year from creation, as required. As required, October to February. As required, October to February. October as required.
<i>Monitoring and auditing</i>		
GCN population size class assessment monitoring surveys of the existing and newly created ponds	Results to be submitted to COFNOD.	The next available survey period (mid-March to June inclusive) following the completion of the trapping and translocation exercise.
Annual internal audit	Appointed internal ecologist to audit the licensable works and provide recommendations or contingency measures if conservation efforts are failing or can be improved. Report to be submitted to NRW.	Every year for a period of 30 years following granting of the licence.
Annual external audit	Appointed external ecologist to audit the licensable works. Report to be submitted to NRW.	Every year for a period of 30 years



		following granting of the licence
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H. LAND OWNERSHIP – MITIGATION SITE / COMPENSATION SITE

H.1 Mitigation site / compensation site ownership

N/A. The ecological compensation area is within the site ownership boundary.

H.2 Mitigation site / compensation ownership post construction

N/A. The ecological compensation area is within the site ownership boundary.



I. DECLARATION

I declare that should a licence be granted, the work as proposed in this Method Statement will be strictly adhered to. I understand that any deviation from the works as proposed in this Method Statement without agreement from NRW would result in a breach of the licence.

NB. Applicants should note that it is an offence under regulation 59 of the Conservation of Habitats and Species Regulations 2017 to knowingly or recklessly provide false information in order to obtain a licence.

Signature of the Applicant		Date	09/09/24
<i>For electronic submissions please insert an electronic signature above or place an x in the box opposite to confirm agreement with the declarations above.</i>			☐
Full name in BLOCK LETTERS	EMILY ARMSTRONG		
Signature of the Ecologist		Date	09/09/24
<i>For electronic submissions please insert an electronic signature above or place an x in the box opposite to confirm agreement with the declarations above.</i>			☐
Full name in BLOCK LETTERS	TOBY HART		



J. REFERENCES

Anon (2001) *Great crested newt mitigation guidelines*, English Nature

Chartered Institute of Ecology and Environmental Management (2013). *Competencies for Species Survey: Great Crested Newts*.

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001). *Great Crested Newt Conservation Handbook*, Froglife, Halesworth.



K. ANNEXES

K.1 Pre-existing survey reports

Submitted separately.

K.2 Raw survey data

Submitted separately.



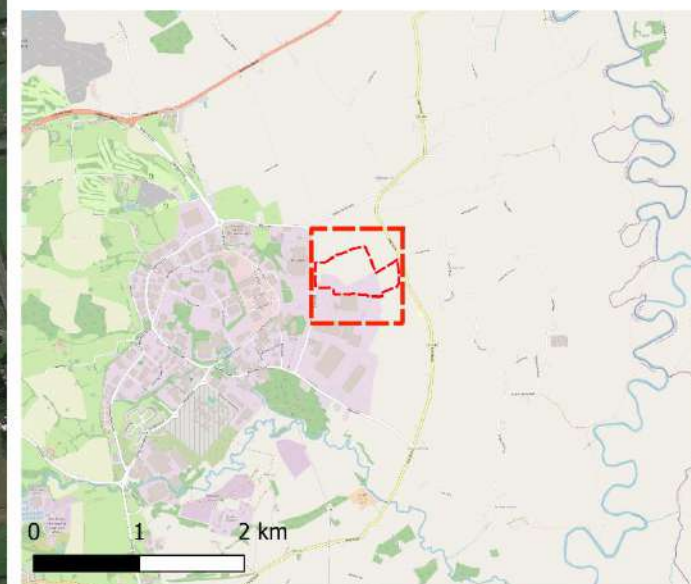
APPENDICES

Appendix 1 – Site plan



Site plan

**Site: Kingmoor, Plot 3A,
Wrexham Industrial
Estate**
NGR: SJ 39340 50457
Author: Daniel Smith
Date: 11/12/2023



- Site boundary
- Working area
- Ecology zone

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Appendix 2 – Pond plan



Pond Plan - 500m

Site: Plot 3a, Wrexham Industrial Estate
 Author: Tom Kenwright
 Date: 24/02/2022



KEY:
 Pond
 Ditch
 Survey boundary
 500m buffer

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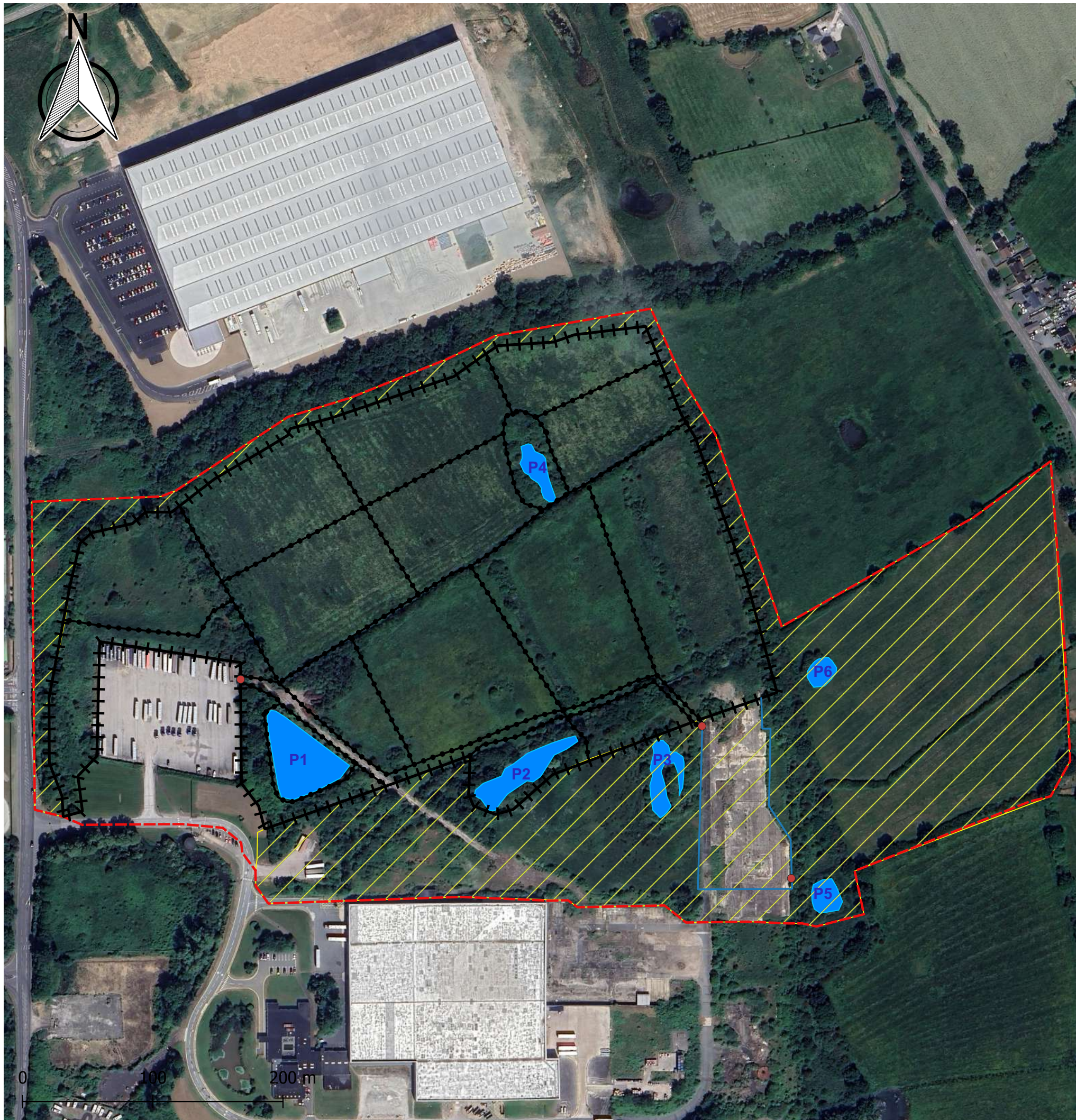


Appendix 3 – HSI scores

	SCORE							
SUITABILITY INDEX	POND 3	POND 4	POND 5	POND 6	POND 24	POND 26	POND 34	DITCH 1
SI1 - Location	1	1	1	1	1	1	1	1
SI2 – Pond area	0.86	0.95	1	0.7	0.6	1	1	0.4
SI3 – Pond drying	0.9	0.9	0.9	1	0.9	0.9	0.9	1
SI4 – Water quality	1	0.67	1	0.67	0.67	0.67	0.67	0.33
SI5 – Shade	0.8	1	1	0.6	1	1	1	0.4
SI6 – Fowl	1	0.67	1	1	1	0.67	1	1
SI7 – Fish	1	0.67	1	1	1	1	1	0.67
SI8 – Ponds	1	1	1	1	1	1	1	1
SI9 – Terrestrial habitat	1	1	1	1	0.67	1	0.33	0.67
SI10 – Macrophytes	1	1	0.6	0.9	0.35	0.55	0.6	0.35
Total HSI Score:	0.95	0.87	0.94	0.87	0.78	0.86	0.81	0.62

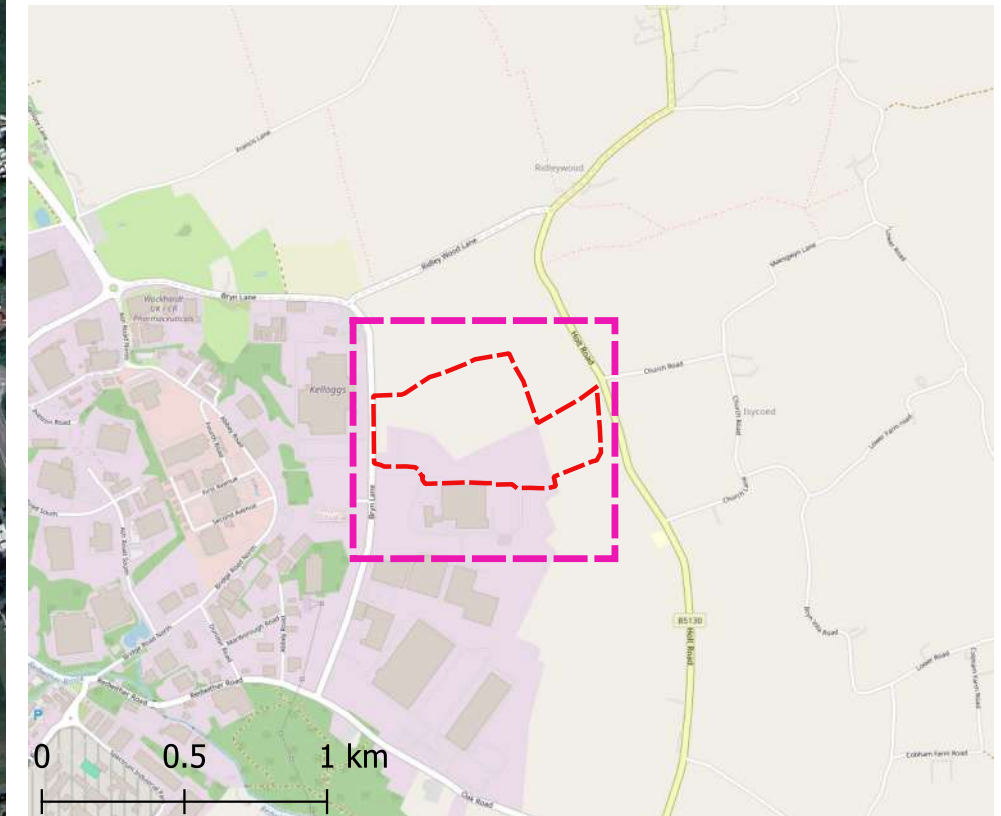


Appendix 4 – Amphibian fencing plan



GCN Fencing Plan

Site: Plot 3a, Wrexham Industrial Estate
NGR: SJ 39340 50457
Author: Tom Kenwright
Date: 18/06/2024



KEY:

- Site boundary
- + Perimeter ring fencing (in place for entire construction period)
- Drift fencing (in place for trapping period only)
- / Retained ecology area and GCN translocation zone
- Newt grid
- One-way fencing

Map data © 2021 Google, Imagery © 2021 Google

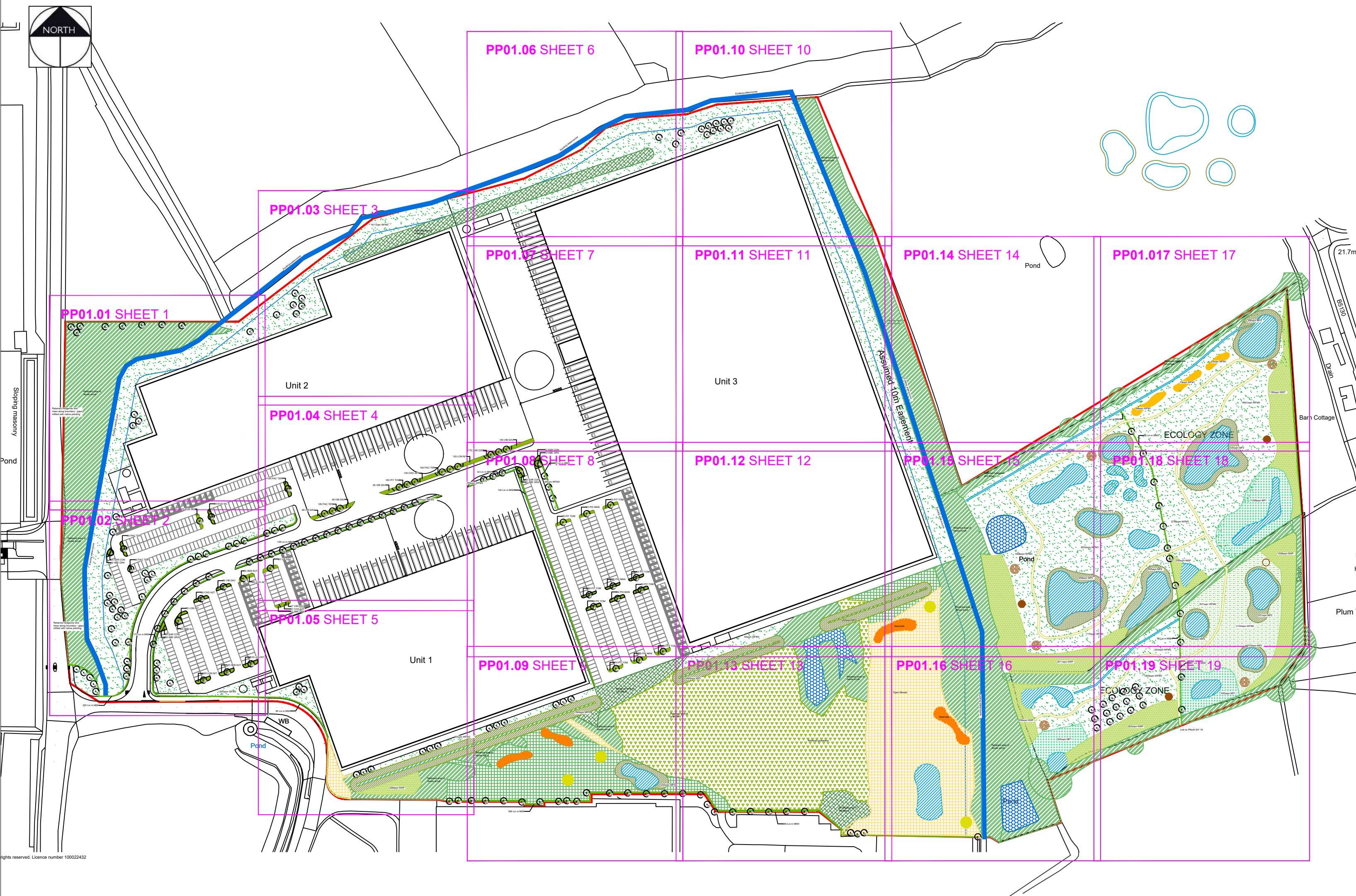
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Appendix 5 – Landscape plan





SPECIFICATION NOTES

- 1. General**
This plan to be read in conjunction with the following documents:
- Ecology Reports by UES
 - Drainage Strategy
 - And any other supporting information
- 2. General Landscaping**
Existing levels to be preserved around retained existing trees and vegetation. Existing trees and vegetation to be retained are to be protected in accordance with BS5837:2012 during construction. Proposed planting under existing trees subject to sufficient space in root areas.
- 3. Preparation of Planting Beds**
- Rubbish, concrete, metal, glass, decayed vegetation are to be removed and disposed of off site.
 - Stones with the largest dimension exceeding 40mm are to be removed from planting beds and disposed of off site.
 - Substances injurious to plant growth including subsoil, rubble, fuel and lubricants should be removed and disposed of off site.
 - Remove any existing weed growth.
 - Areas of large root are to be grubbed up without undue disturbance of surrounding soil and adjacent areas.
 - All site preparation, planting and maintenance to comply with BS 4429
- 4. Soil**
Imported topsoil to be a good quality loam to BS 3882:2015. All topsoil areas shall be thoroughly cultivated by hand or suitable machinery to the full depth of the topsoil layer, incorporating ameliorant's as specified and/or as indicated by analysis and/or as directed by the Landscape Architect. Hand cultivation's shall be carried out to achieve the required finish on areas where machine cultivation is impossible i.e adjacent to kerbs, manholes and footpath junctions etc. Surplus plant matter, rubbish and surface stones having any dimension greater than 25 mm shall be collected and removed from the site. Existing topsoil to be stripped and re-used if suitable as per specification. All work to be carried out in line with BS 3882:2015 and DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009).
- 5. Plants**
General plant stock to conform to BS 3936, advanced nursery stock and planting to BS 4428. Plants shall be first class examples of their species or variety, free from all pests and diseases, with good fibrous root systems and materially undamaged (refer to relevant sections of BS3936 rts 1-4 'Specification of Nursery Stock'). All planting operations to be in general compliance with BS4428: 1989 'Code of Practice for general landscape operations (excluding hard surfaces)'.

- Carry out all planting while soil and weather conditions are suitable:
- Do not plant during periods of frost or strong winds. Plant only during the following periods:
 - Container grown and root ball plants: At any time if ground and weather conditions are favourable. Ensure that adequate watering and weed control is provided
 - Bare Root stock to be planted November to March.

All plants to be planted in cultivated planting beds at densities shown in plant schedule, in pits of min. size 0.3m x 0.3m x 0.3m deep so as to accommodate full root spread, backfilled with 80% clean topsoil and 20% compost and 20g granular fertilizer. All shrub beds to be in min. 450mm good quality, well prepared soil.

See Plant Schedule for species palette. Bed composition, arrangement and setting-out to be approved by Landscape Architect before work commences. Topsoil depth to be 450mm for shrub planting and 150mm for grass.

Native Hedgerow - Stock to be planted in double rows, 5 per linear metre. Trees to be protected with a 600mm spiral rabbit guard and staked. To be kept free of weeds during establishment using secured mulch matting. Bare root plants to be notch planted to depth of root collar in accordance with BS4428.

6. Trees
Trees shown on plan to be planted with species as labelled or similar approved. Do not substitute species, variety and form or reduce the specified number/density of plants without prior agreement. Note sizes shown are minimum. All trees to be planted in pits 2m x 2m x 1m deep, backfilled with 80% clean topsoil with 15% peat free tree and shrub planting compost and 5% Tree Growth Enhancer 'GroChar', including 100g granular fertilizer. Base of pit to be filled with a Terram Geotextile layer on 150mm drainage layer consisting of 20mm nominal size free draining pea gravel. Water-in heavily after planting and surface bark chippings 75mm depth. All trees to be triple staked with timber cross bar and soft ties. Any necessary tree works are to be carried out by an approved tree surgeon to BS 3998. All trees to be protected with 600mm spiral rabbit guard.

All work to be carried out in line with BS 3882:2015 and DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009).

7. Mulch
General purpose mulch prepared in accordance with PAS 100. All planting areas and tree pits to be mulched with 75mm (settled depth) bark mulch. Sample of mulch to be approved by Landscape Architect.

8. Wildflower Meadow Grass
Seeding shall be carried out during appropriate seasons and while soil and weather conditions are suitable for the relevant operations. Hand tools shall be used around trees, plants and in confined spaces where it is impractical to use machinery. The soil shall be weed free prior to seeding on prepared, levelled soil (minimum 150mm depth) in the areas indicated on the drawings. Sown to manufactures guidance and in accordance with Ecology recommendations.

9. Replacement of trees and vegetation
The contractor shall replace all plants/trees that have failed to thrive (show growth or display foliage) during the growing season after planting (including plants damaged during maintenance operations). Replacements to match original specification or similar size/species approved by the Landscape Architect. In particular, if any of the boundary vegetation, including those marked for retention, are to be replaced with similar size and species if they die within 5 years.

PLANTING SCHEDULE					
Trees					
Qty	Code	Name	Girth	Height cm	Specification
25	Ac	Acer campestre	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
37	Bp	Betula pendula	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
18	Cb	Carpinus betulus	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
7	Cf	Carpinus betulus 'Frans fontaine'	14-16	400-600	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
14	Fs	Fagus sylvestris	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
17	Ls	Liquidambar styraciflua 'Lane Roberts'	14-16	400-450	RB 3x; Semi-mature; clear stem minimum 200cm
3	Md	Malus domestica 'Discovery'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 175-200cm; 5 breaks
3	Ms	Malus domestica 'Sunset'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 175-200cm; 5 breaks
12	Pi	Pinus sylvestris		300-350	Leader with laterals; feathered to the base
3	Pd	Prunus domestica 'Victoria Plum'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 175-200cm; 5 breaks
3	Pa	Prunus avium 'Plena'	10-12	300-350	RB 2x; Heavy Standard; clear stem minimum 175-200cm; 4 breaks
8	Pc	Pyrus calleryana 'Chanticleer'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 175-200cm; 5 breaks
3	PcC	Pyrus communis 'Conference'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 175-200cm; 5 breaks
3	PcB	Pyrus communis 'Beth'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 175-200cm; 5 breaks
14	Qr	Quercus robur	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
7	Qu	Quercus rubra	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
9	Sa	Sorbus aucuparia	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks
21	Tc	Tilia cordata 'Greenspire'	14-16	400-450	RB 3x; Extra heavy standard; clear stem minimum 200cm; 5 breaks

NWP - Native Woodland Planting (random mix 1 per m ²)						
Total Area On Site (m ²)						
5925						
Qty	% Mix	Name	Size cm	Root Cond.	Density / Spacing	Specification
593	10	Betula pendula	60-90	B	1/m2	Transplant (seed-raised), 1+1
593	10	Corylus avellana	60-90	B	1/m ²	Transplant (seed-raised), 1+1
889	15	Crataegus monogyna	60-90	B	1/m ²	Transplant (seed-raised), 1+1
296	5	Ilex aquifolium	40-60	2L pot	1/m2	Leader with laterals
593	10	Sorbus aucuparia	60-90	B	1/m2	Transplant (seed-raised), 1+1
593	10	Prunus avium	60-90	B	1/m2	Transplant (seed-raised), 1+1
296	5	Prunus spinosa	60-90	B	1/m ²	Transplant (seed-raised), 1+1
889	15	Quercus robur	60-90	B	1/m2	Transplant (seed-raised), 1+1
296	5	Rosa canina	60-90	B	1/m2	Transplant (seed-raised), 1+1
889	15	Viburnum opulus	60-90	B	1/m2	Transplant (seed-raised), 1+1

MNH - Mixed Native Hedge						
Total Length On Site 1772 Lin m						
No. of Plants	% Mix	Species	Size in cm	Root Cond.	Density / Spacing	Specification
8860	MNH	Mixed Native Hedge				
1329	15	Crataegus monogyna	60-90	B	5/m2	Transplant (seed-raised), 1+1
1329	15	Corylus avellana	60-90	B	5/m2	Transplant (seed-raised), 1+1
1329	15	Ilex aquifolium	40-60	2L	5/m2	Leader with laterals
443	5	Lonicera periclymenum	60-80	2L	5/m2	Caned: several breaks
886	10	Malus sylvestris	60-90	B	5/m2	Transplant (seed-raised), 1+1
886	10	Prunus spinosa	60-90	B	5/m2	Transplant (seed-raised), 1+1
443	5	Rosa arvensis	60-90	B	5/m2	Transplant (seed-raised), 1+1
443	5	Rosa canina	60-90	B	5/m2	Transplant (seed-raised), 1+1
886	10	Sambucus nigra	60-90	B	5/m2	Transplant (seed-raised), 1+1
886	10	Viburnum opulus	60-90	B	5/m2	Transplant (seed-raised), 1+1

Wildflower Meadow Planting			
Code	Area (m2)	Seed Mix Specification	Sowing Rate (g/m ²)
WFM1	240	N4F Summer flowering Butterfly and Bee Mix	1.5g/m2 sow to suppliers recommendations
WFM2	5228	Emorsgate EM10 Tussock Mixture	4g/m2 sow to suppliers recommendations

Grassland Meadow Planting			
Code	Area (m2)	Seed Mix Specification	Sowing Rate (g/m ²)
WFM3	24,480	Emorsgate EM3 Special General Purpose Meadow Mixture	Suppliers recommendations.

MP - Marginal Planting			
Code	Area (m2)	Seed Mix Specification	Sowing Rate (g/m ²)
MP1	2432	Naturescape N7F Wetland Mix	1.5g/m2. sow to suppliers recommendations
MP2	4235	Species mix to include Mentha aquatica, Myosotis scorpioides, Veronica beccabunga, Nasturtium officinale, Iris pseudacorus, Glyceria maxima, Carex riparia, Carex pseudocyperus	To Ecologists recommendations

SHRUBS						
Shrub bed composition to be laid out and agreed with Landscape Architect prior to planting						
Qty	Abbrev.	Name	Rate / m2	Height	Container Size	Specification
259	ABE GRA	Abelia grandiflora	5	30-40	3L	Bushy; 3 breaks
257	CHO AZT	Choisya Aztec Pearl	5	30-40	3L	Bushy; 5 breaks
155	EUO SIL	Euonymus 'Silver Queen'	5	30-40	3L	Bushy; 5 breaks
245	HEB SUT	Hebe pinguifolia 'sutherlandii'	5	20-30D	3L	Bushy; 5 breaks
410	LON NIT	Lonicera nitida	5	30-40	3L	Bushy; 5 breaks
297	PHI MAN	Philadelphus 'Manteau d'hermine'	5	30-40	3L	Branched; 4 breaks
757	PIT TOM	Pittosporum tenuifolium 'Tom thumb'	5	20-30	5L	Bushy; 5 breaks
545	PAC TER	Pachysandra terminalis	7	20-30	3L	Bushy; 4 breaks
362	SAR CON	Sarcococca confusa	5	20-30	3L	Bushy; 6 breaks
488	VIB DAV	Viburnum davidii	5	20-30	3L	Bushy; 3 brks

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	25.10.22	Revised to Architects layout	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

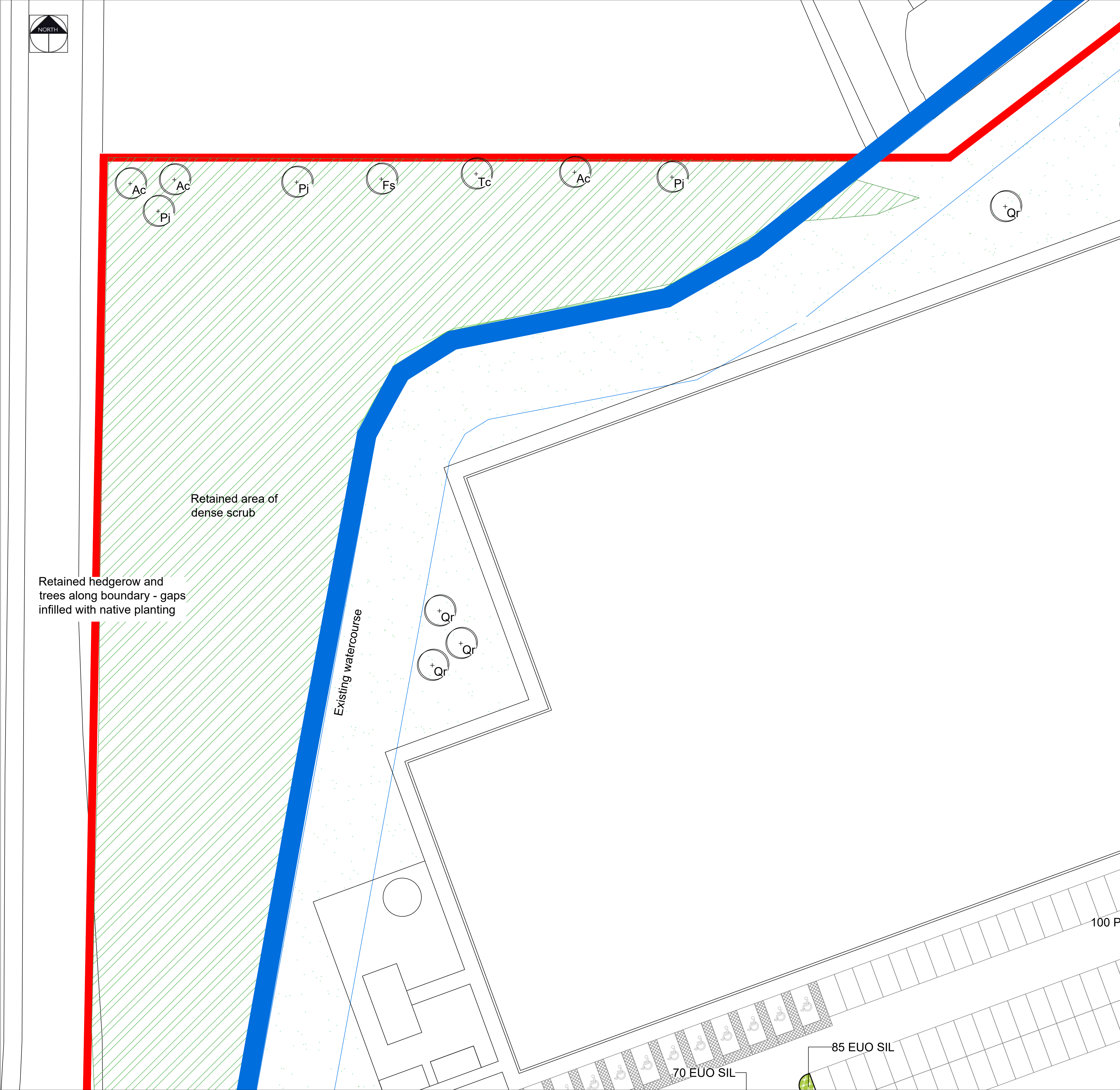
Description

PLANTING PLAN AND SCHEDULE

Status

FOR PLANNING

Scale	Drawn	Checked	Date
1:1500@A1	KLJ	PGG	OCT 2022
Job number	Drawing number	Revision	
WRE2206	PP01.00	P5	



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

RETAINED DISTURBED AREAS
Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details

OPEN MOSAIC GROUND
Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details

SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACLA

PROPOSED SHRUB BED
Please refer to the planting schedule for further details on species, quantities and nursery grades

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

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Project

KINGMOOR, WREXHAM

Description

PLANTING PLAN

SHEET 1

Status

FOR PLANNING

Scale

1:250@A1

Drawn

KLJ

Checked

PGG

Date

AUG 2022

Job number

WRE2206

Drawing number

PP01.01

Revision

P4

Original size 100mm @ A1



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

RETAINED DISTURBED AREAS
Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details

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SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACULA

PROPOSED SHRUB BED
Please refer to the planting schedule for further details on species, quantities and nursery grades

P5	09.01.24	Additional ponds added to the ecological area	KLJ
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P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ

Rev	Date	Description	Initials
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Client
FIREM

Project
KINGMOOR, WREXHAM

Description
**PLANTING PLAN
SHEET 2**

Status
FOR PLANNING

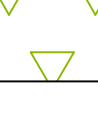
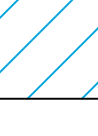
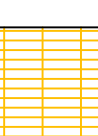
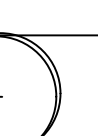
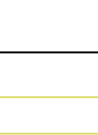
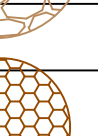
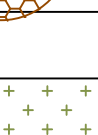
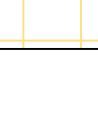
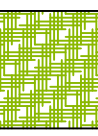
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Job number WRE2206	Drawing number PP01.02	Revision P5	

Original size 100mm @ A1



Unit 2

KEY

- | | |
|---|--|
|  | EXISTING VEGETATION - DENSE SCRUB
<i>Please refer to the ecology report for details on species</i> |
|  | EXISTING VEGETATION - WOODLAND
<i>Please refer to the ecology report for details on species</i> |
|  | EXISTING GRASSLAND
<i>Areas of grassland to be retained. Please refer to the ecology report for details</i> |
|  | EXISTING PONDS
<i>Ponds to be retained</i> |
|  | PROPOSED PONDS
<i>Refer to Ecology Report for further details</i> |
|  | MARSHY WET GRASSLAND
<i>Refer to planting schedule for species and quantities and Ecology Report</i> |
|  | WILDFLOWER GRASSLAND
<i>Refer to planting schedule for details on species and quantities</i> |
|  | TALL TUSsocky GRASSLAND
<i>Refer to planting schedule for details on species and quantities</i> |
|  | MIXED NATIVE HEDGEROW
<i>Refer to planting schedule for details on species and quantities</i> |
|  | BUTTERFLY / BEETLE WILDFLOWER MOUND
<i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i> |
|  | TREES
<i>Refer to planting schedule for details on species and quantities</i> |
|  | WET DITCH
<i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i> |
|  | PATH
<i>Maintained short grassland path</i> |
|  | AMPHIBIAN AND REPTILE HIBERNACULA
<i>Refer to Ecology Report for further information</i> |
|  | LOG PILE |
|  | MARGINAL PLANTING
<i>Refer to planting schedule for details and quantities</i> |
|  | DENSE SCRUB
<i>Native whip planting. Refer to planting schedule for details and quantities</i> |
|  | RETAINED DISTURBED AREAS
<i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i> |
|  | OPEN MOSAIC GROUND
<i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i> |
|  | SANDBANKS
<i>Unvegetated sandbanks</i> |
|  | AMPHIBIAN HIBERNACULA |
|  | PROPOSED SHRUB BED
<i>Please refer to the planting schedule for further details on species, quantities and nursery grades</i> |

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

		
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Client		
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Project		
3A, KINGMOOR, WREXHAM		
Description		
PLANTING PLAN		
SHEET 3		
Status		
FOR PLANNING		
Scale	Drawn Checked	Date
1:250@A1	KLJ PGG	AUG 2022
Job number	Drawing number	Revision
WRE2206	PP01.03	P5



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

RETAINED DISTURBED AREAS
Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details

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Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details

SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACLA

PROPOSED SHRUB BED
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P5	09.01.24	Additional ponds added to the ecological area	KLJ
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P1	26.08.22	Initial Issue	KLJ

Rev	Date	Description	Initials
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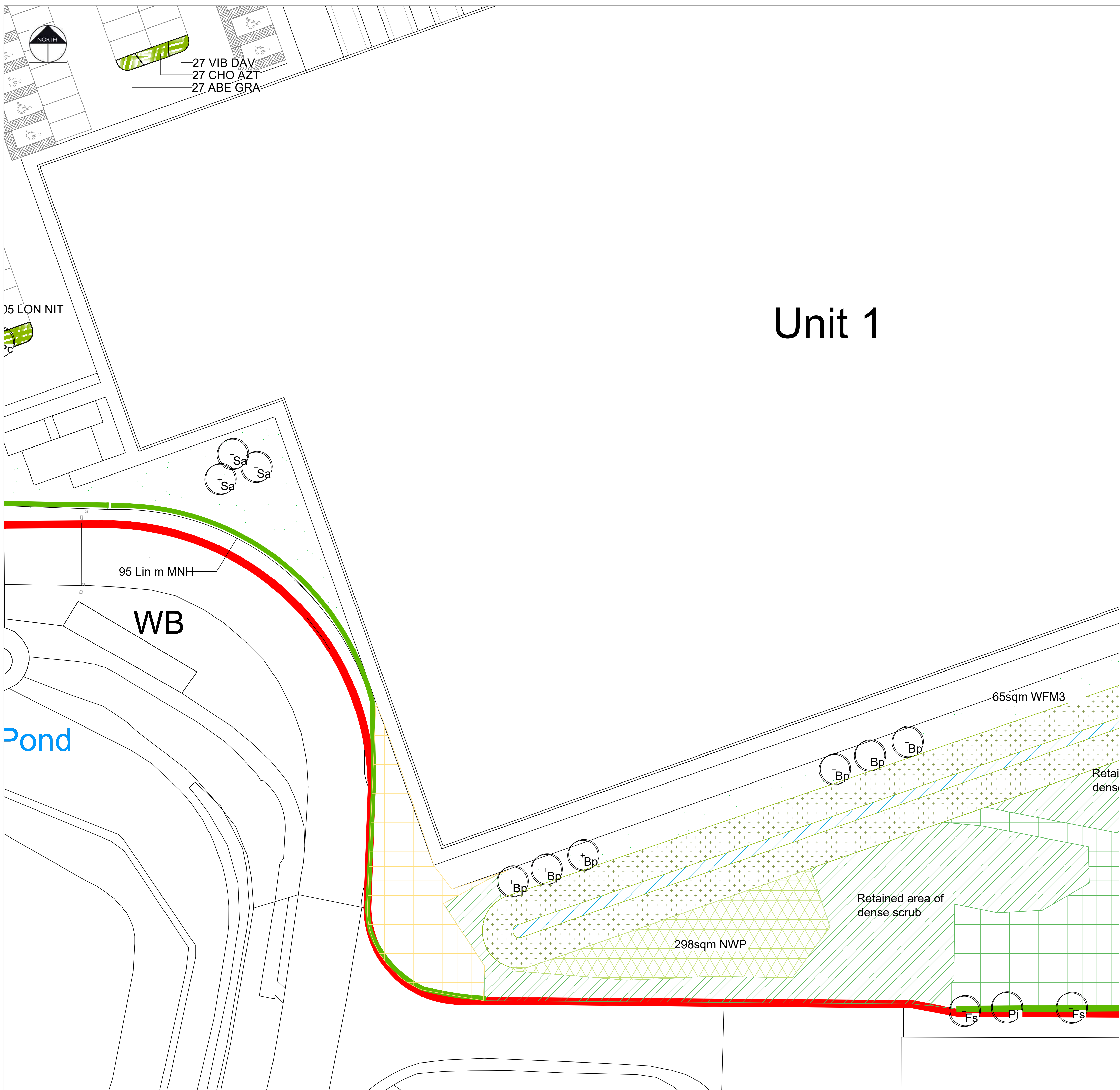
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Client
FIREM

Project
3A, KINGMOOR, WREXHAM

Description
PLANTING PLAN
SHEET 4

Status FOR PLANNING			
Scale 1:250@A1	Drawn KLJ	Checked PGG	Date AUG 2022
Job number WRE2206	Drawing number PP01.04	Revision P5	



Unit 1

	EXISTING VEGETATION - DENSE SCRUB <i>Please refer to the ecology report for details on species</i>
	EXISTING VEGETATION - WOODLAND <i>Please refer to the ecology report for details on species</i>
	EXISTING GRASSLAND <i>Areas of grassland to be retained. Please refer to the ecology report for details</i>
	EXISTING PONDS <i>Ponds to be retained</i>
	PROPOSED PONDS <i>Refer to Ecology Report for further details</i>
	MARSHY WET GRASSLAND <i>Refer to planting schedule for species and quantities and Ecology Report</i>
	WILDFLOWER GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	TALL TUSSOCKY GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	MIXED NATIVE HEDGEROW <i>Refer to planting schedule for details on species and quantities</i>
	BUTTERFLY / BEETLE WILDFLOWER MOUND <i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i>
	TREES <i>Refer to planting schedule for details on species and quantities</i>
	WET DITCH
	PATH <i>Maintained short grassland path</i>
	AMPHIBIAN AND REPTILE HIBERNACULA <i>Refer to Ecology Report for further information</i>
	LOG PILE
	MARGINAL PLANTING <i>Refer to planting schedule for details and quantities</i>
	DENSE SCRUB <i>Native whip planting. Refer to planting schedule for details and quantities</i>
	RETAINED DISTURBED AREAS <i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i>
	OPEN MOSAIC GROUND <i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i>
	SANDBANKS <i>Unvegetated sandbanks</i>
	AMPHIBIAN HIBERNACULA
	PROPOSED SHRUB BED <i>Please refer to the planting schedule for further details on species, quantities and nursery grades</i>

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
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Rev	Date	Description	Initials

			
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Client			
FIREM			
Project			
3A, KINGMOOR, WREXHAM			
Description			
PLANTING PLAN			
SHEET 5			
Status			
FOR PLANNING			
Scale	Drawn	Checked	Date
1:250 @ A1	KLJ	PGG	AUG 2022
Job number	Drawing number	Revision	
WRE2206	PP01.05	P5	
Original size 100mm @ A1			



KEY			
	EXISTING VEGETATION - DENSE SCRUB	Please refer to the ecology report for details on species	
	EXISTING VEGETATION - WOODLAND	Please refer to the ecology report for details on species	
	EXISTING GRASSLAND	Areas of grassland to be retained. Please refer to the ecology report for details	
	EXISTING PONDS	Ponds to be retained	
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	MARSHY WET GRASSLAND	Refer to planting schedule for species and quantities and Ecology Report	
	WILDFLOWER GRASSLAND	Refer to planting schedule for details on species and quantities	
	TALL TUSSOCKY GRASSLAND	Refer to planting schedule for details on species and quantities	
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	BUTTERFLY / BEETLE WILDFLOWER MOUND	South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities	
	TREES	Refer to planting schedule for details on species and quantities	
	WET DITCH		
	PATH	Maintained short grassland path	
	AMPHIBIAN AND REPTILE HIBERNACULA	Refer to Ecology Report for further information	
	LOG PILE		
	MARGINAL PLANTING	Refer to planting schedule for details and quantities	
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	SANDBANKS	Unvegetated sandbanks	
	AMPHIBIAN HIBERNACLA		
	PROPOSED SHRUB BED	Please refer to the planting schedule for further details on species, quantities and nursery grades	

Rev	Date	Description	Initials
P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ

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w: www.pgla.co.uk

Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

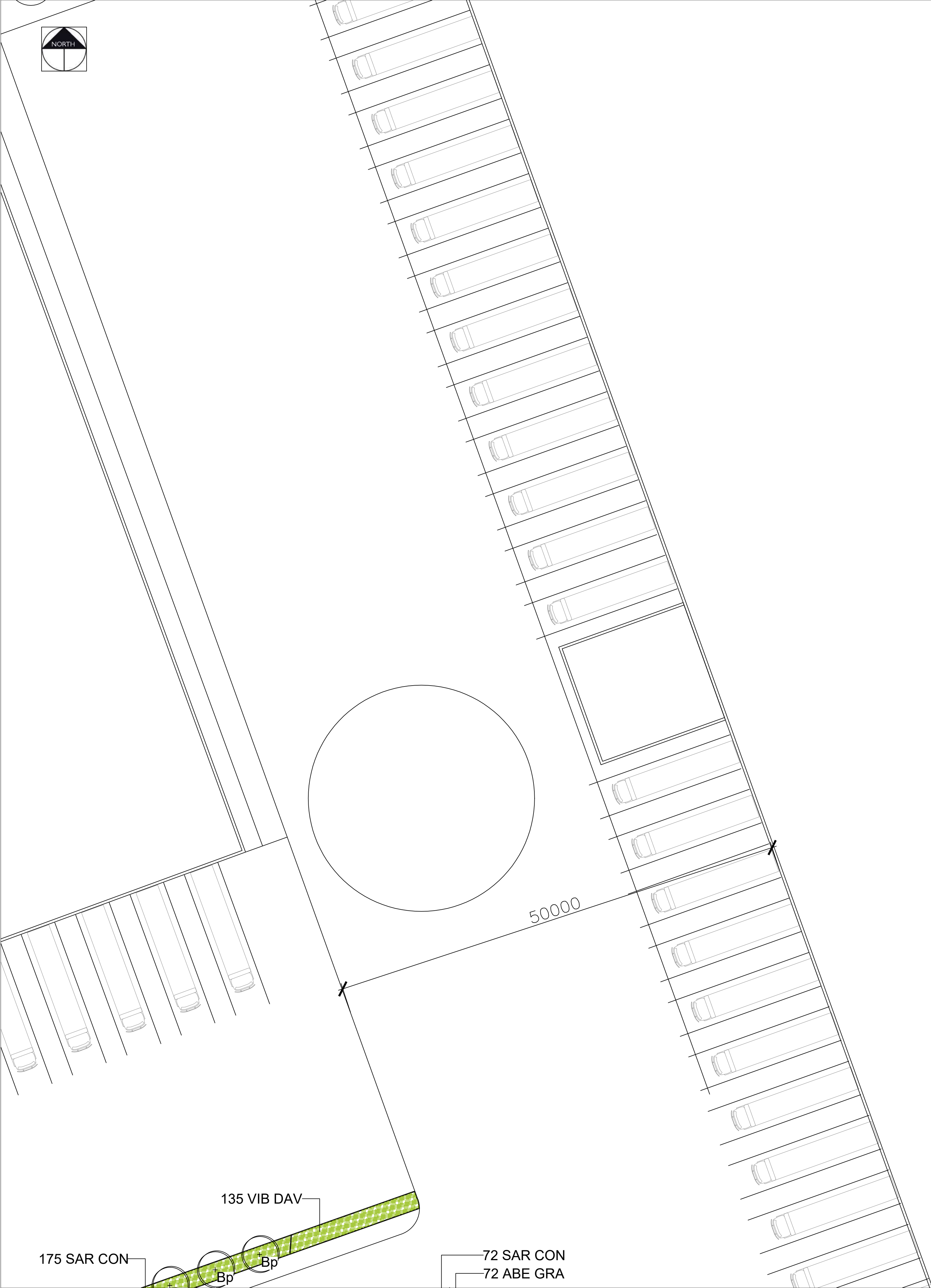
SHEET 6

Status

FOR PLANNING

Scale	Drawn	Checked	Date
1:250@A1	KLJ	PGG	AUG 2022
Job number	Drawing number	Revision	
WRE2206	PP01.06	P5	

Original size 100mm @ A1



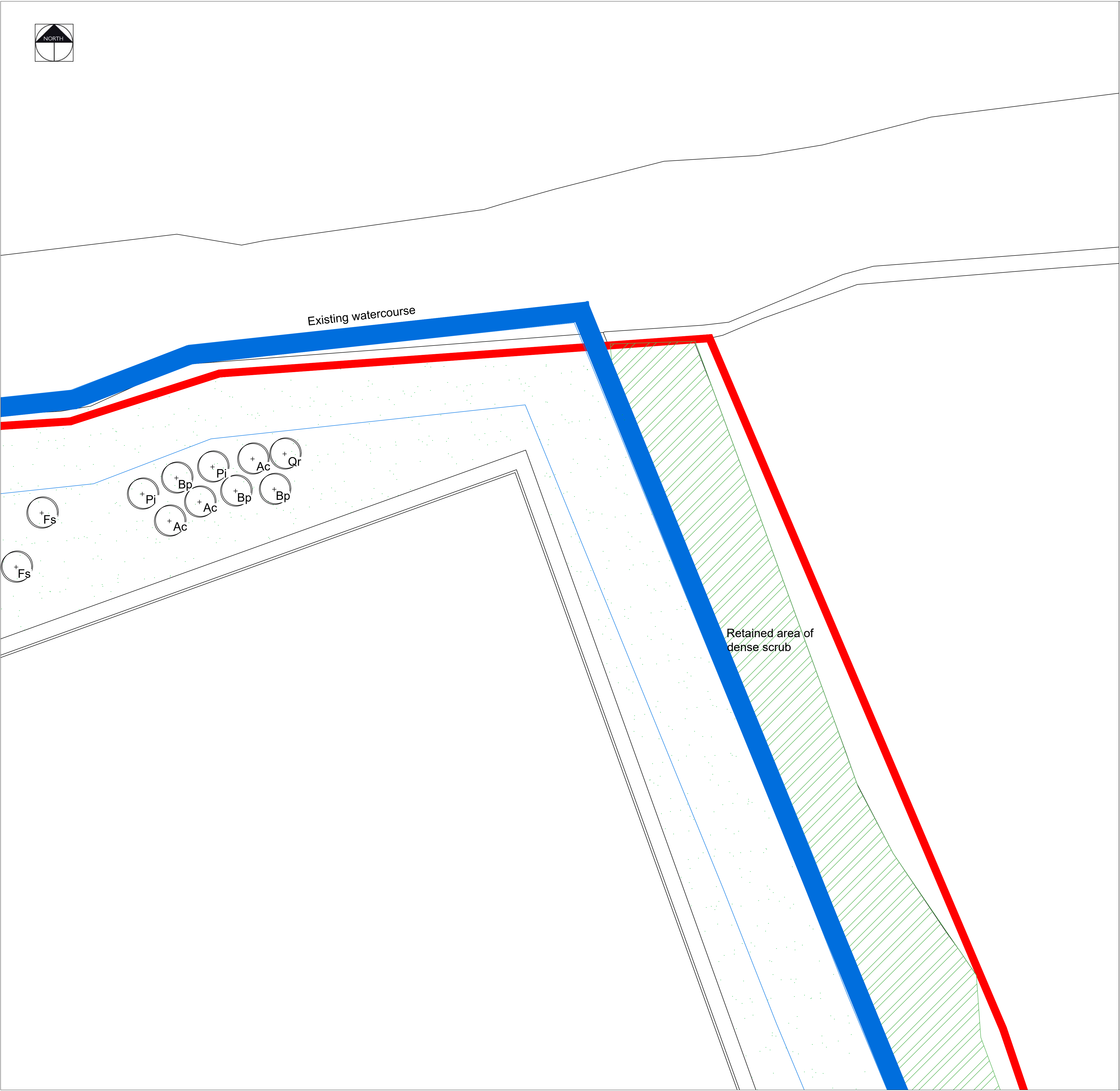
KEY			
	EXISTING VEGETATION - DENSE SCRUB	Please refer to the ecology report for details on species	
	EXISTING VEGETATION - WOODLAND	Please refer to the ecology report for details on species	
	EXISTING GRASSLAND	Areas of grassland to be retained. Please refer to the ecology report for details	
	EXISTING PONDS	Ponds to be retained	
	PROPOSED PONDS	Refer to Ecology Report for further details	
	MARSHY WET GRASSLAND	Refer to planting schedule for species and quantities and Ecology Report	
	WILDFLOWER GRASSLAND	Refer to planting schedule for details on species and quantities	
	TALL TUSSOCKY GRASSLAND	Refer to planting schedule for details on species and quantities	
	MIXED NATIVE HEDGEROW	Refer to planting schedule for details on species and quantities	
	BUTTERFLY / BEETLE WILDFLOWER MOUND	South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities	
	TREES	Refer to planting schedule for details on species and quantities	
	WET DITCH		
	PATH	Maintained short grassland path	
	AMPHIBIAN AND REPTILE HIBERNACULA	Refer to Ecology Report for further information	
	LOG PILE		
	MARGINAL PLANTING	Refer to planting schedule for details and quantities	
	DENSE SCRUB	Native whip planting. Refer to planting schedule for details and quantities	
	RETAINED DISTURBED AREAS	Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details	
	OPEN MOSAIC GROUND	Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details	
	SANDBANKS	Unvegetated sandbanks	
	AMPHIBIAN HIBERNACLA		
	PROPOSED SHRUB BED	Please refer to the planting schedule for further details on species, quantities and nursery grades	

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials
pgla landscape architects			
PGLA Ltd Landscape Architects Station Hop Offices 815 Stockport Road Manchester M19 3BS t: 0161 238 9138 e: info@pgla.co.uk w: www.pgla.co.uk			
Client FIREM			
Project 3A, KINGMOOR, WREXHAM			
Description PLANTING PLAN SHEET 7			
Status FOR PLANNING			
Scale 1:250@A1	Drawn KLJ	Checked PGG	Date AUG 2022
Job number WRE2206	Drawing number PP01.07	Revision P5	
Original size 100mm @ A1			



	EXISTING VEGETATION - DENSE SCRUB <i>Please refer to the ecology report for details on species</i>
	EXISTING VEGETATION - WOODLAND <i>Please refer to the ecology report for details on species</i>
	EXISTING GRASSLAND <i>Areas of grassland to be retained. Please refer to the ecology report for details</i>
	EXISTING PONDS <i>Ponds to be retained</i>
	PROPOSED PONDS <i>Refer to Ecology Report for further details</i>
	MARSHY WET GRASSLAND <i>Refer to planting schedule for species and quantities and Ecology Report</i>
	WILDFLOWER GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	TALL TUSSOCKY GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	MIXED NATIVE HEDGEROW <i>Refer to planting schedule for details on species and quantities</i>
	BUTTERFLY / BEETLE WILDFLOWER MOUND <i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i>
	TREES <i>Refer to planting schedule for details on species and quantities</i>
	WET DITCH
	PATH <i>Maintained short grassland path</i>
	AMPHIBIAN AND REPTILE HIBERNACULA <i>Refer to Ecology Report for further information</i>
	LOG PILE
	MARGINAL PLANTING <i>Refer to planting schedule for details and quantities</i>
	DENSE SCRUB <i>Native whip planting. Refer to planting schedule for details and quantities</i>
	RETAINED DISTURBED AREAS <i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i>
	OPEN MOSAIC GROUND <i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i>
	SANDBANKS <i>Unvegetated sandbanks</i>
	AMPHIBIAN HIBERNACULA
	PROPOSED SHRUB BED <i>Please refer to the planting schedule for further details on species, quantities and survey reports</i>

		
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Client		
FIREM		
Project		
3A, KINGMOOR, WREXHAM		
Description		
PLANTING PLAN		
SHEET 9		
Status		
FOR DISCUSSION		
Scale	Drawn Checked	Date
1:250@A1	KLJ PGG	AUG 2022
Job number	Drawing number	Revision
WRE2206	PP01.09	P5



KEY			
	EXISTING VEGETATION - DENSE SCRUB	Please refer to the ecology report for details on species	
	EXISTING VEGETATION - WOODLAND	Please refer to the ecology report for details on species	
	EXISTING GRASSLAND	Areas of grassland to be retained. Please refer to the ecology report for details	
	EXISTING PONDS	Ponds to be retained	
	PROPOSED PONDS	Refer to Ecology Report for further details	
	MARSHY WET GRASSLAND	Refer to planting schedule for species and quantities and Ecology Report	
	WILDFLOWER GRASSLAND	Refer to planting schedule for details on species and quantities	
	TALL TUSSOCKY GRASSLAND	Refer to planting schedule for details on species and quantities	
	MIXED NATIVE HEDGEROW	Refer to planting schedule for details on species and quantities	
	BUTTERFLY / BEETLE WILDFLOWER MOUND	South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities	
	TREES	Refer to planting schedule for details on species and quantities	
	WET DITCH		
	PATH	Maintained short grassland path	
	AMPHIBIAN AND REPTILE HIBERNACULA	Refer to Ecology Report for further information	
	LOG PILE		
	MARGINAL PLANTING	Refer to planting schedule for details and quantities	
	DENSE SCRUB	Native whip planting. Refer to planting schedule for details and quantities	
	RETAINED DISTURBED AREAS	Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details	
	OPEN MOSAIC GROUND	Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details	
	SANDBANKS	Unvegetated sandbanks	
	AMPHIBIAN HIBERNACLA		
	PROPOSED SHRUB BED	Please refer to the planting schedule for further details on species, quantities and nursery grades	

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

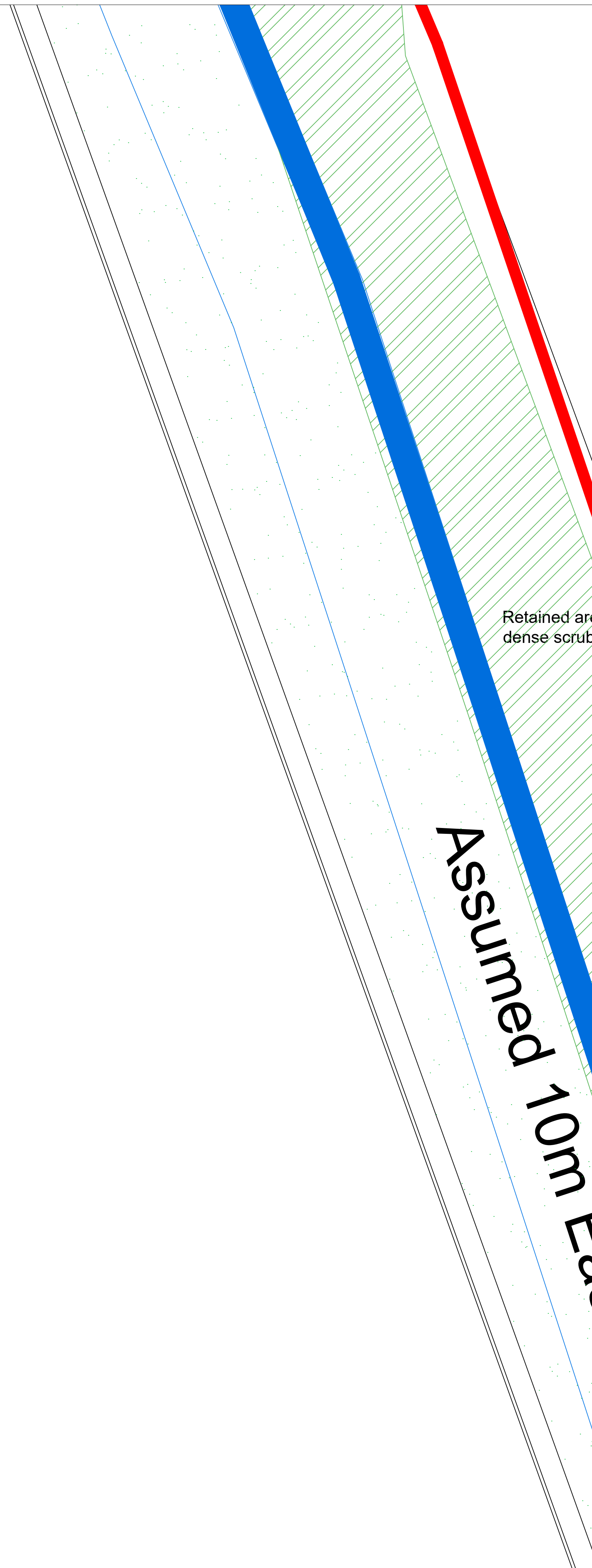
SHEET 10

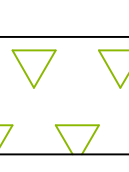
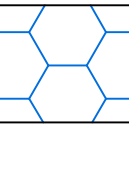
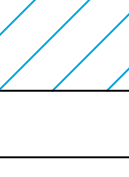
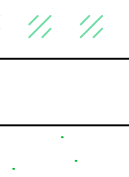
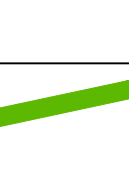
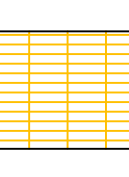
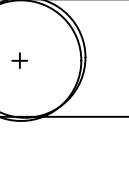
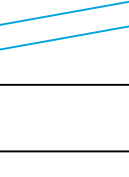
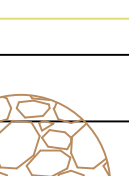
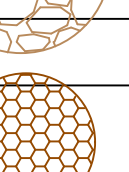
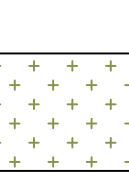
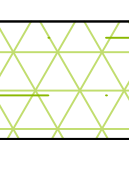
Status

FOR PLANNING

Scale	Drawn	Checked	Date
1:250@A1	KLJ	PGG	OCT 2022
Job number	Drawing number	Revision	
WRE2206	PP01.10	P5	

Original size 100mm @ A1



	EXISTING VEGETATION - DENSE SCRUB <i>Please refer to the ecology report for details on species</i>
	EXISTING VEGETATION - WOODLAND <i>Please refer to the ecology report for details on species</i>
	EXISTING GRASSLAND <i>Areas of grassland to be retained. Please refer to the ecology report for details</i>
	EXISTING PONDS <i>Ponds to be retained</i>
	PROPOSED PONDS <i>Refer to Ecology Report for further details</i>
	MARSHY WET GRASSLAND <i>Refer to planting schedule for species and quantities and Ecology Report</i>
	WILDFLOWER GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	TALL TUSSOCKY GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	MIXED NATIVE HEDGEROW <i>Refer to planting schedule for details on species and quantities</i>
	BUTTERFLY / BEETLE WILDFLOWER MOUND <i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i>
	TREES <i>Refer to planting schedule for details on species and quantities</i>
	WET DITCH
	PATH <i>Maintained short grassland path</i>
	AMPHIBIAN AND REPTILE HIBERNACULA <i>Refer to Ecology Report for further information</i>
	LOG PILE
	MARGINAL PLANTING <i>Refer to planting schedule for details and quantities</i>
	DENSE SCRUB <i>Native whip planting. Refer to planting schedule for details and quantities</i>
	RETAINED DISTURBED AREAS <i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i>
	OPEN MOSAIC GROUND <i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i>
	SANDBANKS <i>Unvegetated sandbanks</i>
	AMPHIBIAN HIBERNACLA
	PROPOSED SHRUB BED <i>Please refer to the planting schedule for further details on species, quantities and nursery grades</i>

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials



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Client	FIREM		
Project	3A, KINGMOOR, WREXHAM		
Description	PLANTING PLAN		
	SHEET 11		
Status	FOR PLANNING		
Scale	Drawn	Checked	Date
1:250@A1	KLJ	PGG	OCT 2022
Job number	Drawing number	Revision	
WRE2206	PP01.11	P5	

Original size 100mm @ A1



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

RETAINED DISTURBED AREAS
Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details

OPEN MOSAIC GROUND
Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details

SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACULA

PROPOSED SHRUB BED
Please refer to the planting schedule for further details on species, quantities and nursery grades

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

SHEET 12

Status

FOR PLANNING

Scale

1:250@A1

Drawn

KLJ

Checked

PGG

Date

OCT 2022

Job number

WRE2206

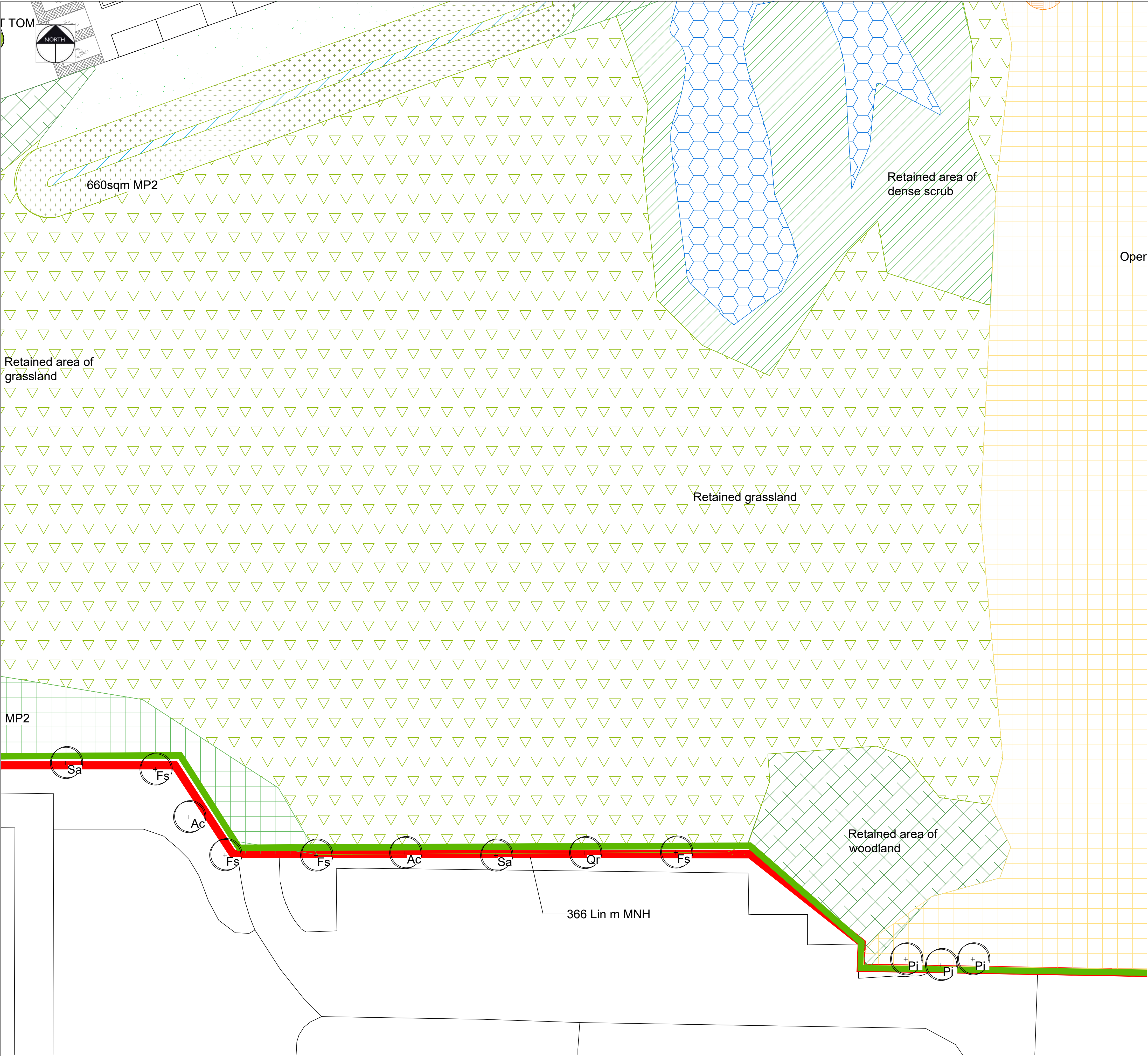
Drawing number

PP01.12

Revision

P5

Original size 100mm @ A1



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

RETAINED DISTURBED AREAS
Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details

OPEN MOSAIC GROUND
Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details

SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACLA

PROPOSED SHRUB BED
Please refer to the planting schedule for further details on species, quantities and nursery grades

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

pgla

landscape architects

PGLA Ltd

Landscape Architects

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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

SHEET 13

Status

FOR PLANNING

Scale

1:250@A1

Job number

WRE2206

Drawn

KLJ

Drawing number

PP01.13

Checked

PGG

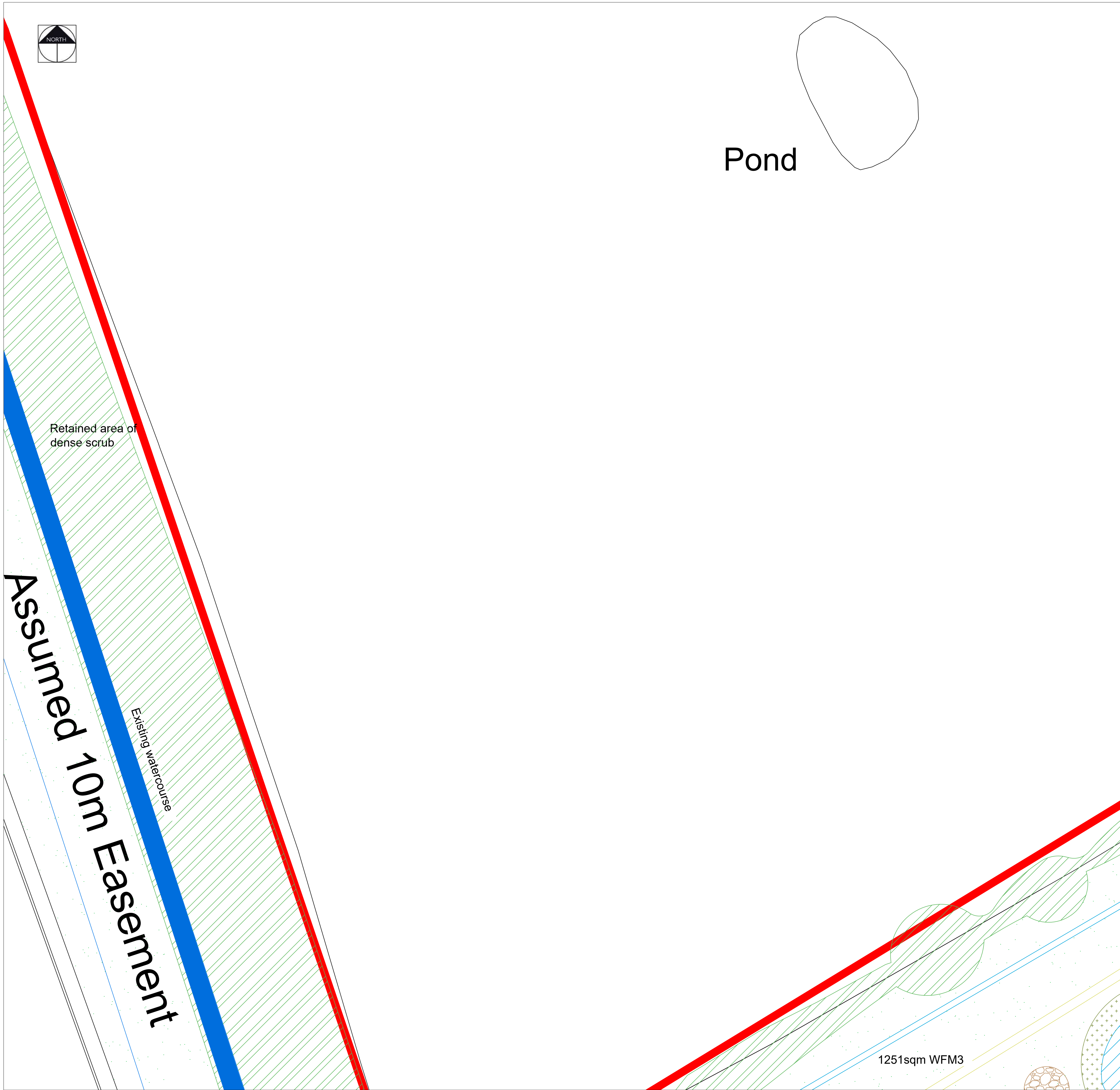
Revision

P5

Date

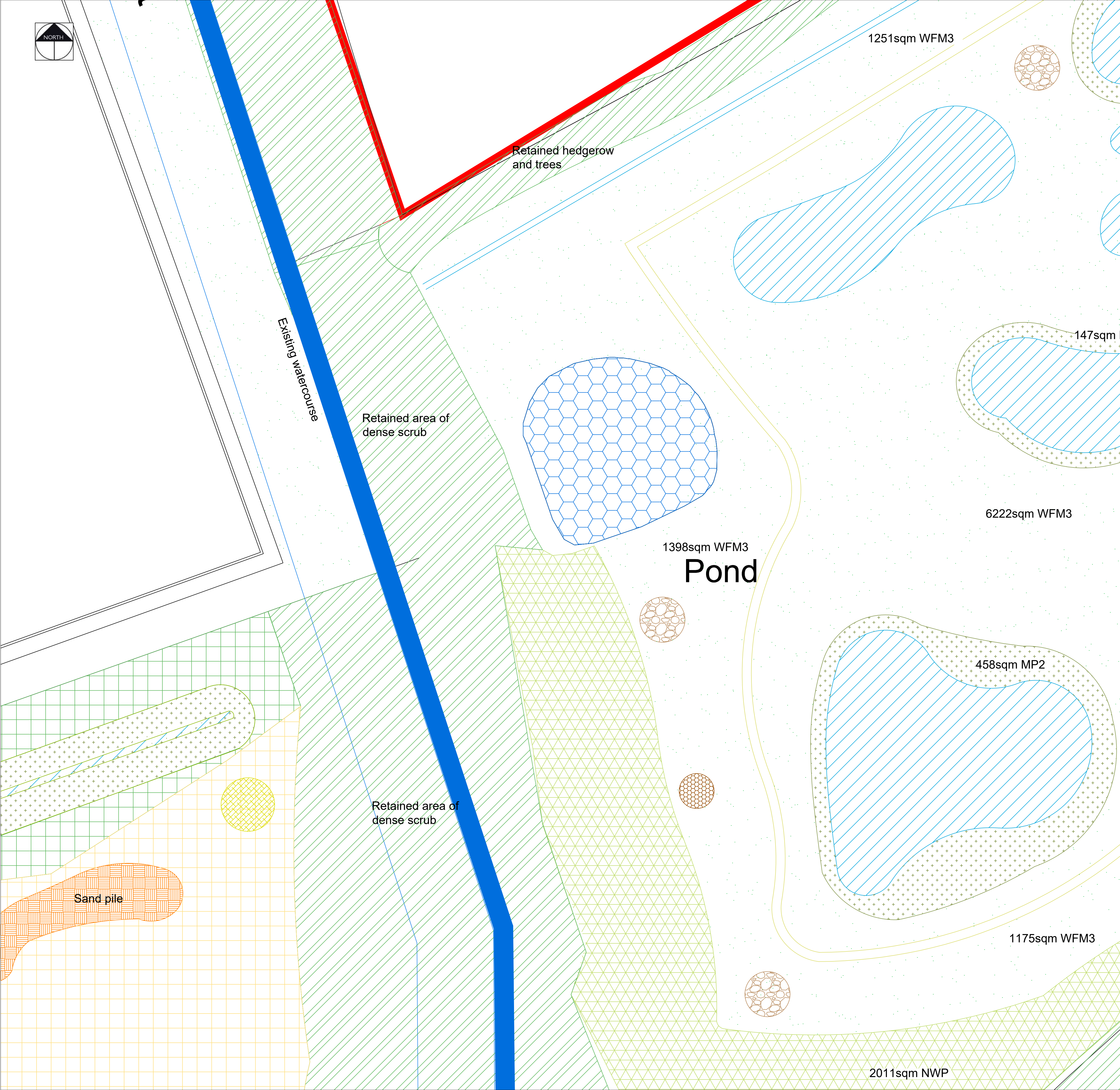
OCT 2022

Original size 100mm @ A1



	EXISTING VEGETATION - DENSE SCRUB <i>Please refer to the ecology report for details on species</i>
	EXISTING VEGETATION - WOODLAND <i>Please refer to the ecology report for details on species</i>
	EXISTING GRASSLAND <i>Areas of grassland to be retained. Please refer to the ecology report for details</i>
	EXISTING PONDS <i>Ponds to be retained</i>
	PROPOSED PONDS <i>Refer to Ecology Report for further details</i>
	MARSHY WET GRASSLAND <i>Refer to planting schedule for species and quantities and Ecology Report</i>
	WILDFLOWER GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	TALL TUSSOCKY GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	MIXED NATIVE HEDGEROW <i>Refer to planting schedule for details on species and quantities</i>
	BUTTERFLY / BEETLE WILDFLOWER MOUND <i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i>
	TREES <i>Refer to planting schedule for details on species and quantities</i>
	WET DITCH
	PATH <i>Maintained short grassland path</i>
	AMPHIBIAN AND REPTILE HIBERNACULA <i>Refer to Ecology Report for further information</i>
	LOG PILE
	MARGINAL PLANTING <i>Refer to planting schedule for details and quantities</i>
	DENSE SCRUB <i>Native whip planting. Refer to planting schedule for details and quantities</i>
	RETAINED DISTURBED AREAS <i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i>
	OPEN MOSAIC GROUND <i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i>
	SANDBANKS <i>Unvegetated sandbanks</i>
	AMPHIBIAN HIBERNACLA
	PROPOSED SHRUB BED <i>Please refer to the planting schedule for further details on species, quantities and nursery grades</i>

					
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Client					
FIREM					
Project					
3A, KINGMOOR, WREXHAM					
Description					
PLANTING PLAN					
SHEET 14					
Status					
FOR PLANNING					
Scale	Drawn	Checked	Date		
1:250@A1	KLJ	PGG	OCT 2022		
Job number	Drawing number	Revision			
WRE2206	PP01.14	P4			



KEY	
	EXISTING VEGETATION - DENSE SCRUB <i>Please refer to the ecology report for details on species</i>
	EXISTING VEGETATION - WOODLAND <i>Please refer to the ecology report for details on species</i>
	EXISTING GRASSLAND <i>Areas of grassland to be retained. Please refer to the ecology report for details</i>
	EXISTING PONDS <i>Ponds to be retained</i>
	PROPOSED PONDS <i>Refer to Ecology Report for further details</i>
	MARSHY WET GRASSLAND <i>Refer to planting schedule for species and quantities and Ecology Report</i>
	WILDFLOWER GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	TALL TUSsocky GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	MIXED NATIVE HEDGEROW <i>Refer to planting schedule for details on species and quantities</i>
	BUTTERFLY / BEETLE WILDFLOWER MOUND <i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i>
	TREES <i>Refer to planting schedule for details on species and quantities</i>
	WET DITCH
	PATH <i>Maintained short grassland path</i>
	AMPHIBIAN AND REPTILE HIBERNACULA <i>Refer to Ecology Report for further information</i>
	LOG PILE
	MARGINAL PLANTING <i>Refer to planting schedule for details and quantities</i>
	DENSE SCRUB <i>Native whip planting. Refer to planting schedule for details and quantities</i>
	RETAINED DISTURBED AREAS <i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i>
	OPEN MOSAIC GROUND <i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i>
	SANDBANKS <i>Unvegetated sandbanks</i>
	AMPHIBIAN HIBERNACLA
	PROPOSED SHRUB BED <i>Please refer to the planting schedule for further details on species, quantities and nursery grades</i>

Rev	Date	Description	Initials
P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ

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Landscape Architects
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815 Stockport Road
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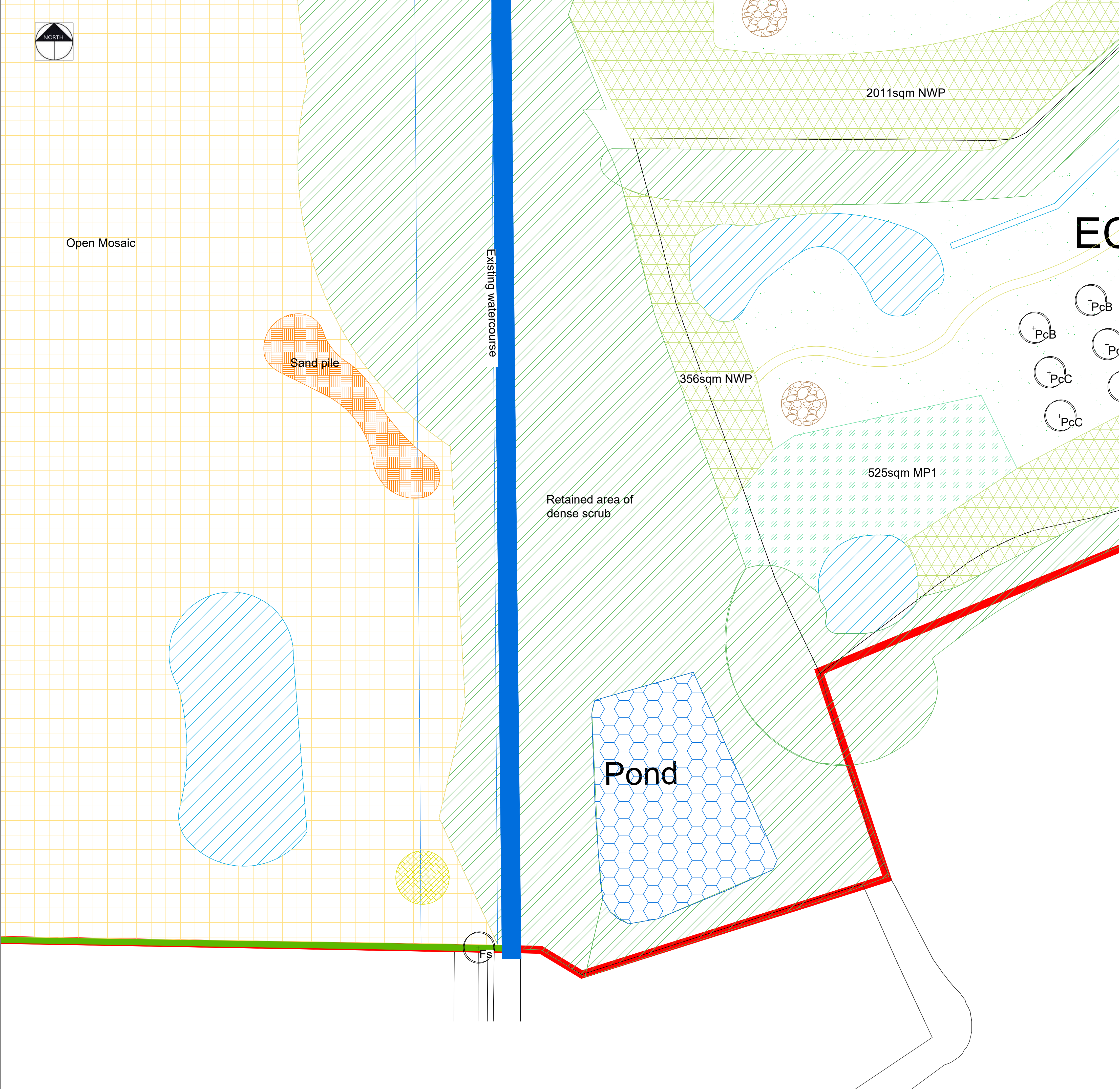
Client
FIREM

Project
3A, KINGMOOR, WREXHAM

Description
PLANTING PLAN
SHEET 15

Status
FOR PLANNING

Scale 1:250@A1	Drawn KLJ	Checked PGG	Date OCT 2022
Job number WRE2206	Drawing number PP01.15	Revision P5	



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

RETAINED DISTURBED AREAS
Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details

OPEN MOSAIC GROUND
Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details

SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACLA

PROPOSED SHRUB BED
Please refer to the planting schedule for further details on species, quantities and nursery grades

P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
P3	01.11.22	Revised to Architects layout + Drainage Strategy	KLJ
P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

SHEET 16

Status

FOR PLANNING

Scale

1:250@A1

Drawn

KLJ

Checked

PGG

Date

OCT 2022

Job number

WRE2206

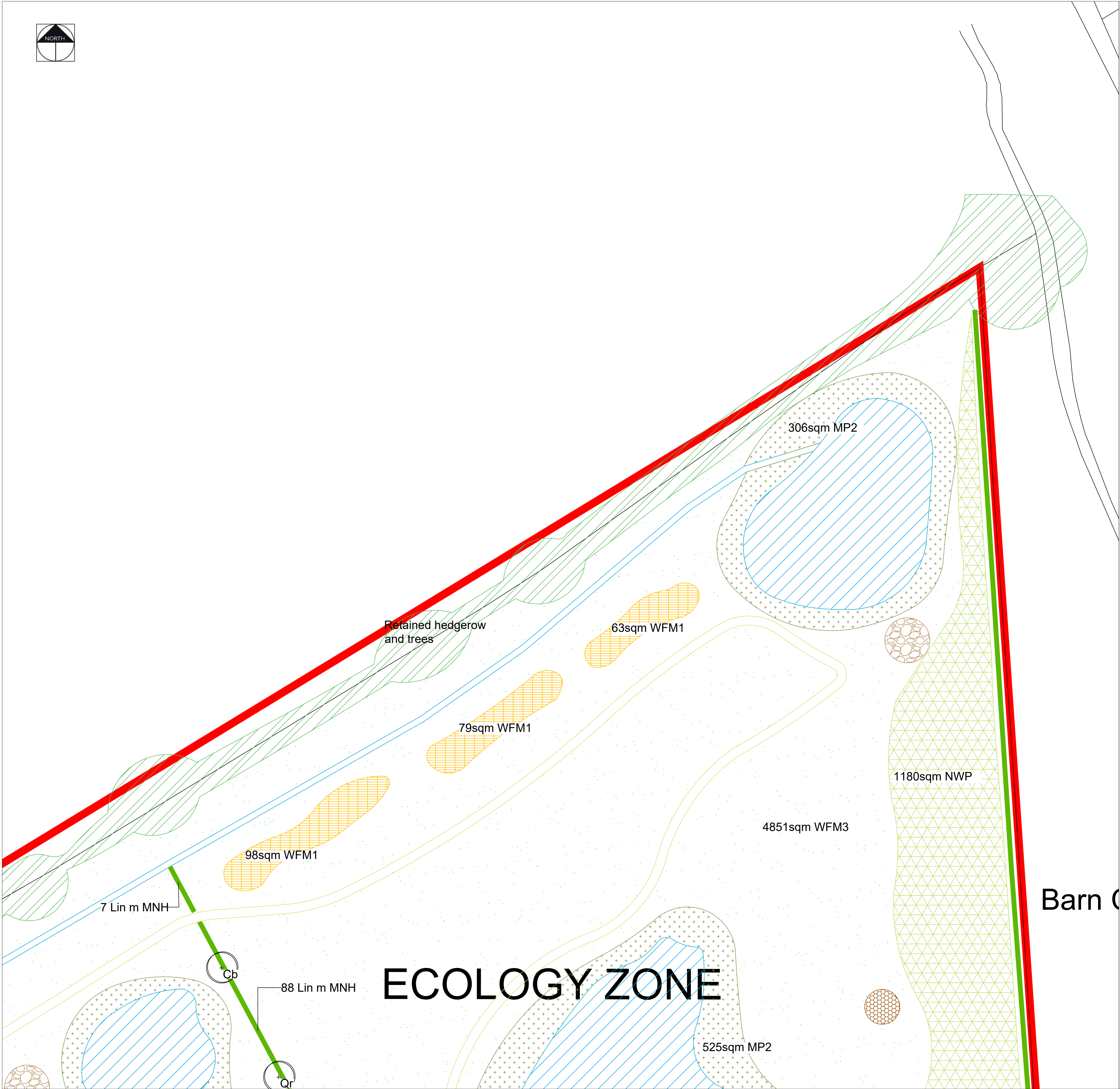
Drawing number

PP01.16

Revision

P5

Original size 100mm @ A1



KEY	
	EXISTING VEGETATION - DENSE SCRUB <i>Please refer to the ecology report for details on species</i>
	EXISTING VEGETATION - WOODLAND <i>Please refer to the ecology report for details on species</i>
	EXISTING GRASSLAND <i>Areas of grassland to be retained. Please refer to the ecology report for details</i>
	EXISTING PONDS <i>Ponds to be retained</i>
	PROPOSED PONDS <i>Refer to Ecology Report for further details</i>
	MARSHY WET GRASSLAND <i>Refer to planting schedule for species and quantities and Ecology Report</i>
	WILDFLOWER GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	TALL TUSsocky GRASSLAND <i>Refer to planting schedule for details on species and quantities</i>
	MIXED NATIVE HEDGEROW <i>Refer to planting schedule for details on species and quantities</i>
	BUTTERFLY / BEETLE WILDFLOWER MOUND <i>South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities</i>
	TREES <i>Refer to planting schedule for details on species and quantities</i>
	WET DITCH
	PATH <i>Maintained short grassland path</i>
	AMPHIBIAN AND REPTILE HIBERNACULA <i>Refer to Ecology Report for further information</i>
	LOG PILE
	MARGINAL PLANTING <i>Refer to planting schedule for details and quantities</i>
	DENSE SCRUB <i>Native whip planting. Refer to planting schedule for details and quantities</i>
	RETAINED DISTURBED AREAS <i>Areas of open mosaic disturbed ground with scattered scrub to remain as existing. Refer to UES Ecology Report for further details</i>
	OPEN MOSAIC GROUND <i>Areas of existing hardstanding / gravel to be broken up & allowed to naturally colonise with wildflower and scrub. Refer to UES Ecology Report for further details</i>
	SANDBANKS <i>Unvegetated sandbanks</i>
	AMPHIBIAN HIBERNACULA
	PROPOSED SHRUB BED <i>Please refer to the planting schedule for further details on species, quantities and nursery grades</i>

Rev	Date	Description	Initials
P5	09.01.24	Additional ponds added to the ecological area	KLJ
P4	27.03.23	Updated SuDS ponds	KLJ
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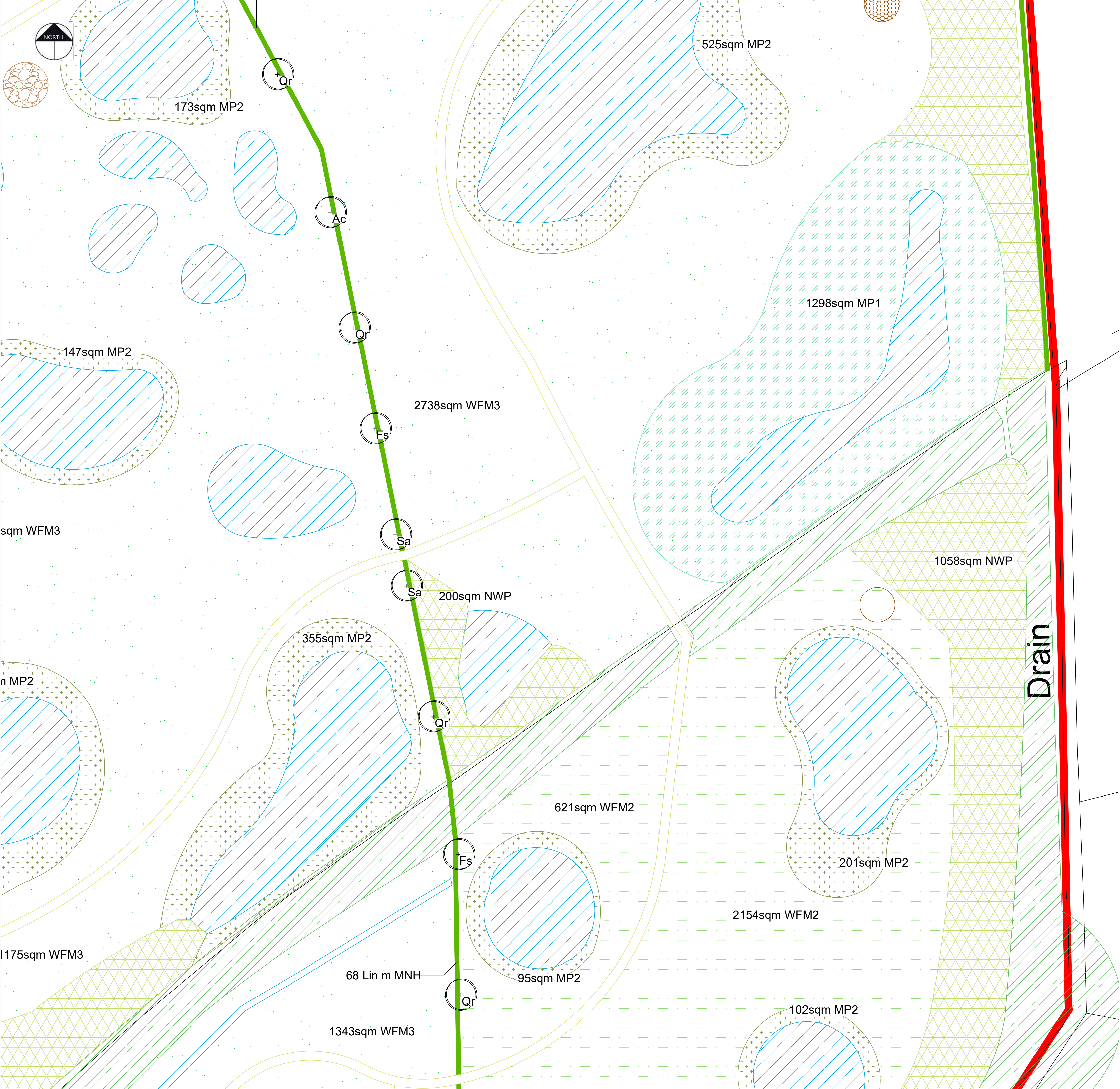
Project
3A, KINGMOOR, WREXHAM

Description
PLANTING PLAN
SHEET 17

Status
FOR PLANNING

Scale 1:250@A1	Drawn KLJ	Checked PGG	Date OCT 2022
Job number WRE2206	Drawing number PP01.17	Revision P5	

Original size 100mm @ A1



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
Ponds to be retained

PROPOSED PONDS
Refer to Ecology Report for further details

MARSHY WET GRASSLAND
Refer to planting schedule for species and quantities and Ecology Report

WILDFLOWER GRASSLAND
Refer to planting schedule for details on species and quantities

TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

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SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACULA

PROPOSED SHRUB BED
Please refer to the planting schedule for further details on species, quantities and nursery grades

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Rev	Date	Description	Initials
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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

SHEET 18

Status

FOR PLANNING

Scale

1:250@A1

Drawn

KLJ

Checked

PGG

Date

OCT 2022

Job number

WRE2206

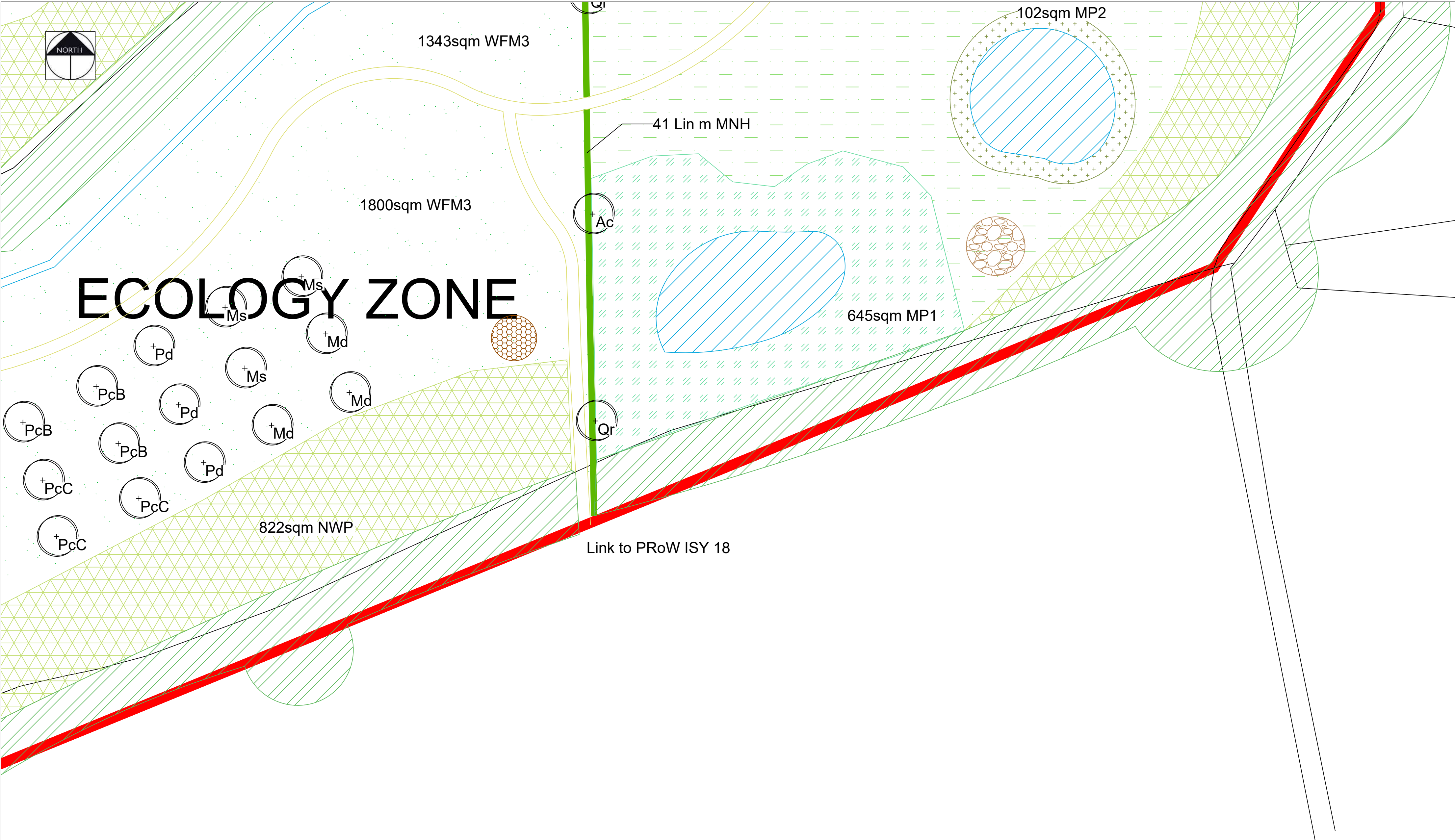
Drawing number

PP01.18

Revision

P5

Original size 100mm @ A1



KEY

EXISTING VEGETATION - DENSE SCRUB
Please refer to the ecology report for details on species

EXISTING VEGETATION - WOODLAND
Please refer to the ecology report for details on species

EXISTING GRASSLAND
Areas of grassland to be retained. Please refer to the ecology report for details

EXISTING PONDS
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WILDFLOWER GRASSLAND
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TALL TUSSOCKY GRASSLAND
Refer to planting schedule for details on species and quantities

MIXED NATIVE HEDGEROW
Refer to planting schedule for details on species and quantities

BUTTERFLY / BEETLE WILDFLOWER MOUND
South facing mound planted in a wildflower mix. Refer to planting schedule for details on species and quantities

TREES
Refer to planting schedule for details on species and quantities

WET DITCH

PATH
Maintained short grassland path

AMPHIBIAN AND REPTILE HIBERNACULA
Refer to Ecology Report for further information

LOG PILE

MARGINAL PLANTING
Refer to planting schedule for details and quantities

DENSE SCRUB
Native whip planting. Refer to planting schedule for details and quantities

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SANDBANKS
Unvegetated sandbanks

AMPHIBIAN HIBERNACLA

PROPOSED SHRUB BED
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P2	14.09.22	Marginal planting to ponds	KLJ
P1	26.08.22	Initial Issue	KLJ
Rev	Date	Description	Initials

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Client

FIREM

Project

3A, KINGMOOR, WREXHAM

Description

PLANTING PLAN

SHEET 19

Status

FOR PLANNING

Scale	Drawn	Checked	Date
1:250@A1	KLJ	PGG	OCT 2022
Job number	Drawing number	Revision	
WRE2206	PP01.19	P5	

Original size 100mm @ A1