BLACK SLUICE
INTERNAL DRAINAGE BOARD

Environment Committee Meeting

Tuesday, 7th March 2023 at 2pm

Station Road, Swineshead, Lincolnshire PE20 3PW

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Internal Drainage Board

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Our Ref: DW/JB/B10 Your Ref: Date: 28th February 2023

To all Members of the Environment Committee and Invited Guests

Notice is hereby given that a Meeting of the Environment Committee will be held at the offices of the Board on Tuesday, 7th March 2023 at 2:00pm at which your attendance is requested.

Ian Warsap
Chief Executive

AGENDA

1. Recording the meeting.

2. To welcome guests and receive apologies for absence.

3. Declarations of interest.

4. To review the Environment Committee Terms of Reference **(pages 1 & 2)**

5. To receive and, if correct, sign the Minutes of the last meeting of the Committee held on 1st March 2022 **(pages 3 - 11)**

6. Matters arising.

7. To review the Biodiversity Action Plan 2021 – 2026 **(under separate cover)**

8. To receive a report on Environmental Work completed in 2022/23 and recommendations for proposed works for 2023/24 **(pages 12 - 20)**

    (i) Archer Ecology Water Vole Surveys at Weir Dike Twenty, Great Hale/Little Hale, Heckington Fen and Damford Grounds (February 2023) **(under separate cover)**
    (ii) Wyberton Pumping Station Eel Screen Exemption Notice **(pages 21 - 23)**
    (iii) Horbling Fen SSSI; Water Level Management Plan (WLMP) with Natural England **(pages 24 - 30)**

9. To receive the 2022 Black Sluice IDB Barn Owl Box Reports **(pages 31 & 32)**

10. To receive a report on the 2022 butterfly records from Windmill Lodge Butterfly Conservation and Wildlife Area, Amber Hill **(pages 33 & 34)**

11. To receive a report from Tammy Smalley, Head of Conservation, Lincolnshire Wildlife Trust on various environmental topics **(verbal)**

12. To receive the Minutes from the ADA Lincolnshire Branch Environment Committee held on 6th October 2022 **(pages 35 - 37)**

13. Any Other Business.

BLACK SLUICE INTERNAL DRAINAGE BOARD

ENVIRONMENT COMMITTEE - 07 MARCH 2023

AGENDA ITEM 04

TERMS OF REFERENCE: ENVIRONMENT COMMITTEE

1. GENERAL

The Committee shall have TEN members who will be appointed by the Board, five members from each of the Works Committee.

The Membership shall include:

- Chairperson of the Board
- Vice Chairperson of the Board

The Committee Chairperson shall be appointed by the Committee at the triennial general meeting meeting being the first meeting following an election.

2. MEETINGS OF THE COMMITTEE

The Committee shall meet at least once in every 12-month period and a quorum shall be five members.

No one other than the Committee members, members of the public and Board Officers shall be entitled to attend Committee Meetings, but any other persons may attend meetings as a guest if invited by the Committee.

3. POWERS OF THE COMMITTEE

The Committee has the authority to utilise a budgetary amount as agreed by the Board at the beginning of each financial year on Environmental Projects and Works.

4. RESPONSIBILITIES OF THE COMMITTEE

The responsibilities of the Committee shall be:

1. To monitor the Board's performance in relation to the Lincolnshire Biodiversity Action Plan and Government's Environmental Targets.

2. To promote best practice through employee training and awareness.

3. To inform the public of the Board's commitment to Environmental issues.

4. To promote initiatives, within watercourses maintained by the Board under statutory powers, that result in a meaningful environmental gain.

5. REPORTING

Minutes of meetings of the Committee shall be presented to the next meeting of the Board.

The Committee shall review its terms of reference after every triennial general meeting and its own effectiveness and recommend any necessary changes to the Board.

REVIEWED BY THE COMMITTEE:
APPROVED BY THE BOARD:

BLACK SLUICE INTERNAL DRAINAGE BOARD

MINUTES

of the proceedings of a meeting of the Environment Committee

held at the office of the Board on
1st March 2022 at 2pm

Members

Chairperson - * Mr P Holmes

	Mr W Ash	*	Mr J Atkinson
*	Mr V Barker	*	Mr K C Casswell
	Mr M Rollinson		Mr P Robinson
*	Mr R Welberry	*	Mr R Needham
*	Cllr P Skinner		

* Member Present

In attendance: Mr I Warsap (Chief Executive)
Mr P Nicholson (Operations Manager)
Ms T Smalley (Lincolnshire Wildlife Trust)
Mr S Harrison (Works Manager)

1931 Recording the meeting - Agenda Item 1

Board Members were informed that the meeting would be recorded.

1932 Apologies for absence - Agenda Item 2

Apologies were received from Mr W Ash, Mr M Rollinson and Mr P Robinson.

The Chairperson welcomed and introduced Tammy Smalley (guest from Lincolnshire Wildlife Trust), Mr R Needham and Cllr P Skinner (new Environment Committee members).

1933 Declarations of interest - Agenda Item 3

There were no declarations of interest.

1934 Minutes of the last meeting - Agenda Item 4

The Minutes of the last meeting of the Environment Committee held on the 3rd March 2021, copies of which had been circulated, were considered. It was AGREED that they should be signed as a true record.

1935 Matters arising - Agenda Item 5

There were no matters arising.

1936 To review the Biodiversity Action Plan (Policy No. 11) - Agenda Item 6

The Chairperson presented the Biodiversity Action Plan, noting that it is a fluid document.

The Chief Executive highlighted that it had just been noted that figures relating to the Board's district (4.1, page 9 in the action plan) are now incorrect due to the recent extension of the Board's extended area. Therefore, these changes will be made.

The Chief Executive also highlighted the documents fluidity, encouraging members to ask any questions regarding it and provide feedback at any time.

The Committee RESOLVED to recommend that the Biodiversity Action Plan (Policy No. 11) be approved at the next Board meeting.

1937 To receive a report on environmental work completed in 2021/22 and recommendations for proposed works for 2022/23 - Agenda Item 7

The Operations Manager presented this agenda item, highlighting particular points as follows.

Completed Works 2021/22

Owl Boxes
Photos were displayed on screen; it being noted that the squirrel in the barn owl box has been bred in the box.

Mr R Welberry noted the cost of the owl boxes (£245) and that the owner of the pet shop opposite the offices of the Board has expressed that he thinks he would be able to make them cheaper.

RSPB Water Abstraction for Frampton Marsh
The Chief Executive noted that the RSPB Frampton Marsh have noted that the pump used to abstract water from the Wyberton Marsh Drain for water level management at the Frampton Marsh Nature Reserve is failing, they may discuss with the EA about a larger capacity.

Mr K Casswell questioned if water is pumped out of the counter drain for Willow Tree Farm or if it just done through gravity? Ms T Smalley responded that she didn't think it was pumped but will find out and confirm.

Operation Fly Swat
Photos were displayed on screen of some of the cases of fly tipping in 2021. The contribution of £3,454.78 was noted as invaluable for the service provided, it being further added that most of what they collect is collected without requiring assistance from the Board.

Invasive Species
The Operations Manager noted that the Board's plant vehicles are equipped with Tom Toms, which facilitates easy reporting of invasive species, reported to the Lincolnshire Environmental Records annually.

Yellow Flower – The Operations Manager reminded the committee of the 3-year trial around the control of yellow flower growing on watercourse banks.

Comparative 'before' and 'after' photos were displayed on screen, however, the Operations Manager noted that the photos are not representative of the results due to the time of year taken. He highlighted that the controls trialled have shown a reduction in the growth of yellow flower, and presented the following estimated costs to complete this trial work as part of the Board's maintenance:

Estimated machine cost to the Board to complete 3 x cuts ***c£750,000***

Not included:

- *estimated cost of ground nesting bird surveys c£100,000 x 3 =* ***c£300,000***
- *estimated cost of compensation c£100,000 x 3 =* ***c£300,000***
  (50% of 800km @0.25p/m)

The Operations Manager added that, in some cases, prevention is more cost effective than cure, however, if the growth of yellow flower was to cause a bank slip, for instance, it would cost considerably less to repair the bank slip than it would to control its growth in the first instance.

Mr R Welberry questioned the main cause of concern of yellow flower? It was confirmed that some landowners are concerned about the cross contamination of the yellow flower with crops of oil seed rape.

Mr V Barker noted that a chemical spray would be the most viable option, questioning if there are any chemicals that would kill the yellow flower that is able to be sprayed next to a watercourse?

The Chairperson responded that this has been investigated and there is no chemical (ground mounted or water mounted) available. The Chairperson further expressed his opinion that the trial has proven that it can be controlled, however, if a farmer is concerned about cross contamination with a crop, then it should be the responsibility of the farmer to control the growth of the yellow flower, it being unfeasible for the IDB to control it.

Mr J Atkinson questioned how the costs had been established? Noting that the Board already own the machines and employ the operatives. The Operations Manager acknowledged this but added that the machines do not have a cost when stood in the shed i.e., fuel, mileage. The drivers are paid anyway, but if they are doing work to control the yellow flower it takes them away from the current maintenance workload that needs doing. It would still be an additional cost outside of the budget.

Mr J Atkinson further suggested sowing grass after cut in the second year, as the grass would become more dominant and therefore prevent the growth of the yellow flower, further adding that birds won't nest in yellow flower.

The Chairperson noted how many years this topic has appeared on the agenda, and that it needs concluding, adding that the Board have trialled to see if it is controllable but that it is just too expensive for the Board to do and so should be up to the farmer.

Mr J Atkinson agreed, adding that it would be beneficial to notify some of the farmers who have an issue with yellow flower.

The Chairperson questioned if the Board has any authority to enforce the maintenance of riparian drains? It was confirmed that the Board can only enforce when there is an obstruction to the conveyance of water.

Mr R Welberry questioned that there is no chemical available? It was confirmed there is no chemical and that also there is no machine available to apply the chemical.

Mr R Needham questioned if the arisings deposited on the drain side effect the growth of yellow flower? Mr J Atkinson noted that he felt it made it worse. The Chief Executive noted that he has never seen any yellow flower grow through the water and that when the excavators lift the arisings from the drain, they shouldn't be pulling it up through the yellow flower and so should be bringing any yellow flower seed in it.

Mr J Atkinson referred back to his suggestion of spreading grass seed. The Chairperson noted that there is still a cost associated with that. It was suggested that a trial be carried out with the grass seed.

Mr K Casswell suggested it would be beneficial to show the famers what it would cost the Board to control the yellow flower so that they understand how unviable it is.

The Chief Executive also added that other Lincolnshire IDBs are encountering the same problem with yellow flower and also can't find a feasible way to control it.

Bat Boxes
Photos were displayed on screen, there being no confirmed sightings of occupancy to date.

Badger Setts
Photos were displayed on screen. The Operations Manager explained to the committee that the operations workforce all hold a CL27 Licence that allows for the interference with badgers for the purpose of IDB work. The Operations Manager also noted the potential dangers badger setts can cause to machinery. The Board have a mapping layer to keep a record of all the known badger setts in the catchment.

Mr J Atkinson noted that Dunsby Fen Road is giving way because of a badger sett in the drain bank, questioning who's responsibility this is? It was confirmed that it is the responsibility of the County Council Highways, it being suggested to upload photos to 'Fix my street'.

Pollution
Photos were displayed on screen, showing incidents of pollution in watercourses. It was further noted that Environment Agency (EA) follow up incidents and find the source of pollution, adding that it is also not within the Board's remit to tackle the offender, which is also a role of the EA.

Proposed works 2022/2023

Water Vole Surveys
A map showing the proposed water vole location surveys was presented on screen. It being noted that the purpose of the surveys is to locate and identify if the Board's works are going to disturb them.

Winter Bushing and Cleansing
Photos were displayed on screen, with the Operations Manager noting that the works on the North Forty Foot Drain (NFFD) are now nearing completion.

The Chairperson referenced the photographs, questioning if the slipway had to be made for the machine to enter the water? It was noted that the slipway was already there, installed in 1996. It was noted that the dredger did bring some stone out from it, the lagoon has been checked over for stone, and will be checked again when spread.

Mr V Barker referred to a previous complaint from one of the adjacent residents about the maintenance of the bushes / vegetation, noting this work should have satisfied them, but it will be their responsibility to keep it maintained.

It was noted that there is drone footage of 'before' and 'after' the NFFD works, should anybody be interested.

Owl Boxes
The Operations Manager confirmed that the proposed budget of £2,000 for the owl boxes for 2022/23 is for the repair and replacement of three existing boxes and to clean out the existing nesting boxes.

Recording by Machine Drivers
The Operations Manager noted that the nine machines are fitted with Tom-Tom units to enable recordings of environmental sightings. The proposed budget of £1,500 is for repairs and updates to this system.

High Profile Watercourse Banks
A map identifying the high profile watercourses was displayed on screen. These watercourses are deemed as important enough to require enhanced maintenance.

Invasive Non-Native Species (INNS)
Attention was drawn to mink; it being noted that other IDBs are actively trapping mink and it is something the Board should also be doing.

The Works Manager explained that the Board has now got involved with the Waterlife Recovery East Project, alongside other IDBs, to help address the issue with mink. South Holland IDB have reported the capture of 90 mink to date this year.

The Works Manager continued that four mink rafts have been constructed, in addition to 2 remote control traps. These send a radio signal when triggered to the phone app, alerting that it has been triggered, so that somebody is able to go and check the trap. The non-remote-controlled traps must be checked every day, compared to the remote units only having to be checked once a month. The remote units are £95 per unit, inclusive of two years monitoring.

The first trap will be put near Frampton Marsh Nature Reserve this week and will be disguised using reeds.

Ms T Smalley noted that they have been trialling the remote mink traps for over a year, a project funded by Viking Link and run by Lincs Pest. A gentleman named Tony Martin was also noted, who is collecting the carcasses of the mink, to take DNA samples from, as it is believed there are only a few families of mink all related.

The proposed budget of £1,700 is for the remote units and to build the rafts. The committee felt the remote units were invaluable for saving time having to check the rafts every day.

Mr R Needham questioned if there would be an opportunity for others to join this? The Works Manager confirmed that others could join, as many volunteers as possible being encouraged, and it could all be linked up to the same system. Mr R Needham felt there would be a good uptake from landowners and farmers. It was suggested it be included in the rating brochure.

Pollinator Project

Organised by the Lincolnshire Wildlife Trust, the Board have identified two sites, one at Gosberton Risegate and the other at Kirton Marsh pump drain to introduce pollinator species. Photos of the proposed sites were displayed on screen.

The Works Manager noted that the project is still in early stages, adding that the five plugs that have been taken have grown well.

Environment Budget 2022/23

The committee AGREED the budget as below:

Water Vole Surveys	*£1,750.00*
Winter Bushing & Cleansing	*£2,000.00*
Barn Owl Box Replacements	*£2,000.00*
Tom Tom Repairs/Updates	*£1,500.00*
High Profile Watercourse Banks	*£3,500.00*
Mink Control	*£1,700.00*
Operation Fly swat partner	*£3,454.78*
Big Boston Clean Up	*£2,750.00*
Grass Snake Sites	*£250.00*
Wild Meadow Maintenance	*£250.00*
Pollinator Project	*£250.00*
WNNMP	*£398.00*
GLNP	*£265.23*
Total	***£20,068.01***

1938 To receive a report on Barn Owl Nesting Boxes for 2021 - Agenda Item 8

The Chairperson presented the Barn Owl report for 2021, further noting that he has recently spoken to Alan Ball who has advised that 2022 is looking ~~for~~ positive for Barn Owls so far.

1939 To receive a report on the 2021 butterfly records from Windmill Lodge Butterfly Conservation and Wildlife area, Amber Hill - Agenda Item 9

The Chairperson presented the 2022 butterfly records from Windmill Lodge Butterfly conservation and wildlife area at Amber Hill, the committee noting how commendable the achievements of this area are.

The Chairperson added that another butterfly conservation and wildlife area has been established at Kirton Marsh.

1940 To receive a report on the Limits of Acceptable Change Study around the Wash and North Norfolk coast - Agenda Item 10

The Chairperson presented this report, there being no further comments or questions.

1941 To receive a report from Tammy Smalley on Lincolnshire Wildlife Trust (LWT) and Greater Lincolnshire Nature Partnership (GLNP) updates - Agenda Item 11

Ms T Smalley gave an update on the Greater Lincolnshire Nature Partnership (GLNP) and Lincolnshire Wildlife Trust (LWT) as follows.

The work of the GLNP is determined by the partners. Having secured a significant increase in funding, Natural England (NE) are undertaking a large scale recruitment process, meaning that the Board will have a named catchment advisor at NE. In addition, they are also starting to update all of their national habitat inventories, starting with ancient woodland, to which they have given the GLNP a budget to undertake the ancient woodland inventory within Greater Lincolnshire. The other element is the remote water vole project.

Due to circumstances, the LWT are recruiting for 9 roles, currently in the process of appointing for these roles. One of the grants achieved is the Biffa award, along with additional funding from Anglian Water, which has enabled the purchase of Bourne North Fen, which is now completed. A paper has previously been submitted to the Board regarding supporting with the engineering work that will take place on site next calendar year. A specification will be developed, liaising with the Board, over the next calendar year. It will not be a nature reserve in its purest sense, it will be about the eco system services the site can produce, in order to try and help people understand the value that nature can deliver.

Ms T Smalley next referred to the ELMs trial, one of which is in South Lincolnshire, which has particularly involved the Board's catchment. The South Lincolnshire trial is coming to an end, a natural capital assessment at landscape scale has been undertaken and are currently looking into private investment and buying credits in eco system services which could be stacked against agri-environment.

Ms T Smalley next referred to the Natural Environment Investment Readiness Fund (NERF), of which the full £100,000 grant was achieved to undertake the green investment in Greater Lincolnshire project. There is a conference being held on the 16th March 2022 at Woodhall Spa which would be of interest to both the Board and private landowners, looking at biodiversity net gain and what landowners could potentially offer for people such as building developers who will likely not be able to meet all of the biodiversity net gains on site. A register is therefore to be composed to compile a list of those landowners who could potentially deliver.

Mr V Barker left the meeting.

Mr R Needham questioned how the two elements i.e., the person / company needing to provide the biodiversity net gain and the landowner who could deliver it? Ms T Smalley noted that there is a suite of guidance and a standardised way of ecologically assessing land (UK HABS assessment), therefore the landowner will know what credits they have to sell. The developer will have to have the same assessment, mitigate, and compensate for any biodiversity lost and deliver 10% above.
Discussion next turned to offsetting carbon footprints, with Ms T Smalley recommending AHDB as a tool to calculate a farm's carbon footprint.

The Chief Executive noted that ADA National have identified the Board as 'carbon leading experts' in the IDB industry because of our solar panels and electric pumps because of this the-Board has been sent a trial carbon emissions spreadsheet that was completed and submitted yesterday, which in turn will go out to the other IDBs.

Ms T Smalley next gave an update on Willow Tree Fen, noting that the middle track has been taken out and are currently in discussions with the county council about the access road. Further noting, that the cranes are back.

Ms T Smalley next referred to the Nature for Climate Peatland Discovery Grant of £800,000 to assess the state of peat across Lincolnshire, Cambridgeshire, Norfolk and Suffolk. Work will be starting imminently to look at the potential around how to restore peatlands – they are far more effective at capturing carbon than woodlands.

Ms T Smalley noted that she is the appointed Marks and Spencer's biodiversity advisor and so can offer farm assessment advice.

Ms T Smalley next referred to seed planting and plant propagation with the University of Lincoln. Ms T Smalley referred to plant plugs, noting that they have local provenance plants and so could potentially help supply.

The Chairperson thanked Ms T Smalley for the update.

1942 To receive the minutes from the ADA Lincolnshire Branch Environment Committee: - Agenda Item 12

The Chairperson presented the minutes form the ADA Lincolnshire Branch Environment Committee Meeting held on 16th December 2020 and 16th December 2021.

1943 The Wash and North Norfolk Marine Partnership Project Update - Agenda Item 13

The Chairperson presented update on the Wash and North Norfolk Marine Partnership Project, there being no further comments or questions.

1944 Any other business - Agenda Item 14

(a) Resident's concern for loss of habitat - Holland Road Farm, Threekingham
The Operations Manager noted that the site was identified for desilting and bank works, with the correct notification given. There were well established bushes and small trees along the bank, for approximately 300 metres, which were removed. A local resident raised concern with the Board about these works, in respect of the possible disturbance of a badger sett after desilting, reprofiling and works to remove self-set trees and bushes on watercourse 36-1 south of Holland Road Farm between Threekingham and Swaton.

Following discussion with the lady who had raised the complaint and email correspondence, the Operations Manager, Works Manager and Works Supervisor visited site, on Monday 7th February, and met with, her partner and the gamekeeper and discussed the works (NB: unplanned meeting).

There was discussion about the Natural Flood Management (NFM) scheme that the Board are delivering on behalf of the Environment Agency, and the NFM schemes currently being developed in the Upper Catchment, which then led on to the possibility of mitigation for this site as a way of replacing the loss of habitat, the question being raised if a hedge be planted along the top of the bank?

The reason for the removal of the vegetation on the banks and the Board's access for maintenance wherever possible to both sides for biodiversity was explained to the concerned resident.

It also being explained that no mitigation is completed by the Board for these types of works. Ms T Smalley (Lincolnshire Wildlife Trust) also provided a response to the resident to support the works of the Board and echo why the work is necessary.

The Operations Manager added that he has spoken with the landowner, and he does not agree with any proposals to provide any mitigation on any Crown Estate (CE) land he currently tenants.

Mr R Welberry questioned how the bushes / trees became that established in the first instance?

The Operations Manager noted that previously, the 'easiest' route was taken with the Board's machinery, however, following the adoption of the alternate bank cutting programme, this is no longer the case, hence it now being removed.

The Chairperson believed the Board had operated within the appropriate guidelines to carry out the work and didn't believe it necessary to plant a new hedge etc. Also noting not to set a precedence.

The Chief Executive referred back to the resident's concern regarding the badger sett, noting that it is believed the badgers are still there, as new diggings have been sighted. A camera has been set up opposite the set to capture sightings of the badgers.

The Environment committee were happy that work was carried out as it should be and that no mitigation, such as hedge planting, is necessary.

(b) Use of bio-hydraulic oil in Board's plant

The Operations Manager referred to the Board's 3 flail mowers – Twiga's. These machines currently run on bio-hydraulic oil, which is environmentally friendly. This oil is not changed, it lasts the machine its lifetime.

The Operations Manager noted that problems have been experienced with these machines, in particular, the 17 plate machine, which is currently at Irelands Farm Machinery (IFM), with a fault where it slows down when travelling down the road for no apparent reason. IFM cannot diagnose the cause of this fault. However, it has been suggested that it may be a result of the bio-hydraulic oil, breaking down and effectively 'clogging' the system. It therefore being suggested by IFM to try the mineral oil (£450 per barrel changed every 1,000 hours).

The Operations Manager therefore noted the potential need to try the mineral oil, but the disadvantage of it not being environmentally friendly. However, he did note that, arguably, if the mineral oil works, it may prevent repairs and parts being required, therefore hopefully reducing the cost and environmental impact of those repairs and parts.

Cllr P Skinner noted that there can sometimes be a growth in bio-oil. Members of the committee felt that the bio-oil was going against the principles of oil by not changing it. The Operations Manager noted that Witham Oil are due to collect a bio-oil sample tomorrow to analyse.

There being no further business the meeting closed at 16:20.

BLACK SLUICE INTERNAL DRAINAGE BOARD

ENVIRONMENT COMMITTEE MEETING - 7th MARCH 2023

AGENDA ITEM 08

REPORT ON ENVIRONMENTAL WORKS

Completed Works in 2022/23

1. Owl Boxes

Three new boxes were erected to replace old eroded/damaged boxes at Dunsby, Haconby and Damford. Repairs were completed where required and all boxes fixed to pumping station buildings were internally cleared, cleaned and suitably 're-dressed'.

The completed 2022 Wildlife Conservation Partnership Barn Owl Box Report is included in Agenda Item 9.

It should be noted that Jackdaws were present in thirteen (60%) of the twenty two boxes checked in 2022.

It is also interesting that in one (5 last year) of our boxes we had Barn Owl's and Kestrel's cohabitating.

2. Early Flailing Works

Early season bank flailing on our high profile watercourses (approximately 67km) was completed along with the early health and safety bank top cuts on the main river highland carriers for the Environment Agency (EA) through our Public Sector Co-Operation Agreement (PSCA).

Our pumping station grounds maintenance cuts commence in March each year until the end of the growing season.

3. Control of Mink

Last year we proposed to undertaken a mink control project with the aim to enhance water vole conservation and also to use as a contribution towards the Board's BAP. This will compliment other efforts from surrounding IDB's.

We are pleased to report that, after a bit of a shaky start in getting the traps in the right location, the mink trapping is going well with the use of 4 no. "Remoti" smart traps. A total number of 15 mink have been caught since we started in April last year.

Tony Martin of The Waterlife Recovery East Project has collected 5 of the mink caught, with the rest to be collected when he is next in the area. He has reported back that of the 5 we had caught so far there were 3 males, and 2 very young females and that they have now been inspected for general condition and sent for DNA testing and profiling.

Tony reported that, in his opinion, we have a very healthy population of mink in our area and has suggested the addition of 4 more traps if possible and maybe concentrate on the North Forty Foot area as most of the Mink caught have come from this area.

So, with this information, we propose that we purchase 4 additional traps and "Remoti" units. (Budget costs for the new units and the upkeep and monitoring of the existing units and despatching of mink, c£1,700).

We are continuing our collaboration with The Waterlife Recovery East Project and the GLNP mink strategy committee. And continue to share information.

4. Environmental Surveys of Larger Hedge Rows in our Bushing Programme

Surveys were carried out by the Boards officers on any significant hedgerows that were felt could offer a form of environmental enhancement prior to any bushing works. No environmental enhancements or protected species were identified during the 2022/23 surveys or works.

Numerous Ecology and Protected Species Surveys were carried out on behalf of the Board by our Environmental Consultants, Inspired Ecology Ltd.

Inspired Ecology Ltd have stopped trading and we are using an ex-employee of their's as our new consultant, trading as Archer Ecology Ltd.

An example of Archer Ecology survey work, in this case of Weir Dike Twenty, Great Hale/Little Hale, Heckington Fen and Damford Grounds (February 2023) is included at the back of this report, the Board implement any recommendations the experts introduce.

5. RSPB Water Abstraction for Frampton Marsh

Permission has again been granted by the EA and the Board for the RSPB to abstract 500,000m^3 of water per annum from the Wyberton Marsh pump drain to assist with water management levels in the nearby Frampton Marsh Nature Reserve.

An estimated 50% of this water volume re-entres the Wyberton Marsh pump drain after 'flushing' the Frampton Marsh Nature Reserve.

6. Big Boston Clean Up

The 2022 Big Boston Clean Up was cancelled due to Covid.

7. Operation Fly Swat

The Board remains a partner within the Operation Fly Swat team and contributes towards its running costs, which in turn offers financial benefits to the Board in relation to the amount the Board previously spent on fly tipping clearance, collection and disposal.

8. Invasive Species

Invasive species identification guides produced by the Greater Lincolnshire Nature Partnership (GLNP) for Himalayan Balsam, Japanese Knotweed, Giant Hogweed, New Zealand Pigmyweed and Floating Pennywort are handed out to the operational workforce at each year's pre-cutting brief.

The continuous spread of Wild Yellow Flowering Brassica Rapa, a non-native species growing on Board maintained and Riparian banks, has been brought to our attention and addressed at Board level. Continuous flailing trials over a 3 year period on selected areas have been undertaken and completed.

The trials were a success and indicated May as the optimal time for cutting the yellow flower prior to seeding, this would still be c11 weeks before the commencement of the cutting season in the 1st week of August. It would therefore be expected that all of these sections would require flailmowing again prior to mechanical roding of the watercourses.

The Board will continue, when finances allow, to flail these sections in May to help assist with the contraol of Wild Yellow Flowering Brassica Rapa but we also encourage all landowners to actively maintain their banks especially with a cut in May.

9. Bat Boxes and Surveys

Bat boxes erected on all pumping stations are being carefully monitored for occupancy, to date we have no confirmed sightings of occupancy.

10. Environmental Schemes

Eel Passability at the Boards 'Category A' Pumping Stations

As previously reported the eleven pumping stations in the initial EA Category A classification (Chain Bridge, Black Hole Drove, Cooks Lock, Donington Wykes, Donington North Ings, Gosberton, Great Hale, Holland Fen, South Kyme, Swineshead and Wyberton Marsh) have all been assessed by the EA consultants resulting in detailed Eel passage mitigation and proposals being produced. These have all been evaluated with costs ranging from Donington Wykes £300k to Black Hole Drove £3.4m.

The original 5 year Eel Screen Exemption period first expired in February 2021 with a further one year extension expiring in February 2022.

A further Exemption Notice has now been issued and received for all eleven 'Category A' Pumping Stations to take effect from 01/03/2022 – 01/11/2024.

A copy of Wyberton Marsh Pumping Station Eel Screen Exemption Notice is included at the end of this report.

11. Grass Snake Nesting Sites

The nesting/hibernation sites have been redressed with reeds and weed.

12. Wild Flower Meadow

The established area alongside the North Forty Foot Drain north of Cooks Lock Pumping Station totalling approximately 2,000m² is being managed as a Wildflower Meadow.

13. Bug Hotel

The Bug Hotels at our Swineshead office/depot have been maintained throughout the year.

14. Badger Setts

From a conveyancing point of view Badger setts within banks continue to be a problem, especially so in raised main river banks where high fluvial flows could wash through the setts resulting in bank failures and breaches.

We continue to follow Natural England guidelines when working adjacent to Badger setts with all our site based employees maintaining Natural England licenses to work within the proximity of Badgers.

Exemption notices are required whilst works were completed on the Swaton Catchment Natural Flood Management (NFM) schemes this year.

15. Pollution Incidents

The Board have attended site(s) where potential pollution incidents could have a detrimental effect on water quality and/or the general environment in order to reduce any potential pollution/contamination issues.

We involve the Environment Agency and seek recovery of costs for all resources employed on such sites.

We continue with Impairment Liability Insurance for £5m of cover.

16. Greater Lincolnshire Nature Partnership (GLNP)

As in previous years the Board (as do all Lincolnshire IDB's) continued with our Service Level Agreement (SLA) with the GLNP and attend their annual conference.

The Lincolnshire Environment Records Centre (LERC) data is included within our SLA, this enables us to check the ecological data from within and around our catchment. The complete LERC data collection holds over 5 million sightings.

17. Horbling Fen SSSI; Water Level Management Plan (WLMP) with Natural England

The existing plan was revised by ourselves in 2022 and submitted to Natural England for approval. The WLMP is included at the end of this report.

18. South Lincs Pollinator Project.

We are involved with other IDB's and organisations (LWT, EA) to promote suitable banks as pollinator sites, we have selected the southern bank of the Kirton Marsh drain running up to the pumping station.

Botanical survey works and advice are being offered by experts before and after enhancement, once confirmation of establishment is confirmed we will continue to manage accordingly and be guided by the experts.

19. Artificial House Martin Nests.

The House Martin is part of the hirundines family (swallows, swifts, martins) and in decline in the UK, we are in a unique position to help the House Martin as one of the problems is a lack of suitable nesting sites and the fact their mud based nests tend to fall off the walls they attach them to in dry weather.

After seeking advice Helpringham and Quadring Fen Pumping Stations have been selected to run trials to erect five artificial nests at each location as these locations have been used as nesting site for many years and as the experts point out, they just need a helping hand.

20. The Wash and North Norfolk Marine Partnership (WNNMP).

We continue to be an advisory member of the partnership focusing on marine restoration and recovery and regularly attend the full partnership and Boston Advisory Group meetings.

21. The Environmental Good Governance Guide for Internal Drainage Boards

This detailed guide was published by ADA in October 2022 and offers guidance and codes of practice to activities undertaken by IDB's. Our Operations Team will be integrating these best practices into our everyday workplace.

DUTY
BEST PRACTICE
GOING FURTHER
KEY RESOURCES

Copies are available upon request.

Proposed Works and Environmental Involvement in 2023/24

1. Water Vole Surveys

Committee approval is requested to continue to employ Archer Ecology Ltd to undertake further surveys for water vole evidence at the monitoring sites and on relevant sites prior to desilting and any significant capital works. In addition, post desilting surveys will be carried out following the works where water vole activity has been found to confirm whether or not our works have had any effect on these populations. Environmental mitigation works may be required should results give evidence of disturbance. Estimates at c£2,000.

2. Winter Bushing and Cleansing

Bushing works will commence in November along with the cleansing works, all bushes will be chipped onsite, all excavated silt will be deposited on adjacent fields, left to dry then spread and levelled across the adjacent land.

Where required water levels will be lowered by damming lengths of the water course and the water over-pumped, if fish are evident they will be carefully removed whilst the water is being lowered and transferred over the dams.

We have our own bushing budget outside of the Environment budget, fish relocation whilst cleansing is budgeted at £2,500.

3. Summer Cutting and Vegetation Clearance

An alternate maintenance programme has being developed and flailmowing will commence on priority watercourses in early April, the banks being cut every 4 weeks. Early flailmowing is necessary to prevent ground nesting birds. As with the high priority sites these watercourses can then be maintained at an earlier stage than previously. Therefore the main summer cutting programme will not commence until the first week of August, the mechanical flails will go out a few days before the excavators using the weed cutting baskets. The workforce will be presented with a 'Summer Cutting Brief' which will cover channel management in relation to balancing the benefits of flood risk management, agriculture and the biodiversity values.

Where birds' nests are encountered a minimum 10m length of bank will be left un-cut (5m each side of the nest).

4. Owl Boxes

Approval is sought for a budget of £2,000.00 for repairing/replacing three existing boxes during 2023/24 and to clean out the existing nesting boxes.

The boxes are purchased at £245.00 each including delivery from the Wildlife Conversation Partnership.

5. Recording by Machine Drivers

The eight machine drivers will continue to record sightings on the Tom-Tom units; environmental sightings such as badger or fox holes in banks, water vole, mink and other specialist environmental sighting will be recorded.

All sighting information is passed onto the GLNP and in turn to the Lincolnshire Environmental Records Centre (LERC).

Budget request of £1,500 for Tom-Tom repairs/updates.

6. High Profile Watercourse Banks

Early season flailing of Wyberton Marsh Drain, Washdyke Lane, NFF (Cooks Lock to Punchbowl Lane) and New Hammond Beck (Chain Bridge to Tesco) will continue to been carried out.

Other notable watercourses that have enhanced maintenance are Endeavour Park (12/4&5), Kirton Drainside North (5/30), Frampton Towns Drain from London Road to weir (5/1), Gosberton Risegate Eau (22/14), Bicker Eau through the village (4/67), and the Drain alongside the IDEA park at Donington (2/26).

Budget request for c£4,000 for environmental flailing.

A total of c67Km of high profile watercourse banks (generally our larger watercourses) have been identified that require additional late summer inspections to determine whether a second flail and/or cut is required.

7. Water Levels

Water levels will continue to be controlled via the Boards 34 pumping stations and/or the gravity channels associated with them.

The South Forty Foot Drain (SFFD) water levels were raised to their summer levels by the EA in late March and will be lowered back to winter levels in November, this obviously affects the gravity flows from the catchments into the SFFD. Water levels within the catchments will be held back where requested, this will help to enhance the aquatic biodiversity associated with the watercourses and along the banks.

8. Invasive Non- Native Species (INNS)

The identification and eradication of INNS is important for the protection of our native species. INNS are expanding their population and geographical area, often to the detriment of native species. Early identification of INNS is critical in the control of their spread, we will continue with help from the GLNP to implement identification training for our workforce to help achieve early identification and assist with removal.

INNS locations will be reported to the GLNP to help determine population trends and distribution.

We propose to continue with our mink control project with the aim to enhance water vole conservation and also to use as a contribution towards the Board's BAP. This will compliment other efforts from surrounding IDB's.

The Waterlife Recovery East Project is currently active as a project proposed to eradicate mink from East Anglia in the first instance, with the future ambition aiming to eradicate mink from the whole of the UK over time. The use of a smart trap, the "Remoti', which is able to use 'smart' technology, proved to be a turning point and we are currently using these traps and associated equipment and seek approval to continue to increase our number of traps and supporting equipment with a budget of c£2,000.

We are a member on the Steering Group Committee working in hand with the GLNP.

For further information on the Waterlife Recovery East Project, please visit: https://waterliferecoveryeast.org.uk

9. Fens 2100+ Project

The Fens for the Future Vision is to see sustainable wetlands restored, re-created and reconnected across the Fens for the benefit of people, our natural and historic heritage and the rural economy.

Sustainable wetlands will help reduce storm effects, make available clean water and retain peat land soils so helping mitigate the effects of climate change, while at the same time offering a haven for wildlife, protecting our historic heritage and providing exciting areas for people to visit. Recreational access and tourism increases with more people taking exercise in the countryside. The diversity of the local economy widens and opportunities for employment in local communities are created.

The Fens remain nationally important for modern productive farming. The provision for wildlife in the farmed landscape increases significantly with the uptake of environmentally friendly farming practices and sensitive ditch and drain management, thus creating a network of wildlife habitats extending throughout Fenland. The variety and abundance of farmland wildlife increases and iconic Fenland species thrive.

We will continue to undertake sensitive watercourse maintenance by cutting alternative banks on an annual basis wherever this is the most practicable practice.

We are supporting the Future Fens Integrated Adaptation Manifesto Future-Fens-Integrated-Adaptation-manifesto_November-2021.pdf (wre.org.uk)

10. Operation Fly Swat Partner

Approval is sought to continue being a partner with this scheme into 2023/24.

We estimate a contribution of £3,600.00 as a partner contribution far outweights the collection, removal and tipping fees the Board would incur if we carried out all this work ourselves.

11. Grass Snake Nesting Sites

Redressing of the Grass Snake nesting/hibernation sites, create heaps of vegetation from the weed from the watercourse, reeds, leaves, grass etc. (budget £250).

12. Wildflower Meadow

To continue to maintain and develop the wildflower meadow area at Cooks Lock Pumping Station and also investigate other suitable areas around pumping stations. (budget £600).

13. Pollinator Project

We are involved with the Pollinator Project which is being organised by Lincolnshire Wildlife trust. There are 4 IDB's involved, each has a site that has been identified by the trust to introduce pollinator species. Our site is Kirton Marsh Pump drain. Budget £750.

14. Water Framework Directive (WFD)

Discussions take place with the WFD Officers to regularly review the following: -

- What actions do we undertake within our maintenance regime that can affect the water quality within our catchments?
- What levels of water quality information do the EA hold?
- What longer term plans can we start to jointly investigate to further enhance our catchments working within the WFD guidelines?
- What records do the WFD hold on the EA main rivers?
- What funding is there available to assist with future enhancements works?

15. The Wash and North Norfolk Marine Partnership (WNNMP)

Being a partner (c£400 per annum) we have a statutory duty under the UK Habitats Regulations to report on progress against the management actions on an annual basis, and the information is presented in the Action Plan.

We report on subjects such as land drainage, shoreline management (if applicable), coastal oil spills, water framework directives, chemical weed control, non-native invasive species and water abstraction.

16. GLNP

Our annual payment as a Partners is c£300.

17. Biodivesity Action Plan (BAP).

The Board adopted our BAP as one of its policies on the 3rd March 2021 and is committed to its implementation, we continue to periodically review and update it as appropriate.

Please review our BAP on our web site at www.blacksluiceidb.gov.uk and bring any suggestions back to this committee.

ADA have published an Environmental Good Governance Guide for IDB Board members to help those who sit on the Boards to have greater confidence in their role towards the environment. ADA are also developing a set of National IDB Biometrics that will help ADA to better explain the collective contribution to biodiversity made by IDB's to decision makers and the wider public.

18. Total budget allocation:-

Water Vole Surveys	£2,000.00
Winter Bushing & Cleansing	£2,500.00
Barn Owl Box Replacements	£2,000.00
Tom Tom Repairs/Updates	£1,500.00
High Profile Watercourse Banks	£4,000.00
Mink Control	£2,000.00
Operation Fly swat partner	£3,600.00
Grass Snake Sites	£250.00
Wild Meadow Maintenance	£600.00
Polinator Project	£750.00
WNNMP	£400.00
GLNP	£300.00
Total	**£19,900.00**

(2023/24 Environmental Budget being £20,000)

Date: 1 March 2022
Ref: EA **Wyberton Pumping Station located at TF3594940017,**

Ian Warsap
Black Sluice IDB
Station Road
Swineshead
Boston
Lincolnshire
PE20 3PW

Dear Ian Warsap – Chief Executive

The Eels (England and Wales) Regulations 2009 (SI 2009/3344)

Abstraction reference: Wyberton Pumping Station located at TF3594940017,

Please find enclosed an Exemption Notice relating to this site. This exemption takes effect on [01/03/2022] and expires on [01/11/2024]; it supersedes any previous exemption for the site.

Under Regulation 17(4) of the Eels (England and Wales) Regulations 2009, on or after 1 January 2015, a responsible person must ensure an eel screen is placed in a diversion structure that:

(a) is capable of abstracting at least 20 cubic metres of water through any one point in any 24-hour period; or

(b) returns water to a channel, bed or sea.

The enclosed notice exempts you, as the Operator or responsible person, from the requirement to place an eel screen at Wyberton Pumping Station located at TF3594940017, subject to the conditions set out in Schedule 1 to the notice.

The Environment Agency has the power to revoke this exemption at any time under Regulation 23(2) of the Eels (England and Wales) Regulations 2009.

Yours sincerely

Darin Alberry
Fisheries Technical Specialist
Environment Agency
Ceres House
2 Searby Rd
Lincoln
LN24DW
07766902496

The Eels (England and Wales) Regulations 2009

Regulation 17(5)(a)

Ian Warsap
Black Sluice IDB
Station Road
Swineshead
Boston
Lincolnshire
PE20 3PW

Eel Screen Exemption Notice

To: Ian Warsap – Chief Executive

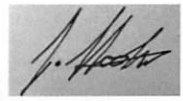
Under Regulation 17(4) of the Eels (England and Wales) Regulations 2009, on or after 1 January 2015, a responsible person must ensure an eel screen is placed in a diversion structure that:

(a) is capable of abstracting at least 20 cubic metres of water through any one point in any 24-hour period; or

(b) returns water to a channel, bed or sea.

This notice exempts you, as the responsible person, from the requirement to place an eel screen at Wyberton Pumping Station located at TF3594940017, subject to the conditions set out in Schedule 1 to this notice. The reason for this exemption is: This diversion structure will be screened to best practice, or agreed alternative eel protection measures implemented, as part of an agreed programme of works. This exemption takes effect on 1 March 2022 and expires on 1 November 2024.

Date 1 March 2022

Signed 

James Hooker – Fisheries FBG Team Leader
Environment Agency
Nene House
Pytchley Lodge Road
Kettering
NN156JQ

The Eels (England and Wales) Regulations 2009 Regulation 17(5)(a)

SCHEDULE 1: CONDITIONS
1. Produce a written plan or programme of works (with key dates and actions) to deliver eel protection at Wyberton Pumping Station located at TF3594940017, to the satisfaction of the Area Fisheries Technical Specialist, by 1 November 2024. 2. The Responsible Person must not change any of the elements of the intake system, which alters the site's potential to damage, injure, harmfully entrain or prevent free passage of eel, without the prior written agreement of the Environment Agency. This condition includes, but is not limited to the following elements of the intake system; the pump type and pumping capacity, the pumping regime, the abstraction period and flow rate, the location of the intake, the screening type, the screening dimensions and specifications.

BLACK SLUICE INTERNAL
DRAINAGE BOARD

WATER LEVEL MANAGEMENT PLAN

HORBLING FEN SSSI

Sheets 1 – 5 Report

Sheet 6 SSSI Citation from English Nature

I Warsap
Chief Executive
Black Sluice Internal Drainage Board
Station Road, Swineshead, Boston PE20 3BP

Last reviewed: May 2022

Water Level Management Plan

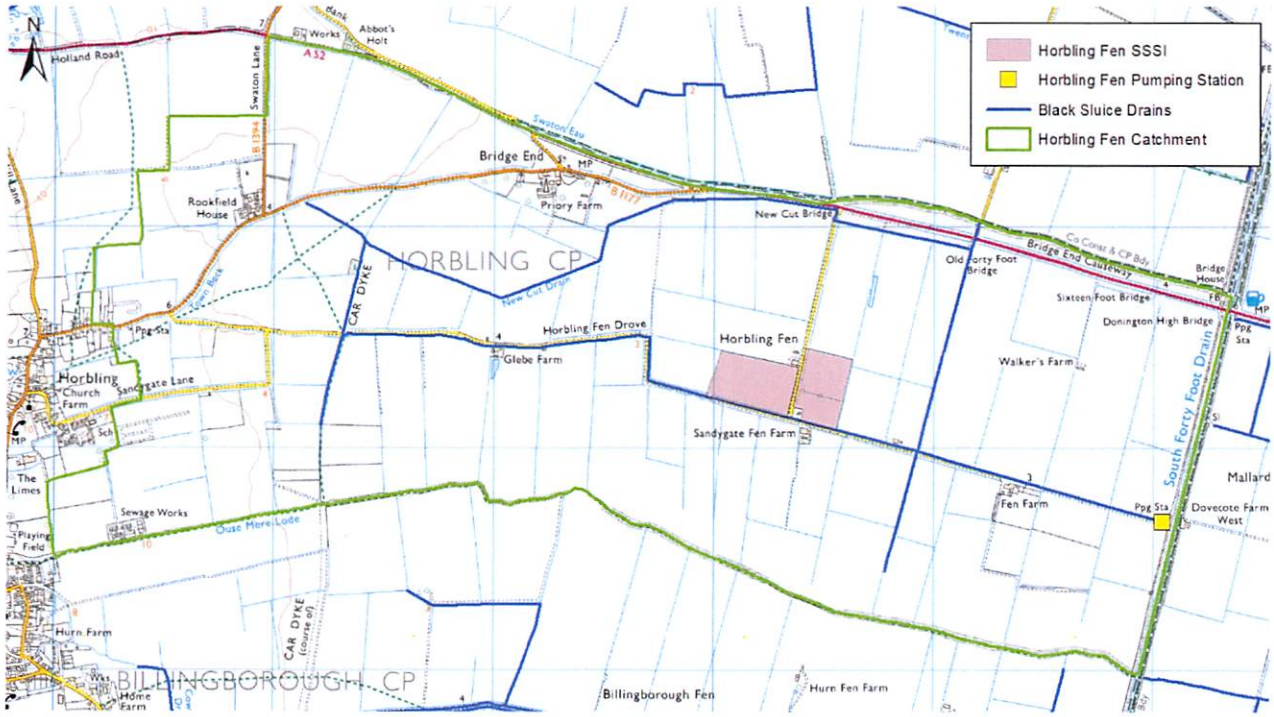
Horbling Fen Site of Special Scientific Interest

1. Summary

Horbling Fen SSSI has been designated because this area of Horbling Fen contains sediments deposited between the end of the last Ice Age and the present day and provides a record of inundations of the sea during this period. The site has considerable potential for future studies of these deposits.

The water levels in the Fen are controlled by Horbling Fen Pumping Station. This controls the water levels in the drains throughout the year. The pump is usually switched off during the summer months, and the water level is then controlled by the gravity outfall into the Swaton Eau.

2. Plan of Horbling Fen



2. Purpose of the Plan

The purpose of this plan is to define the existing water level management and to demonstrate that this does not need to be changed. This will ensure that the important features of the SSSI are not damaged.

3. Site Details

Site Name:	Horbling Fen SSSI
Site Status:	SSSI
County:	Lincolnshire
Local Planning Authority:	South Kesteven District Council
Grid Reference:	TF 154353
Area of Site:	17.06 ha
Natural England:	East Midlands Team, Ceres House, 2 Searby Road, Lincoln, LN2 4DT
Occupiers and Owners:	**REDACTED**

4. Nature Conservation

Horbling Fen contains sediments deposited between the end of the last Ice Age and the present day and provides a record of the inundation of the sea during this period. The sequence present includes a palaeosol developed on fluvio-glacial sand and gravel overlain by peat and clastic deposits of upper tidal marsh origin. The site is thus important as it represents the extreme landward extension of classic sediments, recording the largest Flandrain sea-level rise in the area.

5. Other Land Uses

Agricultural land. Normal cropping.

6. Hydrology

The SSSI is part of a catchment area of Horbling Fen Pumping Station of 887 ha. All of this is farmed, and the following crops are grown: wheat, potatoes, sugar beet, oil seed rape and green vegetables.

The pumping station was constructed in 1966 and contains one 762mm (2ft-6ins) diameter Allen Gwynne axial flow pump with a capacity of 1331 litres per second.

The pump controls the water level in the Fen and operates automatically by level electrodes within the pumping station. These switch the pump on at suction bay water level of -0.15 metres O.D.N. on the gauge board and switch the pump off when the water rises to -0.60 metres O.D.N.

After periods of heavy rainfall, the flow may slightly exceed the capacity of the pump, and the water level may rise.

Before 1966 the drainage of Horbling Fen was by gravity into Swaton Eau. There were sluices to prevent high water levels in the Fen when levels were high in the South Forty Foot Drain.

Therefore, water levels during the winter months would have been higher than they are now, with flooding of some land in Horbling Fen after very heavy rainfall. During the summer months water levels would have been similar to those held at present.

7. Water Quality

Water quality in the watercourses is acceptable.

8. Water Level Management Objectives

Natural England have stated that further lowering of water levels would be detrimental to the SSSI.

The Board do not intend to change the present arrangements for controlling the water levels and will continue to monitor these. Natural England will consult with specialist geologists to ascertain if existing water levels are satisfactory to maintain the interests of the SSSI in the long term.

All of the watercourses in the catchment area are maintained once a year. This is undertaken using a flail or cutting basket to remove the weed growth from the bed and sides of the watercourse.

9. Constraints and Impact on Adjacent Ground

There are no restraints on implementation of the plan.

10. Alteration to Infrastructure and Procedures

There are no proposed alterations to infrastructures and procedures.

11. Other Proposed Action

Monitoring: In 2001 the Board installed a level gauge board in the drain at the junction of Cross Drove and Horbling Fen Drove to enable the water level in the drain to be monitored. Over the last five years (2017 to 2022) the level has always been approximately -0.1m OD.

The Board will continue to monitor the level at Horbling Fen Pumping Station in the following way: -

a) Through the telemetry link to the offices, which provides a continuous trace of water levels.

Other Actions: The original plan stated that the Board would investigate the viability of constructing a water control structure immediately east of the SSSI area in the Board's drain. This would allow further control of the water levels, especially during the summer months. However, this has not been actioned and it is not intended to proceed with this at the present time.

12. Contingency Measure

Drought Periods: If a water control structure is constructed it may be possible to pump water from the downstream section of the drain to retain water levels adjacent to the SSSI.

Extreme Flooding: The only measure that could be taken to avoid high water levels would be to increase the pump capacity at Horbling Pumping Station. The Board do not consider this is cost effective at the present time.

Failure of Pumping Station: The Board have installed a dual drive gearbox to allow operation if the pump of the electricity supply or the electrical control panel fails.

13. Unresolved Issues

There are no unresolved issues at the present time.

14. Consultees

Natural England
Lincolnshire Trust for Nature Conservation
Environment Agency
Crown Estate Commissioners c/o Carter Jonas
Department for Environment Food and Rural Affairs
Horbling Parish Council
Owners and Occupiers of the land

It is not planned to consult again at the present time as there have been no substantial amendments to the plan.

15. Review Period

The Water Level Management Plan should be reviewed every five years.

16. Endorsement of Plan

The following parties hereby agree to the plan: -

Black Sluice IDB

Mr I M Warsap Chief Executive. .....

Natural England

....
Name Position

17. Issues

15.6.2000	Initial draft issued to English Nature
16.8.2000	Revised Issue to all consultees
26.9.2000	Second Issue to English Nature
16.11.2004	First Review issued to English Nature
6.8.2010	Second Review issued to Natural England
24.05.2022	Revised Issue to all consultees

SSSI CITATION FROM ENGLISH NATURE

COUNTY: Lincolnshire **SITE NAME:** Horbling Fen

DISTRICT: South Kesteven

STATUS: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981 (as amended)

Local Planning Authority:	South Kesteven District Council	
National Grid Reference:	TF 154 353	**Area:** 17.06 ha
Ordnance Survey Sheet:	**1:50,000:** 130	**1:10,000:** TF 13 NE
Date Notified (Under 1981 Act):	16 June 1999	
Other information:	A new site listed in the *Geological Conservation Review* (GCR).	

Description and reasons for notification

Horbling Fen is situated on agricultural land about three kilometres east of the village of Horbling in Lincolnshire. This site contains sediments deposited between the end of the last Ice Age and the present day, and provides a record of the inundations of the sea during this period.

Horbling Fen is important for studies of Flandrian sea-level changes. The sequence present includes a palaeosol developed on fluvio-glacial sand and gravel, dated at 3750± 70 Before Present. The overlying peat development is dated, towards its middle (*c.*0.52m OD) at 3,010±80 BP. Pollen in the upper parts of the peat include members of the Chenopodiaceae - *Plantago maritima* (sea-plantain), *Artemisia* (mugworts), *Armeria maritima* (thrift) and *Triglochin* (arrow-grass), indicating the onset of salt marsh conditions. A transgressive overlap of high tidal marsh deposits is evident from the overlying silts. The site is important as it represents the extreme landward extension of Wash VI clastic sediments, recording the largest Flandrian sea-level rise in the area.

The site has considerable potential for future research using stratigraphic and micropalaeontological studies to assess one of the most recent marine transgressions in the region and to correlate the inferred sea-level changes with numerous local archaeological finds.

Annual Check of Black Sluice IDB nest boxes –2022

Boxes checked by Alan Ball on dates shown

Wildlife Conservation Partnership

Box	IPMR	Grid Ref	Location	Type	Date		Con
3290		TF154188	Richardson's Borrow Pit, Twenty	Pole		n/c	
3291		TF173211	Gandy's Borrow Pit, Twenty	Pole		n/c	
3292		TF138195	Cook's Borrow Pit, Bourne N.Fen	Pole		n/c	
1365	DYF	TF152227	Dyke Fen Pump	Pump	09/06	**BARN OWL** – 3 chicks GY44877-79 **KESTREL** – in top – 5 chicks EM08227-31	
1366	RSI	TF167251	West Pinchbeck (Black Hole Dr)	Pump		n/c	
1367	RSI	TF166257	Haconby Fen Pump	Pump	31/05	Jackdaws	
1368	RSI	TF166266	West Pinchbeck (Starlode Drove)	Pump	31/05	Jackdaws – 3 nests, 6 chicks EM08142-47	
1369	RSJ	TF165271	Dunsby Fen Pump	Pump	09/06	Jackdaw – 2 chicks EM08209/10	
1370	RSJ	TF164275	Rippingale Fen Pump	Pump	09/06	Jackdaw – 2 chicks EM08205/06	
1371	BFF	TF162284	Dowsby Lode Pump	Pump	31/05	Jackdaws	
1293	BFF	TF162284	Dowsby Lode pole	Mk 7		n/c	
1372	DOF	TF167294	Gosberton Pump	Pump		n/c	
1373	RSQ	TF164318	Neslam Fen Pump	Pump	30/05	Jackdaw – 3 chicks EM08125-27	
1374	RSV	TF168331	Quadring Fen Pump	Pump	30/05	Jackdaw – 2 chicks EM08123/24	
1375	RSV	TF168333	Billingborough Fen Pump	Pump	29/05	Jackdaw – 3 chicks EM08104-06	
1376	RSG	TF170346	Horbling Fen Pump	Pump	29/05	Jackdaw	
1377	RST	TF174364	Swaton Fen Pump	Pump	29/05 09/06	**BARN OWL** – 4 small chicks, adult female = r/GV99524 4 chicks ringed GY44873-76	
1378	RST	TF176370	Donington Ing Pump	Pump	30/05	Jackdaws	
1379	RST	TF177375	Helpringham Fen Pump	Pump	31/05	Jackdaw – 4 chicks EM08135-38	
1380	RSH	TF186397	Bicker Fen Pump	Pump	30/05	**BARN OWL** – 1 egg + 3 chicks Adult female = r/GV99546, adult male = r/GC14016	
1381	RSU	TF206425	Great Hale Pump	Pump		n/c	
1383	HKF	TF185466	Heckington Pump	Pump	14/07 14/09	**BARN OWL** – 2 fledged chicks, 1 ringed GY62881 **BARN OWL** – second brood 3 dead eggs, female = GY82885	
1384	SKF	TF207469	South Kyme Pump	Pump	14/07	Stock Dove – 2 eggs	
1385	EWW	TF159484	Ewerby Pump	Pump		n/c	
1386	SKG	TF194507	Damford Grounds Pump	Pump	14/07	**BARN OWL** – 4 chicks GY62877-80	

2802	BSG	TF236477	Gill Bridge (Barry Hall)	Pole	14/07	**BARN OWL** – fledged , adult female GY62872	
2803	BSH	TF205529	Hart's Grounds (Andrew Means)	Pole	14/07	Stock Dove (Jackdaws fledged)	
2804	BSM	TF204484	Maryland (Pocklington Bros)	Pole		n/c	
3169	KSK	TF341370	Kirton Skeldyke	Pole	11/06	Jackdaws	
3165	BFK	TF340359	Kirton Bucklegate	Pole		n/c	
3170	KME	TF281388	Kirton Meeres - Pick's Barn	Pole	11/06	Roosting Barn Owl	
2969	BST	TF248464	Holland Fen (Two Hundred Fm)	Pole		n/c	
2971		TF199521	Chapel House (ex Bridge House)	Pole		n/c	
2973	PAH	TF192484	South Kyme (Paddington House)	Pole	14/07 14/09	**BARN OWL** – 3 eggs adult female = r/GY13340 3 Barn Owl chicks ringed GY62882-84	
1387	WYB	TF359400	Wyberton Marsh Pump	Pump		n/c	
1388	KIR	TF343350	Kirton Marsh Pump	Pump		n/c	

Recapture Data:-

Swaton Fen Pump GV99524 adult female - ringed at Helpringham Fen Pump as breeding female in 2019
Bicker Fen Pump GV99546 adult female – ringed as breeding female here in 2019
Bicker Fen Pump GC14016 adult male - ringed as breeding male here in 2021
South Kyme (Paddington House) GY13340 adult female – ringed as breeding female here in 2021

BLACK SLUICE INTERNAL DRAINAGE BOARD

ENVIRONMENT COMMITTEE - 07 MARCH 2023

AGENDA ITEM 10

2022 BUTTERFLY RECORDS

WINDMILL LODGE BUTTERFLY CONSERVATION AND WILDLIFE AREA, AMBER HILL

We celebrated 25 years of our butterfly garden this year and it continues to go from strength to strength, with more and more conservation minded individuals and organisations popping in to take a look for themselves. It has taken us all this time to experience what we refer to as a 1976 style summer, although this one was not protracted throughout the summer months as 1976 was, but with much higher and devastating temperatures at its zenith and without the long-winded 1976 drought. Nevertheless, the damage done by the short-lived ultra heatwave has been very evident with the scarcity of butterflies in the second half of the summer, butterflies always being very much regarded as a 'barometer' for measuring the status of our wildlife. Following 1976 it took until 1984 before the butterfly population was considered as being anything like back to normal, so it is now more important than ever that we continue our conservation work here at Amber Hill. It is the caterpillars in particular that suffer due to the extreme temperatures killing off or wilting their foodplants. The damage may already have been done, we will not really know until the next season gets under way. From our point of view, it was perhaps as well that this record breaking summer occurred hot on the heels of us having our best numbers ever last year – at least the butterflies had a strong base to operate from. Indeed, the first part of the season mirrored the great results of 2021, with most early species being in above average numbers. Weather of course is the one thing that we have no control over.

The Brown Argus has long been regarded as being our flagship species and this year was no exception, being voted our personal butterfly of the year. For whatever reason the spring broods of this and its comrade species the Common Blue were well below normal, but both species fought back despite the temperatures, and the Brown Argus in particular excelled - not so much as being in very high numbers but the fact that is was being encountered almost at every turn throughout the garden, the meadow being its usual stronghold. Maybe they were spreading their wings to locate fresher foodplants to lay their eggs on, which is down to us to ensure that all species have a plentiful supply of quality larval foodplants throughout.

If you recall, the highlight of last year was the unexpected arrival of the oak tree frequenting arboreal species the Purple Hairstreak. This continued its establishment but unfortunately the butterfly's main emergence time coincided with the ultra heatwave. How much damage this may have caused will show in the next few years. Hot on the heels of this addition to our species list was this year's long awaited arrival of the elm feeding White-letter Hairstreak, another arboreal species. Our elms are doing exceedingly well, giving a home to this quite rare butterfly that has never fully recovered from the effects of Dutch elm disease.

The other main highlight of the year for us was the sighting of a pristine gravid female Silver-washed Fritillary seeking out violets to lay her eggs on. The way she was going about this indicated that she was not just a passing female but one intent on finding the larval foodplant – violets – but ones close to trees, as it is the tree trunk, not the violets, that she lays her eggs on, from where the newly hatched caterpillars crawl down and seek out violets in the spring. This butterfly has been rapidly conquering the Lincolnshire woodlands from neighbouring counties in recent years and we have previously seen a few males, but this was a major sighting and will hopefully be the start of our own little colony of this spectacular butterfly.

For the second year running the numbers of the day-flying Six-spot Burnet moth were considered to be in excess of our small habitat, in view of them using the same larval foodplant as the Common Blue butterfly, bird's-foot trefoil. So once again we transferred a large number to the massive meadow at Wyberton. It just shows what can be achieved.

More than ever before we need to continue providing a correctly managed habitat to help the local butterfly population, which in turn has a knock-on effect to other wildlife. A classic example of (in this case inadvertently) providing the right habitat was proved in September when a field just down the lane from us created a temporary habitat for an unprecedented number of the uncommon migrant butterfly, the Clouded Yellow. This field had been sown with a colourful mass of clover – bird's-foot trefoil- vetch mix as part of an environmental stewardship scheme whereby the stubble provides the farmer with a soil improvement measure when dug back into the ground, and the crop is sold off for cattle feed. The Clouded Yellows, which use clover as a larval foodplant, were an added bonus! The farmer was overjoyed when we showed him these colourful butterflies flitting around his field and he decided to hold back from cutting this particular field as long as possible. Word spread on the butterfly grapevine and the field was visited from quite a few enthusiasts from near and far. What made it even better for them was that a rare colour form of the female, known as helice, was also present. Normally we see two or three Clouded Yellows maximum at any one time, if we're lucky, and usually down south, but as the days progressed no fewer than 63 were seen together. An unbelievable spectacle. I need to add here that there was no major issue with the field being cut as the butterflies would remigrate south once they had mated, and any eggs, caterpillars, or remaining butterflies would die off anyway, as they cannot survive the British winter. We believe that these fresh butterflies to be the offspring of a few visiting migrants earlier in the year.

Without doubt this has been the highlight of my butterfly year and so ironic that I was planning a long distance trip to Kent or Dorset in the hope of at long last getting some decent photos of Clouded Yellow, only to have them arrive on our doorstep almost and in huge numbers!

I have not included individual species records this time in view of them being largely unspectacular (mirroring numbers in the wider countryside, nationwide), but are available if your environmental committee needed more information. I will however be sending our fully comprehensive records to the Greater Lincolnshire Nature Partnership as per usual.

Many thanks for your continued support.

Phil and Ros Bowler

Association of Drainage Authorities Lincolnshire Branch Environment Committee

Minutes of Meeting held on Thursday, 6th Oct 2022 at 1:00pm

Present:

Paul Skinner (PSk)	**Committee Chairman** Black Sluice IDB and Witham 4th IDB *(Board Member)*
Chris Manning (CM)	**Committee Vice Chairman** Water Management Consortium *(Environmental Officer)*
Nick Downing (ND)	**Committee Secretary** Witham & Humber Drainage Boards *(Environmental & GIS Officer)*
David Hutchinson (DH)	Environment Agency
Huw Sharman (HS)	Witham 4th IDB
Sofi Lloyd (SL)	ADA
Margaret Haggerty (MH)	GLNP
David Hickman (DH)	Lindsey Marsh IDB
Tim Smith (TS)	Witham 4th IDB
Julian Boden (JB)	Lindsey Marsh Drainage Board
Paige Donnelly (PD)	Lincolnshire Rivers Trust
Ashely Reaney (AR)	Lincolnshire Wildlife Trust

1	Apologies for absence	David Thomas , Karen Daft, Peter Bateson, Nicholas Watts, Rachael Butler, Peter Lundgren, Fiona Scott, Tammy Smalley, Caroline Laburn, Christopher Duku, Ian Warsop, Jane Froggatt	**ND**
2	Chairman's announcements and welcome	Welcomed the committee to the first in person meeting since 2019	**Psk**
3	Election of Secretary	No other volunteers ND elected	**Psk**
5	Urgent business	No urgent business	**Psk**
6	Environmental good governance guide (GGG)	SL introduced the guide which brings together a vast, complex and ever-changing array of environmental legislation, regulation and policy, in a format that is accessible, up-to-date and relevant to IDBs, to help them to comply with their statutory environmental duties, identify best practice approaches, and to exceed expectations in their management of our lowland freshwater environments. The guide has a toolbox section which targets specific, practical advice that can be ticked off to make sure IDB's have demonstrated their duties. Hard copies are available if you email (admin@ada.org.uk) with digital versions on the ADA website (https://www.ada.org.uk/knowledge/environment). There will be formal workshops hosted by the ADA taking place in March/April 2023 with details to be shared by the ADA closer to the time. Noted by SL that other guides that have been published by the ADA in the past still hold relevance	**SL**

		and have not been superseded by the GGG and are referenced and signposted throughout the guide.	
7	Mink control	MH shared an update with regards to mink trapping in the core areas with positively low numbers of mink captures indicating a successful reduction in numbers. Widespread eradication is possible within Lincolnshire due to coastal and land barriers with urban areas likely to be the most problematic areas to eradicate mink. Looking to expand trapping with a key focus on data collection. HS noted landowners within Witham 4th are controlling mink populations, but data and carcasses are not being recorded. PSk to lobby for support and to share the issues surrounding mink.	**MH**
8	GLNP update	The local nature recover strategy which is a new incarnation of the BAP with more stakeholder involvement was introduced by MH. The strategy is part of the environment act and covers county areas with Greater Lincolnshire covering this area with LCC being the responsible authority. Guidance will be released in early 2023 with the GLNP annual conference taking place on 1st November 2022 (https://www.eventbrite.com/e/glnp-annual-conference-2022-tickets-402311102337). Mapping is taking place that identifies priority habitats with a rating system scoring habitats allowing for networks to be created as well as locations for biodiversity net gain offsetting. This information will be made available to partners. IDB involvement as statutory consultees as yet unclear but more information will be available upon the release of the guidance.	**MH**
9	CL24 update	CM introduced the issues with attaining a water vole Class License (CL24) with difficulties in getting the experience required for a license without having the licence. Criteria for the license has changed with the effects of this change TBD. HW discussed the issues with badger licencing with IDB's having to provide a 48-hour notice prior to works near a badger sett with this not being viable due to the number of setts and duration of bank work during the summer.	**CM**
10	Beaver License	Beavers are now a protected species making it an offence to deliberately capture, kill, disturb, or injure beavers, or damage their breeding sites or resting places – without holding the appropriate licence. ADA are currently working with NA to get more information with regards to a class license. It is expected that the burrowing of beavers will likely cause more issues for IDB's than the damming of waterways. This is due to the slow-moving water and steep banks which provides good habitat for beavers if the area is surrounded by crops and shrubs. More information will be included in the October 2022 gazette.	**SL**

11	Other Business	No other business – meeting concluded at 14:04	**PSk**

Black Sluice Internal Drainage Board

Biodiversity Action Plan

2021-2026

1. Statement

This Biodiversity Action Plan (BAP) has been prepared by the Black Sluice Internal Drainage Board in accordance with the commitment in the Implementation Plan of the Defra Internal Drainage Board Review of 2007 for internal drainage boards (IDBs) to produce their own Biodiversity Action Plans. It demonstrates the Board's commitment to fulfilling its duty as a public body to conserve and enhance biodiversity under various legislation and policy including, but not limited to, the Environment Bill (Act) 2021, the Natural Environment and Rural Communities Act 2006, the 25 Year Environment Plan and Water Framework Directive.

Importantly, it reflects the Board's aspiration to maximise the support it provides to biodiversity, particularly priority UK species and habitats, and the wider environment in general through its day-to-day activities, by setting clear objectives, actions and targets.

The Board has adopted this Biodiversity Action Plan as one of its policies and is committed to its implementation. It will review the plan periodically and update it as appropriate.

.....	.....
Keith Casswell	Paul Holmes
Chairperson of the Board	Environment Committee Chairperson
14th June 2022	14th June 2022

This Biodiversity Action Plan is a public statement by the Board of its biodiversity objectives and the methods by which it intends to achieve them.

We would welcome appropriate involvement in the delivery of the Plan from interested organisations, companies, and individuals.

You can contact us about this Biodiversity Action Plan by writing to the following address:

Black Sluice Internal Drainage Board

Station Road

Swineshead

Boston

Lincolnshire

PE20 3PW

Or via email: mailbox@blacksluiceidb.gov.uk

Further information is available on the Board's website: www.blacksluiceidb.gov.uk

Contents

2. Introduction

2.1 What is Biodiversity and why is it important?

Biodiversity can be defined simply as "the variety of life" and encompasses the whole spectrum of living organisms, including plants, birds, mammals and insects. It includes both common and rare species, as well as the genetic diversity within species. Biodiversity also refers to the habitats and ecosystems that support these species.

Biodiversity is part of our natural capital, a vital resource providing:

- Supply of ecosystem services including water, nutrients, climate change mitigation, flood mitigation, carbon storage and pollination;
- Life resources including food, medicine, energy and raw materials;
- Improved health and well-being;
- Landscape and cultural distinctiveness;
- Direct economic benefits from biodiversity resources and 'added value' through local economic activity and tourism;
- Educational, recreational and amenity resources.

This Biodiversity Action Plan is part of a much larger biodiversity framework that encompasses international, national and local levels of legislation and policy and which also include ecosystem services and climate change.

2.2 Legislative Background

When carrying out its functions, an IDB must pay particular regard to the effect on the environment. Some environmental legislation relates specifically to maintaining or restoring the condition of protected sites or protecting certain species, but there are also statutory duties for IDBs to conserve and enhance biodiversity in and alongside the watercourses they manage and the wider landscape.

The Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. The Environment Bill (Act) 2021, when enacted, extends this duty on IDBs to also enhance biodiversity and report periodically on its actions. Therefore, as a public authority, every IDB must consider what action it can take, consistently with the proper exercise of its functions, to further the conservation and enhancement of biodiversity in England.

Below is a list of key environmental legislation (by no means an exhaustive list) relevant to the work of IDBs:

- The Environment Bill (Act) 2021
- Conservation of Habitats and Species Regulations 2017
- Eels (England and Wales) Regulations 2009
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2003

- Natural Environment and Rural Communities Act 2006 (Section 40)
- The Environmental Impact Assessment (Land Drainage Improvement Works) (Amendment) Regulations 2017
- Land Drainage Act 1994
- Wildlife and Countryside Act 1981 (as amended)
- The Countryside and Rights of Way Act 2000
- The Protection of Badgers Act 1992
- Flood and Water Management Act 2010
- Salmon and Freshwater Fisheries Act 1975

2.3 Policy & Strategic Background

In 1992 at the United Nations Conference on the Environment and Development, commonly known as the Rio Earth Summit, the UK signed the Convention on Biological Diversity which pledged its commitment to contribute towards halting the worldwide loss of habitats and species and their genetic resources. At the 2010 biodiversity summit in Nagoya, Japan, the UK re-affirmed this commitment and the "Biodiversity 2020" white paper was developed setting out how those commitments would be put into action.

The 2010 report by Sir John Lawton "Making Space for Nature" set out that ecological networks were required in order to halt and reverse the declines seen in many threatened species and habitats. The report succinctly made clear that these ecological networks needed to be bigger, more frequent, better in quality, and more joined up in order to be successful in their ambitions.

The concept of Nature Recovery Networks featured in the Government's Biodiversity 2020 strategy (2011) and 25 Year Environment Plan (2018). The Environment Bill (Act) 2021 and the development of Local Nature Recovery Strategies (LNRS) expands this concept by also take into account the value of the ecological services provided by non-priority species and habitats such as the carbon sequestration of wetlands, the flood alleviation of tree-planting in the uplands and the wellbeing benefits brought about by green space. As such, this BAP presents the actions planned by the IDB to support both priority and non-priority species.

International reports such as by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have found that climate change in particular is considered to be one of the biggest threats to our biodiversity now, and in the future. Supporting the continuity, connectivity and quality of habitat through management, restoration and expansion may help even the less mobile species to adapt more easily to climate change. This BAP presents the actions the IDB can take to support climate resilience for biodiversity.

2.4 Purpose

This BAP has been produced to demonstrate how the IDB fulfils its legal obligations to conserve and enhance biodiversity and sets out targets and actions that contribute to local, national and international strategies and policies.

While the IDB has a statutory duty to have regard for the environment whilst carrying out their functions, for example on or within drainage assets such as watercourses and their banks, the IDB has also to give consideration to how they can contribute to the enhancement of the wider environment.

It is not within the scope of this document to set out the IDBs' objectives and actions in relation to wider environmental topics, such as reducing carbon emissions or reducing waste. However, strategies to address such topics may be mentioned in connection to the enhancement of habitats and species, such as peatland restoration and carbon sequestration.

The opportunity to work together to support and enhance biodiversity in partnership with other organisations is sought wherever possible, as the IDB recognises the additional value working in such ways can bring to the overall objectives.

The intention is that biodiversity is fully integrated into the Board's activities, policies and procedures such as annual maintenance programmes, capital works projects, training and communications.

2.5 Vision

Black Sluice Internal Drainage Board's vision is:

To maintain a catchment where thriving wildlife is an integral part of delivering efficient and effective water-level management.

2.6 Aims

The aims of this BAP are:

- To ensure that opportunities for conservation and enhancement of biodiversity are fully considered throughout the IDB's operations;
- To enable more effective monitoring and reporting of progress and outcomes;
- To ensure that Priority species and habitats receive effective action within defined targets within the drainage district;
- To identify targets and appropriate actions for other habitats and species of local importance within the drainage district. This includes invasive non- native species (INNS);
- To contribute to local environmental partnerships such as the Greater Lincolnshire Nature Partnership (GLNP) to ensure that programmes and priorities for biodiversity conservation are aligned and maintained in the long term;
- To raise awareness within the IDB and locally of the need for biodiversity conservation, and to communicate with the local and wider community what actions the IDB are undertaking to support biodiversity.

3. The IDB BAP Process

3.1 The Biodiversity Audit

The Black Sluice IDB has conducted a biodiversity audit of its drainage district (Figure 1) and identified those habitats and species that would benefit from particular management or actions by the IDB.

This BAP focuses on nationally important priority habitats and species, that is to say those that have been deemed of 'principal importance' in England under the NERC Act 2006. However, those that are not priority species or habitats, but may be locally significant for a variety of reasons have also been considered. Invasive non-native species have also been included.

The information gathered, which is presented in later sections, has been used to develop this IDB's Biodiversity Action Plan.

3.2 Objectives, Targets and Actions

For each relevant habitat and species, conservation objectives have been identified. The action plan then details individual actions required to achieve the objectives, and associated monitoring and reporting of progress and impact.

In order for this BAP to be as effective as possible the targets and actions have been devised to be SMART (Specific, Measurable, Achievable, Relevant and Time-limited).

Procedural targets and actions have also been considered allowing the Board to measure the way in which it considers and incorporates biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

3.3 Monitoring and Reporting

Monitoring is the on-going process of regularly collecting and analysing relevant information to make sure the actions within the Plan are positively contributing towards the targets and to capture any additional benefit achieved. The Plan sets out how and when this monitoring will take place for example, to regularly review the progress of actions against the plan at Board meetings throughout the life of the plan.

The frequency and type of information reported is also defined by the Plan and includes the publication of progress reports in the public domain via the IDB's website and in accordance with the duty set out in the Environment (Bill) Act 2021.

The overall plan will be updated at least every 5 years but as this is a dynamic document it may change more frequently. For example, in the light of routine monitoring, changes may be necessary to ensure an objective can be met.

4. The Biodiversity Audit

4.1 The Black Sluice Internal Drainage District Overview

The drainage district covers an area of approximately 61,000 ha and contains 760km of IDB maintained watercourse along with 148 km of main river.

It is located in the Lincolnshire Fens generally south-west of Boston. The Board's area extends from Chapel Hill in the north, to Wilsford in the west, to Bourne then Spalding in the south back to Boston in the east. The Board's boundaries are defined by either main river, Witham and Kyme Eau to the north and Glen and Bourne Eau to the south. High contour line to the western boundary and differing catchments in adjacent Drainage Board areas to the east, the Board has 8km of boundary fronting the River Haven and Wash on the east coast below Boston. The South Forty Foot Drain, a major high consequence watercourse, effectively runs through the centre of the area, south from Guthram Gowt, north and then east into Boston and out into the River Haven and North Sea via the Wash.

The following outlines the key details of the District:

Total area of the Black Sluice IDB Drainage District	47,220 ha
Catchment area draining to and including the District	67,293 ha
Total area of the District	47,220 ha
Area of Agricultural Land	43,896 ha
Area of other (non-agricultural) land	3,324 ha
Site of Designated Environmental Interest:	
Horbling SSSI	15 ha
The Wash SSSI & Ramsar	42 ha

Assets for which the Board has operational responsibility:

Watercourses (maintained)	755 km
Raised Embankments	4 km
Pumping Stations	34 (63 pumps)

Assets within or adjacent to the District that are maintained by the Environment Agency:

Main Rivers	169.5 km
Raised embankments / flood walls	7.9 km (Sea Defences)
	172.2 km (River Flood Defences)
Pumping Stations	2

4.2 Map of Audit Area (Drainage District)

The area covered by the drainage district of the IDB is shown below in Figure 1.

Figure 1. Black Sluice Internal Drainage District.

4.3 Geology

The majority of the Board's area has drift geology of fenland alluvium. In the west there are small areas of fen peat, gravel, clay and limestone.

4.4 Landscape Character

Natural England has divided the whole of England into a number of National Character Areas (NCA) based on characteristic landforms, wildlife and land use. For each NCA, there is a prepared profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The majority of the Board's area lies within The Fens NCA. The part which lies between Sleaford and Heckington then south to between Swaton and Osbournby lies within the Southern Lincolnshire Edge NCA, and the very small part which lies north of Bourne to roughly the east-west line of the A52 is within the Kesteven Uplands NCA.

4.5 Landscape Designations

There are no National Parks or Areas of Outstanding Natural Beaty (AONB) within the Board's catchment area.

4.6 Sites and Monuments

Scheduled Ancient Monuments (SAMs) are not directly related to Biodiversity matters. Information held by the Board and other sources has not therefore been collated. SAMs are only relevant where they occur adjacent to the Board's watercourses, and they would be referred to on a site by site basis as appropriate.

SAMs are listed by English Heritage, who together with Lincolnshire County Council's Historic Environment Record is consulted during Environmental Impact Assessment for all new schemes.

4.7 Tree Preservation Orders

Tree Preservation Orders (TPOs) are not directly related to Biodiversity matters since they are made on individual trees, groups or woods for landscape and visual amenity reasons. Information held by the Board and other sources has not therefore been collated. TPOs are only relevant where they occur adjacent to the Board's watercourses and they would be referred to on a site by site basis as appropriate.

TPOs are made under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999. TPOs are administrated by Local Authorities. It is hoped to enter TPOs on the Board's Geographic Information System in the future; liaison on trees potentially protected by TPOs is undertaken during the EIA process.

4.8 Statutory Nature Conservation Sites

4.8.1 Internationally Designated Sites

The following internationally designated conservation sites, relevant to the water level management* and/or maintenance activities of the IDB, are found within or adjacent to the drainage district.

Table 1. Internationally designated sites within or adjacent to the IDB boundary

Site name	Designation	Features Relevant to IDB
The Wash	In two places to the south-east of Kirton and Frampton, the Board's area lies adjacent to The Wash, which is a Special Area of Conservation (SAC), Special Protection area (SPA) and Ramsar site.	The Wash is the largest estuarine system in Britain. It is fed by the rivers Witham, Welland, Nene and Great Ouse. There are extensive saltmarshes, intertidal banks of sand and mud, shallow waters and deep channels. It is the most important staging post and over-wintering site for migrant wildfowl and wading birds in eastern England. It supports a valuable commercial fishery for shellfish and also an important nursery area for flatfish. It holds one of the North Sea's largest breeding populations of common seal Phoca vitulina and some grey seals Halichoerus grypus. The sublittoral area supports a number of different marine communities including colonies of the reef-building polychaete worm Sabellaria spinulosa.

*Further information regarding Water Level Management Plans (WLMPs) are given later in the document.

Sources of information and map can be found in Annex 1.

4.8.2 Nationally Designated Sites

The following nationally-designated conservation sites, relevant to water level management and/or maintenance activities of the IDB, are found within the drainage district. Sources of information and a map can be found in Annex 2.

Table 2. Nationally designated sites within or adjacent to the drainage district

Site name	Designation	Component of an International Site	Associated WLMP?*	Features Relevant to IDB
The Wash TF 550400	SSSI, NNR	Yes	No	The whole area is of exceptional biological interest. The intertidal mudflats and saltmarshes represent one of Britain's most important winter-feeding areas for waders and wildfowl outside of the breeding season. Enormous numbers of migrant birds, of international significance, are dependent on the rich supply of invertebrate food. The saltmarsh and shingle communities are of considerable botanical interest and the mature saltmarsh is a valuable bird breeding zone. In addition, the Wash is also very important as a breeding ground for Common Seals.

Horbling Fen TF 154353	SSSI	No	Yes	This site contains sediments deposited between the end of the last Ice Age and the present day, and provides a record of the inundations of the sea during this period. The site has considerable potential for future research using stratigraphic and micropaleontological studies to assess one of the most recent marine transgressions in the region and to correlate the inferred sea-level changes with numerous local archaeological finds. The Board have a WLMP agreed with Natural England.

4.8.3 Local Nature Reserves

The following Local Nature Reserves are relevant to the activities of the IDB are found within the drainage district. Sources of information and a map are listed in Annex 3.

Table 3. Local Nature Reserves within the drainage district

Site name	Associated WLMP?*	Features Relevant to IDB
Mareham Pastures	No	On the Boards boundary with no relevance to the Board

4.8.4 Non-statutory Local Wildlife Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity and planning policy requires that they are given consideration by the LPA in forming any decision. The following relevant Local Wildlife Sites are to be found within or bordering the drainage district. Sources of data can be found in Annex 4.

Table 4. Non-Statutory sites within the drainage district

Site name	Designation	Features Relevant to IDB
Aswarby Thornes	Local Wildlife Site	Woodland
Beacon Hill Railway Cutting	Local Wildlife Site	Calcareous grassland
Botolphs Park Pond	Local Wildlife Site	Pond, Garden
Broadhurst Drain East	Local Wildlife Site	Coarse or rank grassland, Drain, Neutral grassland - semi-improved
Cobble's Lock Sedge and Reed Beds	Local Wildlife Site	Fen, Wet Woodland, Scrub, Standing Water
Cole's Lane Ponds	Local Wildlife Site	Scrub, Semi-improved neutral grassland, Pond, Marsh/fen, Reedbed
Drove Drain, Horbling Fen	Local Wildlife Site	Coarse or rank grassland, Drain, Neutral grassland - semi-improved
Dyke Fen Drains	Local Wildlife Site	Coarse or rank grassland, Drain
East Drains, Billingborough Fen	Local Wildlife Site	Coarse or rank grassland, Drain
Ewerby Pond	Local Wildlife Site	Pond, Scrub, Marsh, Field margin
Fen Road Drain	Local Wildlife Site	Coarse or rank grassland, Drain, Ruderal
Flower Pot Brick Pits	Local Wildlife Site	Semi-natural woodland, Wet woodland, dense scrub, standing water
Frampton Hall	Local Wildlife Site	Parkland, Semi-natural woodland, Scrub, Semi-

		improved neutral grassland, Semi-improved calcareous grassland, Improved grassland, Coarse or rank grassland, Ditch, Pond
Gravel Dike	Local Wildlife Site	Drain
Great Hale Eau	Local Wildlife Site	Drain
Guthram Gowt (River Glen)	Local Wildlife Site	Neutral grassland (semi-improved), Scrub (scattered and dense), Species-rich hedgerows, Ruderal, Pond, Floodplain
Hacconby Drove Drain	Local Wildlife Site	Coarse or rank grassland, Drain, Linear reedbed
Hall Weir	Local Wildlife Site	Wet woodland, Coarse or rank grassland, Dense scrub, Ditch, Pond, Reedbed
Hammond Beck	Local Wildlife Site	Coarse or rank grassland, Drain, Reedbed / Linear reedbed
Kirkby la Thorpe Pit	Local Wildlife Site	Standing water, Unimproved calcareous grassland, semi-improved neutral grassland, semi-natural & wet woodland, dense scrub, ruderal
Mackay's Pit	Local Wildlife Site	Pond
Mareham Pastures	Local Wildlife Site	Semi-improved neutral grassland, Woodland
Mill Drain	Local Wildlife Site	Coarse or rank grassland, Drain, Neutral grassland - semi-improved
Millthorpe Drove Drain	Local Wildlife Site	Coarse or rank grassland, Drain, Neutral grassland - semi-improved
Morton Drain	Local Wildlife Site	Coarse or rank grassland, Drain, Linear reedbed
New Dike West	Local Wildlife Site	Drain
North Drain, Billingborough Drove	Local Wildlife Site	Coarse or rank grassland, Drain
North Drain, Horbling Fen	Local Wildlife Site	Coarse or rank grassland, Drain
Old Forty Foot Drain	Local Wildlife Site	Coarse or rank grassland, Drain
Old Forty Foot to South Forty Foot Drain	Local Wildlife Site	Coarse or rank grassland, Drain
Risegate Eau	Local Wildlife Site	Coarse or rank grassland, Drain, Linear reedbed, Scrub
River Glen Corridor	Local Wildlife Site	River, Coarse or rank grassland, Semi-improved neutral grassland
Slippery Gowt Sea Bank	Local Wildlife Site	Coarse or rank grassland
South Drain, Billingborough Drove	Local Wildlife Site	Coarse or rank grassland, Drain
South Forty Foot Drain	Local Wildlife Site	Drain, Neutral grassland (semi-improved), Coarse or rank grassland
Threekingham Road Verges	Local Wildlife Site	Calcareous grassland
Twenty Foot Drain	Local Wildlife Site	Coarse or rank grassland, Drain
Tytton Lane West Pits, East	Local Wildlife Site	Pit, Dense scrub
Tytton Lane West Pits, West	Local Wildlife Site	Pit, Dense scrub
Westgate Wood and Meadow	Local Wildlife Site	Native plantation - new, Neutral grassland - semi-improved, Coarse or rank grassland, Ditch, Pond, Scrub - scattered / dense
Willow Farm Drain	Local Wildlife Site	Coarse or rank grassland, Drain

4.9 Habitat Audit Summary

This habitat audit summary lists the UK priority habitats that occur within the drainage district and are identified as likely to be influenced by the Board's activities. Also listed are habitats deemed to be of local importance and/or featured in local nature strategies that occur in the drainage district. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats. (A list of relevant Priority habitats can be found at https://jncc.gov.uk/our-work/uk-bap-priority-habitats/).

Table 5. Habitat Audit Summary

National Priority Habitat	National Status & Extent	Local Priority Habitat	Local Status and Extent	Habitat of Importance for IDB	Extent, status and Location of Habitat of Importance within drainage district	IDB Potential for Maintaining, Restoring or Expanding Habitat (high/medium/low)
Hedgerows	A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide.	Ancient and/or species-rich hedgerows	70% loss between 1984 and 1990.	Hedgerows	Not known- dominant feature within the drainage district, with many watercourses bounded, at least on one side, by hedge lines. Most of these are species-poor and are either unmanaged or heavily managed.	High – planting and maintenance
Reedbeds	Reedbeds are wetlands dominated by stands of the common reed Phragmites australis, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them.	Fens and wet reedbeds	Stable	Watercourses, ponds and wetlands	Isolated open water bodies with extensive reed margins on some watercourses, ponds and wetland fens.	High - Potential to expand reedbed habitat by extending existing margins along watercourses and Board owned ponds and wetlands

Wet Woodlands	Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species, but sometimes including ash, oak, pine and beech on the drier riparian areas. It is found on floodplains, as successional habitat on fens, mires and bogs, along streams and hill-side flushes, and in peaty hollows.	Wet Woodlands	Stable	Wet Woodlands	Marginal to isolated open water bodies and some larger waterlogged areas	Medium – the Board owns three small wet woodland sites. No real potential to expand habitat by extending woodland areas.
Fens and Watercourses	Unknown	Watercourses	Stable	Watercourses	Vast majority of the Boards area is Fenland with Main River, Ordinary Watercourses and Riparian Ditches throughout.	High - Maintain vegetated fringes where risks allow, install vegetated ledges when re-profiling banks.

4.10 Species Audit Summary

This species audit summary will include priority and other species including INNS that occur within the drainage district and are identified as likely to be influenced by the Board's activities. Also listed are species deemed to be of local importance and/or identified by local nature strategies. Finally, brief notes are included on the potential for the IDB to improve the status of the species in the drainage district. (A list of relevant Priority species can be found at https://jncc.gov.uk/our-work/uk-bap-priority-species/).

Table 6. Species Audit Summary

Common & scientific name	National Status	Local Status	Location of Species of Importance within drainage district	IDB Potential for Maintaining or Increasing Species Population or Range
Bank and reed nesting birds such as:- Reed Bunting, Sedge Warbler, Reed Warbler, Bearded Tit, Cuckoo	Various protected species with fluctuating status	Fluctuating year on year, dependent on the breeding season	Throughout the remote fenland catchments	Manage banks so as to maintain and extend areas of adjacent rank grassland, alternate bank cuts where possible to leave established reed margins.
Bats	The latest trends indicate that populations of bat species that can be monitored are stable or recovering.	There are suggestions that current legislation and conservation actions to protect and conserve bats are having a positive impact, and it is vitally important that these continue.	Channels, Pumping Station buildings and Pumping Station suction bays	Bat boxes positioned on all Pumping Station buildings.
Water Vole	S41 species, Listed in WCA 1981 Long term decline	Difficult to determine, the view is the local status is stable.	Identified throughout the Board's area with the exception of smaller headwaters	Appropriate management of watercourses & predator control.

Kingfisher	Amber listed species in the 'Birds of Conservation Concern' Schedule 1 WCA 1981 Formerly declining along linear waterways until the mid-1980s, since recovered.	Increasing	Identified throughout the Board's area	Monitor & maintain current nest site and install artificial nest sites at suitable pumping station locations
Barn Owl	A Schedule 1 species, generally declining.	High than average population throughout the Board's area.	Likely to be breeding throughout the Board's area, using habitats not always associated with watercourses. Owl boxes at 30+ locations in the Board's area at present	Annually maintain existing Barn Owl boxes, continuous replacement plan.
Eel	S41 species, difficult to monitor but declining.	Believed to be in every watercourse throughout the catchment.	Probably throughout the Board's area	Maintain gravity flows at Pumping stations, remove all unnecessary obstructions from watercourses. Develop the Boards Eel management plans.
Otter	Priority species	Increasing	Increased sightings throughout the catchment.	Construct an Otter holt and maintain in good order in the hope an Otter marks a territory.
Grass Snake	Protected species	Widespread	Channels and their banks, including drying out weed rakings.	Maintenance of habitat and provision of refugia/egg laying piles/hibernating at suitable pumping station sites

4.11 Invasive Non-native Species Summary

The IDB has identified the following high risk aquatic and riparian invasive non-native species within the drainage district that are identified as likely to be influenced by, or impact upon the Board's activities.

Table 7: High risk aquatic and riparian invasive non-native species summary

Common & scientific name	Location within IDB if known	Year first recorded	Local status / Extent within drainage district	IDB potential for controlling species population or range
Floating Pennywort	Not yet identified within the catchment, be watchful			IDB management plan and control measures, and partnership working
Parrots Feather	Not yet identified within the catchment, be watchful			IDB management plan and control measures, and partnership working.
Water Fern	Widespread in 'bad' years, localised in normal years	2008	North Forty Foot, Claydyke, Hammond Beck	IDB management plan and control measures, and partnership working
Japanese Knotweed	Occasional around built-up areas	2013	Threekingham	IDB management plan and control measures, and partnership working
Giant Hogweed	Occasional	2013 2020	Wyberton South Forty Foot Drain Boston report from EA,	IDB management plan and control measures, and partnership working
Himalayan Balsam	Occasional		No known reports/records	IDB management plan and control measures, and partnership working
American Mink	Thinly but widely spread	2008	Sightings at Swineshead p/s, Frampton Towns Drain, North Forty Foot, Dowsby Fen p/s	Board purchased Mink traps used and monitored following positive sightings

Chinese Mitten Crab	Not yet identified within the catchment, be watchful			
Killer Shrimp	Not yet identified within the catchment, be watchful			
Signal Crayfish	Not yet identified within the catchment, be watchful			

4.12 Water Level Management Plans

Water Level Management Plans (WLMPs) provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defense and conservation, can be balanced and integrated. Guidance for the production of WLMPs by the operating authorities for sites of conservation interest was produced by MAFF/ Defra in 1992, 1999 and 2004. This guidance concentrated on SSSIs, especially those of international importance (SPA or SAC sites).

Where IDBs are the operating authority for sites, they may or may not actively manage the water levels.

The table below provides further details of the Water Level Management Plans for which the IDB has some involvement within their drainage district.

Table 8: Water Level management plans in operation within the drainage district

Site Name & Designation	Reason for WLMP (state main species or habitat)	WLMP lead and other key [partners	Favorable/ unfavorable condition (related to water level management)	Active Management by IDB	WLMP Last Updated
Horbling Fen	This site contains sediments deposited between the end of the last Ice Age and the present day and provides a record of the inundations of the sea during this period. The site has considerable potential for future research using stratigraphic and micropaleontological studies to assess one of the most recent marine transgressions in the region and to correlate the inferred sea-level changes with numerous local archaeological finds. The Board have a WLMP agreed with Natural England.	BSIDB/NE		Ops Lead	

5. Habitat and Species Action Plans

5.1 Introduction

Action plans comprise the objectives, targets and actions that the IDB has identified for each habitat and species to be included within the BAP. The following sections contain action plans for each of the habitats and species that have been prioritised by the IDB.

5.2 Habitat Action Plans

5.2.1 Hedgerows

5.2.1.1 National and Local Targets

Table 9. Hedgerows - National and Local Targets

National Targets	Local Targets
To halt the loss of all hedgerows that are both ancient and species rich and maintain overall numbers of hedgerow trees throughout the country.	To halt the loss of hedgerows & achieve favorable management of all hedgerows & plant new hedgerows, particularly to help landscape connectivity.

5.2.1.2 IDB Objectives

Table 10. Hedgerows – IDB Objectives

	IDB Objectives
1	Ensure no net loss of hedges as a result of IDB activities
2	Increase the extent of hedgerows within IDB

5.2.1.3 IDB Actions

Table 11. Hedgerows – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Ensure that compensation planting takes place if any hedges are removed. To provide enhancement by being a wider species mix.	Length in m of hedges removed and hedges planted	Ongoing	IDB Ops	Landowners
2	Prevent damage to existing hedges (does not preclude management to allow watercourse maintenance, including coppicing).	Intact hedgerow in m this year compared to last	Ongoing	IDB Ops	Landowner
3	Identify location and plant 0.5 km hedgerow over 5 years.	Length of new hedgerow (m) each year	April 2025	Ecologist	Landowner
4	Avoid trimming hedgerows between 1 March and 31 July (the main nesting season for birds)	Annual reports	Ongoing	IDB Ops	Landowner

5.2.2 Reedbeds and Drainage Ditches

5.2.2.1 National and Local Targets

Table 12. Reedbeds and Drainage Ditches – National and Local Targets

National Targets	Local Targets
Reedbed is one of the rarest habitat types in the UK and is highly fragmented. Continuous expansion of existing and creation of new reedbed being the National Target.	Drainage ditches hold an unknown amount of habitat with the importance of the linear reedbed margins and banks often going underestimated. The IDB's maintenance regime should maintain this habitat in good conditions.

5.2.2.2 IDB Objectives

Table 13. Reedbeds and Drainage Ditches – IDB Objectives

	IDB Objectives
1	To enhance and maintain as a minimum the biodiversity already present within ditches
2	To increase the biodiversity within drainage ditches while maintaining drainage standards

5.2.2.3 IDB Actions

Table 14. Reedbeds and Drainage Ditches – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Maintain the existing marginal fringes of vegetation of at least 45 - 60cm wide (approx.)* along at least one side of all drainage ditches where flood risk allows. *Width of vegetation fringe is dependent upon flood risk category and drainage ditch width. Where a wider channel allows a wider fringe then establish, where flood risk prevents, act accordingly. Use drainage channel biodiversity manual as a guide.	Length of marginal fringe extent in m maintained each year where flood risk allows.	Ongoing	Ops Lead	Ecologist
2	Identify ditches suitable to allow a continuous marginal fringe of vegetation at least 45 - 60cm wide (approx.) or more along at least one side of the ditch.* In areas identified, plant with suitable plugs, install coir rolls or allow colonisation naturally.	Establishment/colonisation of new marginal vegetation in m each year	31/12/2025	Ops Lead	Ecologist
3	Identify ditches which are too narrow for a continuous vegetation fringe to be installed, but where occasional patches of vegetation	Length of occasional marginal vegetation patches established in m	31/12/2025	Ops Lead	Ecologist

	fringes can be encouraged. Plant with suitable plugs, install coir rolls or allow colonization naturally.				
4	Install marginal plant ledges during bank re-profiling and plant with sedge plugs or coir rolls	Length in m of plant ledge created each year	Ongoing	Ops Lead	Ecologist
5	Alternate bank side cutting each year where risk allows. Mowing to take place between August and April to avoid bird nesting season. 45 - 60cm or more from toe of bank to be left unmown on ditches where risk and ditch profile allows.	Increased extent of uncut ditch bank	Ongoing	Ops lead	Ecologist
6	Remove bank-side cuttings where possible (with conveyor) to encourage sward diversity. Survey to identify diversity baseline and diversity following cuttings removal.	Survey highlights increased sward diversity after 5 years.	Ongoing	Ops Lead	n/a
7	Establish a pollen-rich sward following bank re-profiling	Floristic species present in bank sward.	Ongoing	Ops Lead	Ecologist

5.2.3 Wet Woodland

5.2.3.1 National and Local Targets

Table 15. Wet Woodland – National and Local Targets

National Targets	Local Targets
A UK BAP Priority Habitat, large areas of wet woodland are especially scarce in Lincolnshire.	Wet woodland within the Board's area typically occur as small stands at sites where there are open water, reedbed and fen habitats. The Board own three small Wet Woodland site in the Borne Fen, our target is to maintain these to preserve the sites.

5.2.3.2 IDB Objectives

Table 16. Wet Woodland – IDB Objectives

	IDB Objectives
1	To improve the management of our wet woodland sites with the Board's area
2	To operate long term management plans to the three sites the Board own.

5.2.3.3 IDB Actions

Table 17. Wet Woodland – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Identify and map the extent and condition of wet woodland within the catchment.	Number of areas and area size. GIS layer	31/12/2025	Ops Lead	Ecologist
2	Ensure the maintenance programmes cause no harm to existing wet woodland.	No net loss	On going	Ops Lead	n/a
3	Monitor wet woodland and manage it effectively to prevent the area drying out.	No net loss	On going	Ops Lead	n/a
4	Consider options to help landowners maintain/restore wet woodland.	Number of areas and area size. GIS layer	On going	Ops Lead	LWT

5.3 Species Action Plans

5.3.1 Bank & Reed nesting Birds

5.3.1.1 National and Local Targets

Table 18. Bank and Reed Nesting Birds – National and Local Targets

National Targets	Local Targets
UK BAP Priority Species	All likely to be breeding throughout the catchment, especially in the remote and heavily reeded fens. Maintenance technique's and programme timing to be taken into consideration.

5.3.1.2 IDB Objectives

Table 19. Bank and Reed Nesting Birds – IDB Objectives

	IDB Objectives
1	Maintenance and improvement of habitat.

5.3.1.3 IDB Actions

Table 20. Bank and Reed Nesting Birds – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Investigate methods for monitoring and recording various species throughout the catchments.	Records, GIS layers	On going	Ops Lead	Ecologist

5.3.2 Bats (All Species)

5.3.2.1 National and Local Targets

Table 21. Bats - National and Local Targets

National	Local
Protected under Schedule 5 of the WCA 1981 there are 16 species of bat known in the UK that are dealt with collectively. Thought to be declining due to loss of feeding habitat, loss of roosting sites, disturbance and fragmentation of habitats.	Bats are using some of the Boards pumping stations and structures as roosting sites and the watercourses as feeding sites.

5.3.2.2 IDB Objectives

Table 22. Bats - IDB Objectives

	IDB Objectives
1	To maintain and improve current habitat
2	Reduce disturbance whilst undertaking Board activities
3	Protect, maintain and enhance the features in our landscape required by Bats

5.3.2.3 IDB Actions

Table 23. Bats – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Investigate methods for monitoring/survey works at select pumping station sites.	Surveys, annual report	On going	Ops Lead	Ecologist
2	Erect roosting boxes on Board buildings.	GIS Layer, annual report	On going	Ops Lead	Ecologists
3	Locate and protect roosts used by bats.	Surveys	On going	Ops Lead	Ecologists
4	Monitor and survey bat species, numbers, and locations.	Surveys	On going	Ops Lead	Ecologists

5.3.3 Water Vole

5.3.3.1 National and Local Targets

Table 24. Water Vole – National and Local Targets

National	Local
The water vole is found throughout the UK but is mainly confined to lowland areas with nearby water, there has been a significant decline in distribution and numbers within the UK.	The Boards area forms a significant local stronghold for water vole.

5.3.3.2 IDB Objectives

Table 25. Water Vole – IDB Objectives

	IDB Objectives
1	Maintain current water vole extent by reducing habitat degradation and loss through good watercourse maintenance techniques

2	Raise awareness of water vole conservation issues with the IDB machine operators
3	Better understand water vole population, movement and extent

5.3.3.3 IDB Actions

Table 26. Water Vole – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Control American mink	Number of mink caught	Annually	Ops Lead	n/a
2	Work with GLNP on mink task group to monitor county water vole and mink populations.	GLNPs annual reports indicating number and results of surveys. Extent of water vole population	Annually	Ops Lead	Ecologist/GLNP
3	Continue yearly recording by operational staff.	Number and location records collected and submitted to local biodiversity records office.	Annually	Ops Lead	n/a

5.3.4 Kingfisher

5.3.4.1 National and Local Targets

Table 27. Kingfisher – National and Local Targets

National	Local
Protected under the WCA 1981, the Kingfisher is widespread throughout the UK, exact numbers are difficult to confirm	Occasionally seen throughout the Boards area along open watercourses and around pumping stations.

5.3.4.2 IDB Objectives

Table 28. Kingfisher – IDB Objectives

	IDB Objectives
1	Maintain potentially suitable kingfisher habitat, particularly breeding habitat

5.3.4.3 IDB Actions

Table 29. Kingfisher – IDB Actions.

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Maintain and avoid disturbance to potential nest sites by retaining earth cliffs and avoiding close working.	Number and extent of earth cliffs in m each year. Work schedules detail exclusion zone around known nest sites in the breeding season.	On going	Ops Lead	n/a
2	During replacement of pumping station create artificial kingfisher hole	New Kingfisher nesting hole to be present, GIS layer	On going	Ops Lead	n/a

5.3.5 Barn Owl

5.3.5.1 National and Local Targets

Table 30. Barn Owl – National and Local Targets

National	Local
Protected under Schedule 1 of the WCA 1981, widely distributed across the UK and very weather dependent on successful breeding seasons. Following a decline in numbers over the past fifty years, numbers may now be increasing.	The Barn Owl is a regular sight in Lincolnshire and widely associated with well-maintained IDB watercourses

5.3.5.2 IDB Objectives

Table 31. Barn Owl – IDB Objectives

	IDB Objectives
1	To maintain and where possible increase the range and population of Barn Owl within the Board's area.

5.3.5.3 IDB Actions

Table 32. Barn Owl – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	To increase nesting opportunities on land managed by the Board.	GIS Layer	Annually	Ops Lead	Hawk & Owl Trust
2	Maintain and renew nesting boxes at Pumping stations and pole sights.	Annual reports	Annually	Ops Lead	Hawk & Owl Trust
3	Monitor the use of the boxes, ring and record fledglings.	Annual reports	Annually	Ops Lead	Hawk & Owl Trust
4	Maintain areas of marginal vegetation around pumping stations and drains	GIS Layer	Annually	Ops Lead	n/a

5.3.6 Eel

5.3.6.1 National and Local Targets

Table 33. Eel – National and Local Targets

National	Local
Critically endangered	There is a legal requirement to position Eel passes at locations where their passage is impeded or likely to be impeded. Eel Regulation compliance for 'Pumping Station Passability' is ongoing in partnership with the EA.

5.3.6.2 IDB Objectives

Table 34. Eel – IDB Objectives

	IDB Objectives
1	To maintain and where possible increase the habitat range and population of Eels within the Board's area.
2	To remove any unnecessary watercourse restriction that could impede eel passage.

5.3.6.3 IDB Actions

Table 35. Eel – IDB Actions.

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Maintain the current range of eels within the Board's area through effective watercourse management.	Annual reports	Annually	Ops Lead	Ecologist
2	Install and maintain suitably approved Eel passes where necessary.	GIS layer	Annually	Ops Lead	Ecologist/EA

5.3.7 Otter

5.3.7.1 National and Local Targets

Table 36. Otter – National and Local Targets

National	Local
Protected under Schedule 5 of the WCA 1981, following a UK decline there now appears to be an increase in numbers and becoming more widespread.	Becoming more increasingly common through sightings within the Board's area.

5.3.7.2 IDB Objectives

Table 37. Otter – IDB Objectives

	IDB Objectives
1	Assist in maintaining sustainable populations by protecting, maintaining and enhancing the features required by this species.

5.3.7.3 IDB Actions

Table 38. Otter – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Maintain habitat suitable for otter within the Board's area	Annual maintenance works	On going	Ops Lead	n/a
2	Record sighting by the Board's workforce	GIS layer	Ongoing	Ops Lead	n/a
3	Construct an Otter holt and maintain	Annual maintenance/inspection	Ongoing	Ops Lead	n/a

5.3.8 Grass Snake

5.3.8.1 National and Local Targets

Table 39. Grass Snake – National and Local Targets

National	Local
UK BAP Priority Species	Suffered from decline in habitat availability due to agricultural intensification but believed to be widespread throughout the remote Fens and increasing in number.

5.3.8.2 IDB Objectives

Table 40. Grass Snake – IDB Objectives

	IDB Objectives
1	To maintain and where possible increase the range and population of Grass Snake within the Board's area

5.3.8.3 IDB Actions

Table 41. Grass Snake – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Create egg laying/hibernation stations throughout the Board's area.	GIS layer, annual maintenance	Ongoing	Ops Lead	n/a

5.3.9 Butterfly and Moth

5.3.9.1 National and Local Targets

Table 42. Butterfly and Moth – National and Local Targets

National	Local
UK BAP Priority Species	Thought to be rapidly declining, future plans should include more surveys, monitoring, research, site management and protection as well as publicity.

5.3.9.2 IDB Objectives

Table 43. Butterfly and Moth – IDB Objectives

	IDB Objectives
1	To undertake any watercourse maintenance adjacent to a Butterfly Garden in respect of conveyance, in an agreed and considerate way.

5.3.9.3 IDB Actions

Table 44. Butterfly and Moth – IDB Actions

Objective ref.	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Co-ordinate lite touch essential maintenance with Butterfly Garden managers.	Annual reports from Butterfly Gardens.	Ongoing	Ops Lead	Butterfly Garden Managers (e.g., Amber Hill Butterfly Garden)

6 Procedural Action Plan

6.1 Introduction

A number of procedural targets and actions have been established to better integrate biodiversity considerations into IDB practices and procedures.

6.2 Objectives and Targets

Table 42. Procedural Action Plan – Objectives and Targets

	IDB Objectives
1	To improve all IDB employee's knowledge of biodiversity support through training.
2	To improve IDB practitioners knowledgeable about specific local biodiversity through training.
3	To maintain no net loss of open watercourse through consenting.

6.3 IDB Actions

Table 43. Procedural Action Plan – IDB Actions

Target Reference	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	Ensure all staff including contractors have received high-level biodiversity training within 6 months from the start date of this Plan, or as part of their induction, and refresher training provided every 3 years.	Numbers of staff trained	Ongoing	Ecologist	
2	Produce a manual of best practice within 12 months from the date of this plan.	Publication of manual on website	June 2022	Ecologist	NE/ WT
3	Develop and deliver 12 habitat and species specific toolbox talks, to be delivered 1 per quarter per year	Delivery of 12 toolbox talks	Ongoing	Ecologist	WT

4	Respond to applications for culverts with alternatives to maintain open watercourses. Approve no new long culvert applications.	Extent of open watercourses maintained.	Ongoing	CEO	LA's
5	Identify areas for limited maintenance	Develop the idea with the works Committees	Ongoing	Ops Team	

7 Implementation

The actions within the BAP will be executed via the following means:

1) The actions which can be delivered through adaptions or inclusions to general maintenance programmes will be identified and integrated accordingly / into the IDBs best practice manual. From this, monthly maintenance schedules will be drawn up and completed activities communicated via returned job cards or similar.

2) Actions which require independent and additional execution such as bat and bird box erection and surveys or training will identified, resources planned and engaged and / or planned in to the relevant resources' work schedules.

3) Actions which can be executed through capital works programmes will be integrated into the relevant project plans.

4) Actions which can be delivered through collaboration with partners will be formally agreed in writing with such partners with responsibilities, timescales and reporting requirements defined.

5) Actions which can be delivered through developer or consented works will be identified and integrated into project plans.

8 Monitoring

Appropriate indicators have been set for each of the IDB's biodiversity actions. Indicators have been chosen which provide the IDB with ways of measuring both the current status of biodiversity and also ways of measuring achievements in delivering biodiversity objectives and targets. The individual action plans set out the indicators and measurables which will be used to assess progress and execution against the plan. The IDB will routinely monitor biodiversity actions using the indicators and measurables and will review actions and indicators at least annually.

The overall plan will be updated at least every 5 years but is a dynamic document so may change more frequently for example in the light of monitoring outcomes.

9 Reporting

The Board is responsible for ensuring that progress against the Plans' targets are routinely reported, at least annually, at Board meetings to allow the Board to discuss and review BAP activity and to modify the BAP and actions to meet the objectives where necessary.

Annual summary progress reports will detail which actions have been progressed according to the plan, any new opportunities identified, risks and issues affecting the objectives or actions, and the contribution actions have made towards achieving the objectives. Recommendations will be made in the light of the monitoring outcomes.

Making this information available to a wider audience is important in increasing the understanding of the importance of the Boards' actions regarding biodiversity and inspiring people about biodiversity. As such, the IDB will make the summary reports available externally in the following ways:

- In the public domain via the IDB's website;

- Provided to conservation partners to assist with further local biodiversity conservation planning;

- Provided to local authorities in order to contribute towards their legislative biodiversity reporting requirements including the NERC 2006 Act, Habitats Directive, Environment Bill and the Local Nature Recovery Strategies;

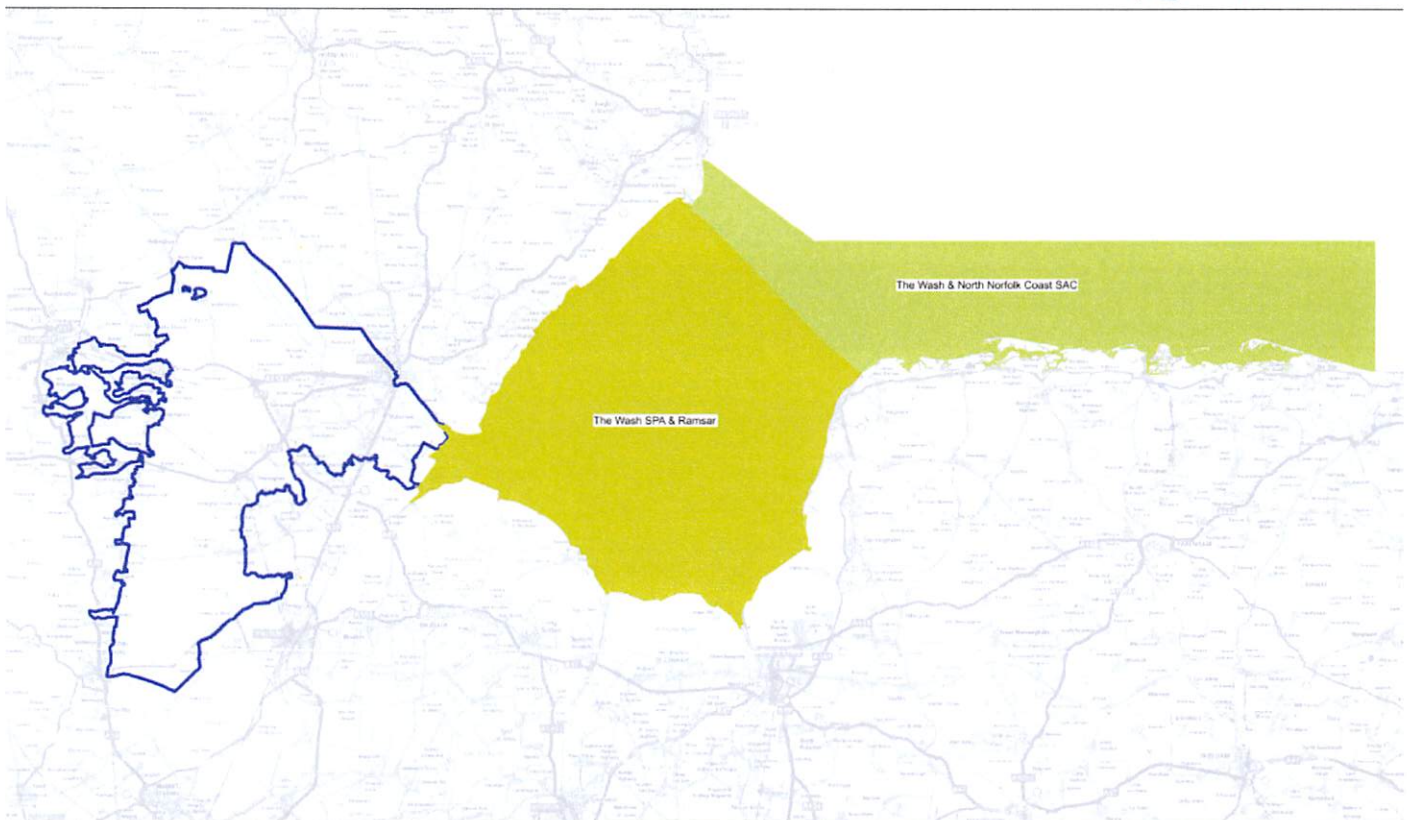
- The Local Biological Records Centre.

10 Appendices

10.1 Appendix 1 – Internationally Designated Conservation Sites

Internationally Designated Nature Conservation Sites

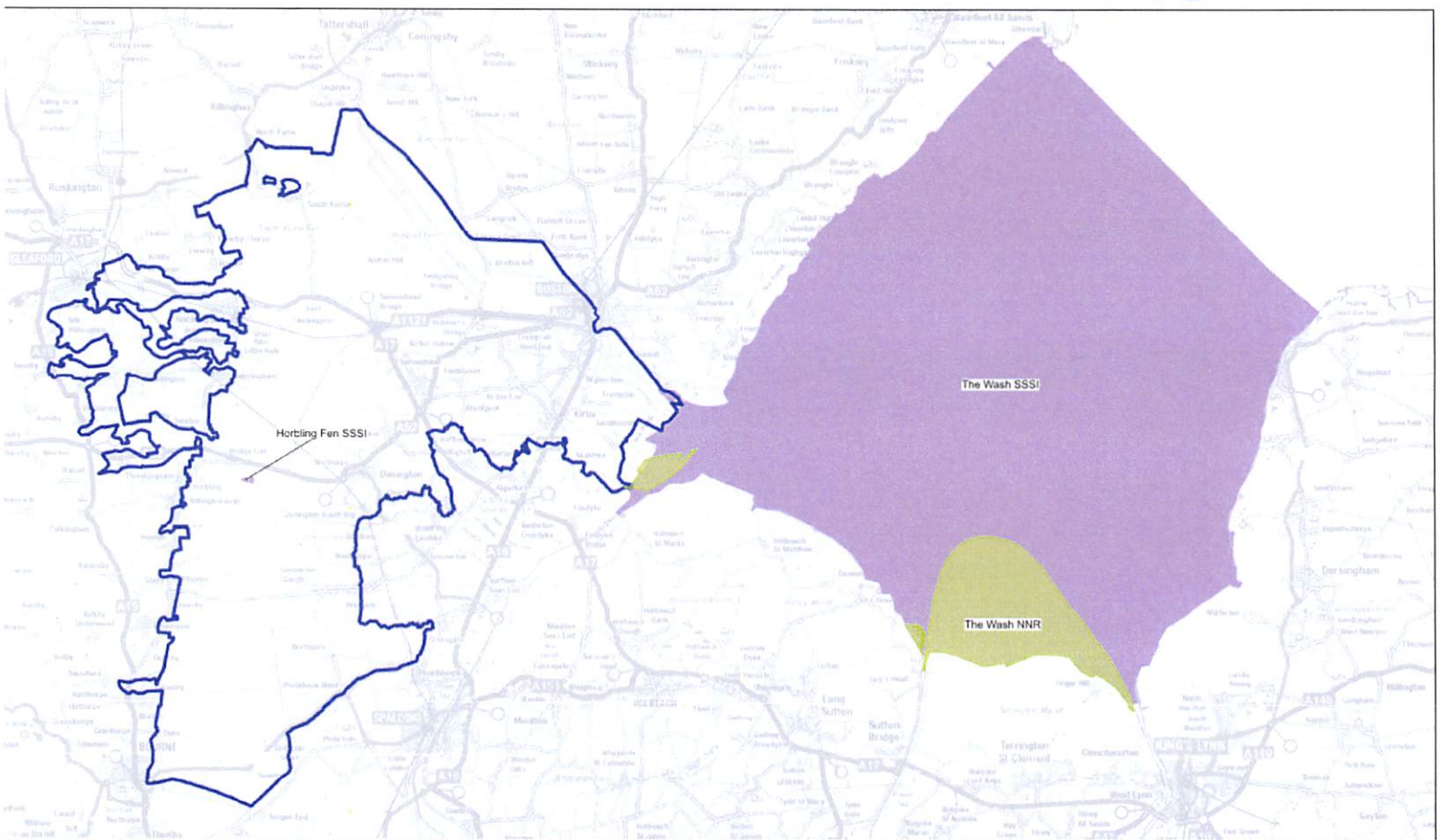
GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP



Map created: 24/02/2021 | Created by: Charlie Barnes

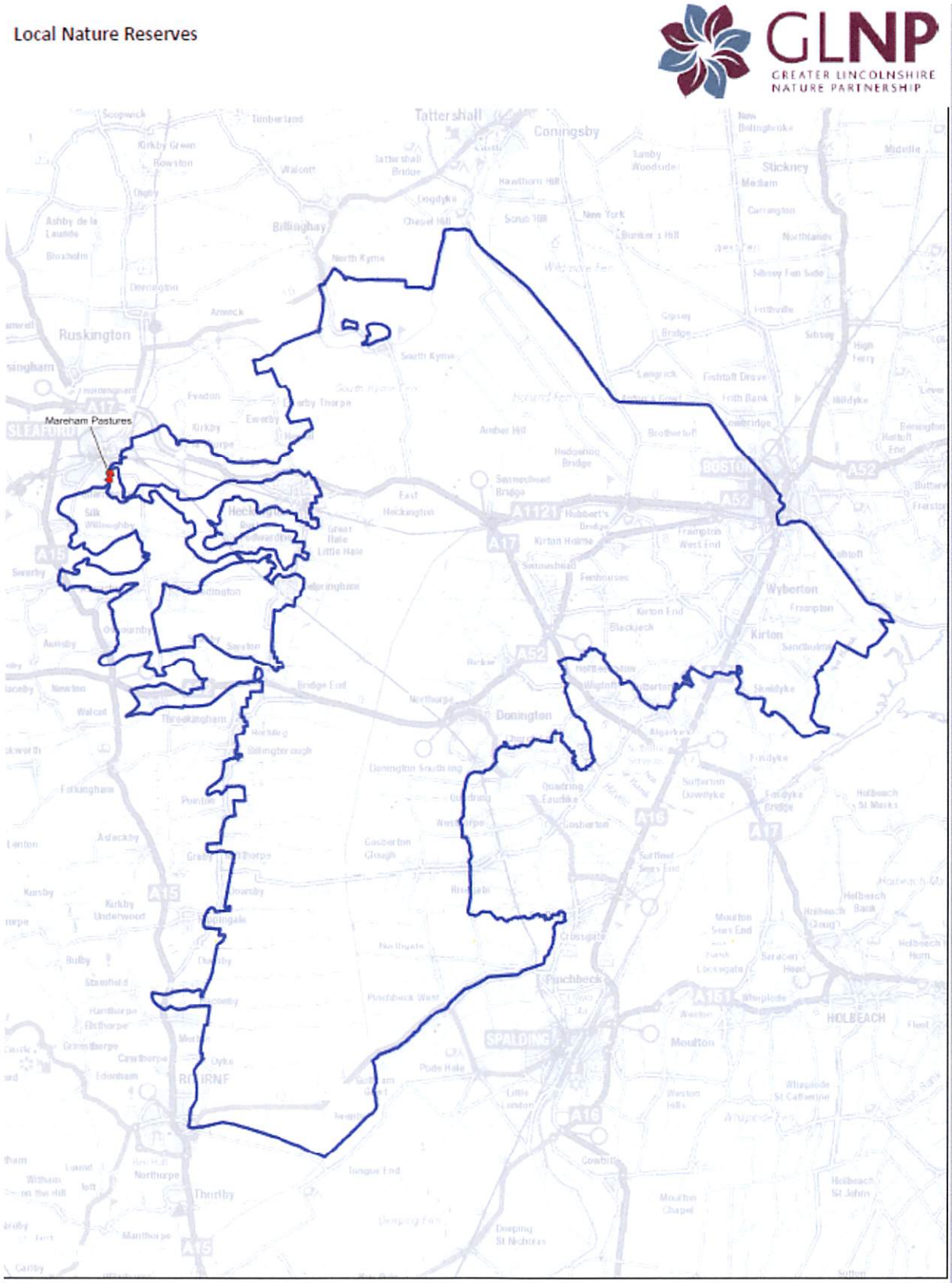
10.2 Appendix 2 – National Sites

National Sites



Map created: 24/02/2021 | Created by: Charlie Barnes

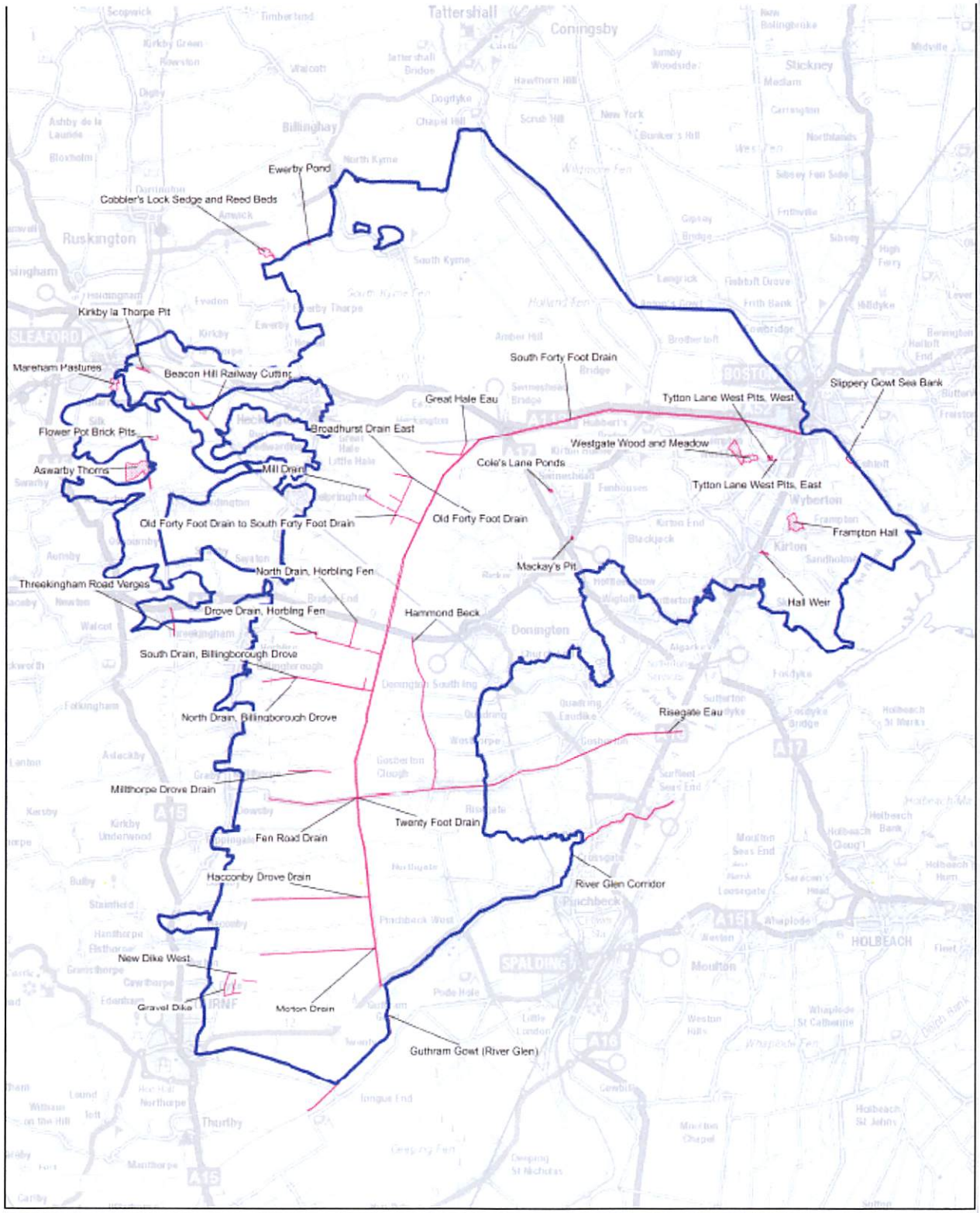
10.1 Appendix 3 – Local Nature Reserves



10.2 Appendix 4 – Non-Statutory Local Sites

Non Statutory Local Sites

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP



Map created: 24/02/2021 | Created by: Charlie Barnes

Water Vole Surveys – *Final report*

Black Sluice IDB: Weir Dike Twenty, Great Hale/Little Hale, Heckington Fen and Damford Grounds

February 2023

Prepared by Assistant Ecologist Abbie Smith BSc (Hons) on behalf of:

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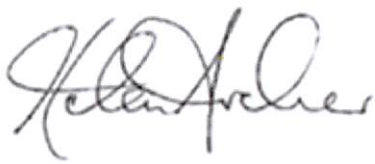
Report Overview	
Scheme reference	Black Sluice IDB: Lincolnshire
Surveyed extent	Weir Dike Twenty (between OSGRTF 10979 20003 and TF 17166 22481), Drain 10/10 - Great Hale/Little Hale (between OSGR TF 18678 42106 and TF 17778 40173), Drains 9/1 & 9/14 Heckington Fen (between OSGR TF 18551 46738 and TF 15064 45615) and Drains 13/1 & 13/4 Damford Grounds (between OSGR TF 19374 50674 and TF 16203 51801)
Revision	Version 1 (Final)
Issued	09.02.2023
Prepared by	 Abbie Smith BSc (Hons) – Assistant Ecologist
Reviewed by	 Helen Archer BSc (Hons) MCIEEM – Principal Ecologist

Due to legal issues relating to the persecution of badger, this report **must be kept confidential** and only made available to individuals directly involved with the project. Under no circumstance should this report, or the location of badger setts, be made publicly available.

Contents

1.0 INTRODUCTION

1.1 Background

1.1.1 Archer Ecology Ltd was commissioned by Black Sluice Internal Drainage Board (IDB) to complete water vole *Arvicola amphibius* surveys across six IDB drainage channels. The drains are situated close to the market town of Bourne and the rural village of Heckington within the southern districts of Lincolnshire. The surveys were required ahead of proposed maintenance (desilting) activities which are scheduled to commence in January/February 2023.

1.1.2 The surveys focused along the banks and channels of each drain; The locations and extents of the surveyed reaches are described under the following sub-headings.

Weir Dike Twenty

1.1.3 Weir Dike Twenty comprises an extended arable drain which runs parallel with the Bourne Eau and River Glen, beyond the eastern periphery of Bourne. This stretch of drain is situated within a principally arable landscape and serves as a means of drainage for adjacent fields.

1.1.4 The location of the surveyed extent – which lies between Ordnance Survey Grid Reference (OSGR) TF 10979 20003 and TF 17166 22481 - is shown in Figure 1, below.

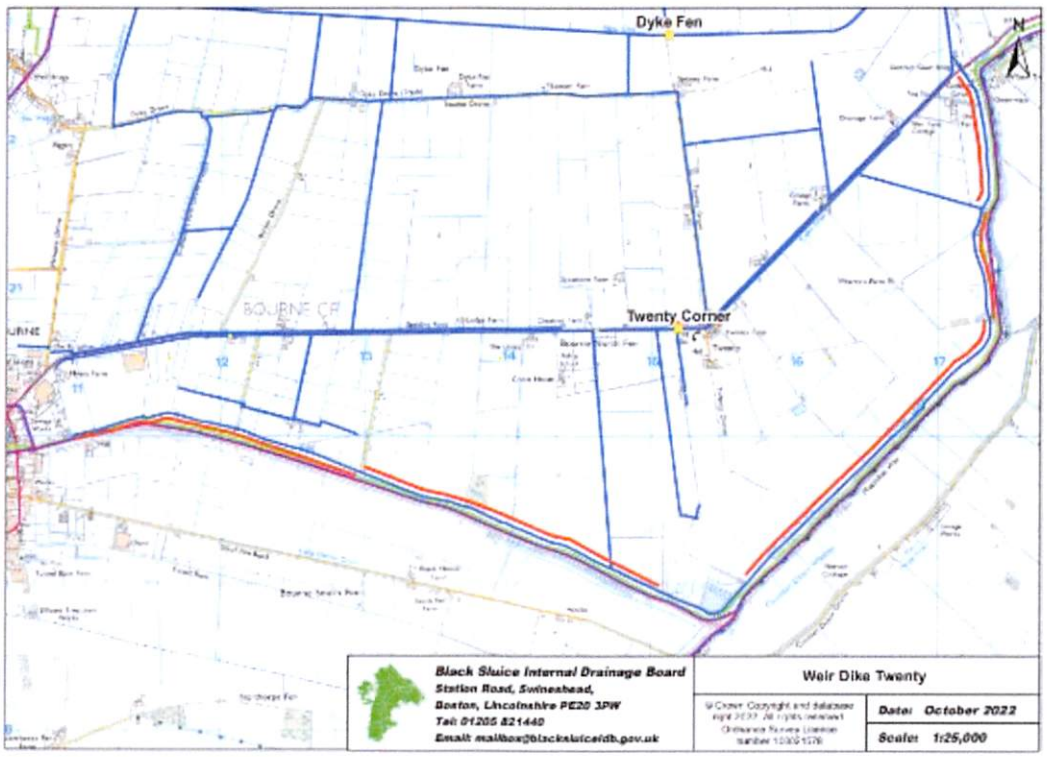


Figure 1 – Location of the surveyed extent of Weir Dike Twenty

Drain 10/10 - Great Hale/Little Hale

1.1.5 Drain 10/10 comprises a steep-sided arable drain which is located to the east of the village/hamlet of Great Hale and Little Hale. The channel retains hydrological connectivity to a number of other prominent drains within its locality, including The Beck.

1.1.6 The location of the surveyed extent – which lies between OSGR TF 18678 42106 and TF 17778 40173 - is shown in Figure 2, below.

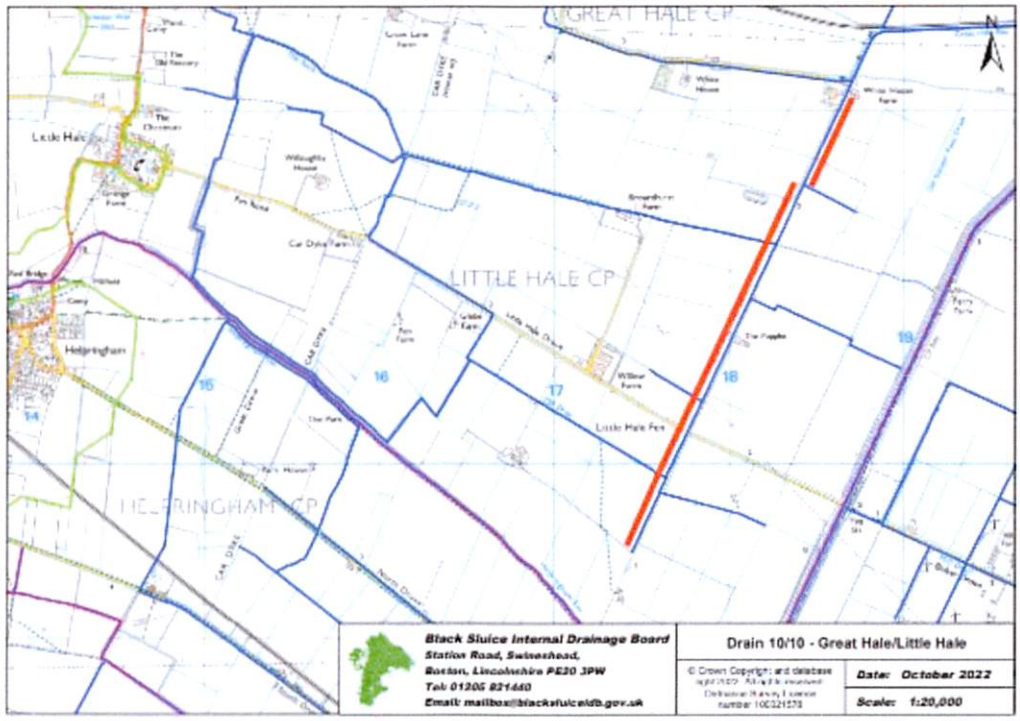


Figure 2 – Location of the surveyed extent of Drain 10/10 – Great Hale/Little Hale

Drains 9/1 & 9/14 Heckington Fen

1.1.7 Drains 9/1 and 9/14 comprise straightened and semi-naturalised channels which occur >830m north-east of Heckington. These run parallel with Head Dike and Car Dyke which occur immediately north. The drains are situated east of a water treatment plant and extend to Heckington Fen Pumping Station at the furthest westerly point.

1.1.8 The location of the surveyed extents – which lie between OSGR TF 18551 46738 and TF 15064 45615 - is shown in Figure 3, overleaf.

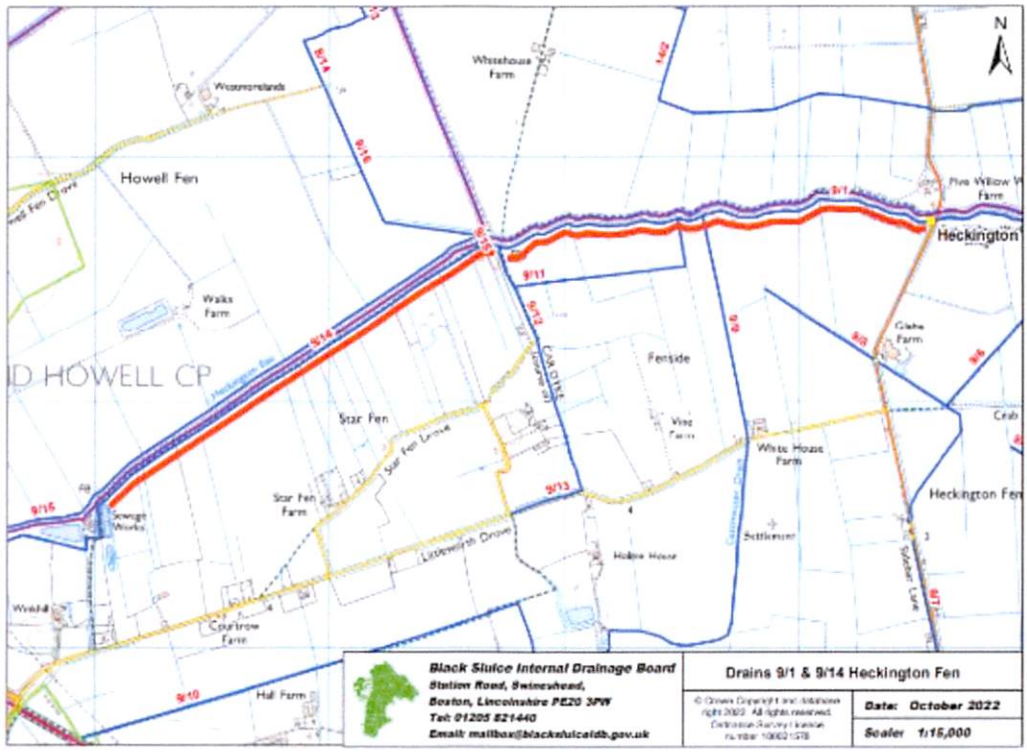


Figure 3 – Location of the surveyed extent of Drain 9/1 & 9/14 Heckington Fen

Drains 13/1 & 13/4 Damford Grounds

1.1.9 Drains 13/1 and 13/4 comprise artificial channels which occur to the east of Kyme Eau and to the north of the small, rural village of South Kyme. Both drains are situated along the periphery of arable fields and retain hydrological connectivity to other, smaller drains which occur within the immediate vicinity.

1.1.10 The location of the surveyed extent – which lies between OSGR TF 19374 50674 and TF 16203 51801 - are shown in Figure 4, overleaf.

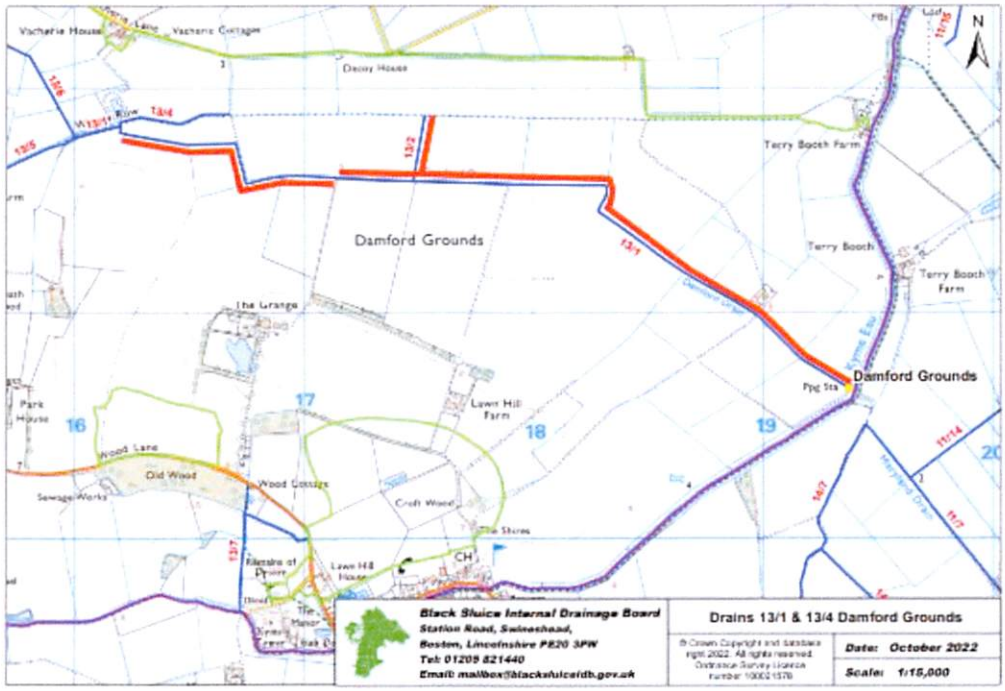


Figure 4 – Location of the surveyed extent of Drains 13/1 & 13/4 Damford Grounds

1.2 Purpose

1.2.1 The purpose of this report is to determine the likely presence/absence of water voles within the surveyed extents of the six drains and to predict any potential interactions between the desilting works and this protected species. This report also advises the requirement for any further ecological survey and/or monitoring works and provides details of proportionate mitigation measures, where appropriate.

1.3 Legislation

1.3.1 Water voles are fully protected under Schedule 5 of the Wildlife & Countryside Act (1981, as amended) making it an offence to:

- intentionally kill, injure or take (capture) a water vole;
- Possess or control a live or dead water vole, or any part of a water vole; and
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place.

1.3.2 Water voles are also listed as rare and most threatened species under Section 41 of the Natural Environment and Rural Communities Act (2006).

2.0 METHODOLOGY

2.1 Overview

2.1.1 Detailed water vole surveys were completed across each individual drain during January 2023. The surveys of Weir Dyke Twenty and Drain 10/10 – Great Hale/Little Hale were carried out by Principal Ecologist Helen Archer BSc (Hons) and Assistant Ecologist Abbie Smith BSc (Hons) of Archer Ecology Ltd on 10th and 12th January 2023.

2.1.2 Helen is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has over 12 years' experience as a full-time consultant ecologist. Abbie is a Qualifying member of CIEEM and has experience undertaking numerous surveys for riparian and terrestrial mammals.

2.1.3 The surveys of Drains 13/1 & 13/4 Damford Grounds and Drains 9/1 & 9/14 Heckington Fen were carried out by Ecologist Elizabeth Fenn BSc (Hons) and Assistant Ecologist Abbie Smith of Archer Ecology Ltd on 17th and 18th January 2023. Elizabeth Fenn is also a Qualifying member of CIEEM and has three years' experience working as a consultant ecologist.

2.1.4 The surveys involved a visual search across each drain and followed the standard Common Standards Monitoring (CSM) methodology for mammals, issued by Joint Nature Conservation Committee[1], and the standard Environmental Assessment field survey method outlined in Dean et al.[2].

2.1.5 The surveys involved the following:

- A detailed search along the drain banks for water vole field signs, including droppings/latrines, prints, lawns and burrows as well as live/dead water voles.
- Determining the number of latrines with any given area.
- Appraising the suitability of each drain for water vole inhabitancy based upon the availability of suitable riparian habitat and aquatic conditions (including water depth/fluctuations and vegetation type/density/distribution).

2.2 Other protected species

2.2.1 In addition to water voles, incidental field signs related to other protected species were also recorded, including badger *Meles meles*. Any possible interactions between the proposed works and other protected species were also appraised.

[1] JNCC (2015) *Common Standards Monitoring Guidance for Mammals* (online). JNCC. Available at: Common Standards Monitoring Guidance for Mammals (jncc.gov.uk) [Accessed 24th January 2023].

[2] Dean, M., Strachan, R., Gow, D. and Andrew, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

2.3 Survey limitations

2.3.1 The surveys were undertaken in mid-January which falls outside of the recognised survey window for water vole, which comprises two periods between late April and early October. For this reason, a lack of water vole field signs does not indicate a lack of species presence.

2.3.2 The timings of the survey was also limiting with respect to determining the floral species composition of the drainage channels and bankside vegetation.

2.3.3 Access was restricted to just a single bankside at certain points due to the presence of dense and impenetrable ruderal/scrub vegetation and/or unsafe ground conditions. Areas of the banks which were not accessible at the time of completing the water vole surveys are shown on the survey findings maps under Appendix II.

3.0 RESULTS

3.1 Weir Dike Twenty

3.1.1 The Weir Dike Twenty is a mesotrophic, slow-flowing channel which supports occasional aquatic vegetation, including bulrush *Scirpus lacustris*, branched bur-reed *Sparganium erectum*, water starwort *Callitriche stagnalis*, water crowfoot *Callitriche stagnalis*, hornwort *Ceratophyllum dermersum,* water mint *Mentha aquatica* and common reed *Phragmites australis*. The bank vegetation comprises occasional cleavers *Galium aparine*, cow parsley *Anthriscus sylvestris* and common nettle *Urtica dioica* together with dominant common bent *Agrostis capillaris*. This drain offers suitable habitat for water vole inhabitancy and an overview of protected species field signs are described in Table 1, below.

3.1.2 *NB: The Photograph/Location numbers presented within the rightmost column of Table 1 are cross-referenced with the numbering of Photographs presented under Appendix I and the field sign locations shown within the Survey Findings Map under Appendix II.*

Table 1 – Survey results of Weir Dike Twenty

Species	OSGR	Field sign	Photo/ Location no.
Unidentified – possible water vole or rat *Rattus* sp.	TF 11029 20014	A single burrow on the northern bank. No other field signs.	1
Badger	TF 11400 20124	3 x badger setts along northern bank.	2
Unidentified – possible water vole or rat	TF 14266 19306	A single burrow on northern bank. No other field signs.	3
Unidentified – possible water vole or rat	TF 14602 19166	A single burrow on northern bank. No other field signs.	4
Badger	TF 13175 19681	Latrine on southern bank.	5
Badger	TF 14702 19121	8 x badger setts on the northern bank with one active main sett (burrow entrances linked by well-worn paths). Latrines also located along the southern bank.	No photos available / 5a

Species	OSGR	Field sign	Photo/ Location no.
Unidentified – possible water vole or rat	TF 16603 19915	A single burrow on the south-eastern bank (less active). No other field signs.	6
Unidentified – possible water vole or rat	TF 16766 20072	A single burrow on the south-eastern bank (partially active). No other field signs.	7
Unidentified – possible water vole or rat	TF 16785 20089	A single burrow on the south-eastern bank. No other field signs.	8
Unidentified – possible water vole or rat	TF 17216 20517	A single burrow on the south-eastern bank. No other field signs.	9
Unidentified – possible water vole or rat	TF 17324 21078	A single burrow on the western bank. No other field signs.	10
Unidentified – possible water vole or rat	TF 17302 21126	A single burrow on the western bank. No other field signs.	11
Unidentified – possible water vole or rat	TF 17250 21378	x2 burrows on the western bank, x4 burrows on the eastern bank. No other field signs.	12
Unidentified – possible water vole or rat	TF 17261 21395	x7 burrows on the eastern bank. No other field signs.	13
Unidentified – possible water vole or rat	TF 17285 21443	A single burrow on the eastern bank, no other field signs.	14
Badger	TF 17339 21974	Outlier badger sett located on eastern bank at approximately 2 meters above the water line.	15
Badger	TF 17323 21999	Outlier badger sett located on the western bank at approximately 2 meters above water line.	16

Species	OSGR	Field sign	Photo/ Location no.
Fox *Vulpes vulpes*	TF 17308 22111	Active fox den along the western bank with prints outside of the entrance.	17
Badger	TF 17285 22238	Active main badger sett along crest/face of the western bank. The sett comprises 6 burrows linked by well-worn paths and fresh latrines.	18

3.2 Drain 10/10 - Great Hale/Little Hale

3.2.1 Drain 10/10 – Grate Hale/Little Hale is a mesotrophic, slow-flowing channel with steep sloping banks supporting occasional hemlock *Conium maculatum*, cleavers, cow parsley, common nettle and broad-leaved dock *Rumex obtusifolius* together with dominant common bent. The aquatic vegetation recorded was limited to occasional bulrush, water starwort and water mint. This drain provides suitable habitat for water vole and the results of the survey for this drain are given in Table 2, below.

3.2.2 *NB: The Photograph/Location numbers presented within the rightmost column of Table 2 are cross-referenced with the numbering of Photographs presented under Appendix I and the field sign locations shown within the Survey Findings Map under Appendix II.*

Table 2 – Survey results of Drain 10/10 - Great Hale/Little Hale

Species	OSGR	Field sign	Photo/ Location no.
Rat	OSGR TF 18504 41734	Rat burrows located underneath the footbridge along south-eastern bank	19
Badger	OSGR TF 17643 39933	Main badger sett, active (recent digging) along north-western bank. The sett comprises 6 burrows linked by well-worn paths.	20

3.3 Drains 9/1 & 9/14 Heckington Fen

3.3.1 Drain 9/1 & 9/14 Heckington Fen is a mesotrophic, slow-flowing channel with a mixture of steep and gently sloping banks supporting perennial ryegrass *Lolium perenne*, cleavers, common nettle, and fescue *Festuca* sp. The aquatic vegetation recorded includes occasional hard rush *Juncus inflexus*, common reed, water starwort and hornwort. This drain is provides suitable habitat for water vole inhabitancy and the results of the survey for this drain are given in Table 3, below.

3.3.2 *NB: The Photograph/Location numbers presented within the rightmost column of Table 3 are cross-referenced with the numbering of Photographs presented under Appendix I and the field sign locations shown within the Survey Findings Map under Appendix II.*

Table 3 – Survey results of Drains 9/1 & 9/14 Heckington Fen

Species	OSGR	Field sign	Photo/ Location no.
Badger	TF 15165 45719	3x subsidiary badger setts on the southern bank.	21
Unidentified – possible water vole or rat	TF 15288 45798	3x mammal burrows (potentially rat) on the southern bank. No other field signs.	22
Unidentified – possible water vole or rat	TF 15332 45828	2x potential water vole burrows on the water line of the southern bank. No other field signs.	23
Badger	TF 15778 46093	Badger sett on the southern bank.	24
Badger	TF 15802 46106	Badger sett on the southern bank.	25
Badger	TF 15873 46152	Badger sett on the southern bank.	26
Unidentified – possible water vole or rat	TF 15918 46177	Potential rat burrow on the southern bank. No other field signs.	No photo available/ 23a

Species	OSGR	Field sign	Photo/ Location no.
Badger	TF 16126 46313	Badger sett (possibly an outlier sett) on southern bank.	27
Unidentified – possible water vole or rat	TF 16257 46406	Potential water vole burrows 0.5m above the waterline on the southern bank. No other field signs.	28
Unidentified – possible water vole or rat	TF 16621 46622	Mammal burrow on the southern bank. No other field signs.	No photo available/ 28a
Unidentified – possible water vole or rat	TF 16643 46629	Potential water vole burrow on the southern bank. No other field signs.	29
Unidentified – possible water vole or rat	TF 16716 46638	Potential rat burrow on the southern bank. No other field signs.	No photo available/ 29a
Unidentified – possible water vole or rat	TF 17339 46743	Mammal burrow on the southern bank. No other field signs.	30

3.4 Drains 13/1 & 13/4 Damford Grounds

3.4.1 Drains 13/1 and 13/4 are mainly mesotrophic, slow-flowing channels with occasional areas of eutrophication (presumably from arable run off). The drains comprise steeply sloping banks which support dominant perennial ryegrass together with occasional cleavers, common nettle, common bent and cow parsley. The aquatic vegetation recorded includes occasional common reed, water starwort and water mint. This drain provides suitable habitat for water vole inhabitancy and the results of the survey for this drain are presented in Table 4, overleaf.

3.4.2 *NB: The Photograph/Location numbers presented within the rightmost column of Table 4 are cross-referenced with the numbering of Photographs presented under Appendix I and the field sign locations shown within the Survey Findings Map under Appendix II.*

Table 4 – Survey results of Drains 9/1 & 9/14 Heckington Fen

Species	OSGR	Field sign	Photo/ Location no.
Unidentified – possible water vole or rat	TF 16729 51664	Potential water vole burrow on the eastern bank, no other field signs	31
Unidentified – possible water vole or rat	TF 16731 51657	14x potential water vole burrows on the eastern bank, no other field signs	32
Water vole	TF 16735 51640	3x water vole burrows with tracks located outside of burrows indicative of water vole, eastern bank	33
Water vole	TF 16740 51628	8x water vole burrows with tracks located outside of burrows indicative of water vole, eastern bank	34
Badger	TF 16753 51582	Main sett with 4 active entrances and 2 potential entrances collapsed from weight of vehicle on tracks, northern bank	35
Badger	TF 16749 51578	Fresh latrine close to main sett, western bank	36
Water vole	TF 16762 51578	8x water vole burrows (limited access, potential latrines) along the southern bank.	37
Water vole	TF 16776 51581	2x water vole burrows (limited access, potential latrines) along the southern bank.	38
Water vole	TF 16792 51586	3x water vole burrows (limited access, potential latrines) along the southern bank.	39

Species	OSGR	Field sign	Photo/ Location no.
Water vole	TF 16796 51593	2x water vole burrows with tracks and water vole latrines along the northern bank.	40
Water vole	TF 16803 51590	3x water vole burrows (limited access, potential tracks) along the southern bank.	41
Water vole	TF 16832 51601	4x water vole burrows (limited access) along the southern bank.	42
Water vole	TF 16875 51603	Water vole burrow along the southern bank with latrine.	43
Water vole	TF 16891 51608	Water vole burrow along the southern bank (limited access).	44
Water vole	TF 16900 51608	Water vole burrow (limited access), southern bank	45
Unidentified – possible water vole or rat	TF 17232 51611	Potential water vole burrow on the southern bank, no other field signs	46
Unidentified – possible water vole or rat	TF 17282 51610	Potential water vole burrow on the southern bank, no other field signs	47
Fox	TF 17535 51857	Active fox den located along eastern bank	48
Fox	TF 17535 51857	Fox scat located just outside of the fox den	49

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Weir Dyke

Water voles

4.1.1 Low levels of possible water vole activity were recorded. The field signs recorded were limited to single burrows (characteristic of water vole or rat) which were concentrated along the toe/bank face of the northern and western drain banks. Occasional burrows were also recorded on the opposite side of the bank, within the eastern extent of the surveyed reach.

4.1.2 In view of the findings, the following actions are advised:

- **When completing the desilting works, it is advised that the excavator is positioned on the opposite side of the bank to where the majority of burrows are established. In this case, it is advised that the excavator is operated from beyond the southern/eastern drain banks.**
- **It is recommended that an excavator with a fully extended reach is utilised and that a wide buffer is maintained between the excavator and the drain bank, where possible.**
- **Care must be taken to ensure that all burrows remain undisturbed by the excavator bucket and that the bucket does not touch either bank face.**
- **Where water vole burrows are established along the southern/eastern bank (along the same side as the excavator), a minimum work exclusion zone of 5m must be maintained from the burrow entrances. The excavator must not enter this buffer.**
- **The excavator must be operated in a slow and controlled manner, with vigilance maintained for evidence of water vole.**
- **Should any additional evidence of water vole be encountered (e.g., further burrows, dead/live water voles) all works must stop and an ecologist contacted for further advice.**
- **If the works are not completed before the start of the water vole breeding season (April until October inclusive), an update survey of these drains should be carried out by a suitably experienced and qualified ecologist.**

Badger

4.1.3 Multiple badger setts were recorded along the crest/face of the northern and western drain banks, with very occasional badger setts recorded along the southern and eastern banks.

4.1.4 In view of the findings, the following actions are advised:

- **A works exclusion zone of 30m from any badger sett should be maintained. The excavator must not enter this buffer.**
- **All silt arisings should also be deposited outside of this work exclusion zone.**
- **Should any additional evidence of badger be encountered (e.g., setts, dead/live badgers) all must stop and an ecologist contacted for further advice.**

4.2 Drain 10/10 - Great Hale/Little Hale

Water voles

4.2.1 No evidence of riparian mammal inhabitancy was recorded during the walkover. In view of the findings, the following actions are advised:

- **If the works are not completed before the start of the water vole breeding season (April until October inclusive), an update survey of this drain should be carried out by a suitably experienced and qualified ecologist.**
- **The excavator must be operated in a slow and controlled manner, with vigilance maintained for evidence of water vole.**
- **Should any additional evidence of water vole be encountered (e.g., further burrows, dead/live water voles) all works must stop and an ecologist contacted for further advice.**

Badger

4.2.2 A large/active main badger sett was recorded close to the crest of the western drain bank. In view of the findings, the following actions are advised:

- **When completing the desilting works, it is advised that the excavator is positioned on the opposite side of the bank to where the sett is established. In this case, it is advised that the excavator is operated from beyond the eastern drain banks. All silt arising should be deposited on the eastern bank.**
- **If working from the eastern bank is not possible, a works exclusion zone of 30m from any badger sett should be maintained. The excavator must not enter this buffer.**
- **All silt arisings should also be deposited outside of this work exclusion zone.**
- **Should any additional evidence of badger be encountered (e.g., setts, dead/live badgers) all must stop and an ecologist contacted for further advice.**

4.3 Drains 9/1 & 9/14 Heckington Fen

4.3.1 Low levels of riparian mammal inhabitancy were recorded in the form of single burrows established along the toe/bank face of the southern drain banks. In view of the findings, the following actions are advised:

- **When completing the desilting works, it is advised that the excavator is positioned on the opposite side of the bank to where the burrows are established. In this case, it is advised that the excavator is operated from beyond the northern drain banks.**
- **It is recommended that an excavator with a fully extended reach is utilised and that a wide buffer is maintained between the excavator and the drain bank, where possible.**
- **Care must be taken to ensure that all burrows remain undisturbed by the excavator bucket and that the bucket does not touch either bank face.**
- **The excavator must be operated in a slow and controlled manner, with vigilance maintained for evidence of water vole.**
- **Should any additional evidence of water vole be encountered (e.g., further burrows, dead/live water voles) all works must stop and an ecologist contacted for further advice.**
- **If the works are not completed before the start of the water vole breeding season (April until October inclusive), an update survey of these drains should be carried out by a suitably experienced and qualified ecologist.**

Badger

4.3.2 Multiple badger setts were recorded along the crest/face of the southern drain banks. In view of the findings, the following actions are advised:

- **When completing the desilting works, it is advised that the excavator is positioned on the opposite side of the bank to where the setts are established. In this case, it is advised that the excavator is operated from beyond the northern drain banks. All silt arising should also be deposited on the northern bank.**
- **If working from the northern bank is not possible, a works exclusion zone of 30m from any badger sett should be maintained. The excavator must not enter this buffer.**
- **Should any additional evidence of badger be encountered (e.g., setts, dead/live badgers) all must stop and an ecologist contacted for further advice.**

4.4 Drains 13/1 & 13/4 Damford Grounds

Water voles

4.4.1 Large numbers of active water vole burrows, which included latrines and footprints, were identified along the toe/bank face of the northern and eastern drain banks. Low levels of riparian mammal inhabitancy were also recorded, including two burrows established along the toe/bank face of the southern drain bank.

4.4.2 In view of the findings, the following actions are advised:

- **When completing the desilting works, it is advised that the excavator is positioned on the opposite side of the bank to where the burrows are established, where possible. If this wouldn't be possible, a minimum work exclusion zone of 5m must be maintained from the burrow entrances. The excavator must not enter this buffer.**
- **It is recommended that an excavator with a fully extended reach is utilised and that a wide buffer is maintained between the excavator and the drain bank, where possible.**
- **Care must be taken to ensure that all burrows remain undisturbed by the excavator bucket and that the bucket does not touch either bank face.**
- **The excavator must be operated in a slow and controlled manner, with vigilance maintained for evidence of water vole.**
- **Should any additional evidence of water vole be encountered (e.g., further burrows, dead/live water voles) all works must stop and an ecologist contacted for further advice.**
- **If the works are not completed before the start of the water vole breeding season (April until October inclusive), an update survey of these drains should be carried out by a suitably experienced and qualified ecologist.**

Badger

4.4.3 Multiple badger setts were recorded along the crest/face of the northern drain bank. In view of the findings, the following actions are advised:

- **When completing the desilting works, it is advised that the excavator is positioned on the opposite side of the bank to where the setts are established. In this case, it is advised that the excavator is operated from beyond the southern drain banks. All silt arising should also be deposited on the southern bank.**

- **If working from the southern bank is not possible, a works exclusion zone of 30m from any badger sett should be maintained. The excavator must not enter this buffer.**
- **Should any additional evidence of badger be encountered (e.g., setts, dead/live badgers) all must stop and an ecologist contacted for further advice.**

APPENDIX I – PHOTOGRAPHS

Photograph 1: Unidentified – possible water vole or rat burrow

Photograph 2: Badger sett

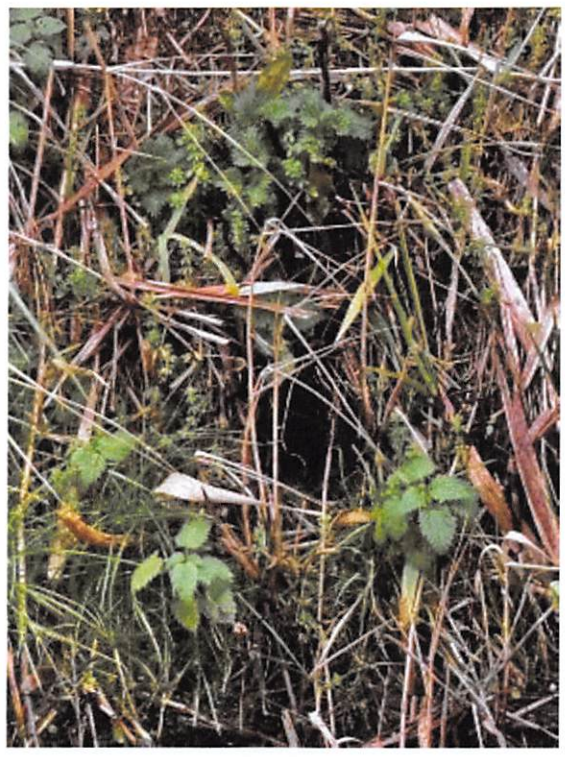
Photograph 3: Unidentified – possible water vole or rat burrow

Photograph 4: Unidentified – possible water vole or rat burrow

Photograph 5: Badger latrine

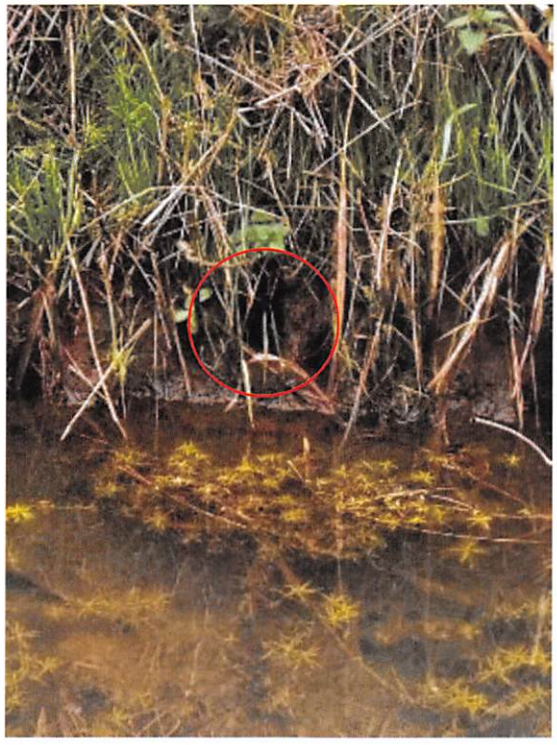
Photograph 6: Unidentified – possible water vole or rat burrow

Photograph 7: Unidentified – possible water vole or rat burrow



Photograph 8: Unidentified – possible water vole or rat burrow

Photograph 9: Unidentified – possible water vole or rat burrow



Photograph 10: Unidentified – possible water vole or rat burrow

Photograph 11: Unidentified – possible water vole or rat burrow

Photograph 12: Unidentified – possible water vole or rat burrow

Photograph 13: Unidentified – possible water vole or rat burrow

Photograph 14: Unidentified – possible water vole or rat burrow

Photograph 15: Outlier badger sett

Photograph 16: Outlier badger sett

Photograph 17: Fox den

Photograph 18: Main badger sett

Photograph 19: Rat burrows

Photograph 20: Active main badger sett

Photograph 21: Badger sett

Photograph 22: Unidentified – possible water vole or rat burrow

Photograph 23: Unidentified – possible water vole or rat burrow

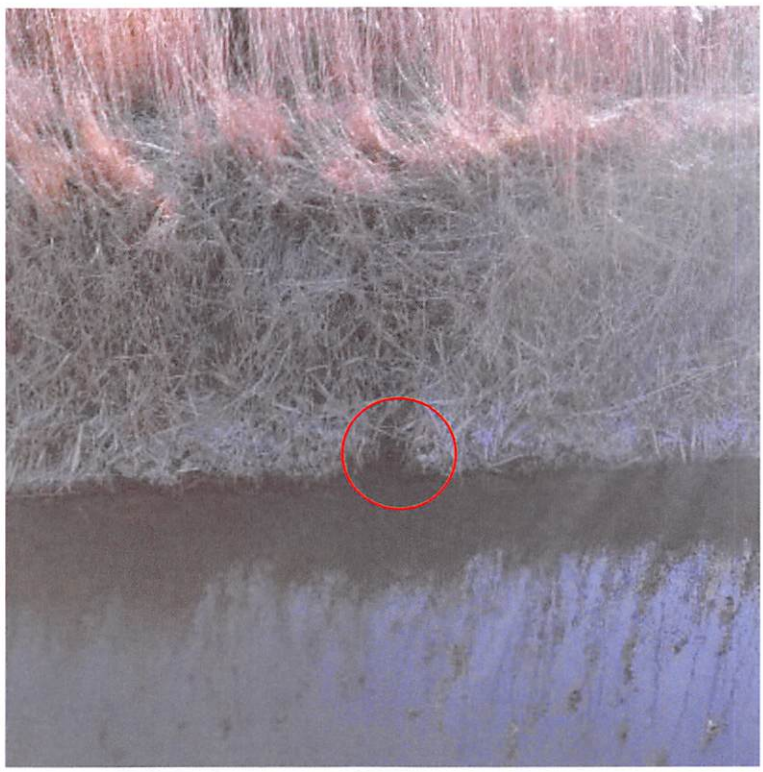
Photograph 24: Badger sett

Photograph 25: Badger sett

Photograph 26: Badger sett

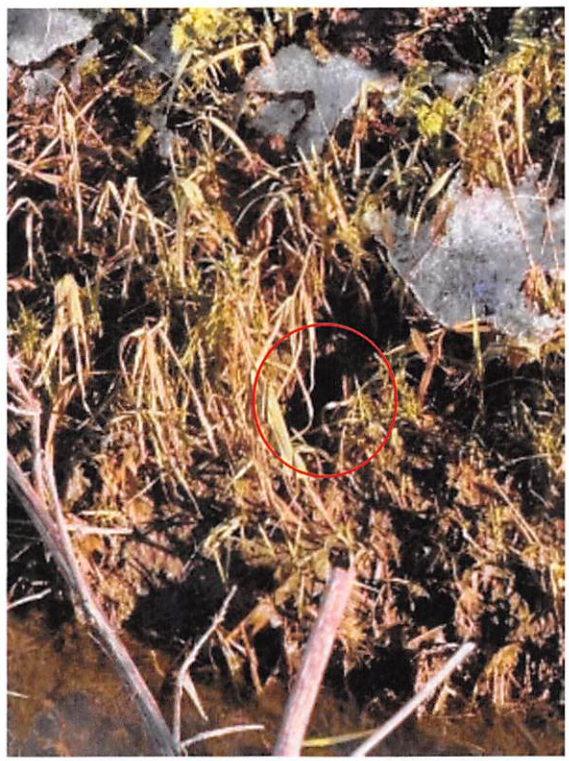
Photograph 27: Badger sett

Photograph 28: Unidentified – possible water vole or rat burrow



Photograph 29: Unidentified – possible water vole or rat burrow

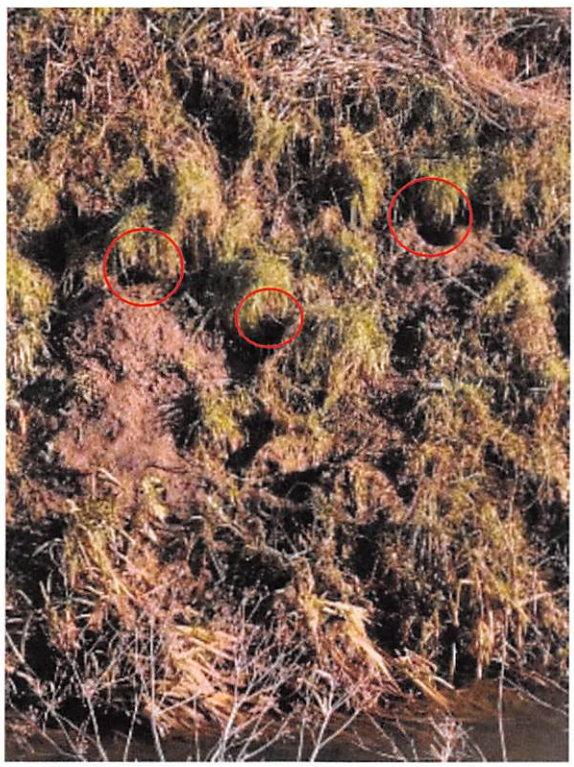
Photograph 30: Unidentified – possible water vole or rat burrow



Photograph 31: Unidentified – possible water vole or rat burrow

Photograph 32: Unidentified – possible water vole or rat burrows

Photograph 33: Water vole burrow



Photograph 34: Water vole burrow

Photograph 35: Badger sett

Photograph 36: Badger latrine

Photograph 37: Water vole burrows

Photograph 38: Water vole burrow

Photograph 39: Water vole burrow

Photograph 40: Water vole burrow and latrines

Photograph 41: Water vole burrows

Photograph 42: Water vole burrows

Photograph 43: Water vole burrow

Photograph 44: Water vole burrow

Photograph 45: Water vole burrow

Photograph 46: Unidentified – possible water vole or rat burrow

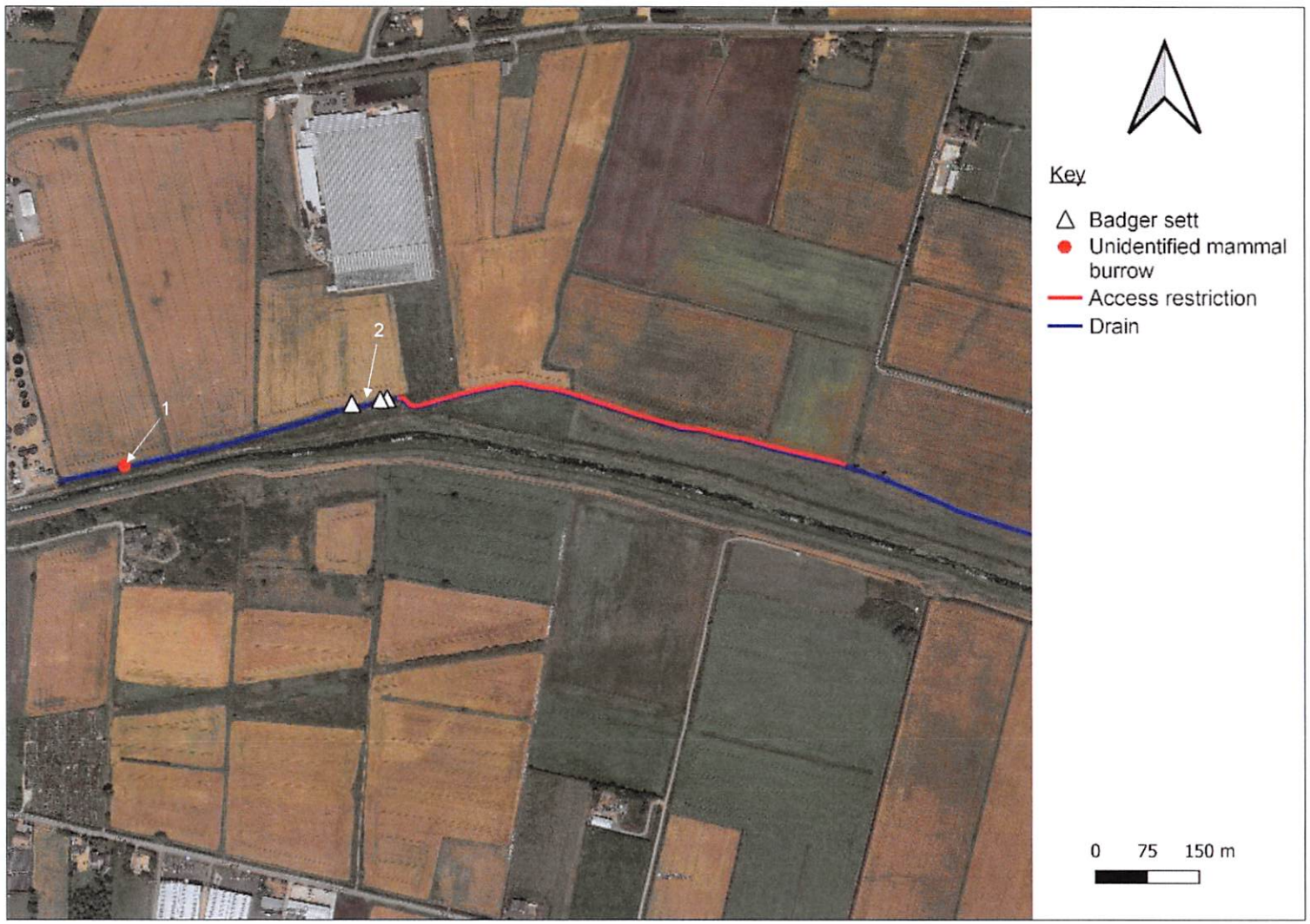
Photograph 47: Unidentified – possible water vole or rat burrow

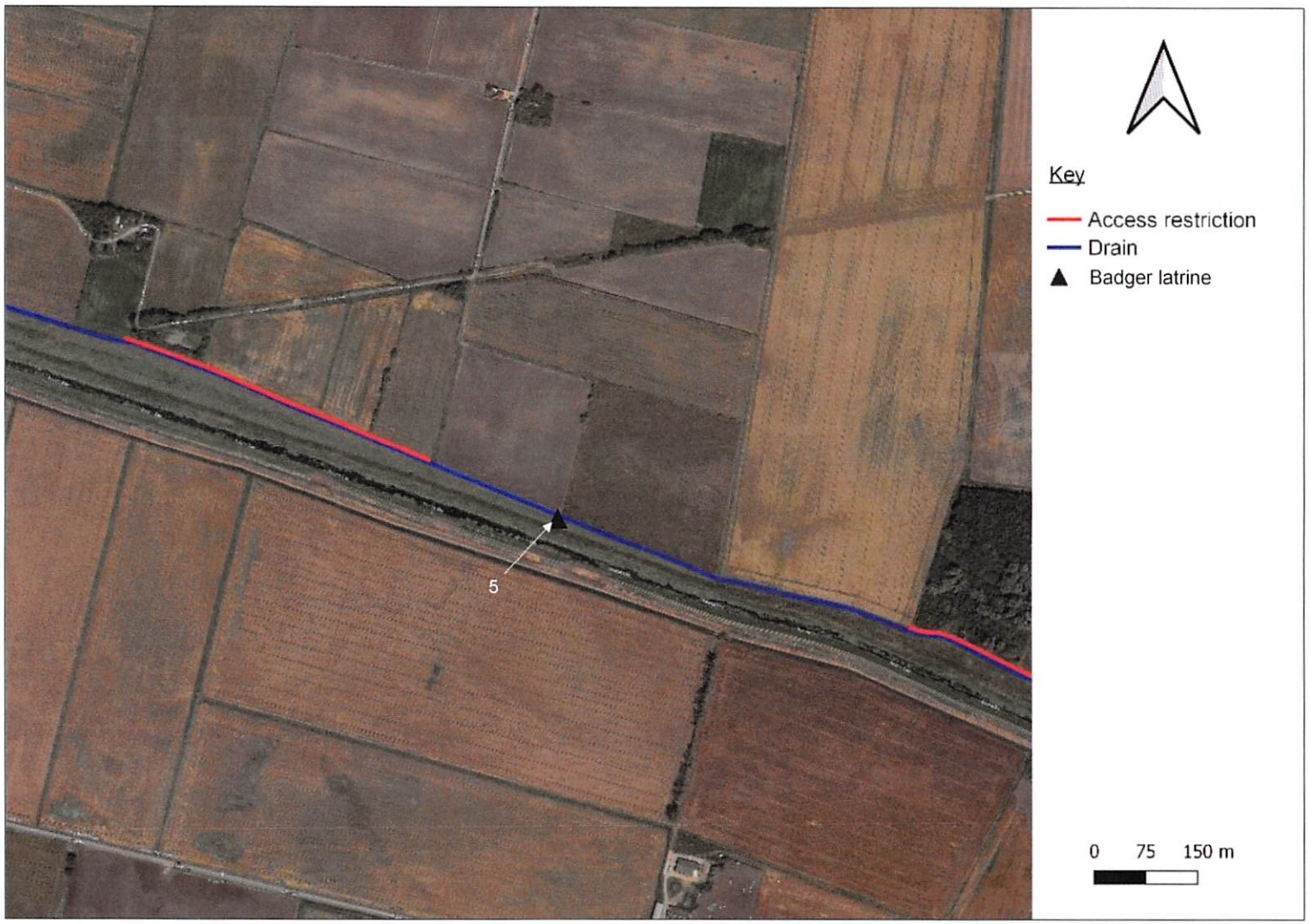
Photograph 48: Fox den

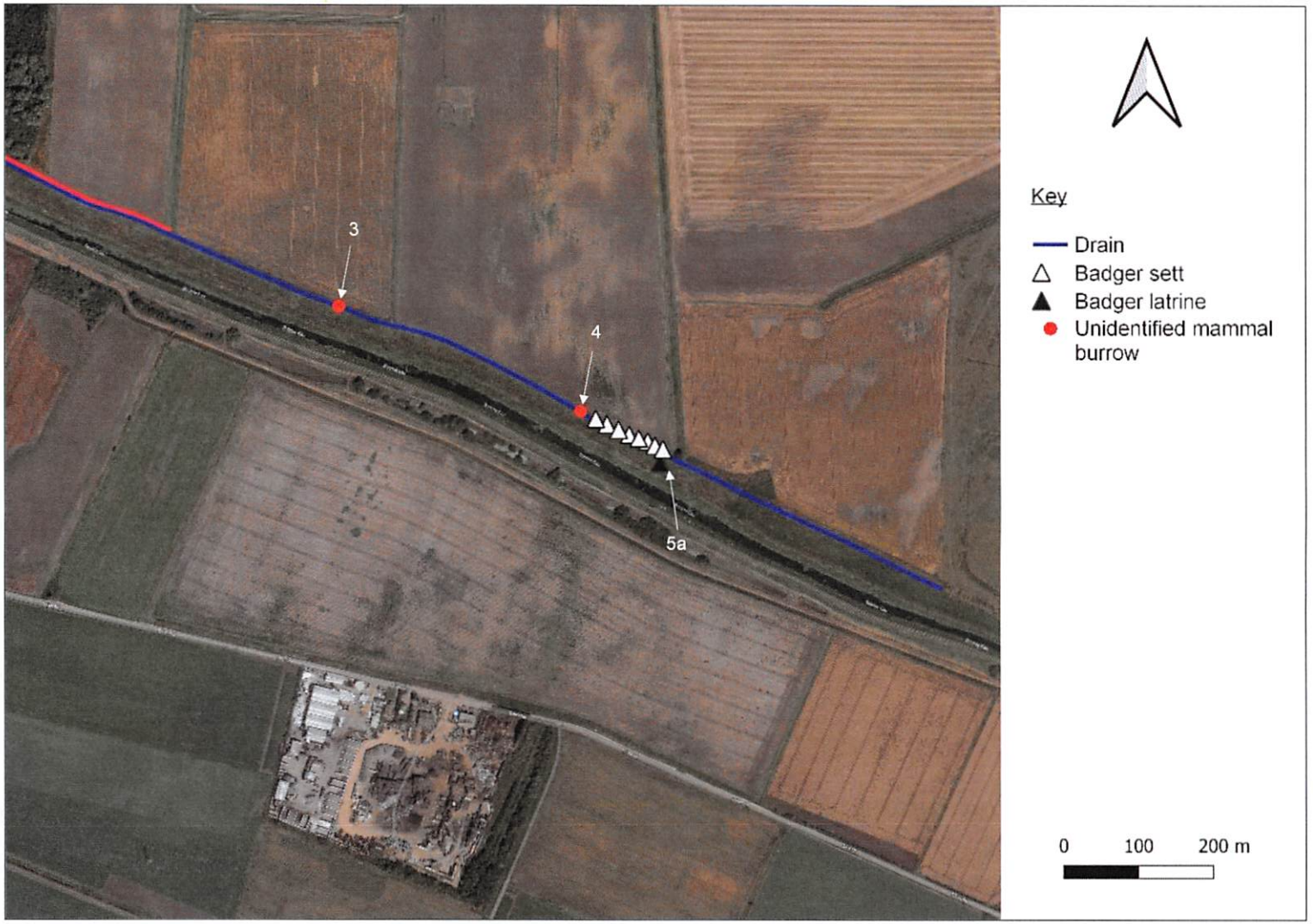
Photograph 49: Fox scatt

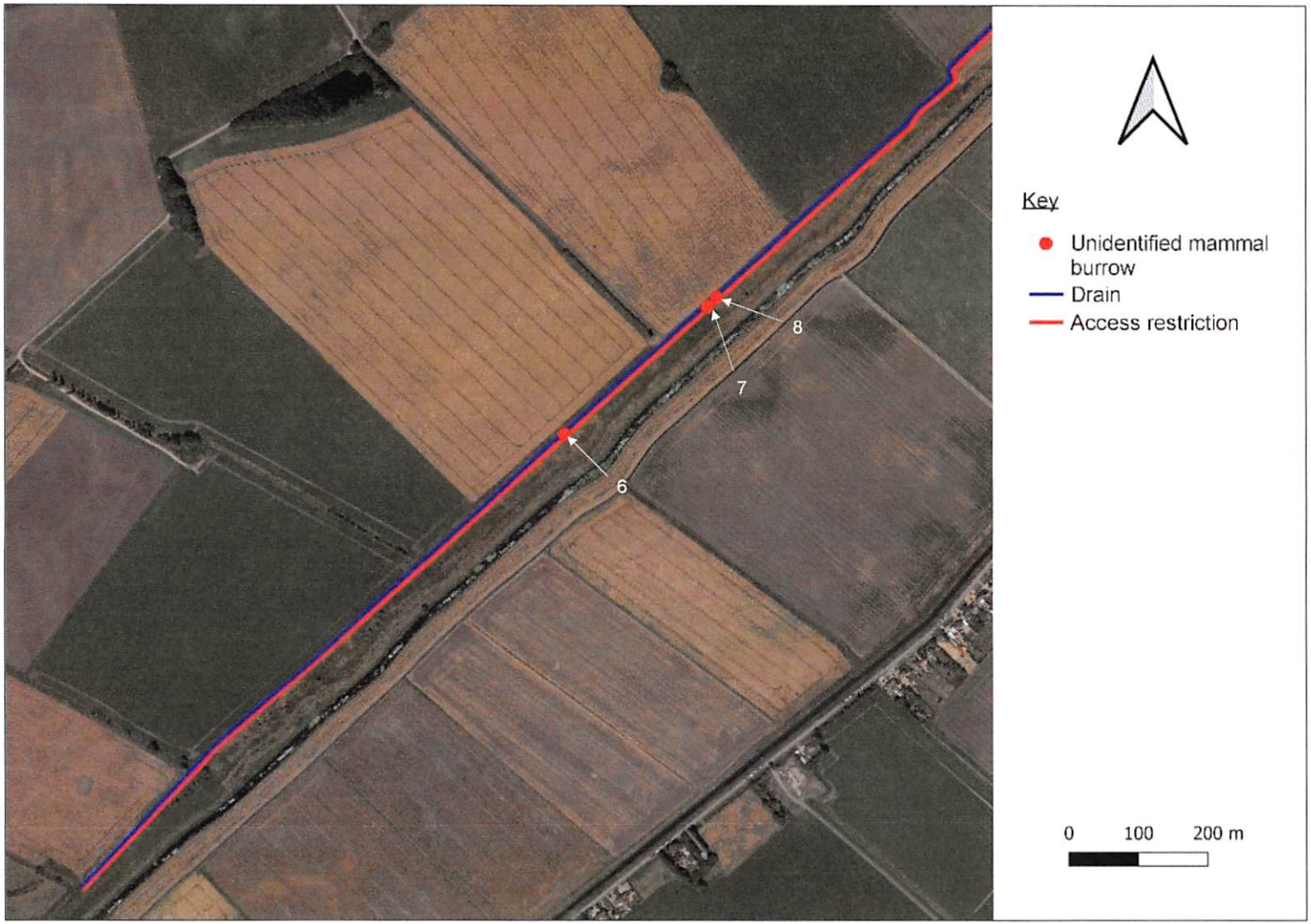
APPENDIX II – SURVEY FINDINGS MAP

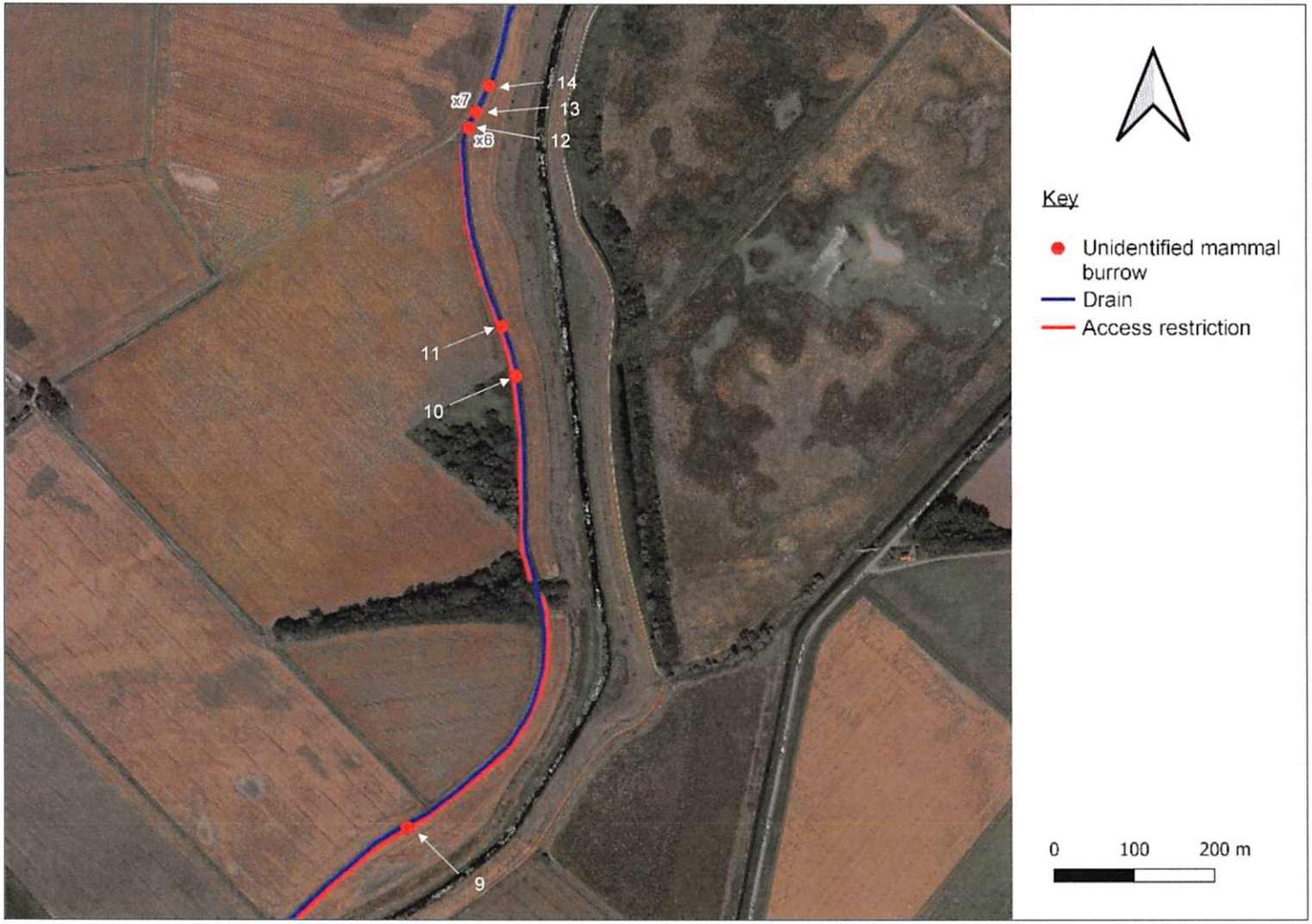
Weir Dike Twenty

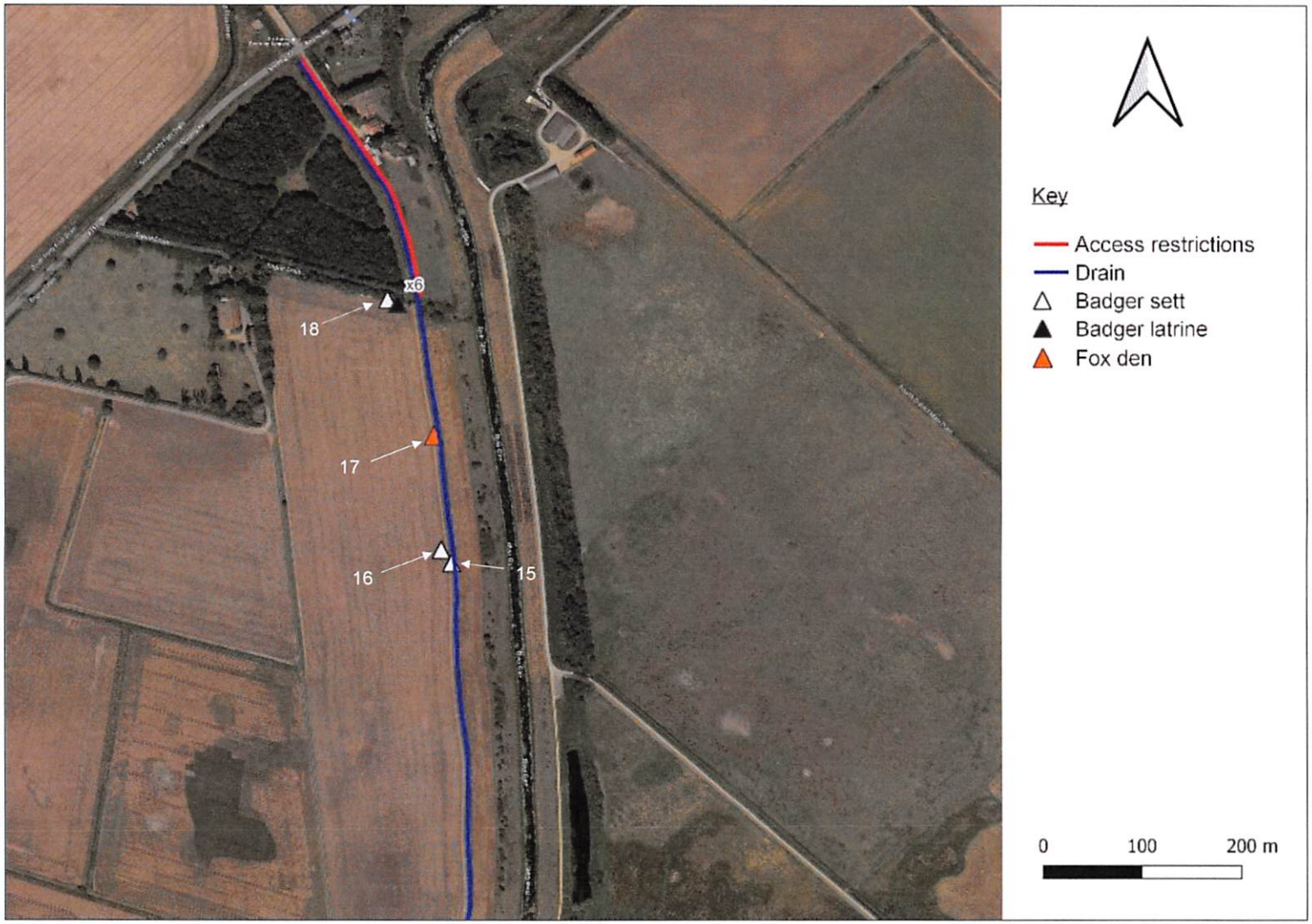



5
Key
Access restriction
Drain
Badger latrine
0 75 150 m

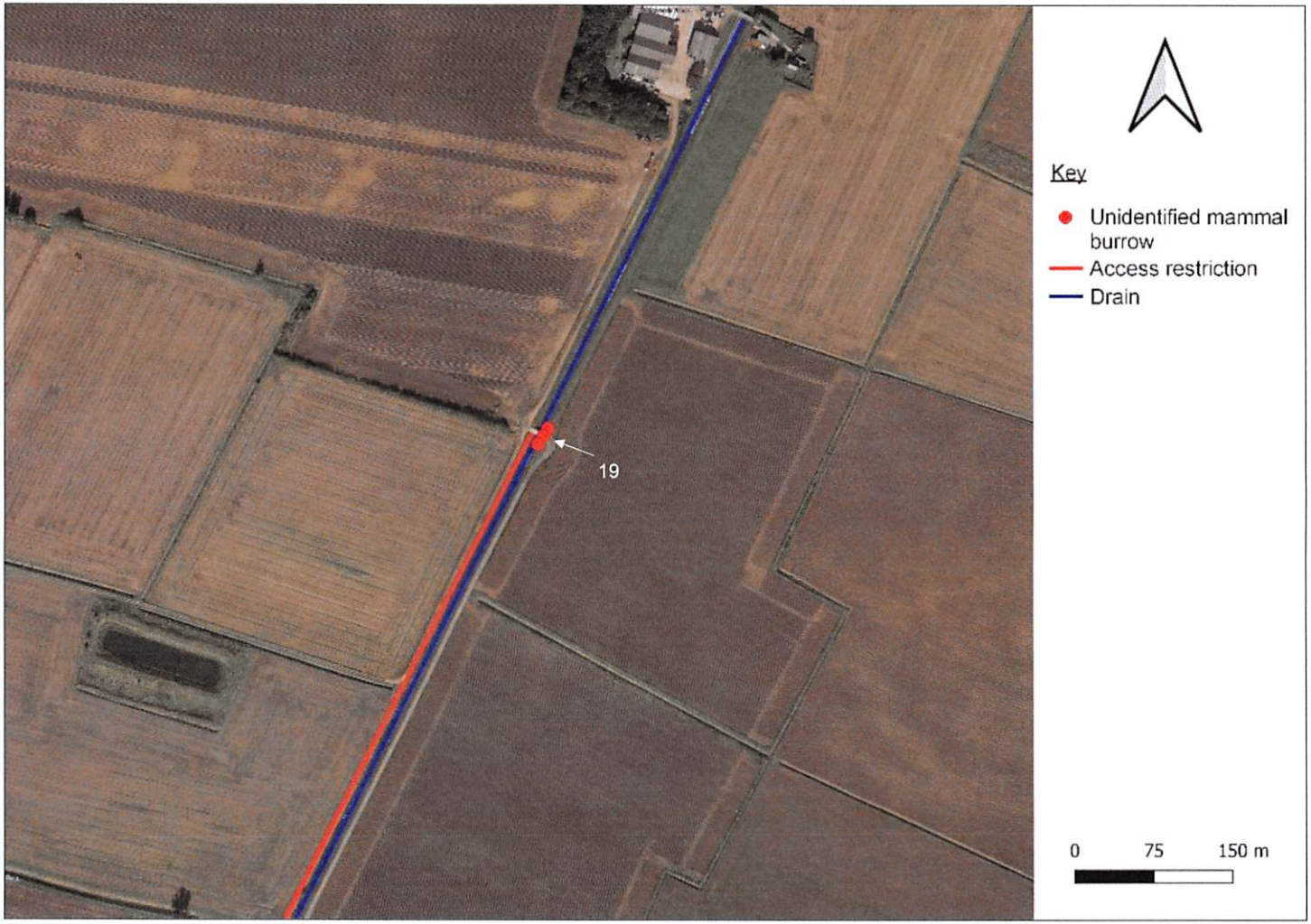

3
4
5a
Key
Drain
Badger sett
Badger latrine
Unidentified mammal burrow
0
100
200 m

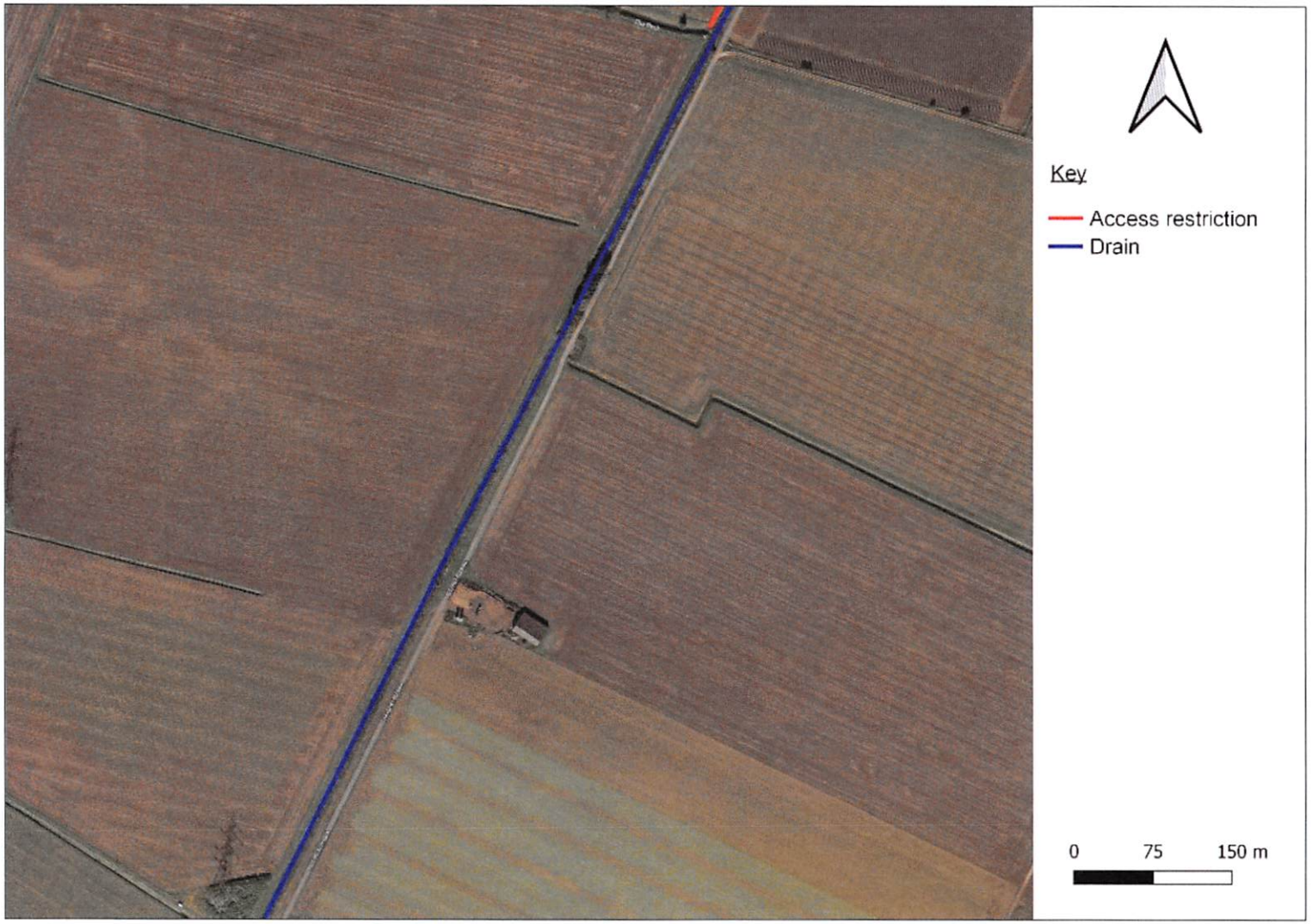

Key
Unidentified mammal burrow
Drain
Access restriction
8
7
6
0
100
200 m

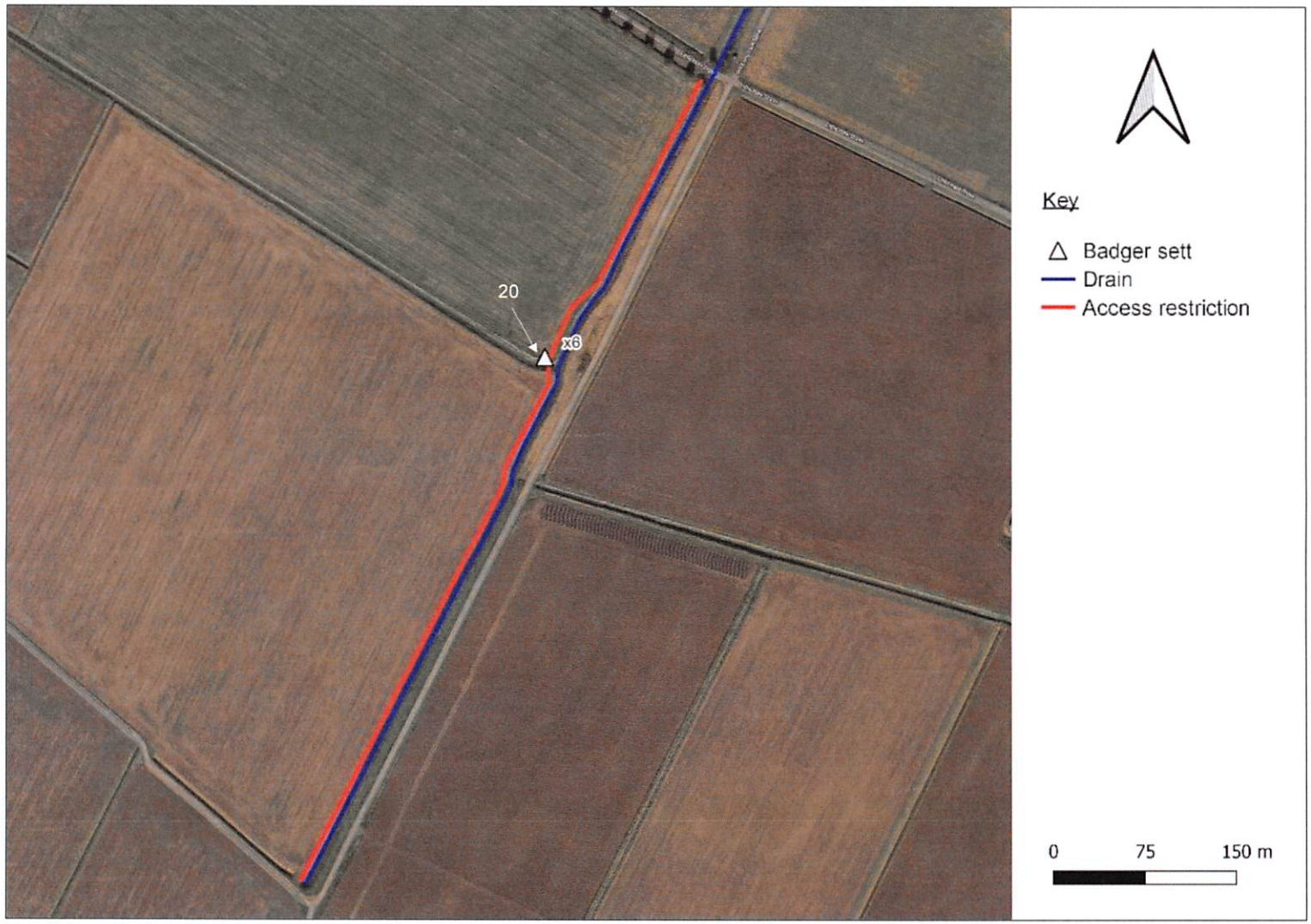

14
13
12
x7
x6
11
10
9
Key
Unidentified mammal burrow
Drain
Access restriction
0
100
200 m


x6
18
17
16
15
Key
Access restrictions
Drain
Badger sett
Badger latrine
Fox den
0
100
200 m

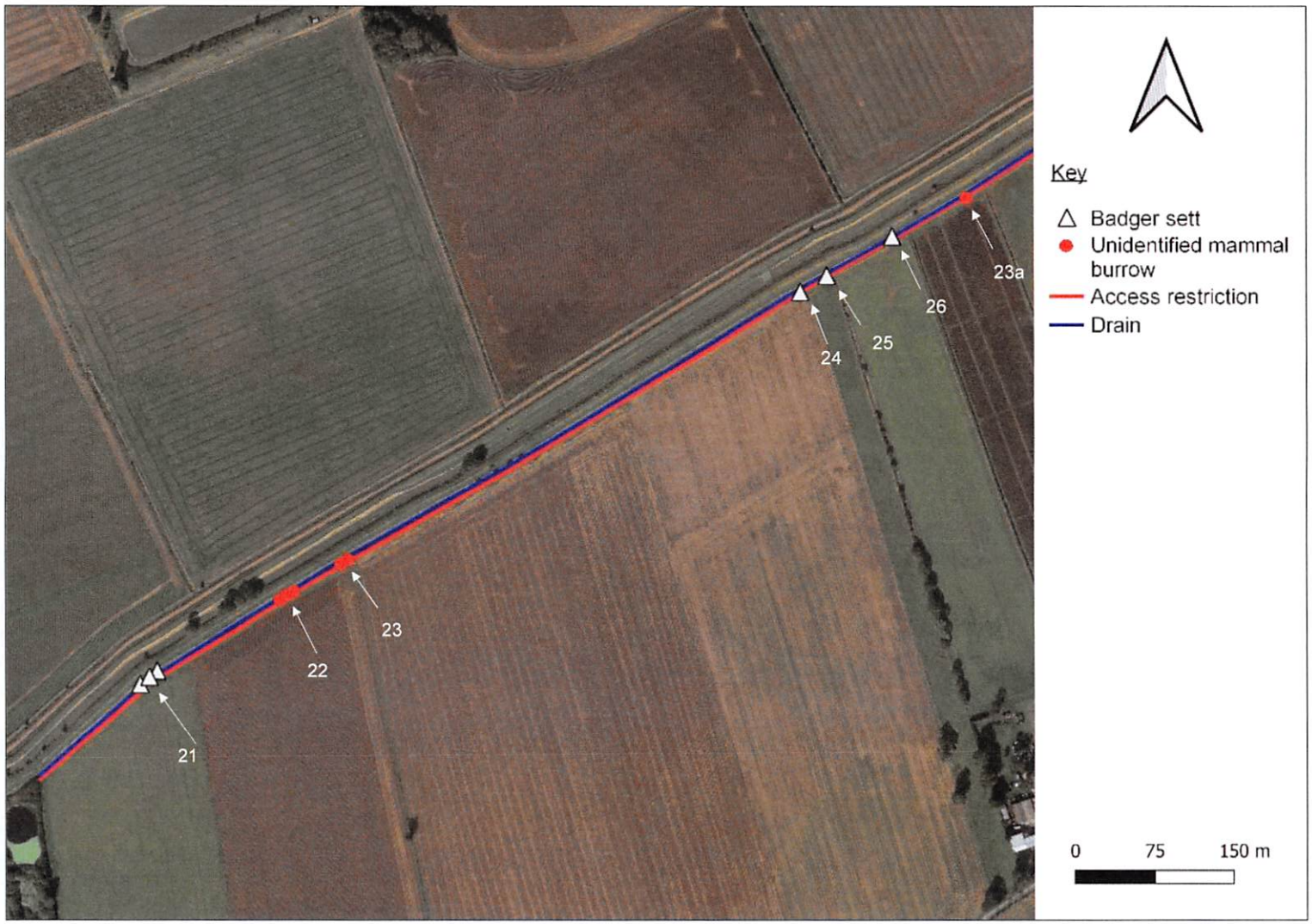
Drain 10/10 - Great Hale/Little Hale

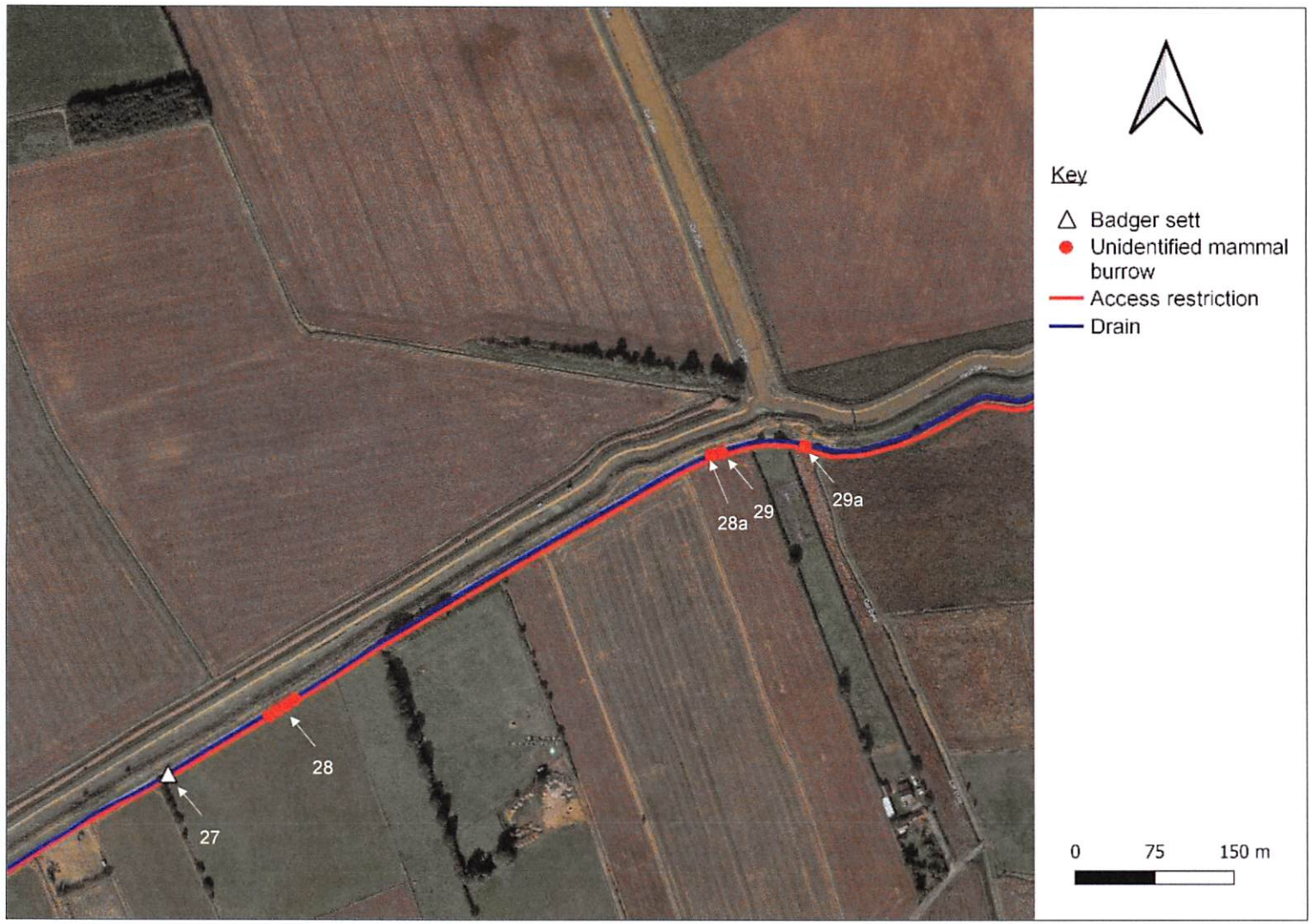


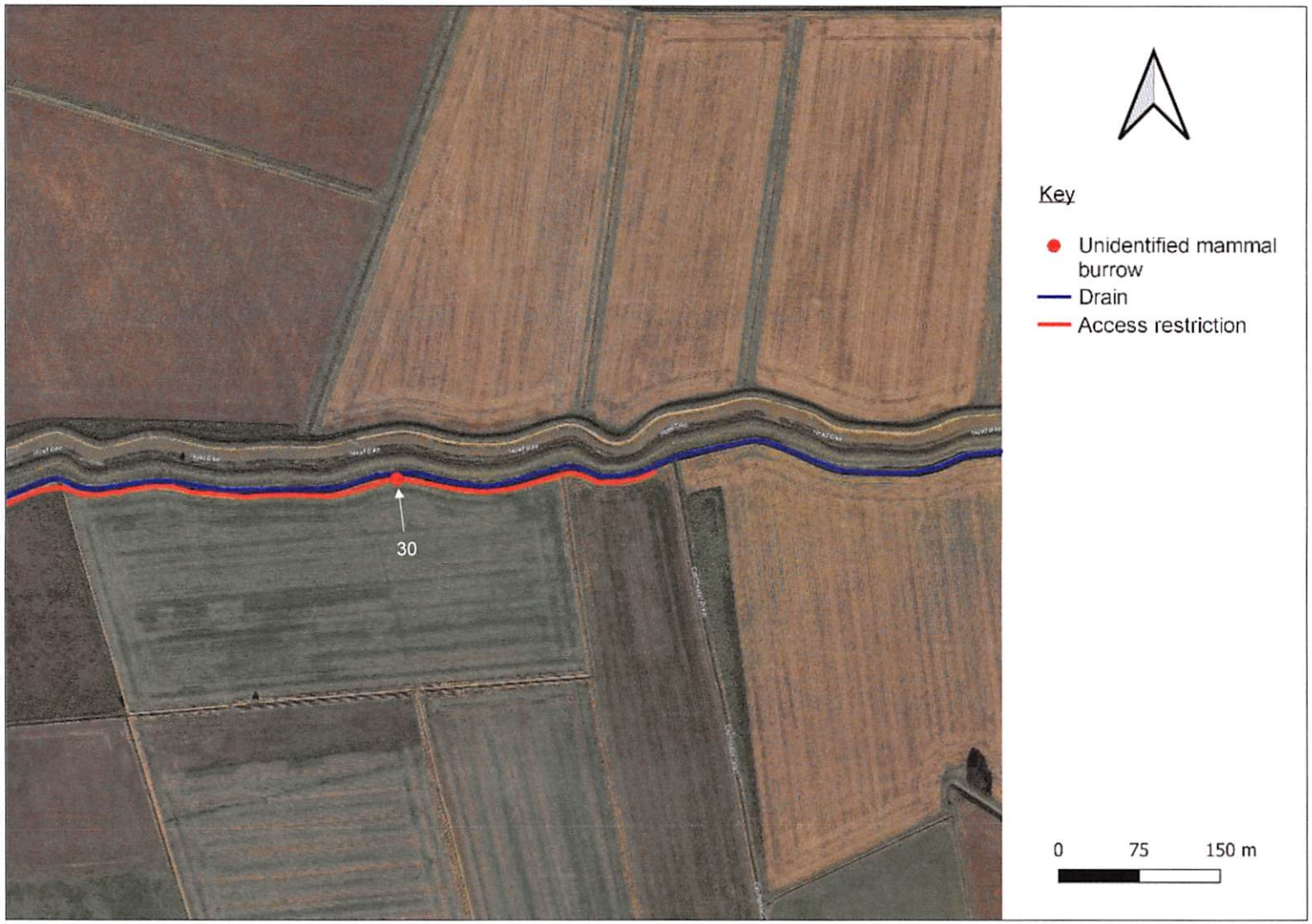

Key
Access restriction
Drain
0
75
150 m


20
x6
Key
Badger sett
Drain
Access restriction
0
75
150 m

Drains 9/1 & 9/14 Heckington Fen

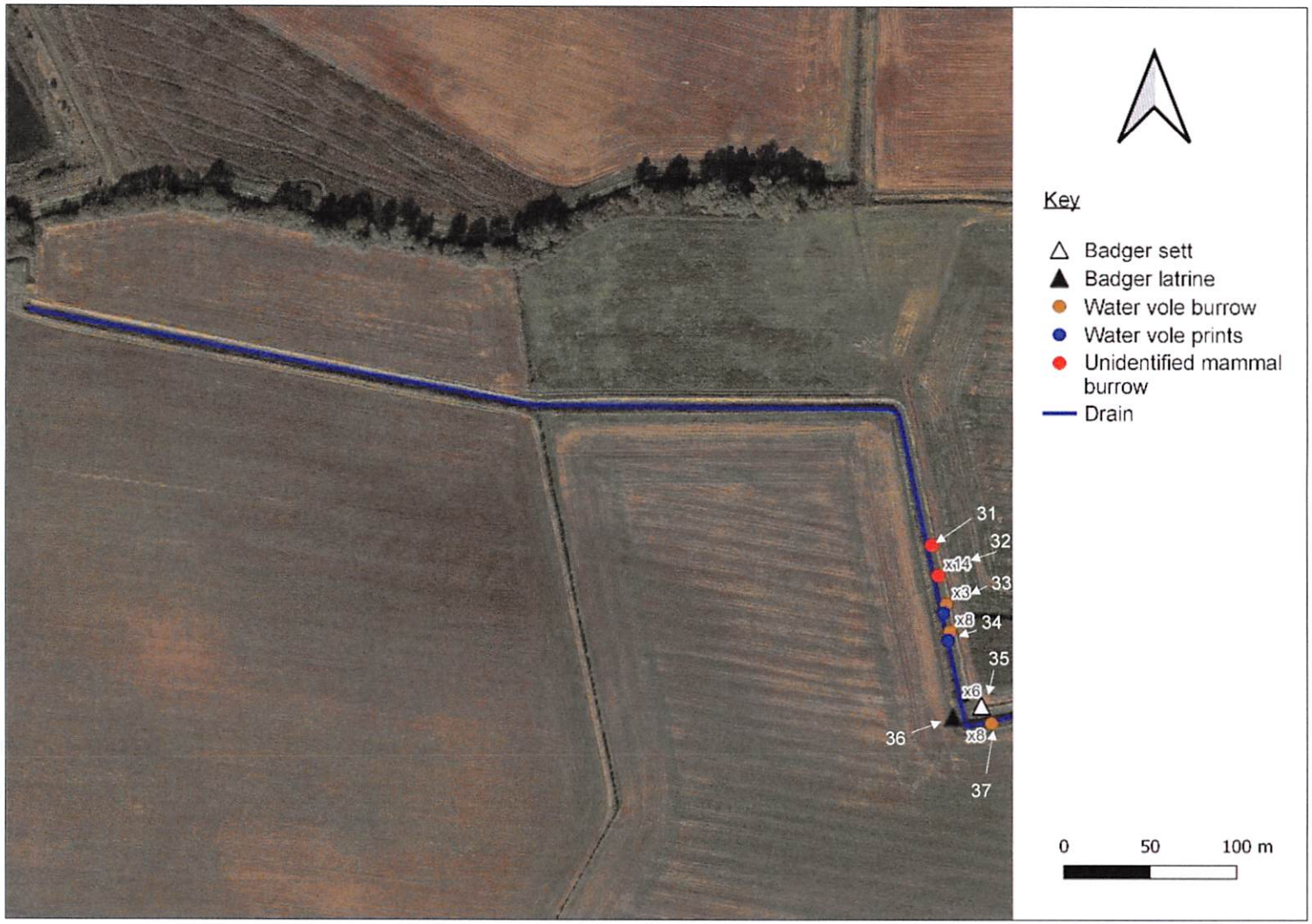


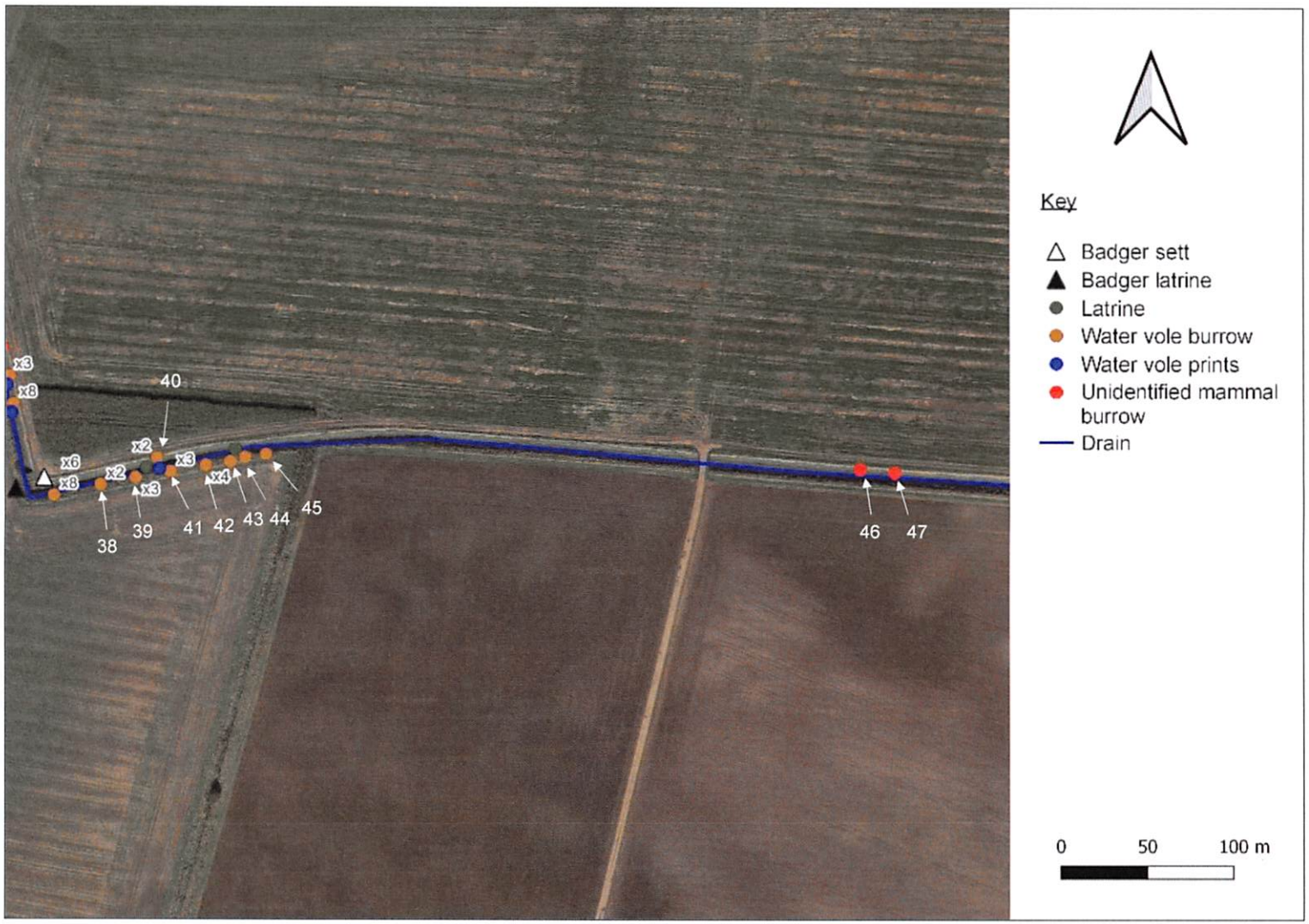

Key
Badger sett
Unidentified mammal burrow
Access restriction
Drain
0
75
150 m
27
28
28a
29
29a

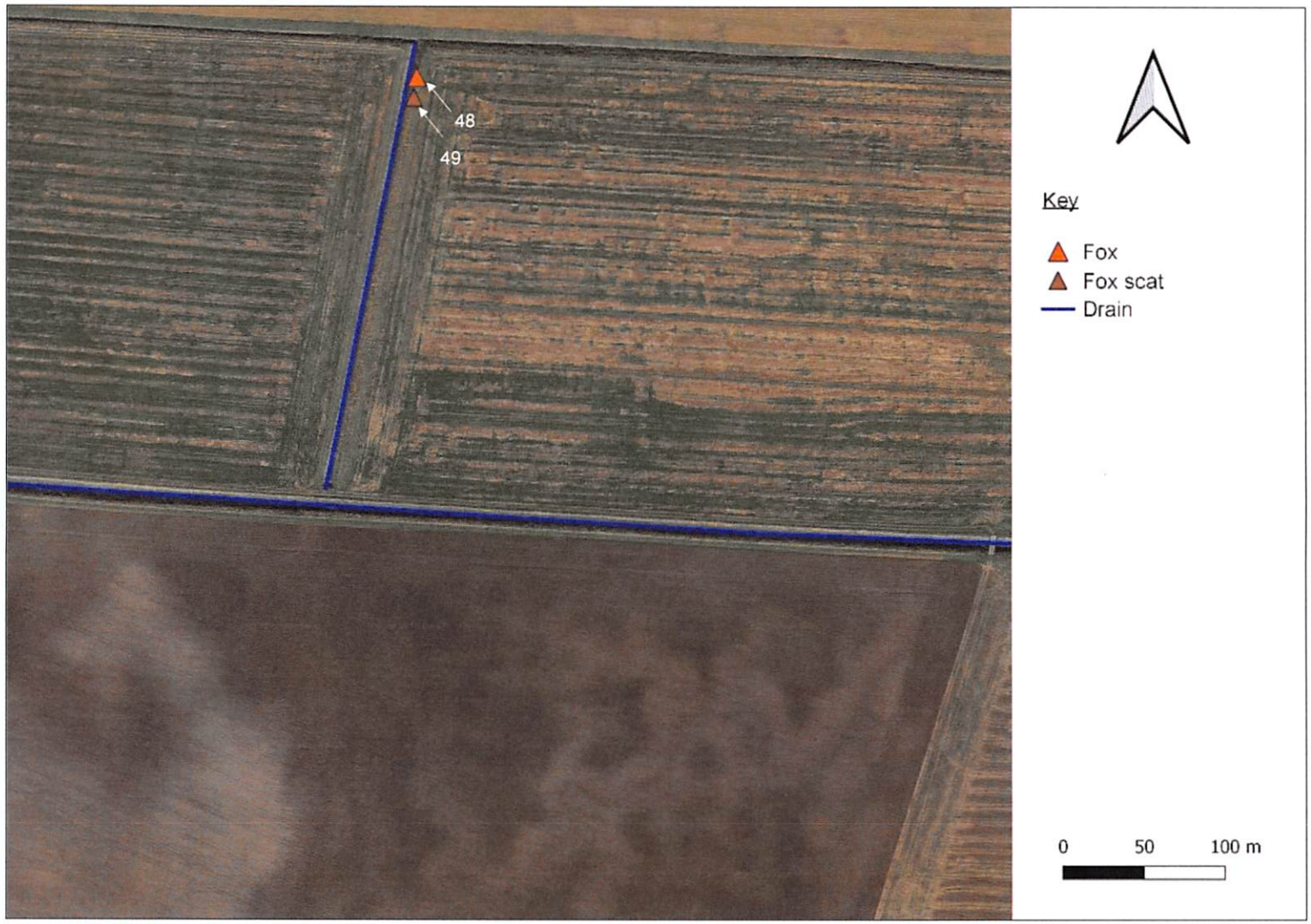

30
Key
Unidentified mammal burrow
Drain
Access restriction
0
75
150 m

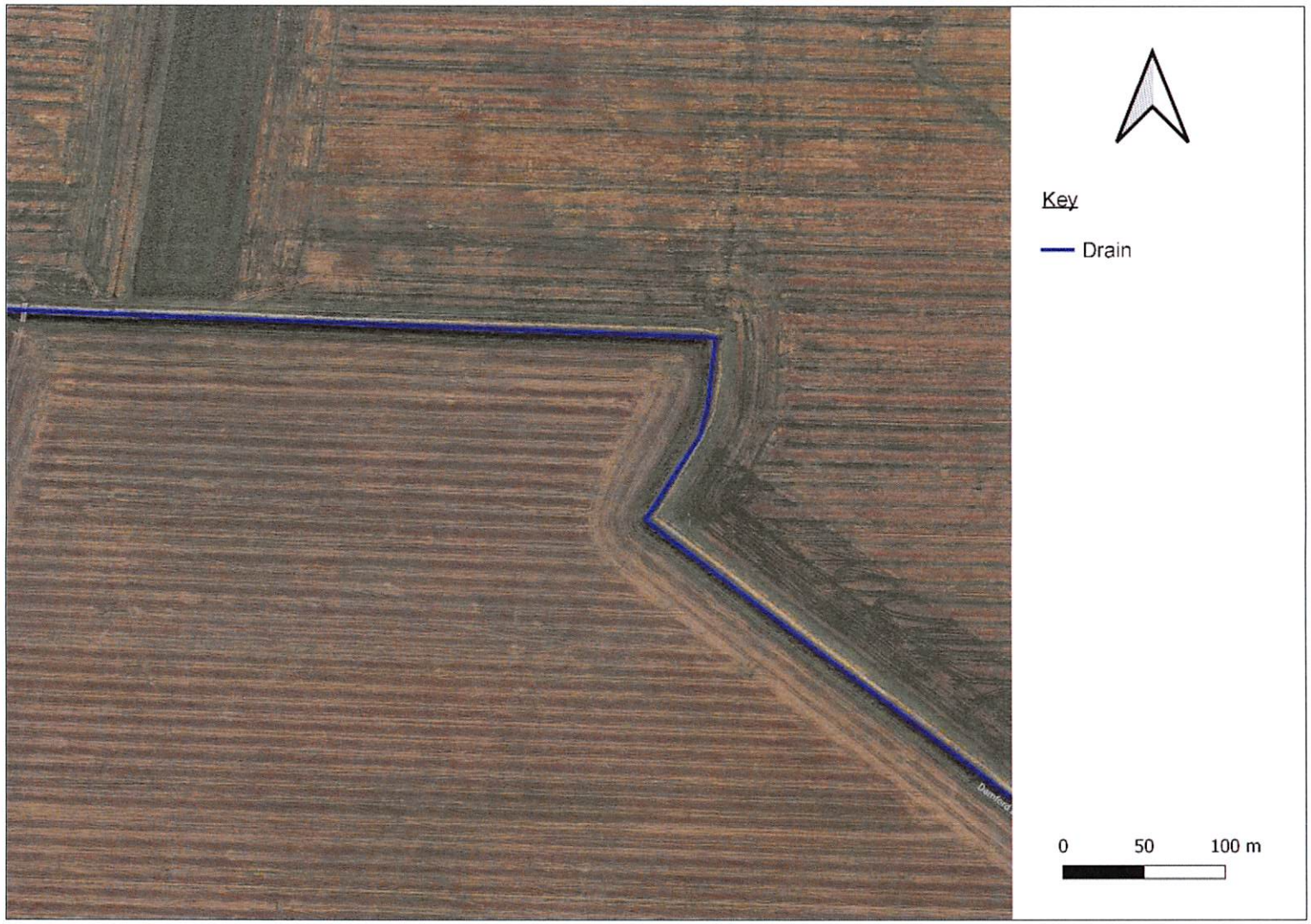

Key
Drain
0
75
150 m

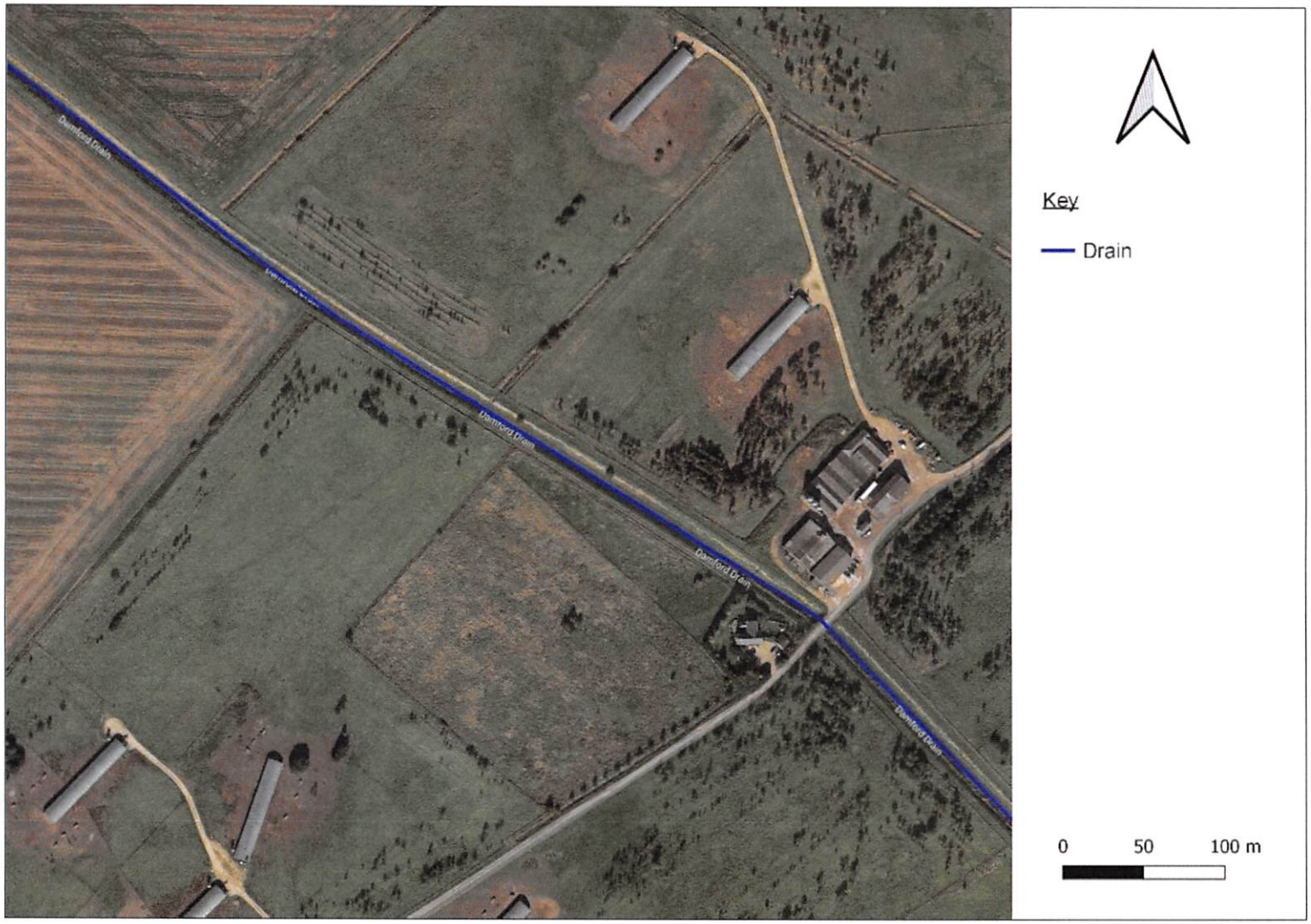
Drains 13/1 & 13/4 Damford Grounds

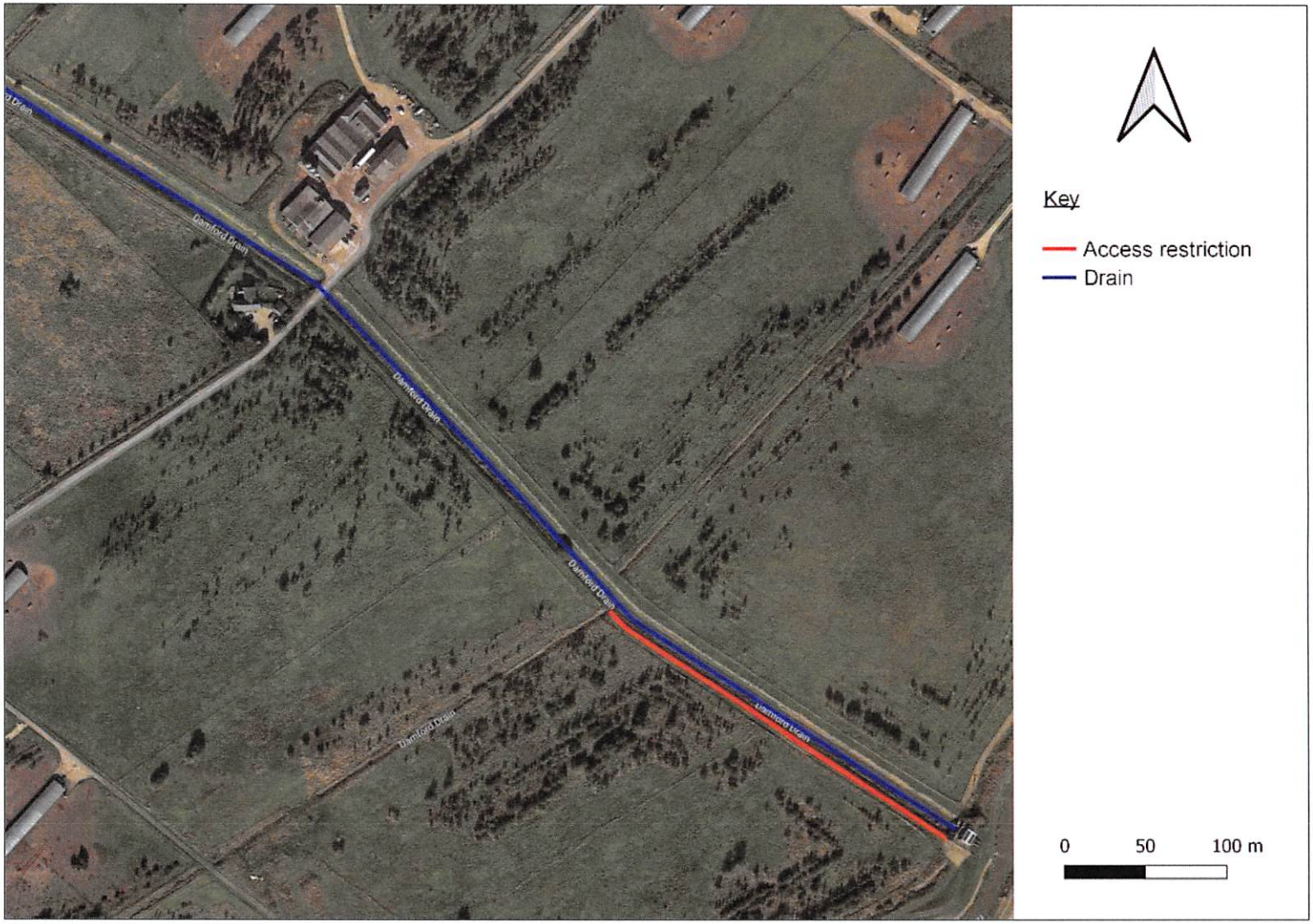



x3
x8
40
x2
x6
x3
x2
x8
x4
x3
38
39
41
42
43
44
45
46
47
Key
Badger sett
Badger latrine
Latrine
Water vole burrow
Water vole prints
Unidentified mammal burrow
Drain
0
50
100 m


48
49
Key
Fox
Fox scat
Drain
0
50
100 m


Key
Drain
0
50
100 m


Key
Drain
0
50
100 m


Key
Access restriction
Drain
0
50
100 m