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Natura Impact Statement

Appendix 13

Invasive Species Management Plan

TEN-T Priority Route Improvement Project, Donegal

TT_MGT0337-RPS-P3-ZZ-RP-E-EN-2112

Invasive Species Management Plan

March 2026

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1 INTRODUCTION

1.1 Background

RPS Consulting Engineers have been commissioned by Donegal County Council (DCC) to prepare an Invasive Species Management Plan for the Trans-European Network – Transportation (TEN-T) Priority Route Improvement Project, Donegal (hereafter referred to as "the Proposed Development").

This report presents the findings of the baseline Invasive Alien Plant Species (IAPS) surveys. The presence of IAPS in proximity to the Proposed Development has the potential to significantly affect works and careful measures must be taken to ensure they are managed appropriately and in compliance with TII (2020a; 2020b) guidelines and legislation – European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), as amended, and European Union (EU) (Invasive Alien Species) Regulations 2024 (SI 374 of 2024).

RPS is not an "advisor" (a Registered Pesticide Advisor on the register established by the Minister for Agriculture, Food and the Marine pursuant to Regulation 4 of the European Communities (Sustainable Use of Pesticides) Regulations, 2012) or a "registered professional user" (a professional user of pesticides listed on the register established by the Minister for Agriculture, Food and the Marine pursuant to Regulation 4 of the European Communities (Sustainable Use of Pesticides) Regulations, 2012). Therefore, no specific chemical treatment of invasives can be recommended. This invasive species management plan will provide an overview of IAPS management Plan at a higher level, with more specific and detailed plans being prepared prior to treatment/ eradication.

1.2 Project Description

The N13, N14 and N15 form part of the TEN-T Priority Route Improvement Project, Donegal, which is a selection of strategic transport corridors throughout the European Union (EU) that have been identified to play a key role in the mobility of goods and passengers through the EU. EU Regulation Number 1315/2013 sets the requirements for the TEN-T network. Letterkenny is connected to Derry via the N13, to Lifford (the County Town) via the N13-N14 and to Ballybofey/Stranorlar via the N13-N15.

The TEN-T routes in Donegal are broadly described below:

- **N13:** a strategic route that connects Letterkenny with Derry to the north and Ballybofey/Stranorlar to the south. The N13 connects with three other national routes including: the N14 to Lifford, the N56 (national secondary route) to Letterkenny and north Donegal and to the N15 in Ballybofey/Stranorlar.

- **N14:** a strategic route that connects Letterkenny to Lifford and links to Strabane in County Tyrone, Northern Ireland. The A5 aligns to the outskirts of Strabane and is the key route linking the northwest of Ireland to the N2 in Monaghan and on to Dublin.

- **N15:** a strategic route that connects to Sligo and Donegal towns and continues north easterly through Ballybofey and Stranorlar to Lifford where it connects to the N14 and links to Strabane in County Tyrone, Northern Ireland. The section between Stranorlar and Lifford does not form part of the TEN-T network. The N15 also links south Donegal to Derry and Belfast.

These TEN-T strategic routes in Donegal connect to the rest of the TEN-T network in Northern Ireland and Ireland. They are particularly important for both tourism and industry, as they comprise part of the Wild Atlantic Way, and provide the only transport connectivity (due to the lack of rail infrastructure) to Letterkenny and the wider region for trade, including Killybegs fishing harbour.

Six sections of the TEN-T network in Donegal were identified and ranked in order of intervention priority due to deficiencies in the existing infrastructure provision. Three sections were identified as the highest priority sections requiring intervention in the TEN-T Corridor Needs Study, Donegal (November 2015).

The TEN-T Priority Route Improvement Project, Donegal consists of the following sections of road network in Donegal:

- Section 1 – N15/N13 Ballybofey/Stranorlar Urban Region
- Section 2 – N56/N13 Letterkenny to Manorcunningham
- Section 3 – N14 Manorcunningham to Lifford/Strabane/A5 Link

The three sections of the TEN-T Priority Route Improvement Project, Donegal are considered as one project. Drawings of the Proposed Development and each section are provided in Volume D: Book of Drawings.

1.2.1 Section 1: N15 Ballybofey/Stranorlar Urban Region

The study area of Section 1 commences in the townland of Drumkeen in the north and extends to Meenacrumlin in the southwest, Carrickshandrum in the east, and Crampan to the west. The study area is bound to the north by uplands comprising Liskeran Hills and to the south by the foothills of the Bluestack Mountains, including Croagharierin and Lough Hills. The River Finn flows through the middle of the study area between Stranorlar and Ballybofey.

1.2.2 Section 2: N56/N13 Letterkenny to Manorcunningham

The western extremity of the study area for Section 2 commences in the centre of Letterkenny and extends east to the N13/N14 Manorcunningham junction, to the townlands Trimragh in the north and Scribly and Corkey in the south. The N56 from Pole Star Roundabout crosses the River Swilly Estuary and continues eastward to the Dry Arch Roundabout. The N13 extends from the Dry Arch roundabout approximately 2 km south towards Lurgy, before turning in an easterly direction crossing the Corkey River prior to a roundabout which forms a junction with the N14.

The study area incorporates significant residential clusters and housing estates located within Letterkenny to the north and south of the existing N13/N14 road network. The River Swilly meanders through the study area, flowing from the west to enter Lough Swilly Estuary in the northeast. The Corkey River flows through the eastern boundary of the study area and also flows into Lough Swilly.

1.2.3 Section 3: N14 Manorcunningham to Lifford/Strabane/A5 Link

Section 3 comprises the largest study area, commencing at the townland of Pluck in the northern extremity, extending to Lifford in the south, the village of Raphoe in the west and the townland of Drumleen in the east.

The study area is bordered to the west by the Mongorry Hill and the east by the Mullasawny Hills. The Corkey River flows through the northern boundary which flows into Lough Swilly. The Deele River flows through the southern extremities and is a tributary of the River Foyle. The study area extends to the border between Donegal in the Republic of Ireland and Tyrone in Northern Ireland. The border is defined by the River Finn, which flows in a northerly direction where it joins the River Mourne in Strabane, Co. Tyrone to form the River Foyle.

1.3 Scope of Invasive Species Management Plan

The scope of this Invasive Species Management Plan is adapted from the TII Guidelines, *The Management of Invasive Alien Plant Species on National Roads* (TII, 2020a). The management and subsequent control of IAPS should be undertaken in four phases, detailed in TII (2020a) and summarised in Table 1.1.

Table 1.1: Invasive Alien Plant Species Management Phases

Phases	Requirements	Scope
Phase 1	• Site Assessment Mapping	• Description of Site • Habitat Mapping • Presence of IAPS • Sensitive ecological receptors (e.g. watercourses, species-rich grassland) • Proximity to designated sites • Topographical survey
Phase 2	• IAPS Management Plan	• Site Management objectives • Treatment required • Risk of re-infestation
Phase 3	• Implement control methods • Treatment reporting	• IAPS control (chemical, physical or a combination of both) • Biosecurity measures • Documentation of method treatment
Phase 4	• Re-growth monitoring • Re-growth reporting	• Survey re-growth • Report on re-growth • Make provisions for site protection to prevent future IAPS infestation

The scope of the works carried out was as follows:

- To undertake an IAPS survey of the three survey sections detailed in Section 1.2, focusing on locations where the proposed works will take place.
- Confirm the presence/absence of IAPS.
- Prepare a report charting the findings of the survey and provide recommendations (where required) on how to deal with any species found.

2 METHODOLOGY

2.1 Invasive Alien Pant Species in Ireland and Legislative Framework

Numerous invasive alien species which can cause damage to native ecosystem functions and their services are found in Ireland, including terrestrial plants, aquatic plants, invertebrates, mammals, and bird species.

The control of invasive alien species in Ireland is regulated through the European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), (as amended), and also through the European Union (EU) (Invasive Alien Species) Regulations 2024 (SI 374 of 2024). Both of these pieces of legislation state that it is an offence to introduce or spread certain invasive alien species or their propagules. These species are listed under the Third Schedule of SI 477 of 2011, as amended, and under the First Schedule of SI 374 of 2024. The species listed on both of these schedules are the same and will be referred to as "Scheduled species" throughout this report. Regulation 49 of SI 477 of 2011, as amended, states:

> *(2) Save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to such plant in the third column of Part 1 of the Third Schedule, any plant which is included in Part 1 of the Third Schedule, shall be guilty of an offence*.

Regarding this report, while the presence of all invasive species was investigated, it is terrestrial and riparian zone plant species that are of primary concern. The non-native terrestrial and riparian Scheduled species are identified below:

- American skunk cabbage (Lysichiton americanus);
- Brazilian giant-rhubarb (Gunnera manicata);
- Broad-leaved rush (Juncus planifolius);
- Cord-grasses (Spartina sp.);
- Giant hogweed (Heracleum mantegazzianum);
- Giant knotweed (Reynoutria sachalinensis);
- Giant rhubarb (Gunnera tinctoria);
- Himalayan balsam (Impatiens glandulifera);
- Himalayan knotweed (Koenigia polystachya);
- Hottentot fig (Carpobrotus edulis);
- Japanese knotweed (Reynoutria japonica);
- Mile-a-minute weed (Persicaria perfoliata);
- Rhododendron (Rhododendron ponticum incl. R. x superponticum);
- Salmonberry (Rubus spectabilis);
- Sea-buckthorn (Hippophae rhamnoides);
- Spanish bluebell (Hyacinthoides hispanica); and
- Three-cornered leek (Allium triquetrum).

Any Scheduled plant species listed also refers to the hybrid, strain, variety, cultivar or other intraspecific taxon of such plant.

Aside from the terrestrial and riparian plants, there is potential for the spread of aquatic invasive alien animal species. The Swilly Burn in the lower reaches in the vicinity of Section 3 of the Proposed Development has a significant infestation of the Scheduled species; Asian clam (*Corbicula fluminea*). The proposed Swilly Burn bridge is clear span with no instream works or entry to water required at this or any other major river crossings but there are instream works required on smaller tributaries of the main channels. Measures to mitigate the potential spread of Asian clam are discussed in Section 6.3.

2.2 Desktop Review

A desktop review was conducted of available data sources, including National Biodiversity Data Centre (NBDC) (www.biodiversity.ie) datasets.

2.3 Survey and Management Guidelines

During the surveys, information on IAPS was recorded including the species, location and extent, associated flora and other factors that may affect management or control measurements, such as sensitive ecological receptors, physical features, etc.

The methodology is based on a suite of guidance and established best practice as contained within the following guidance documents:

- Barron, C. (undated). The control of rhododendron in native woodlands. Native Woodland Scheme information note No. 3. Forest Service and Woodlands of Ireland (https://www.woodlandsofireland.com/wp-content/uploads/No.-3-The-Control-of-Rhododendron-in-Native-Woodlands.pdf);
- CABI. (2019) Himalayan knotweed (*Persicaria wallichii*) datasheet (https://www.cabi.org/isc/datasheet/120210);
- Daly, E., McCarthy, N., O'Halloran, J., Irwin, S., Ó Rathaille, M. (2014). Effect of forest litter depth on seed germination efficacy of *Rhododendron ponticum.* Irish Forestry pp. 50-62;
- Department of Agriculture, Food and the Marine (2020), Alien Invasive Plant Species, Giant Rhubarb: Invasive Plant Information Note (https://www.gov.ie/en/collection/ceb39-alien-invasive-plant-species/);
- DEFRA, Environment Agency and Natural England (2014) (https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants);
- Department of Environment (2013). An Invasive Alien Species Strategy for Northern Ireland. (https://www.daera-ni.gov.uk/publications/invasive-alien-species-strategy-northern-ireland);
- Giant rhubarb – Invasive Species Information (https://www.japaneseknotweedkillers.com/giant-rhubarb);
- Higgins, G.T. (2008). *Rhododendron ponticum:* A guide to management on nature conservation sites. *Irish Wildlife Manuals,* No. 33. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland;
- Himalayan knotweed – Invasive Species Information (https://www.japaneseknotweedkillers.com/himalayan-knotweed);
- Inland Fisheries Ireland guidance regarding invasive species control (https://www.fisheriesireland.ie/what-we-do/research/research-theme-invasive-species);
- INVAS Biosecurity, *Gunnera tinctoria* (https://invasivespecies.ie/gunnera-tinctoria/);
- INVAS Biosecurity, Himalayan balsam (https://invasivespecies.ie/himalayan-balsam/);

- Invasive Species Northern Ireland guidance (https://invasivespeciesni.co.uk/);
- Invasive Weed Solutions, Giant Rhubarb Removal & Control (https://invasiveweedsolutions.co.uk/invasive-weeds/non-native/giant-rhubarbs/);
- Irish Water (2016). Information and Guidance Document on Japanese knotweed Asset Strategy and Sustainability;
- Jones, D. *et al*. (2018). Optimising physiochemical control of invasive Japanese knotweed. Biological Invasions, 20(8), pp. 2091-2105;
- Kelly, J., Maguire, C.M. and Cosgrove, P.J. (2008). Best Practice Management Guidelines Himalayan balsam *Impatiens glandulifera*. Prepared for NIEA and NPWS as part of Invasive Species Ireland. (https://invasivespeciesireland.com/wp-content/uploads/2012/01/Himalayan-Balsam-BPM.pdf);
- NPWS (2017). National Biodiversity Action Plan 2017 -2021, Ireland's 3rd National Biodiversity Plan. Department of Culture, Heritage and the Gaeltacht;
- NPWS (2024). Ireland's 4th National Biodiversity Plan – 2023–2030. Department of Housing, Local Government and Heritage;
- RAPID (2018) Good Practice Management Guide for Himalayan Balsam (*Impatiens glandulifera*). RAPID: Reducing and Preventing Invasive Alien Species Dispersal;
- Stokes, K., O'Neill, K. & McDonald, R.A. (2004) *Invasive species in Ireland*. Unpublished report to Environment & Heritage Service and National Parks & Wildlife Service. Quercus, Queens University Belfast, Belfast;
- The Management of Invasive Alien Plant Species on National Roads – Standard, GE-ENV-01104, TII (December 2020); and
- The Management of Invasive Alien Plant Species on National Roads – Technical Guidance, GE-ENV-01105, TII (December 2020).

Aside from the terrestrial and riparian plants, there is potential for the spread of aquatic invasive alien animal species. The Swilly Burn in the lower reaches in the vicinity of Section 3 of the Proposed Development has a significant infestation of the Scheduled species; Asian clam (*Corbicula fluminea*). The proposed Swilly Burn bridge is clear span with no instream works or entry to water required at this or any other major river crossings but there are instream works required on smaller tributaries of the main channels. Measures to mitigate the potential spread of Asian clam are discussed in Section 6.3.

2.4 Assessor

The original assessment was undertaken by Shelia Murphy BSc, MSc, ACIEEM, an Independent Ecological Consultant who has a B.Sc. and M.Sc. in the ecological sciences. Shelia Murphy has previous experience in surveying and reporting on IAPS and in the preparation of management plans. Murphy Geospatial delivered the topographical requirements of this survey as per TII Standard: The Management of Invasive Alien Species on National Roads GE-ENV-01104 (TII, 2020b). Later surveys in 2023 and 2025 were carried out by RPS and Eir Eco staff.

2.5 Site Assessment

The detailed topographical survey was conducted in early October 2021 in order to inform this report on IAPS. The survey established the existing environment on site and the presence/absence of IAPS. Additional locations of IAPS were recorded during July 2023 and August–October 2025 site surveys.

2.6 Limitation of Assessment

The detailed topographical survey was undertaken in early October which is just outside of the optimum botanical growing season which ends in September; however, Japanese knotweed, Himalayan balsam, and giant hogweed can still be identified via dead canes well outside the growing season by an experienced invasive species surveyor. However, this survey was also supplemented by the information gathered during habitat surveys in July and August 2018 and 2019, August 2020 and May and August 2021, which recorded the locations of all IAPS identified during these surveys. Furthermore, autumn 2021 was very mild with the growing season of vegetation extending well into October. The Northern Ireland Met Office announced that autumn 2021 was the warmest autumn on record in Northern Ireland (Met Office, 2021), with Donegal, a neighbouring county, also experiencing this late warm spell. As a result, the surveyor was confident that each infestation of IAPS that was present within the survey area on the time of the survey was observed and recorded.

3 DESKTOP REVIEW

A search of the NBDC online database was conducted for records of Scheduled species. The NBDC database was also searched for those species listed as High or Medium Impact species as per NBDC classifications.

Invasive species (Scheduled species; High Impact species; Medium Impact species) recorded on NBDC for grid squares C10, C11, C20, C21, C30, H09, H19, and H39 (Section 1 intersects 10 km grid squares C10, H09 and H19; Section 2 intersects 10 km grid squares C10, C11, C20, and C21; Section 3 intersects 10 km grid squares C20, C21, C30, and H39) are displayed in Table 3.1.

Table 3.1: Invasive Species records from NBDC

Common Name	Scientific Name	Grid Square	Designation	Location of closest record to Proposed Development
American Skunk-cabbage	*Lysichiton americanus*	C21	Scheduled Medium Impact Invasive Species	**Section 2:** ~8 km north of the CPO boundary in Aghangaddy Glebe.
Barberry	*Berberis vulgaris*	C20	Medium Impact Invasive Species	**Section 3:** ~400 m west of the CPO boundary in Slievebuck.
Black currant	*Ribes nigrum*	C11, C20, C30, H39	Medium Impact Invasive Species	**Section 2:** ~1.8 km east of the CPO boundary in Aghlehard. **Section 3:** 2–3 km east of the CPO boundary, in the vicinity of Island More.
Butterfly-bush	*Buddleja davidii*	C20, C21, C30, H39	Medium Impact Invasive Species	**Section 2:** ~1.3 km east of the CPO boundary in Knockbrack. **Section 3:** 1–3 km south-west of the CPO boundary, south-west of Stabane.
Canadian waterweed	*Elodea canadensis*	C30, H19, H39	High Impact Invasive Species	**Section 1:** ~1.2 km from the CPO boundary in the River Finn at Dreenan. **Section 3:** 0–1.3 km from the CPO boundary, in the vicinity of Gortin North.
Cherry laurel	*Prunus laurocerasus*	C10	High Impact Invasive Species	**Section 1: ~**10 km north of the CPO boundary in the vicinity of Newmills. **Section 2:** 6–7 km west of the CPO boundary in the vicinity of Newmills.
Common cord-grass	*Spartina anglica*	C21	Scheduled High Impact Invasive Species	**Section 2:** ~2 km north of the CPO boundary in Lough Swilly at Greenhill.
Evergreen oak	*Quercus ilex*	C20	Medium Impact Invasive Species	**Section 2:** ~1.3 km east of the CPO boundary in Knockbrack.
Giant hogweed	*Heracleum mantegazzianum*	C11, C20, C21, C30, H39	Scheduled High Impact Invasive Species	**Section 2:** ~400 m south of the CPO boundary near the N56 in Letterkenny. **Section 3:** ~800 m east of the CPO boundary, along the Foyle in Lifford.

Common Name	Scientific Name	Grid Square	Designation	Location of closest record to Proposed Development
Giant knotweed	*Reynoutria sachalinensis*	C30	Scheduled High Impact Invasive Species	**Section 3:** 5–8 km east of the CPO boundary, east of the Foyle.
Giant-rhubarb	*Gunnera tinctoria*	C21, C30	Scheduled High Impact Invasive Species	**Section 2:** ~1.2 km north of the CPO boundary, in Glebe. **Section 3:** ~2.7 km east of the CPO boundary, in Creaghadoos.
Himalayan balsam	*Impatiens glandulifera*	C10, C11, C20, C21, C30, H19, H39	Scheduled High Impact Invasive Species	**Section 1:** ~700 m from the CPO boundary within Stranorlar. **Section 2:** In the immediate vicinity of the southern end of the CPO boundary. **Section 3:** ~150 m from the CPO boundary within Ballyholey Far.
Himalayan honeysuckle	*Leycesteria formosa*	C20	Medium Impact Invasive Species	**Section 2:** ~1.3 km east of the CPO boundary in Knockbrack.
Himalayan knotweed	*Koenigia polystachya*	C10, C11, C20, C21, H19, H39	Scheduled Medium Impact Invasive Species	**Section 1:** Within the CPO boundary near Meenavoy Lower. **Section 2:** ~700 m south of the CPO boundary. **Section 3:** In the vicinity of the southern end of the CPO boundary at the River Finn.
Japanese knotweed	*Reynoutria japonica*	C10, C11, C20, C21, C30, H09, H19, H39	Scheduled High Impact Invasive Species	**Section 1:** Within immediate vicinity of the CPO boundary in Dunwiley, with multiple other records along the N13 **Section 2:** ~350 m west of the CPO boundary near Cullion. **Section 3:** ~800 m east of the CPO boundary, along the Foyle in Lifford.
Japanese rose	*Rosa rugosa*	C20, C30	Medium Impact Invasive Species	**Section 2:** ~1.3 km east of the CPO boundary in Knockbrack. **Section 3:** 2–3 km east of the CPO boundary, in the vicinity of Island More.
Red oak	*Quercus rubra*	C20, C30	Medium Impact Invasive Species	**Section 2:** ~1.3 km east of the CPO boundary in Knockbrack. **Section 3:** ~1.1 km east of the CPO boundary in Drumcrow.
Rhododendron	*Rhododendron ponticum*	C10, C11, C20, C21, C30, H09, H19, H39	Scheduled High Impact Invasive Species	**Section 1:** In the immediate vicinity of the CPO in Dunwiley. **Section 2:** ~500 m west of the CPO boundary in Letterkenny. **Section 3:** 0.2–1.1 km west of the CPO boundary in the vicinity of Templemoyle.

Common Name	Scientific Name	Grid Square	Designation	Location of closest record to Proposed Development
Salmonberry	*Rubus spectabilis*	C10, C11, C20, C21, C30, H39	Scheduled Medium Impact Invasive Species	**Section 1:** ~3 km north of the CPO boundary in Treantaboy. **Section 2:** ~600 m north of the CPO boundary in Glebe. **Section 3:** 4–7 km east of the CPO boundary in the vicinity of the River Foyle.
Spanish bluebell	*Hyacinthoides hispanica*	C20	Scheduled	**Section 2:** ~1.3 km east of the CPO boundary in Knockbrack. **Section 3:** ~1.1 km west of the CPO boundary in Gortinreagh.
Sycamore	*Acer pseudoplatanus*	C10, C11, C20, C21, C30, H09, H19, H39	Medium Impact Invasive Species	**Section 1:** ~200 m east of the CPO boundary in Dunwiley. **Section 2:** ~350 m west of the CPO boundary near Cullion. **Section 3:** ~350 m west of the CPO boundary in Moss Beg.
Three-cornered leek	*Allium triquetrum*	C20, C21	Scheduled Medium Impact Invasive Species	**Section 2:** ~1.5 km north of the CPO boundary in Cornagill. **Section 3:** ~3 km north-west of the CPO boundary in Cornagill.
Thunberg's barberry	*Berberis thunbergii*	C20	Medium Impact Invasive Species	**Section 2:** ~4.7 km south of the CPO boundary in Deerpark. **Section 3:** ~6.4 km west of the CPO boundary in Deerpark.
Traveller's-joy	*Clematis vitalba*	H39	Medium Impact Invasive Species	**Section 3:** 0–2 km from the CPO boundary in the vicinity of Glensmoyle.
Wall cotoneaster	*Cotoneaster horizontalis*	C20, H39	Medium Impact Invasive Species	Present within 10 km square but not within 5 km of the CPO boundary.

4 SITE DESCRIPTION

4.1 Existing Environment

4.1.1 Habitats within the Study Area

The Proposed Development is situated within three regions within Donegal. The habitats present within the works area are classified according to the classification scheme set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000). This classification scheme classifies habitats based on the vegetation composition present in addition to the habitat's ongoing maintenance and management history. The potential for each habitat identified to support Annex I habitats was also assessed. The details provided below are based on desktop assessments and field surveys conducted between 2017 and 2025.

4.1.1.1 Section 1

Section 1 is located along the existing N15 in the vicinity of the Twin Towns of Ballybofey and Stranorlar. The north of the study area comprises improved agricultural grassland (GA1), with intermittent areas of wet grassland (GS4). Scattered patches of broadleaf woodland (WD1) are located throughout with sections of conifer woodland (WD4). Significant areas of (mixed) broadleaved woodland (WD1) can be found at Drumboe and Dunwiley. The Cloghroe River (FW1) flows through the north of the study area and is a tributary of the River Deele that flows into the River Foyle two kilometres downstream of the Lifford Bridge.

The River Finn flows between Stranorlar and Ballybofey. It is designated under the River Finn SAC, which supports the Annex I habitats: Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110], Northern Atlantic wet heaths with *Erica tetralix* [4010], Blanket bogs [7130] and Transition mires and quaking bogs [7140]. In the vicinity of the Proposed Development, the River Finn floodplain and margins support GA1, GS4, mixed broadleaved woodland (WD1), conifer plantation (WD4), wet pedunculate oak-ash woodland (WN4), riparian woodland (WN5), and wet willow-alder-ash woodland (WN6) and do not support the qualifying interest habitats of the SAC.

Lough Alaan is a small lake located north of Stranorlar and supports a good population of brown trout. Its outflowing stream meets the River Finn north of Ballybofey Bridge. To the south of Ballybofey, the N15 traverses through an area of supporting heath (HH), blanket bog (PB) and conifer plantations (WD4) in the region of Lough Mourne. Throughout the study area, the agricultural fields support hedgerow (WL1), treeline (WL2), and stonewall (BL1) boundaries.

4.1.1.2 Section 2

The habitats found within the Section 2 study area highlight Letterkenny as a built urban environment with intermittent amenity grasslands (GA2) and areas of scattered trees and parkland (WD5). From the Pole Star Roundabout, the N14/N56 crosses the River Swilly Estuary and continues east to the Dry Arch Roundabout (serving the N13 and N56). The lower reaches and estuarine element of the River Swilly and surrounding flood plains are designated under the Lough Swilly SAC which is designated for the following Annex I habitats: Estuaries [1130], Coastal lagoons [1150], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410], Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] and the Annex II species otter (*Lutra lutra*) [1355] and harbour porpoise (*Phocoena phocoena*) [1351]. The habitat at the proposed crossing of the Swilly estuary comprises a mud community complex with subtidal mixed sediment which are sub-communities of the qualifying interest Annex I habitat Estuaries [1130].

4.1.1.3 Section 3

Section 3 is located along the existing N14 connecting Manorcunningham and Lifford. The landscape within the study area of Section 3 is predominantly gently undulating with scattered low drumlin hills. The majority of the land is intensively managed agricultural grasslands (GA1) subdivided by hedgerows (WL1) and treelines (WL2). There are occasional small blocks and strips of mixed broadleaved woodland (WD1) and scrub (WS1) scattered throughout the study area, many of these occurring along watercourses and also along the two sections of disused railway lines. Some low-lying areas support a mixture of wet grassland (GS4), wet willow-alder-ash woodland (WN6), and occasional conifer plantations (WD4).

In the north of the study area, drainage is primarily to the north with the Leslie Hill Stream (also known as the Corkey River) and its tributaries which flow into Lough Swilly immediately north of Manorcunningham. Drainage in the southern half of the Proposed Development is into the Swilly Burn and Deele Rivers which both flow into the River Foyle in its estuarine reaches. The very southern portion of the Proposed Development is within the River Finn catchment and includes a crossing of the river.

All watercourses within the study area have potential ecological value, particularly the Deele River, the Swilly Burn, and the Leslie Hill Stream. The Deele and Swilly Burn both flow into the River Foyle which is designated under the River Foyle and Tributaries SAC in the Republic of Ireland (ROI) and under the River Foyle & Tributaries SAC in Northern Ireland (NI). The River Finn marks the southern boundary of the study area.

5 INVASIVE ALIEN PLANT SPECIES SURVEYS

5.1 Survey Results

The detailed topographical IAPS survey was undertaken in early October 2021, and additional IAPS were recorded during 2023 and 2025 update surveys. The following six Scheduled plant species were identified: Japanese knotweed (*Reynoutria japonica*), Himalayan knotweed (*Koenigia polystachya*), Himalayan balsam (*Impatiens glandulifera*), rhododendron (*Rhododendron ponticum*), giant rhubarb (*Gunnera tinctoria*), and salmonberry (*Rubus spectabilis*). Himalayan knotweed is a species with a risk of medium impact, while the remaining species have a risk of high impact, and are all Scheduled species. Appendix 1 describes each individual Scheduled species infestation recorded during the walkover surveys. Maps of the locations of each infestation are shown in Appendix 2.

A number of other invasive plant species that are not Scheduled species were also observed during the survey including cherry laurel (*Prunus laurocerasus*), butterfly bush (*Buddleja davidii*), winter heliotrope (*Petasites pyrenaicus*), snowberry (*Symphoricarpos albus*), old man's beard (*Clematis vitalba*), and monkey-flower (*Erythranthe guttata*). Cherry laurel is classified as being of risk of high impact while butterfly bush and old man's beard are classified as being of risk of medium impact. Winter heliotrope and snowberry are classed as being of low impact and the invasiveness of monkey-flower has not yet been assessed. The impact of all these species on conservation goals remains uncertain due to lack of data showing impact (or lack of impact). Therefore, precautionary measures to avoid interaction and spread of the species are recommended.

6 ASSESSMENT OF OPTIONS

The management options outlined in the following sections are in accordance with IW-AM-SOP-009 Information and Guidance Document on Japanese knotweed (Irish Water, 2016) and the TII Guidelines *The Management of Invasive Alien Plant Species on National Roads* (TII, 2020a) along with other relevant national and international guidance on the relevant Scheduled plant species found across the study area.

6.1 Avoidance of IAPS

If possible, stands and locations where IAPS are recorded should be avoided during the proposed works. Exclusion fencing and signage is proposed to prevent interaction of construction vehicles with the area and to minimise further spread of the species within and outside the site. Therefore, strict biosecurity measures are proposed for the duration of the works in this area, as outlined in Section 6.1.1.

6.1.1 Invasive Species Best Practice Biosecurity Measures

Invasive species can be introduced into a location by contaminated vehicles and equipment, in particular tracked vehicles which were previously used in locations that contained invasive species. In addition, the following best practice biosecurity measures shall be adhered to in order to contain and/or prevent the introduction of invasive species on a site as follows:

- Prior to Works commencing, areas contaminated with IAPS must be clearly identified and the area(s) of infestation isolated with fencing or warning tape. ‘Biosecure zone’ signs must be erected at each contaminated area to alert workers that IAPS are present and to avoid entering or interfering with these sites. Likewise, any stockpiles of soil that are or could be contaminated with IAPS, must be clearly marked. Cleaning or disinfection stations should be placed close to the contaminated area(s) for use by staff and vehicles. Where it is necessary to work in contaminated areas, vehicles with caterpillar tracks shall not be used.

- All vehicles and equipment that have been used in control operations must be thoroughly pressure-washed in a designated wash-down area once work in that area has been completed. This also includes footwear, tools, etc. It is important to remove soil which may contain seeds and plant fragments which otherwise could be transported along the road corridor as works are being undertaken. Vehicles leaving contaminated area(s) should either be confined to marked haulage routes protected by root barrier membranes or be pressure-washed before leaving the area. Only vehicles that are deemed to be biosecure (i.e. sealed so that no soil can escape) should be used to transport contaminated soil and all must be thoroughly pressure-washed in a designated wash-down area before exiting the infested area.

- Where stands of invasive species are present at and outside of the works area boundary, it may be required to remove/treat invasive species for a further 3 m outside of the works boundary to facilitate accommodation works, boundary treatment efforts etc. Where invasive species are removed along the works boundary, a root barrier membrane may be required to be installed and lapped up to and along the extent of the removal works to ensure that any invasive species populations located at the margins of the Proposed Development are not allowed to migrate back into the Proposed Development footprint. Ensure all site users are aware of the Invasive Species Management Plan and treatment methodologies. This can be achieved through “toolbox talks” before works begin on the site.

- Due to the proximity of the IAPS infestations to the works area, an Environmental Clerk of Works (ECoW) must be present on site to supervise the works at all locations and to monitor the excavation for rhizomes. If rhizomes are identified, material arising from the excavation will be backfilled into the excavation, retained on site and dealt with as part of the future IAPS management of the site. If the material is to be disposed of off-site then it must be moved off site by a licensed haulier and disposed of at a licensed waste facility in accordance with Waste Collection Permit Regulations (S.I. No.820/2007 & Amended SI.No.87/2008) and European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations, S.I. No.324/2011. Furthermore, if material contaminated with Scheduled species is removed off site it will require a licence from the NPWS in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477) as amended.

6.2 Invasive Alien Plant Species Treatment and Monitoring

The following Scheduled species were identified during the site survey: Japanese knotweed, Himalayan balsam, Himalayan knotweed, rhododendron, giant rhubarb, and salmonberry. Section 6.2.4 outlines the various control options recommended for each species.

It is recommended that a suitably qualified ecologist or horticulturalist with sufficient training, experience, and knowledge in the control of IAPS should be employed to assist in the planning and execution of control measures in relation to each of these species for the duration of any works.

It is vital to accurately map the detailed distribution of all IAPS. This is particularly important when managing Japanese knotweed as areas of infestation can extend 7 m horizontally (and up to 3 m in depth).

Regardless of the methods chosen to treat each invasive species it is essential that the methods used comply with the law and that all necessary licences, permits, consents, permissions, and other documentation are in place.

6.2.1 Site Management

Bare areas of soil left after large scale removal of vegetation such as after Himalayan balsam control are open to recolonisation by these and other invasive species. Additionally, erosion of bare areas, especially bankside areas, may also occur. Therefore, a reseeding programme with native species should be implemented in any location where a large section of vegetation cover is removed. A bankside rehabilitation programme where such large-scale vegetation removal has occurred should also be initiated to prevent erosion.

6.2.2 Advice Regarding Pesticide Use

In accordance with the Sustainable Use of Pesticides Directive, any herbicide use should be carried out in line with the recommendations and guidance of a Registered Pesticide Advisor registered with the Department of Agriculture, Food and the Marine (DAFM), who must be engaged to advise on the most suitable methods of control/eradication of the infestations. A Registered Professional User can apply pesticides authorised for professional use. Those involved in the control of IAPS are advised to have access to the advice of a Registered Pesticide Advisor on the register established by the Minister for DAFM pursuant to Regulation 4 of the Sustainable Use of Pesticides Regulations. All pesticide (this includes herbicides) users must be registered and have the appropriate training necessary to carry out the proposed method of control.

A list of Registered Pesticide Advisors is available at the following web address http://www.pcs.agriculture.gov.ie/sud/pesticideadvisors/ and Registered Professional User at http://www.pcs.agriculture.gov.ie/sud/professionalusersprayeroperators/

6.2.3 Protection of FPO Species

A number of IAPS infestations (JK09, JK10, HB02, HB03 and HB04) are located in close proximity (<10 cm) to known locations of Globeflower (*Trollius europaeus*), a Flora (Protection) Order (2022) (SI No. 235/2022) species. Each of these IAPS infestations are outside the proposed works area. However, should treatment of these IAPS infestations be required, protocols will need to be implemented to ensure no damage occurs the Flora Protection Order species, Globeflower.

6.2.4 IAPS Control Methods

A suitably qualified invasive species specialist should be employed for the duration of works. They will be appointed by DCC under a separate contract to the main construction contracts. Advanced and enabling works for the treatment and eradication of IAPS will take place ahead of the main construction contract. This would commence after a Notice to Enter is served. All control measures implemented should follow the GE-ENV-01104 standard on the management of IAPS, section 1.4, which outlines the requirement for ‘control measures implemented at the earliest possible stage to reduce the risk of spread of IAPS by means of enabling or advance works’.

All excavation works for invasive species control and management purposes will be undertaken during the main construction contract under the supervision of a suitably qualified invasive species specialist and the ECoW.

The use of pesticides (which includes all herbicides, pesticides, lumbricides, fungicides, algaecides, moss killers and all such similar products or materials) methods of application, materials and tank mixes, methods of working, transportation, storage and records shall be strictly in accordance with current legislation, codes of practice the manufacturer's instructions.

The use of permitted pesticides from the Department of Agriculture can be found on their website. All Plant Protection Products (PPP) should be used in accordance with the product label and in accordance with the control of the marketing and use of PPPs S.I. 155 of 2012 and S.I. 159 of 2012. Also, PPP must be used in accordance with the National Action Plan for the Sustainable Use of Pesticides, 2019. It is an offence to use Plant Protection Products in a manner other than that specified on the label.

6.2.4.1 Japanese knotweed (*Reynoutria japonica*) and Himalayan knotweed (*Koenigia polystachya)*

Japanese knotweed and Himalayan knotweed have similar biology and ecology. They both spread vegetatively from small sections (approximately 1 cm long) of rhizome or stem and die back in the winter leaving soils exposed. In Ireland, Japanese knotweed bears only female flowers and thus is sterile, however, viable seeds can sometimes be produced by Himalayan knotweed. Due to their similar ecology and biology Japanese knotweed and Himalayan knotweed have been dealt with together within this report.

The preferred approach to knotweed species is avoidance where possible, along with good site hygiene practices (see Section 6.1.1) to avoid additional spread. In the event that the invasive species has to be treated and/or removed to facilitate on-site construction, the following methods are recommended, taking into consideration: the extent of the infestation, characteristics of the site, and the intended use of the site. In the case of knotweed, physical methods on their own can be very labour intensive and costly. In all cases, chemical treatment, either on its own or in combination with physical treatment, is considered more appropriate and will be required.

It should also be noted that inappropriate treatment (e.g. incorrect herbicide dosage) of Japanese knotweed can cause the species to go into dormancy, leading to the false conclusion that the infestation has been eradicated. Japanese knotweed dormancy can last greater than a decade. Therefore, any area infested with Japanese knotweed which is likely to be disturbed by the proposed works will need excavation of this species prior to works commencing as the disturbance of Japanese knotweed rhizome that has gone into dormancy can cause the plant to resprout again. It is for this reason that, for complete eradication of Japanese knotweed from a location, physical control methods are required in conjunction with chemical control methods.

Chemical Control

The following chemical control methods, foliar application and stem injection, are recommended for the treatment and chemical control of knotweed as per Invasive Species Northern Ireland (https://invasivespeciesni.co.uk/).

While a number of chemicals are effective in controlling knotweed, many of these are undesirable due to their non-selective nature, persistence, or toxicity to aquatic ecosystems. Care is required in the selection of the appropriate herbicide and method of application (Please refer to **Section 6.2.2** for advice regarding herbicide use). In making this selection, regard should be had to the abundance of knotweed, the location of the stand, the proximity and nature of sensitive receptors, and the season. Only certain herbicides are approved for use in or near water. Not all herbicides are selective in nature and the persistency of herbicide varies. The method of application should be as targeted as possible, having regard to all other factors. Herbicide must be used in compliance with the product label and in accordance with the legislation regulating their use and the sustainable use of pesticides. With all forms of chemical control in relation to knotweed, follow-up treatment will be required in subsequent years.

The current most widely recommended active ingredient for knotweed control is glyphosate, which breaks down in the soil relatively quickly. Glyphosate is a broad-spectrum herbicide and, as such, is potentially damaging to non-target plants. Great care is, therefore, necessary when applying this herbicide and it may be appropriate to seek advice from a Registered Pesticide Advisor. A recent study has demonstrated that effective control of knotweed may be achieved by biannual (summer and autumn) foliar glyphosate applications or by annual application of glyphosate in autumn (after the flowering period but prior to senescence) using stem injection (at high concentrations) or foliar spray (Jones *et al*., 2018).

Selective herbicides containing the active ingredients aminopyralid and fluroxypyr are toxic to aquatic life and must not be used in or near water. They also cannot be used on land that will be grazed by livestock. Aminopyralid and fluroxypyr have a low to moderate persistence in soil (this can be up to 35 days in the case of aminopyralid). Products containing these active ingredients should not be used on or adjacent to soil that may be used as garden topsoil, for potting or used on grass that may be cut and used as mulch or for compost for horticultural or garden crops.

1. Foliar application

This type of treatment is usually applied with a sprayer such as a knapsack sprayer twice a year (summer and autumn). It is an efficient way to treat large monocultures of invasive plants, or to spot-treat individual plants that are difficult to remove mechanically such as knotweed. For deep rooted species, such as knotweed, regrowth will occur in subsequent years, albeit much less vigorously, which will require follow up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed for at least two years.

2. Stem Injection Treatment

Stem injection is suitable for Japanese knotweed but is not suitable for Himalayan knotweed.

This treatment requires a higher concentration of the active ingredient than is used in foliar applications. Approximately 2 ml of neat herbicide is injected into each cane between the 1st and 2nd nodes through the use of a specialist stem injection tool. Many of the recommended herbicides for foliar application are not approved for application by this method with glyphosate-based products the preferred product.

Treatments for knotweed, through the application of glyphosate-based products, are most effective when applied in the early autumn (mid to late Sept). Delaying the application will reduce the effectiveness of the treatment. Regrowth will occur in subsequent years, albeit much less vigorously, which will require follow up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed for at least two consecutive years.

Physical Control

Where feasible, preference should be given to treating knotweed in its original location to limit the risk of further spread of the plant.

A number of physical control methods have been developed to deal with knotweeds, which are all based on the mechanical excavation of the rhizome material and its subsequent containment either at depth, within an impermeable membrane, in a bunded area, or its disposal off-site. See below for appropriate physical methods of excavation, disposal, and biosecurity measures that should be followed when physical control of knotweed is conducted.

1. Excavation and Deep Burial

- Particular care shall be taken near watercourses as water is an effective conduit for the dispersal of plant fragments.

- It should be noted that particular care is required in relation to the disposal of knotweed species. Where burial is being used to dispose of these species, a non-persistent herbicide shall be applied to the infestation prior to excavation. The material shall then be excavated and subsequently buried to a minimum depth of 5 m and at least 7 m away from an adjacent landowner's site.

- Where burial to a depth of 5m is not possible, the infestation shall be treated with a non-persistent herbicide prior to excavation, excavated, and then completely encapsulated in a proprietary root barrier membrane cell. The upper surface of the cell shall be buried to a depth of at least 2 m with uncontaminated soil.

- Any geotextile membranes used for burial must be undamaged, sealed securely, have a manufacturer's guarantee that it will remain intact for at least 50 years, and be UV resistant.

- Where total encapsulation in a root barrier membrane and burial to 2 m depth is not feasible, a third option is to place chemically treated excavated material in a bund lined with root barrier membrane, without a covering. This area will need to be monitored and treated with an appropriate chemical herbicide until at least two years without any regrowth of knotweed material. Care will also need to be taken to ensure that bunded material will not be subject to flooding, cannot wash away with heavy rains, and will not be disturbed by livestock or any other means.

- It is essential that the methods used comply with the law and that all necessary licences, permits, consents, permissions, and other documentation are in place.

- The provisions of the Waste Management Acts, 1996 to 2011, must be considered and complied with. The location of the buried material should be accurately mapped and recorded.

- It is also recommended that permanent signs be erected to inform people of the nature and quantity of the buried waste. Future owners of the land must be advised as to the position and content of the buried material.

2. Excavation and Disposal to Landfill

- Excavation and disposal to landfill is the method of last resort as it is the costliest method of dealing with IAPS in addition to posing a high risk of spreading IAPS during transportation.

- Great care is required to ensure that no material is lost when the excavated material is being transported. For small quantities, the material can be 'double-bagged' in heavy duty waste bags. For larger quantities, the waste can be moved in skips lined and covered with appropriate membranes.

- The material can then be disposed of at a licensed waste facility, where: (a) the facility has been informed in advance of the nature of the waste material; (b) the facility is licensed to accept this material; and (c) the facility is prepared to accept the material.

- The canes may also be disposed of by deep burial.

- The provisions of the Waste Management Acts,1996 to 2011, must be complied with. These Acts will require, *inter alia*, that a waste haulier employed to haul waste material is authorised by a waste collection permit or is exempt from such a requirement. In addition, a licence from the NPWS will be required in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477) as amended.

6.2.4.2 Himalayan balsam (*Impatiens glandulifera*)

Whilst Himalayan balsam is an annual plant (i.e. it germinates, flower, and sets seed before dying all in the same year), its high level of seed production and vigorous seed dispersal means that it is highly invasive. Each plant produces at least 500 seeds, which can be propelled up to 7 metres from the parent plant by seed pods that are explosive to touch. Therefore, to avoid additional spread, do not disturb plants if seeds pods are visible (usually sometime after June). Seeds, however, are not very robust and only remain viable within the environment for 18 months up to 2 years. It is tolerant of a wide range of soil conditions and semi-shade and it mainly colonises riverbanks and other damp places (e.g. ditches, wet grassland, etc.).

To fully eradicate Himalayan balsam from a site, the key objective is to exhaust the plant's seed bank, which is done by repeatedly removing adult plants before they set seed. As seeds remain viable within the seed bank for up two years, control programmes should be undertaken for the entirety of this period followed by a

five-year monitoring programme. Control of this species should generally be carried out before flowering but especially before seeding. When clearing balsam in the early summer you will often get some new plants germinated within the cleared area, therefore, it is important to repeat treatment at least once more later in the year. A catchment-wide approach is necessary to tackle this species and complete eradication from a site can never be achieved if upstream infestations are not controlled.

Physical Control

Hand pulling

In general, hand pulling has the least damaging effect on surrounding species and habitats compared to other methods of control. Therefore, it is the preferred method for dealing with infestations within sensitive areas (e.g. Natura 2000 sites, Annex I habitats, etc.), as it avoids loss or damage of non-target species. However, it is a very labour intensive and time-consuming method of control.. Himalayan balsam has a very shallow rootstock which means that hand pulling is a very easy and effective method of killing the plant. It involves grabbing the plant low down, just above the top of the soil and firmly pulling the plant from the ground. Padded gloves should be worn to avoid risk of injury to hands. This will easily pull the plant, including all roots from the ground. The stem is then snapped low down to separate the roots from the rest of the plant. If the stem snaps while pulling without removing the roots from the ground, the roots should not be left in the soil. If broken stems are left, the plant will re-shoot and send up new flowerheads. The pulled and broken material can be left to the side (on a surface that is not soil as they can readily re-root) to dry up and degrade or can be removed off-site to a licenced facility. Where operators are confident in the identification of Himalayan balsam, hand pulling can start as early as March when plants have just emerged. For those not confident in identification, Himalayan balsam is generally large enough to identify easily in May. Pulling can continue through to June but once seed heads develop this method should not be employed. A follow up treatment of previously treated areas should be carried out in autumn (August to October) to catch any plants that have germinated in the interim. Control using this method can be achieved in 18 months – 2 years, once recolonisation does not occur from upstream.

Cutting or mowing

Strimming, cutting, or mowing can be used to control Himalayan balsam once the plants are cut at ground level, below the lowest node. Any cuts above the lowest node will lead to re-growth and re-flowering. Additionally, cutting too early will promote greater seed production from the plants that regrow. Similarly, cutting once the seed-heads have formed will simply distribute them, making the problem worse. Access to the sides of riverbanks can be difficult and inaccessible stands can quickly recolonise accessible cleared areas, so vigilance is needed if an area is to be effectively cleared. Cutting more than once a year is also likely to be required and cut Himalayan balsam material will need to be placed on a surface that is not in direct contact with the soil to avoid regrowing. Cutting or mowing should be carried out before June (ideally between April and May) for maximum effectiveness. Any plants that have been missed can be hand pulled later. Monitoring of the treated area will need to be carried out to determine when cutting will be needed again to prevent re-seeding. It will take multiple years of this technique to be effective and is likely best done in conjunction with other methods.

Grazing

Regular grazing can suppress Himalayan balsam. It generally does not totally eradicate the species but can be useful in preventing its spread. Grazing is recommended from April right through the growing season and continued until no new growth occurs. Sheep are generally the better option as they typically graze close to the ground, below the lowest node which will prevent balsam from regrowth and flowering. Grazing may not be suitable in sensitive areas (e.g. where poaching can damage rare/threatened species or cause erosion at, for example, riverbanks).

Chemical Control

Please refer to **Section 6.2.2** for advice regarding herbicide use.

Himalayan balsam can be controlled by spraying the foliage with glyphosate. The plants should be sprayed in the spring before flowering (to protect bees and other pollinating insects) but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the spray. Glyphosate is sold under a number of brand names and is the only active herbicidal ingredient that is allowed to be used near any waterbody. It can be applied at a rate of 6 L/ha on young (preferably <1 m) growth by a weedwipe or

knapsack sprayer. A weedwipe has the advantage of preserving native plants and grasses which would otherwise be killed by the glyphosate. A long-lance sprayer may assist in the spraying of less accessible areas out of the reach of conventional knapsack sprayers.

6.2.4.3 Rhododendron (*Rhododendron ponticum*)

Physical Control

Cutting and removal

Individual stems should be cut as close to the ground as possible with a hand saw or chainsaw. The cut material will need to be removed from the area to allow ease of access for any follow-up treatments. Cut material can be dealt with in a number of different ways:

- Stacked into discrete piles or windrows
- Used to create a 'dead-hedge' to exclude herbivores from the area
- Mulched, either off- or on-site
- Left in-situ.

It should be noted that due to its status as a Scheduled species, any material cut from rhododendron can only be taken off-site by a licenced haulier to a licenced facility capable of dealing with such material. Additionally, burning of cut material can only be carried out in special circumstances (e.g. to control Ramoran's Blight). This should be completed under supervision of appropriate personnel and with the required permission obtained from the Local Authority.

Flailing, using a mechanical flail head mounted on a tracked machine, is another method for rhododendron clearance. This method flails rhododendron thickets down to ground level and mulches the material upon contact.

Rhododendron regrows vigorously when cut, therefore, regardless of which method of cutting rhododendron is used, it is also necessary to reinforce any mechanical cutting of rhododendron with another method for killing the plant. There are four main approaches to this:

- **Digging out:** Digging out of rhododendron stumps is very labour intensive but is a very effective method of killing this species. To ensure maximum effectiveness, all viable roots should be removed also. Digging out can be done manually or mechanically. The stumps should be turned upside down with as much soil removed as possible. This will expose the roots to air in addition to allowing rain wash off any remining soil. If the soil is left on the roots, regrowth could occur. Dug out stumps can be left in-situor removed to a licenced facility capable of dealing with such material.

- **Stump treatment:** This approach involves treating freshly cut rhododendron stumps with a suitable herbicide solution (e.g. glyphosate or triclopyr). This solution can be painted on the stumps or spot sprayed upon them. This should not be carried out when rain is forecast, as rain can wash the solution off the stump. Stems should be cut as close to the ground as possible, and the stump surface treated with herbicide within minutes. This method of control is regarded as being most effective outside the time of spring sap flow. Regrowth from treated stumps can occur and a follow-up treatment with foliar herbicide application may be necessary.

- **Spraying of regrowth and large seedlings**: This methodology requires a follow-up application of herbicide to stumps and large seedlings approximately 1–3 seasons after cutting of stems has occurred. Large seedlings are classed as those <1.5 m in height. Typically, glyphosate is used, but ammonium sulphamate, imazapyr, and triclopyr can also be used. Herbicide application should be as focussed as possible and should occur on a dry day with no more than a slight breeze. Additionally, if working near a watercourse, best practice should be followed to avoid any impact on the aquatic habitat. More than one application may be necessary to completely eradicate the rhododendron infestation

- **Stem injection**: Where the main stem is easily accessible and large enough for a hole to be drilled into it, stem injection is a viable option for rhododendron control. The hole can be drilled with a handheld cordless drill and a solution of glyphosate applied using a spot gun. This method allows for the controlled application of herbicide to the target plant and limits the damage to surrounding species. Treated shrubs can be left standing to rot, which may take 10–15 years, or can be cut and removed at a later date.

After flowering, seed maturation usually takes six months with seed dispersal normally occurring between January and March. *Rhododendron ponticum* is a prolific seed producer with a typical inflorescence producing up to 5,000 seeds, meaning a medium sized plant is capable of producing approximately one million seeds per year. Seeds are wind dispersed with most seeds travelling 100 m or less, but given suitable conditions, they have the potential to travel 1 km or more. Other methods of seed dispersal include water and on vectors (e.g. animal fur, clothing, tyre treads, etc.). Seeds are non-dormant and germinate quickly after dispersal, which can be as little as 5–6 days in favourable conditions. Light is needed for germination, but low light intensities will suffice. Seeds are <1 mm in length and weigh <0.1 mg. Seeds can remain viable in the seed bank for 1 year, but at some sites, a small number can survive for longer.

6.2.4.4 Giant rhubarb (*Gunnera tinctoria*)

Physical Control

- Giant rhubarb can spread via seed dispersion and via rhizomes. Each flower head can produce over 250,000 seeds and therefore removal of flower heads can prevent the formation of seeds.

- Due to the size of mature Giant rhubarb plants, physical control is most practical and successful with small or recently established infestations. As the plant is capable of regeneration from rhizome fragments, all material must be handled and disposed of in a way which does not risk further spread. Follow-up control over a number of years will be required, as monitoring dictates, to deal with regrowth and subsequent seedling germination.

- For small plants and new seedlings, the rhizomes can be dug out. However, if fragments of rhizome remain these can regenerate and form new plants with the potential of spreading the infestation. Excavated material must be disposed of at a licensed facility or can be buried on site.

Chemical Control

- The large leaves can be effectively treated with herbicide, but there are limitations in what herbicides can be used near water courses. Applications should be made late in the growing season when the leaves are fully grown.

Cut and paint (with concentrated approved herbicide) is also very effective on smaller infestations or for gaining access into large stands in environmentally sensitive areas.

6.2.4.5 Salmonberry (*Rubus spectabilis*)

The rhizome network is complex and extensive. Rhizome diameters range from 5–50 mm.

Physical Control

- Due to its complex and extensive rhizome network, with rhizome diameters ranging between 5–50 mm, total physical removal of salmonberry is difficult to achieve.

- If there is space, contaminated soil can be spread and shallow buried on an annexed area of the site for subsequent treatment of regenerative growth. The maximum depth of spread infested soil must be 100 cm, and this must be capped with a shallow (i.e. <50 cm) layer of uncontaminated soil to contain it.

- The stockpile should be fenced to prevent traffic across this area. It should be clearly levelled to prevent inadvertent use.

- Subsequent weed control treatments should continue until the salmonberry is eliminated.

- An alternative treatment is burial on site. There are currently no official guidelines for safe burial depth of salmonberry; however, burial to 2 m depth has been previously recommended.

- The risk of regeneration is reduced if a root barrier membrane is spread over the buried soil. There may need to be padding implemented to prevent the backfill material from damaging the membrane when it is laid.

- This must take place in an area that will not be disturbed by works.

Chemical Control

- A single season of herbicide application is unlikely to remove salmonberry.

- Glyphosate has been shown to be more effective at controlling salmonberry than triclopyr. Glyphosate kills most stems and rhizomes; however, follow-up treatments are necessary as large numbers of shoots re-appear the following year as may new seedlings.

6.2.4.6 Non-scheduled IAPS

6.2.4.6.1 Buddleia (*Buddleja davidii*)

Physical Control

- Flower heads should be removed before seed set in June – early July to reduce the number of seeds dispersed.

- Buddleia grows well in disturbed sites, so physical control can provide conditions for the germination of buddleia seeds. Therefore, revegetation should be carried out soon after the removal.

- Mowing or cutting back of buddleia is ineffective, as plant regrows vigorously. Severed buddleia branches can take root, so cut material should not be left on soil. Small plants can be hand-picked, but this is labour intensive and care must be taken to reduce soil disturbance. Small infestations can be dug out, but this is not practical for larger infestations/plants.

Chemical Control

- Herbicide can control small infestations/plants through foliar application, but treatments should be followed up every six months, as regrowth can occur.

Combined Chemical and Physical Control

- Buddleia can be effectively controlled by cutting plants to their base during active growth in late spring – early summer and immediately applying herbicide concentrate to the cut surface. As stated above, cut stems should not be stored on soil. The plants should be monitored and retreated, as necessary.

6.2.4.6.2 Cherry laurel (*Prunus laurocerasus*)

Physical Control

- Cut and remove stems by hand or chainsaw, cutting as close to the ground as possible to remove above ground growth.

- Remove the cut material from the area to allow for effective follow-up work and prevent regrowth.

- The stems can be chipped, and the chipped material can provide for a good weed barrier around ornamental garden areas.

- The removal of above ground growth will not prevent regrowth as cherry laurel will regrow from cut stems and stumps.

There are four recommended methods to achieve successful management after the initial cut and removal:

Physical Control

1. Digging the stumps out. The effectiveness of this technique is increased by removing all viable roots. This can be done manually or with a tractor and plough. To avoid regrowth, stumps should be turned upside down and soil should be brushed off roots.

Chemical Control

2. Direct stump treatment by painting or spot spraying freshly cut low stumps with an herbicide immediately after being cut. Glyphosate (20% solution), tryclopyr (8% solution), and ammonium sulphate (40% solution) are known to be effective during suitable weather conditions (i.e. dry weather). The herbicide concentrations and timings of applications vary according to which chemical is used. Use of a vegetable dye is recommended to mark treated stumps and all stumps should be targeted. A handheld applicator will help avoid spray drift onto surrounding non-target species. Always read the label and follow the manufacturer's guidelines when using herbicides.

3. A variation on the stump treatment method is stem injection, using a 'drill and drop' methodology, whereby, if the main stem is cut and is large enough for a hole to be drilled into it, the hole can be used to facilitate the targeted application of glyphosate (25% solution).

4. Stump regrowth and seedlings can be effectively killed by spraying regrowth with a suitable herbicide; usually glyphosate. Best practice spraying protocols should be carefully followed. General broadcast spraying is not as effective as stump spot treatment and has the potential to impact on surrounding non-target species. The leaves are thick and waxy. For herbicide treatment to be effective, each individual leaf needs be thoroughly wetted with herbicide to kill the plant.

The cherry laurel stumps, foliage, and surrounding soil should be disposed of at a suitably licensed facility.

6.2.4.6.3 Winter heliotrope (*Petasites pyrenaicus*)

Physical Control

- Due to its extensive rhizome network, which extends to approximately 30 cm deep, total physical removal of winter heliotrope is difficult to achieve.

- Where mechanical means can be employed, it should be possible to deal with larger infestations but due to the potential for regeneration from rhizome fragments, it may be best to tackle its control using a combination of excavation with follow-up treatment by herbicides.

- As with other plants with the potential to spread from small rhizome fragments, disposal of material should be undertaken with due caution to prevent accidental spread of the plant. Other means of disposal include burial of material at a depth of at least 50 cm, incineration, or disposal to licensed landfill.

Chemical Control

- Infestations of winter heliotrope can be treated with a glyphosate herbicide through foliar spraying in dense stands and weed wiping in mixed stands during the active growing season. Due to the potential for re-infestation from rhizome fragments, follow-up treatments will be required to deal with any re-growth.

6.2.4.6.4 Snowberry (*Symphoricarpos albus*)

Physical Control

- Snowberry spreads rapidly through a rhizome network, and coppicing can result in vigorous regrowth. Therefore, total physical removal is difficult to achieve.

Chemical Control

- Herbicidal control is required for effective removal. A glyphosate-based herbicide can be applied when the plant is in full leaf.

- Foliar spraying with herbicide can also be effective by drilling the base of the plant and applying herbicide into drill holes between April and May. This can be followed up with a second treatment in August. However, repeat treatments may be required.

6.2.4.6.5 Old man's beard (*Clematis vitalba*)

Physical Control

- At newly infested sites, small seedlings can be manually pulled, preferably during damp conditions (i.e. during winter or spring). The seedlings should be collected for composting, adopting biosecurity measures.

- Where isolated mature aerial vegetation is present, the vines should be manually pulled and bagged.

- The thin stems that remain rooted in the soil may now be manually pulled and removed for composting in a biosecure manner, along with the aerial vegetation.

- Where old man's beard has only recently invaded an area and not yet produced dense foliage, the aerial vegetation may be cut and left to die. The roots and seedlings left in the ground may then be removed manually or treated with herbicide.

Chemical Control

- A number of chemicals have been used effectively against old man's beard, including glyphosate and triclopyr, although control invariably takes more than one year.

- For mature plants, the vines should be cut back to ground level or waist height in winter, or spring and the subsequent regrowth can be then foliar sprayed. This method will avoid impacting on the host plant the vine may be covering.

- Foliar application of herbicides should be undertaken while the plant is actively growing. Due to the sheer biomass of vegetation that the plant can produce, it may be difficult to access infested sites to implement control measures.

- For large, extensive infestations of old man's beard, chemical treatment should be carried out in June or July when the plant is growing vigorously and in full leaf, using specialised spraying equipment to target the tall canopy layer. The purpose of this is to minimise the amount of herbicide that will reach the host tree or shrubs underneath.

6.2.4.6.6 Monkey-flower (*Erythranthe guttata*)

Physical Control

- Local eradication of monkey-flower is considered achievable for small populations, and because seed dormancy is short, localised intensive efforts could remove the species. Plants are dug out and manually pulled in a way that all plant material is removed from the soil, including roots.

- The plant is fragile and breaks easily, which can increase the risk of fragment spread. Adequate material and tools must therefore be used for manual removal of monkey-flower to ensure the complete removal of the plant.

- Manual removal is repeated over multiple years to progressively eliminate regrowth from remaining fragments, seedlings (until the exhaustion of the seed bank), or plants that would have been overlooked.

- The plant material can be safely disposed of in a biosecure manner, away from water systems and moist areas.

Chemical Control

- Herbicide application includes the use of 2,4-D amine and weed wiping using glyphosate. However, there is no direct reference to the effectiveness of these chemical controls on the removal of monkey-flower.

6.3 Asian clam

Asian clam (*C. fluminea*) has been recorded at the downstream end of the Swilly Burn near the proposed bridge (Site W3-14). There are no instream works at this or any other major river crossings in the Foyle catchment (rivers Deele, Swilly Burn, Finn) but instream works are required on smaller tributaries of the Foyle catchment main channels. To avoid transference of clams or their waterborne juvenile stages, construction personnel are strictly forbidden to enter the water at the major bridge crossing locations. If accidental contact with water occurs in the rivers of Section 3: Swilly Burn, Deele or Finn and/or Section 2: Swilly Estuary or Isle Burn (Lesliehill) - before moving to other areas within the catchment or any outside river, lake or estuary catchment the following biosecurity protocol shall be carried out:

- Check – Remove any visible matter, including any clams you can see, along with plant material or mud. Empty boots or drain all river water from containers.

- Clean – Washdown all clothing, equipment and any other gear that was in contact with river water using tap-water onto grass (or a dedicated washdown area within the site compound), at least 50 m away from any watercourse and not into a stormwater drain system.

- For any absorbent surfaces of equipment and/or materials that accidentally come into contact with river water use a suitable disinfection method for the item: (1) Hot water - Soak in hot tapwater (55°C) for at least 5 minutes; (2) Diluted bleach - Soak in household bleach in a 10% (1 in 10) ratio with water for 1 hour; (3) Virkon® Aquatic – use a spray bottle of solution according to manufacturer's instructions to douse the equipment; (4) Freezing – overnight until solid.

- Dry – Allow gear to dry to touch, inside and out, then leave it to dry for at least 48 hours (2 days) before using again.

- Any personnel that enter water as part of instream works on tributaries of the Swilly Burn will adhere to biosecurity protocols as set out in the Invasive Species Ireland Water Users Code of Practice (a joint development by NPWS and NIEA) which can be found online at: https://invasives.ie/biosecurity/ (Accessed October 2025).

To avoid potential transfer of aquatic alien species or pathogens, there shall be no abstraction from any natural watercourse as part of construction activities. Any construction related water requirements will be served by tanker sourced from a municipal treatment supply.

6.4 Recording and Monitoring

Table 6.1 and Table 6.2 outline the data requirements to be recorded during the treatment and monitoring process, as per the TII Guidelines *The Management of Invasive Alien Plant Species on National Roads* (TII, 2020a). Treatment information must be recorded every time any treatment of IAPS is performed.

Table 6.1: Treatment Information Recording Requirements

Treatment Information	Information Required
SiteID	Provide ID for site recorded as part of full topographical survey
Company	Name of company applying treatment
TreatedBy	Name of Individual applying treatment
TreatDate	Date and time of treatment
Weather	Description of weather conditions
TreatMeth	State the method of treatment used
Herbicide	State the name of the herbicide used
Pesticide Control Service (PCS)	Provide PCS Number
Cal_Rate	Provide calibration rate per hectare
Conc_Used	State the total concentration of herbicide used
Water_Vol	State the water volume used per hectare
Nozzle	State the nozzle type used
Cal_SUD	Was the calibration used in compliance with the Sustainable Use Directive (Yes/No Response)
Qual&Reg	Did a qualified and registered adviser carry out the treatment? (Yes/No Response)
Prof_User	Name of qualified and registered professional user
Notes	Any notes re treatment

Table 6.2: Monitoring Information Recording Requirements

Monitoring Data	Information Required
SiteID	Read Only field, displaying ID for site recorded as part of full topographical survey stage.
Company	Name of company undertaking inspection
InspectBy	Name of individual undertaking inspection
Ins_Date	Date and time of survey
Regrowth	Is there any evidence of regrowth (Yes/No response)
%Regrowth	Whole number as a percentage of overall site, indicating estimate of regrowth.
Comments	Comments regarding regrowth (e.g. is regrowth coming from untreated adjacent lands outside of the site)
NewStands	Are there any new infestations evident adjacent/outside original site? (Yes/No Response)
NewStdCom	Comments re new infestation: where it is relative to site, how abundant.
Notes	Any notes re treatment

7 REFERENCES

Department of Agriculture, Food and the Marine (2026) *Pesticide Registration and Control Divisions (PRCD)* https://www.pcs.agriculture.gov.ie/

Fossitt (2000). *A Guide to Habitats in Ireland*, The Heritage Council.

(Jones, D., Bruce, G., Fowler, M.S., Law-Cooper, R., Graham, I., Abel, A., Street-Perrott, F.A., Eastwood, D. (2018). Optimising physiochemical control of invasive Japanese knotweed. *Biological Invasions,* 20, 2091-2105.

Met Office (2021). *Warmest Autumn on record for Northern Ireland*, Available at: https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2021/warmest-autumn-on-record-for-northern-ireland, accessed December 2021

NPWS (2009). *Threat Response Plan: Otter (2009-2011)*. National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government, Dublin.

Ó Néill, L. (2008). *Population dynamics of the Eurasian otter in Ireland: integrating density and demography into conservation planning*. Unpublished PhD Thesis. Trinity College Dublin, Ireland.

O'Reilly, P. (2004) Rivers of Ireland, A Flyfisher's Guide (6th Edition). Merlin Unwin Books, Shropshire, UK

TII (2020a) *The Management of Invasive Alien Plant Species on National Roads – Technical Guidance GE-ENV-01105,* Transport Infrastructure Ireland, Dublin.

TII (2020b) *The Management of Invasive Alien Species on National Roads – Standard GE-ENV-01104,* Transport Infrastructure Ireland, Dublin.

APPENDIX 1: SCHEDULED SPECIES RECORDS

Apx Table 1: Japanese knotweed and Himalayan knotweed records

Infestation ID	Description	Location
	Section 1	
S1-JK01	Small infestation along the roadside within the grass verge. Infestation is 7 m in length.	Outside CPO boundary 610256 893480
S1-JK02	Large dead stands with new growth of small shoots present. Infestation extent: 108 m^2.	Outside CPO boundary 610239 893434
S1-JK03	Large infestation on grass embankment. Mixture of large stands and smaller shoots. Infestation extent: 1022 m^2.	Outside CPO boundary 610286 893438
S1-JK04	Multiple small shoots growing outside boundary fence.	Outside CPO boundary 611447 893483
S1-JK05	Japanese knotweed shoots growing up through vegetation. Infestation 30 m in length.	Outside CPO boundary 611578 893517
S1-JK06	Japanese knotweed growth within grassy verge adjacent to by-road. Approximately 20 m in length and 1 m in width.	Outside CPO boundary 611788 894012
S1-JK07	Japanese knotweed growth along northern bank of the River Finn. Close to the water's edge. Infestation extent: 149 m^2.	Outside CPO boundary 611803 895337
S1-JK08	Japanese knotweed growth on an island in the River Finn	Outside CPO boundary 611929 895228
S1-JK09	Japanese knotweed interspersed with Himalayan balsam on the southern (right-hand) bank of the River Finn. Numerous scattered immature stems of Japanese knotweed are present. Infestation extent: 38 m^2	Outside CPO boundary 612184 895102
S1-JK10	Japanese knotweed within heavy vegetation along with Himalayan balsam. Numerous Japanese knotweed plants scattered throughout rocky outcrops. Infestation extent: 387 m^2.	Outside CPO boundary 612196 895098
S1-JK11	Japanese knotweed growth on left bank of the River Finn. Infestation extent: 36 m^2.	Outside CPO boundary 612385 895109
S1-JK12	Japanese knotweed shoots growing on the left bank of the River Finn. Infestation extent: 1.9 m^2.	Outside CPO boundary 612385 895062
S1-JK13	Japanese knotweed shoots growing along the left bank of the River Finn. Shoots are within 1 m of the River Finn. 4×1 m extent.	Outside CPO boundary 612575 895011
S1-JK14	Japanese knotweed stands mixed with Himalayan balsam (S1-HB41) on the left bank of the River Finn. Infestation 40 m in length.	Outside CPO boundary 612721 895032
S1-JK15	Heavy infestation along the left bank of the River Finn Infestation extent: 239 m^2.	Outside CPO boundary 612749 895047
S1-JK16	Multiple Japanese knotweed stands on the right bank of the River Finn. Area looks to have been treated previously with a few surviving stands. Infestation extent: 39 m^2.	Outside CPO boundary 613096 895177
S1-JK17	Single Japanese knotweed shoot growing within vegetation along eastern side of a local road.	Outside CPO boundary 614751 896448
S1-JK18	Japanese knotweed stands that have been previously sprayed and are currently retreating along eastern side of a local road. 70 m in length.	Outside CPO boundary 614730 896623
S1-JK19	Single Japanese knotweed shoot in vegetation on western side of a local road.	Outside CPO boundary 614855 897008
S1-JK20	Dispersed Japanese knotweed on western side of a local road. Infestation extent: 124 m^2.	Outside CPO boundary 614873 897013
S1-JK21	Large infestation that has been previously treated as evidenced by the dead canes present; however, new growth is also visible. Infestation on eastern side of a local road. Infestation extent: 11 m^2.	Outside CPO boundary 614888 897022
S1-JK22	Japanese knotweed infestation on eastern side of a local road. Infestation extent: 27 m^2.	Outside CPO boundary 614897 897039
S1-JK23	Japanese knotweed stands located in a field adjacent to N13. Himalayan balsam (S1-HB07) also present. Infestation extent: 134 m^2.	615984 899681
S1-JK29	Japanese knotweed stands along edge of River Finn. Two 6×6 m stands. Found in 2025.	Outside CPO boundary 613080 895192
S1-HK01	Small Himalayan knotweed stand adjacent to N13 on small side road.	616025 899715
S1-HK19	Recorded in 2023. Himalayan knotweed stand in an area of recolonising bare ground.	616184 899646

Infestation ID	Description	Location
	Section 2	
S2-JK24	Large Japanese knotweed infestation behind shed. Infestation extent: 5070 m^2.	619470 909214
S2-JK25	Japanese knotweed infestation along southern side of local road. Infestation extent: 79 m^2.	621494 911491
S2-JK26	Small Japanese knotweed infestation along N13. Infestation extent: 1.8 m^2.	622944 910942
S2-JK27	Small Japanese knotweed infestation along N13. Infestation extent: 1.1 m^2.	622986 910923
S2-HK02	Himalayan knotweed stands adjacent to N13. Infestation extent: 16 m^2.	Outside CPO boundary 619464 908847
S2-HK03	Large Himalayan knotweed infestation near shed. Infestation extent: 104 m^2.	619469 908871
S2-HK04	Very large, extensive Himalayan knotweed infestation around farm sheds. Infestation extent: 4429 m^2.	619857 909821
S2-HK05	Himalayan knotweed infestation behind sheds. Infestation extent: 127 m^2.	Outside CPO boundary 619869 909821
S2-HK06	Himalayan knotweed infestation behind sheds. Infestation extent: 157 m^2.	619874 909902
S2-HK07	Small Himalayan knotweed infestation behind sheds.	Outside CPO boundary 619869 909909
S2-HK08	Himalayan knotweed infestation behind sheds. Infestation extent: 3 m^2.	Outside CPO boundary 619859 909913
S2-HK09	Small Himalayan knotweed infestation behind sheds.	Outside CPO boundary 619860 909923
S2-HK10	Himalayan knotweed stands. Infestation extent: 76 m^2.	619510 910595
S2-HK11	Small Himalayan knotweed stands. Infestation extent: <2 m^2.	Outside CPO boundary 620669 910862
S2-HK12	Small Himalayan knotweed stands. Infestation extent: <2 m^2.	Outside CPO boundary 620667 910874
S2-HK13	Small Himalayan knotweed stands. Infestation extent: <2 m^2.	Outside CPO boundary 620679 910889
S2-HK14	Himalayan knotweed infestation along N13. Infestation extent: 28 m^2.	621484 911522
S2-HK15	Himalayan knotweed infestation along N13. Infestation extent: 5 m^2.	610256 893480
S2-HK16	Himalayan knotweed infestation along N13. Infestation extent: 255 m^2.	621569 911558
S2-HK17	Himalayan knotweed infestation along N13. Infestation extent: 0.5 m^2.	621610 911549
	Section 3	
S3-JK28	Large Japanese knotweed infestation within wooded area in an agricultural field. Infestation extent: 178 m^2.	632512 897899
S3-JK30	Infestation on the north side of N14 at Drumcarn. Treated and potentially gone.	Outside CPO boundary 625263 909808
S3-JK31	South side L2374 at Drumbeg. Large stand (>200 m^2) to the south of the road and extending along the stream to south.	628959 904015

Apx Table 2: Himalayan balsam

Infestation ID	Description	Location
	Section 1	
S1-HB01	Single Himalayan balsam stand near River Finn.	Outside CPO boundary 611937 895223
S1-HB02	Single Himalayan balsam stand near River Finn.	Outside CPO boundary 612157 895090
S1-HB03	Himalayan balsam stands present within Japanese knotweed infestation (S1-JK09). Infestation extent: 38 m^2.	Outside CPO boundary 612196 895098
S1-HB04	Himalayan balsam stands in heavy vegetation mosaic along with Japanese knotweed (S1-JK10). Infestation extent: 387 m^2.	Outside CPO boundary 612196 895098
S1-HB05	Multiple Himalayan balsam stands within proximity to the River Finn. 10 m in length.	612504 895020
S1-HB06	Multiple small Himalayan balsam stands within proximity to the River Finn.	Outside CPO boundary 613086 895185
S1-HB07	Himalayan balsam stands adjacent to N13. Japanese knotweed (S1-JK23) also present. Infestation extent: 130 m^2	615984 899681
S1-HB40	Recorded in 2023 and updated in 2025. Himalayan balsam stands at varying density within a drainage ditch approximately 15 m from the River Finn. Infestation extent: 150 m long and 3 m wide	Outside CPO boundary 616393 894963
S1-HB41	Japanese knotweed stands (S1-JK14) mixed with Himalayan balsam on the left bank of the River Finn. Infestation 40 m in length.	Outside CPO boundary 612721 895032
S1-HB42	Himalayan balsam growing sparsely along an approximately 30 m-long stretch of the northern riverbank.	Outside CPO boundary 612661 895017
S1-HB43	Recorded in 2025. An approximately 8 m × 2 m area of Himalayan balsam along a wall, with the northern end <3 m from the CPO boundary. Near S1-HB44 and S1-HB45.	Outside CPO boundary 616331 895108
S1-HB44	Recorded in 2025. An approximately 10 m × 10 m area of Himalayan balsam.	Outside CPO boundary 616326 895101
S1-HB45	Recorded in 2025. An approximately 20 m × 3 m area of Himalayan balsam along a drainage ditch.	Outside CPO boundary 616339 895103
S1-HB46	Recorded in 2025. Large Himalayan balsam infestation approximately 544 m^2 on edge of CPO just outside CPO in farmyard waste area.	Outside CPO boundary 616102 897125
	Section 2	
S2-HB08	Himalayan balsam stands behind shed. Infestation extent: 4998 m^2.	619470 909214
S2-HB09	Himalayan balsam stands behind house. Infestation extent: 986 m^2. Adjacent to CPO boundary.	Outside CPO boundary 619459 910605
S2-HB10	Large infestation of Himalayan balsam. Infestation extent: 422 m^2.	619390 910649
S2-HB11	Large infestation of Himalayan balsam. Infestation extent: 370 m^2.	619511 910595
S2-HB12	Large Himalayan balsam infestation. Infestation extent: 1663 m^2.	619627 911070
S2-HB13	Himalayan balsam infestation on both banks of Leslie Hill stream. 40 m in length.	622657 911086
	Section 3	
S3-HB14/HB15	Himalayan balsam in scrub adjacent to N14. Two infestation records are present in close proximity but are not connected. Infestation extent: 534 m^2. Infestation adjacent to Leslie Hill stream extent: 4219 m^2.	624041 910513
S3-HB16	Small Himalayan balsam stands in proximity to N14. Adjacent to Leslie Hill stream.	Outside CPO boundary 624477 910308
S3-HB17	Small Himalayan balsam stands in proximity to N14. Infestation 44 m in length.	625420 909974
S3-HB18	Large Himalayan balsam infestation within agricultural field adjacent to N14. Infestation extent: 3111 m^2	627339 907105
S3-HB19	Small Himalayan balsam stands in proximity to N14. Infestation extent: 33 m^2.	627336 907006
S3-HB20	Small Himalayan balsam stands in proximity to N14. Infestation extent: 12 m^2.	627355 907010

Infestation ID	Description	Location
S3-HB21	Small Himalayan balsam stands in proximity to N14. Infestation 56 m in length.	627334 906962
S3-HB22	Himalayan balsam stands in proximity to N14 within agricultural field margin. Infestation 442 m in length.	627673 906542
S3-HB23	Himalayan balsam stands growing in hedging along link road (L5604). Infestation 37 m in length.	627940 906015
S3-HB24	Large Himalayan balsam infestation within hedging along link road (L5604). Infestation extent: 915 m^2.	627796 905885
S3-HB25	Small Himalayan balsam stand within agricultural field in proximity to N14. Adjacent to Swilly burn stream.	628076 905785
S3-HB26	Small Himalayan balsam stand within agricultural field in proximity to N14. Adjacent to Swilly burn stream.	628072 905749
S3-HB27	Himalayan balsam stands in proximity to N14 within agricultural field margin. Infestation extent: 50 m^2. Adjacent to Swilly burn stream.	628921 904018
S3-HB28	Himalayan balsam stands in proximity to N14 within agricultural field margin. Infestation extent: 443 m^2. Adjacent to Swilly burn stream. Area historically infested with Japanese knotweed.	628931 904016
S3-HB29	Himalayan balsam infestation, 486 m in length, within agricultural field margin. Adjacent to Swilly burn stream	629257 903447
S3-HB30/HB31	Infestation of Himalayan balsam stands north and south of drainage ditch. South of drainage ditch infestation extent: 5 m^2. North of drainage ditch infestation is 81 m in length. Adjacent to CPO boundary.	Outside CPO boundary 629233 903369
S3-HB32	Infestation of Himalayan balsam stands adjacent to Swilly burn stream. Infestation extent: 320 m^2.	629278 903282
S3-HB33	Himalayan balsam present on right bank of stagnant drain. Infestation 10 m in length.	629431 902066
S3-HB34	Small Himalayan balsam stands along the Deele southern riverbank edge.	631104 899718
S3-HB35	Small Himalayan balsam stand within agricultural field.	632417 898393
S3-HB36	Himalayan balsam stands within agricultural field margin. Infestation extent: 257 m^2. Adjacent to CPO boundary.	Outside CPO boundary 632313 898188
S3-HB37	Large Himalayan balsam infestation within agricultural field margin. Infestation extent: 1005 m^2.	632328 898195
S3-HB38	Large Himalayan balsam infestation within agricultural field margin. Infestation extent: 4726 m^2. Adjacent to CPO boundary.	Outside CPO boundary 632343 898166
S3-HB39	Himalayan balsam stands within agricultural field margin. Infestation extent: 171 m^2.	Outside CPO boundary 632058 898028
S3-HB47	Himalayan balsam abundant along the road edge of L2444 in the vicinity of the old railway line.	630644 900096
S3-HB48	Extensive infestation of Himalayan balsam along the south side of the River Finn and extending along the treeline to the west.	632576 896866

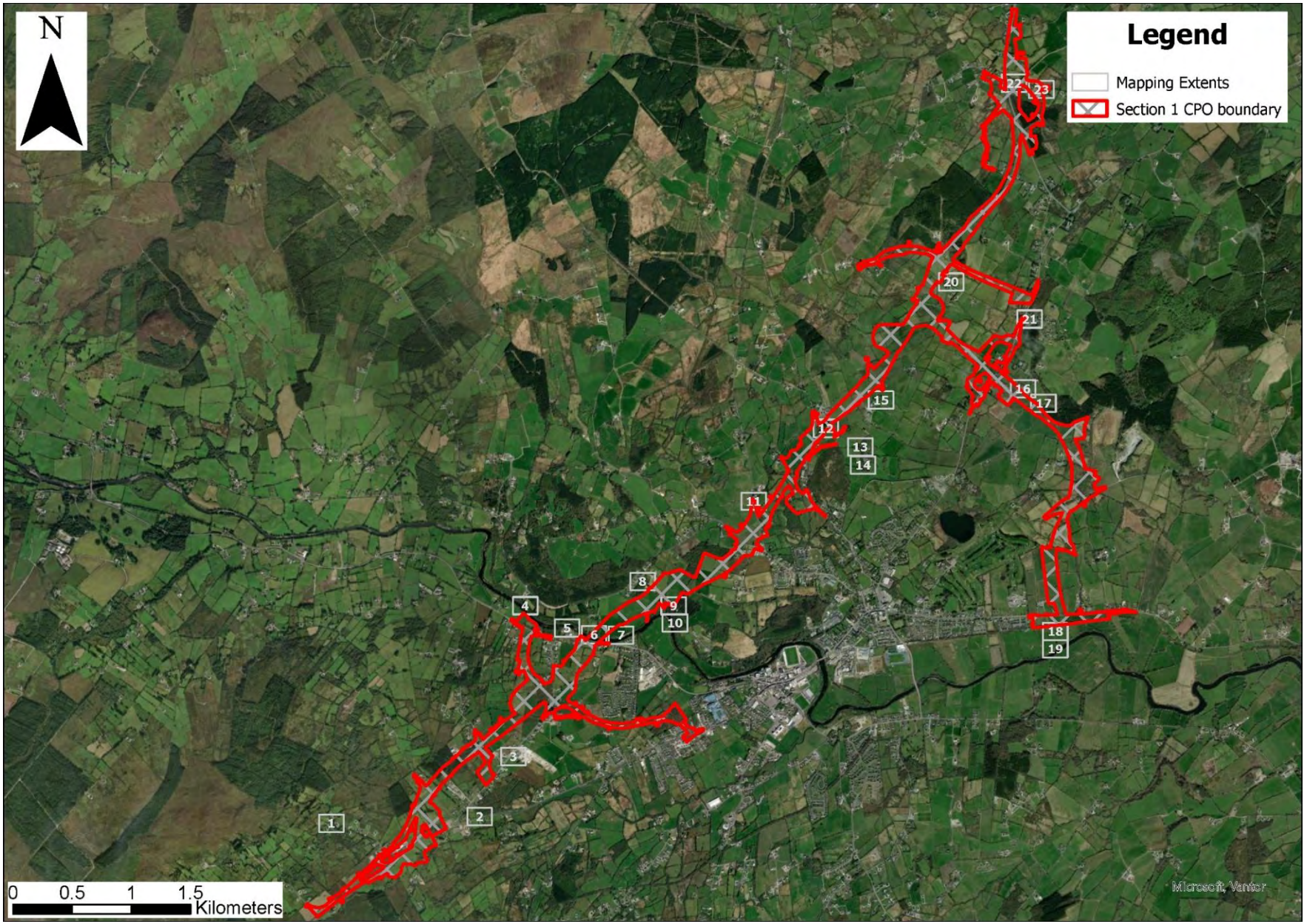
Apx Table 3: Rhododendron, giant rhubarb, and salmonberry

Infestation ID	Description	Location
	Section 1	
S1-RH01	Rhododendron within hedgerow along road. Infestation extent: 32 m^2.	613053 895347
S1-RH02	Rhododendron infestation in woodland. Infestation extent: 81 m^2.	613076 895320
S1-RH03	Large rhododendron infestation within woodland. Infestation extent: 203 m^2.	Outside CPO boundary 613103 895286
S1-RH04	Large rhododendron infestation within woodland. Infestation extent: 291 m^2.	Outside CPO boundary 613099 895273
S1-RH05	Rhododendron within hedgerow along road. Infestation extent: 852 m^2.	Outside CPO boundary 613162 895248
S1-RH06	Large rhododendron infestation growing within woodland. Infestation extent: 1113 m^2.	Outside CPO boundary 613162 895110
S1-RH07	Large rhododendron infestation growing within woodland. Infestation extent: 126 m^2.	Outside CPO boundary 613161 895108
S1-RH08	Dense rhododendron infestation within woodland. Infestation extent: 304m^2. Extent estimated due to access issues.	Outside CPO boundary 616358 896977
S1-RH09	Dense rhododendron within woodland. Infestation extent: 35 m^2.	Outside CPO boundary 616164 897707
S1-RH14	Rhododendron along roadside.	Outside CPO boundary 614713 896625
S1-RH15	Recorded in 2025. Rhododendron along approximately 30 m of roadside at property perimeter.	613821 896174
S1-GR01	Large giant rhubarb stands both sides of access road. Infestation extent: 63 m^2.	614355 896742
S1-GR02	Infestation described as 3×3 m. No further notes. Record from 2025	614463 896778
	Section 2	
S2-RH10	Rhododendron stands within gorse scrub. Infestation extent: 13 m^2.	619786 909529
S2-RH11	Rhododendron infestation growing directly behind sheds. Infestation extent: 91 m^2.	Outside CPO boundary 619878 909881
S2-RH12	Dense rhododendron infestation growing directly behind shed and encroaching on sheds roof. Infestation extent: 157 m^2.	619884 909909
S2-RH13	Rhododendron infestation growing beside N13. Infestation extent: 76 m^2.	619509 910607
S2-SA01	Recorded in 2023. Salmonberry scattered through scrub.	618811 911893
S2-SA02	Recorded in 2023. Salmonberry mixed in with gorse within scrub.	619695 910934
S2-SA03	Recorded in 2023. Salmonberry stand approximately 3 m high.	620151 910478
S2-SA04	Recorded in 2023. Salmonberry throughout wooded stream corridor.	621230 911180
S2-SA05	Recorded in 2025. Notes state 10×10 m extent.	618801 911888
S2-SA06	Recorded in 2025. Mixed in with gorse and bramble. 3×2 m extent.	618945 911833
S2-SA07	Recorded in 2025. In a stand with gorse and bramble. Extent is 2×2 m plus another 2×2 m.	Outside CPO boundary 618988 911655
S2-SA08	Recorded in 2025. Edge of scrub. Extent 1×1 m.	619919 911208
S2-SA09	Recorded in 2025. In close proximity to S2-SA08.	621242 911177
	Section 3	
S3-RH15	Occasional rhododendron along the south side of B85 (Urney Road) as understorey to a mature treeline.	632741 896871

Apx Table 4: Other non-scheduled IAPS

Infestation ID	Description	Location
	Section 1	
S1-SN01	Snowberry infestation along an approximately 45 m-long stretch of roadside. Approximately 4 m of the length is within the CPO.	616340 899652
S1-SN02	Snowberry along roadside.	Outside CPO boundary 614713 896625
S1-OM01	Old man's beard along roadside.	614348 896831
S1-MF01	Monkey-flower on rocks in a stream.	616178 896991
S1-CL01	Small area of cherry laurel in a woodland.	Outside CPO boundary 612896 895490
S1-CL02	Cherry laurel present in the large rhododendron infestation (S1-RH03) within woodland.	Outside CPO boundary 613103 895286
S1-CL03	Approximately 14 m-long line of cherry laurel along a roadside.	614358 896747
S1-CL04	Cherry laurel along roadside.	Outside CPO boundary 614721 896624
S1-WH01	Large infestation of winter heliotrope within a farmyard. Infestation extent: 181 m^2.	Outside CPO boundary 615461 898024
	Section 2	
S2-BB01	A single butterfly bush at the roadside.	Outside CPO boundary 619592 908553
S2-BB02	Butterfly bush in farmyard.	Outside CPO boundary 619873 909910
S2-BB03	Single butterfly bush in tree line adjoining school grounds.	Outside CPO boundary 619522 909463
S2-SN03	Approximately 12 m-long line of snowberry along a roadside.	620064 910655
S2-SN04	Approximately 16 m-long line of snowberry along a roadside.	621467 911479
S2-SN05	Approximately 40 m-long line of snowberry.	621887 911638
S2-SN06	Approximately 110 m-long line of snowberry.	619705 909433

APPENDIX 2: INVASIVE PLANT SPECIES MAPPING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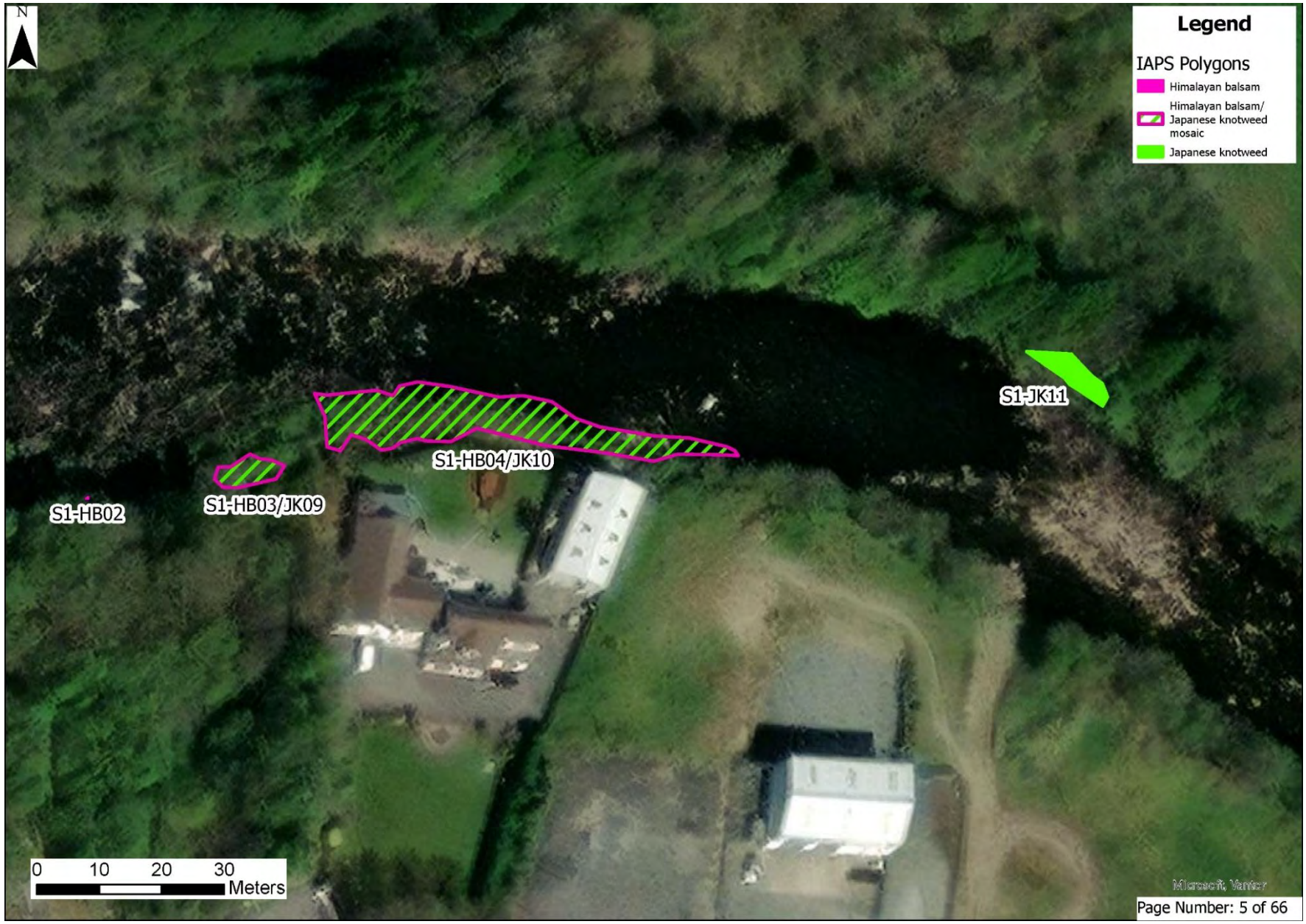
Legend
Mapping Extents
Section 1 CPO boundary
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
0 0.5 1 1.5
Kilometers
Microsoft, Vantor


N
Legend
IAPS Polygons
Japanese knotweed
S1-JK01
S1-JK02
S1-JK03
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
IAPS Polygons
Japanese knotweed
S1-JK05
S1-JK04
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 2 of 66


N
Legend
IAPS Polygons
Japanese knotweed
S1-JK06
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 3 of 66


N
Legend
Section 1 CPO boundary
IAPS Polygons
Himalayan balsam
Japanese knotweed
S1-JK07
S1-JK08
S1-HB01
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 4 of 66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Himalayan balsam/ Japanese knotweed mosaic
Japanese knotweed
S1-JK11
S1-HB04/JK10
S1-HB03/JK09
S1-HB02
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 5 of 66


N
Legend
Section 1 CPO boundary
IAPS Polygons
Himalayan balsam
Japanese knotweed
IAPS Points
Japanese knotweed
S1-JK12
S1-HB05
S1-JK
0 10 20 30
Meters
Microsoft Vantage
Page Number: 6 of 66


N
Legend
Section 1 CPO boundary
IAPS Polygons
Himalayan balsam/ Japanese knotweed mosaic
Japanese knotweed
IAPS Points
Himalayan balsam
S1-JK15
S1-JK14/HB41
S1-HB42
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 1 CPO boundary
IAPS Polygons
Cherry laurel
S1-CL01
0 10 20 30
Meters
Microsoft Vantor
Page Number: 8 of 66


N
S1-RH01
S1-RH02
S1-RH03/CL02
S1-RH04
S1-RH05
Legend
Section 1 CPO boundary
IAPS Polygons
Rhododendron
Rhododendron/cherry laurel mosaic
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
IAPS Polygons
Himalayan balsam
Japanese knotweed
Rhododendron
IAPS Points
Japanese knotweed
S1-JK29
S1-HB06
S1-JK16
S1-RH06
S1-RH07
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 1 CPO boundary
IAPS Points
Rhododendron
S1-RH15
0 10 20 30
Meters
Microsoft Virtual
Page Number: 11 of 66


N
Legend
Section 1 CPO boundary
IAPS Polygons
Cherry laurel
Giant rhubarb
IAPS Points
Giant rhubarb
Old man's beard
S1-OM01
S1-GR02
S1-CL03
S1-GR01
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
IAPS Polygons
Japanese knotweed
IAPS Points
Cherry laurel
Rhododendron
Snowberry
S1-JK18
S1-SN02
S1-CL04
S1-RH14
0 10 20 30
Meters
Microsoft Vantor


N
Legend
IAPS Polygons
Japanese knotweed
S1-JK17
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 1 CPO boundary
IAPS Polygons
Japanese knotweed
S1-JK22
S1-JK21
S1-JK20
S1-JK19
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 1 CPO boundary
IAPS Polygons
Himalayan balsam
S1-HB46
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 1 CPO boundary
IAPS Polygons
Rhododendron
IAPS Points
Monkey flower
S1-MF01
S1-RH08
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 1 CPO boundary
IAPS Polygons
Himalayan balsam
IAPS Points
Himalayan balsam
S1-HB43
S1-HB44
S1-HB45
S1-HB40
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
IAPS Polygons
Himalayan balsam
S1-HB40
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 19 of 66


N
Legend
Section 1 CPO boundary
IAPS Polygons
Winter heliotrope
S1-WH01
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 20 of 66


N
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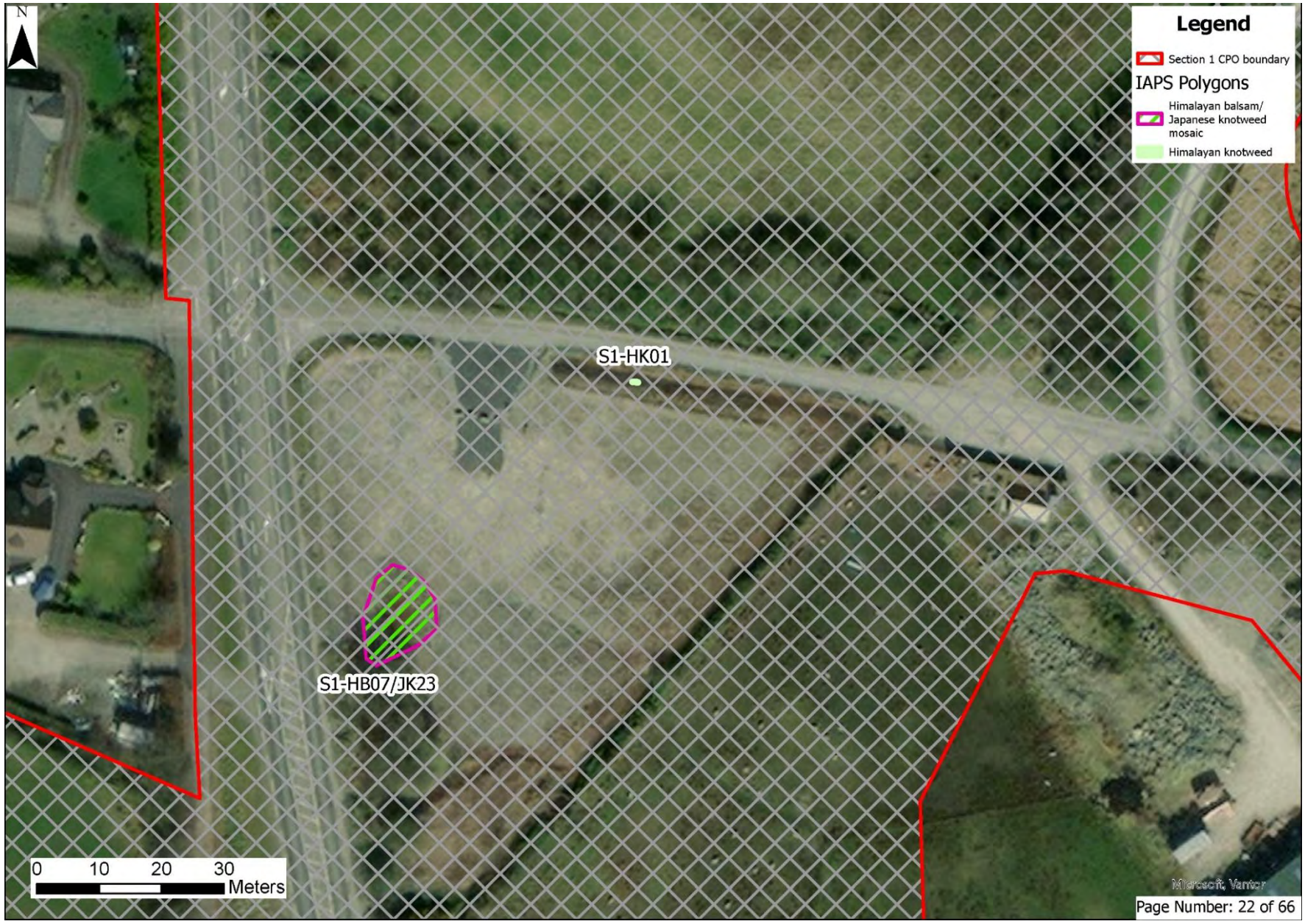
Section 1 CPO boundary
IAPS Polygons
Rhododendron
S1-RH09
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 21 of 66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Himalayan balsam/ Japanese knotweed mosaic
Himalayan knotweed
S1-HK01
S1-HB07/JK23
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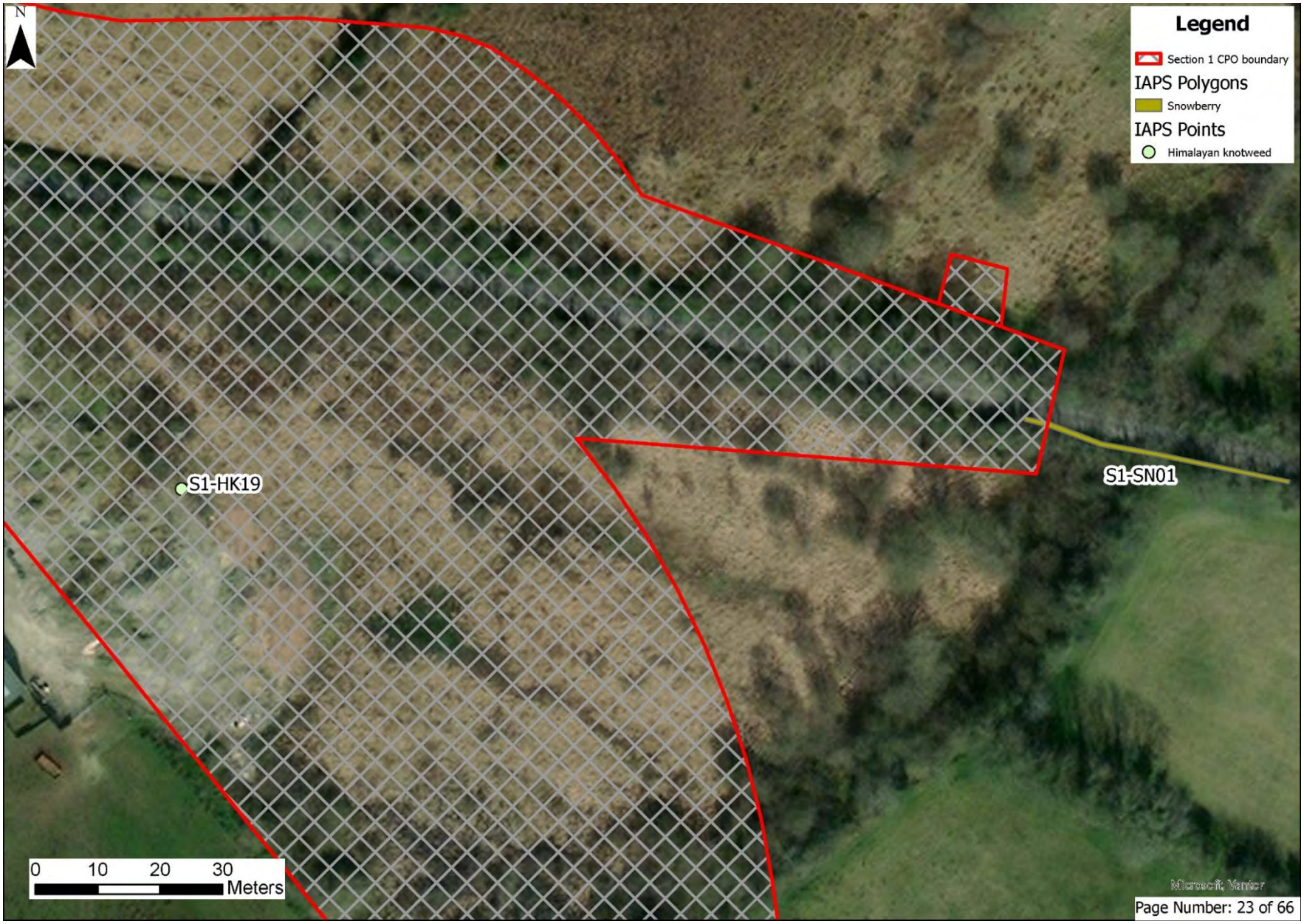
Meters
Microsoft, Vantor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Snowberry
IAPS Points
Himalayan knotweed
S1-HK19
S1-SN01
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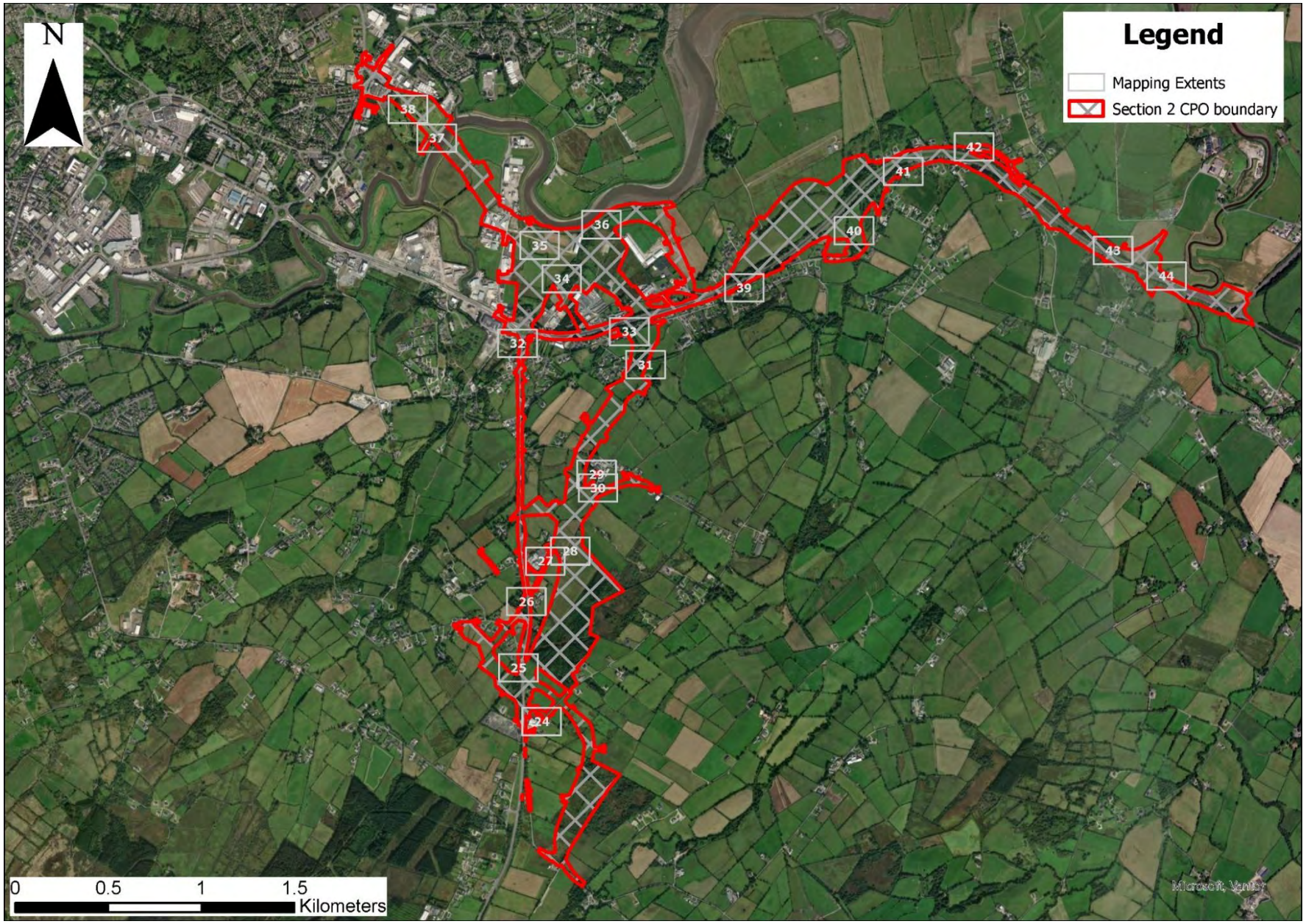
Meters
Microsoft, Vantor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Mapping Extents
Section 2 CPO boundary
38
37
36
35
34
33
32
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44
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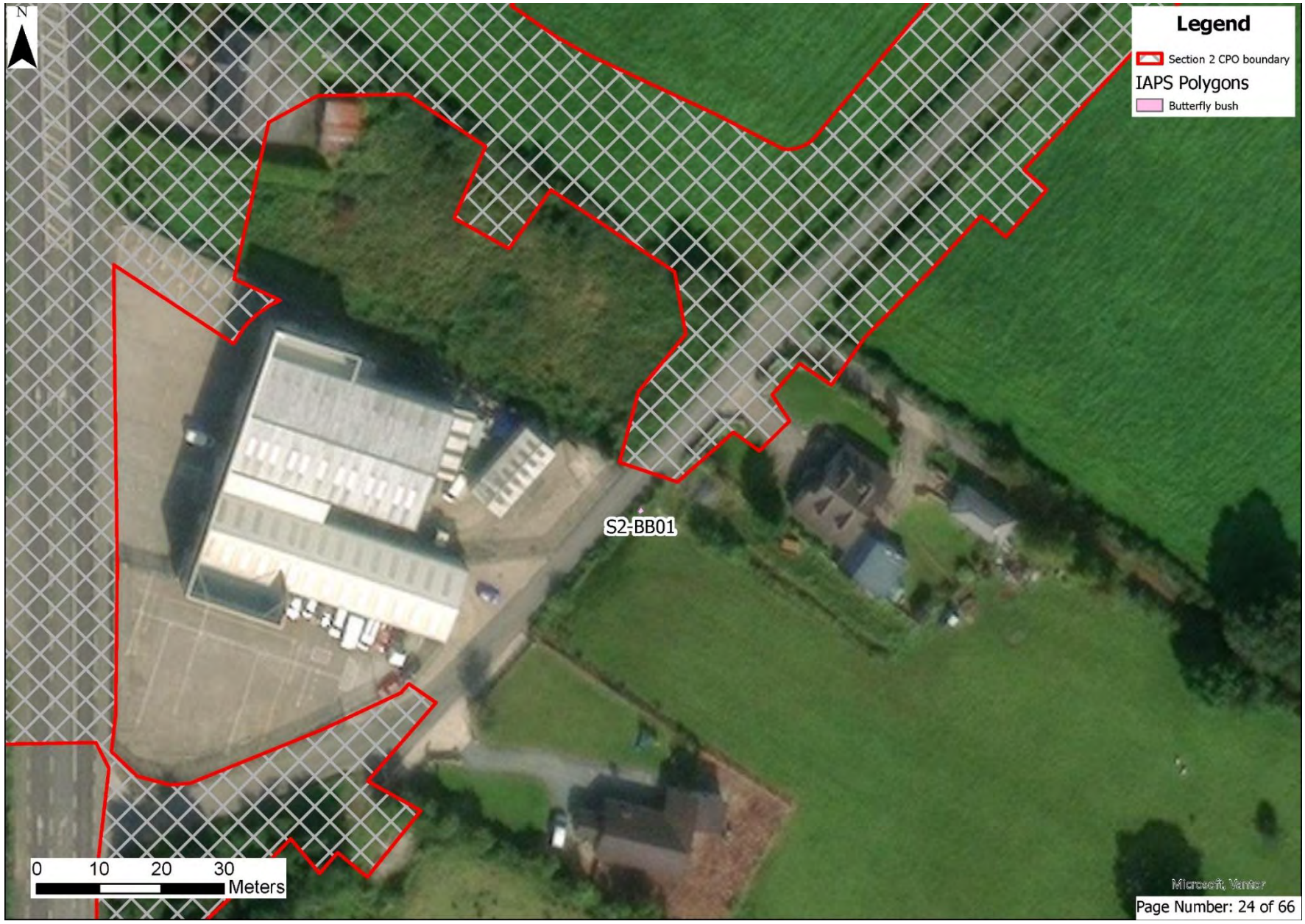
1
1.5
Kilometers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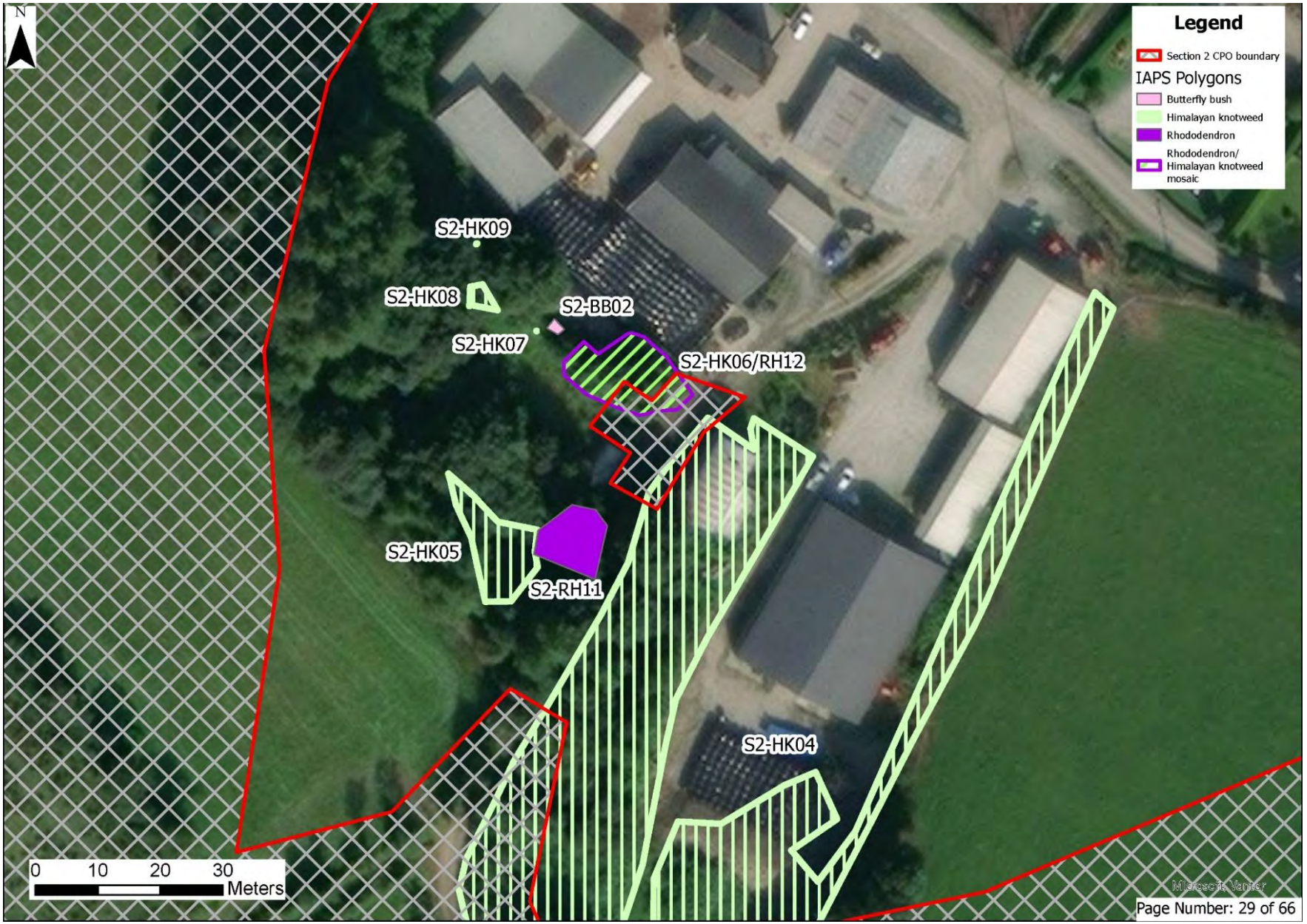
Section 2 CPO boundary
IAPS Polygons
Butterfly bush
S2-BB01
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 2 CPO boundary
IAPS Polygons
Himalayan knotweed
S2-HK03
S2-HK02
0 10 20 30
Meters
Microsoft Vantor
Page Number: 25 of 66


N
Legend
Section 2 CPO boundary
IAPS Polygons
Himalayan balsam/ Japanese knotweed mosaic
S2-HB08/JK24
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 2 CPO boundary
IAPS Polygons
Butterfly bush
Snowberry
S2-BB03
S2-SN06
0 10 20 30
Meters
Microsoft Corporation
Page Number: 27 of 66


N
Legend
Section 2 CPO boundary
IAPS Polygons
Rhododendron
Snowberry
S2-RH10
S2-SN06
0 10 20 30
Meters
Microsoft Vantage
Page Number: 28 of 66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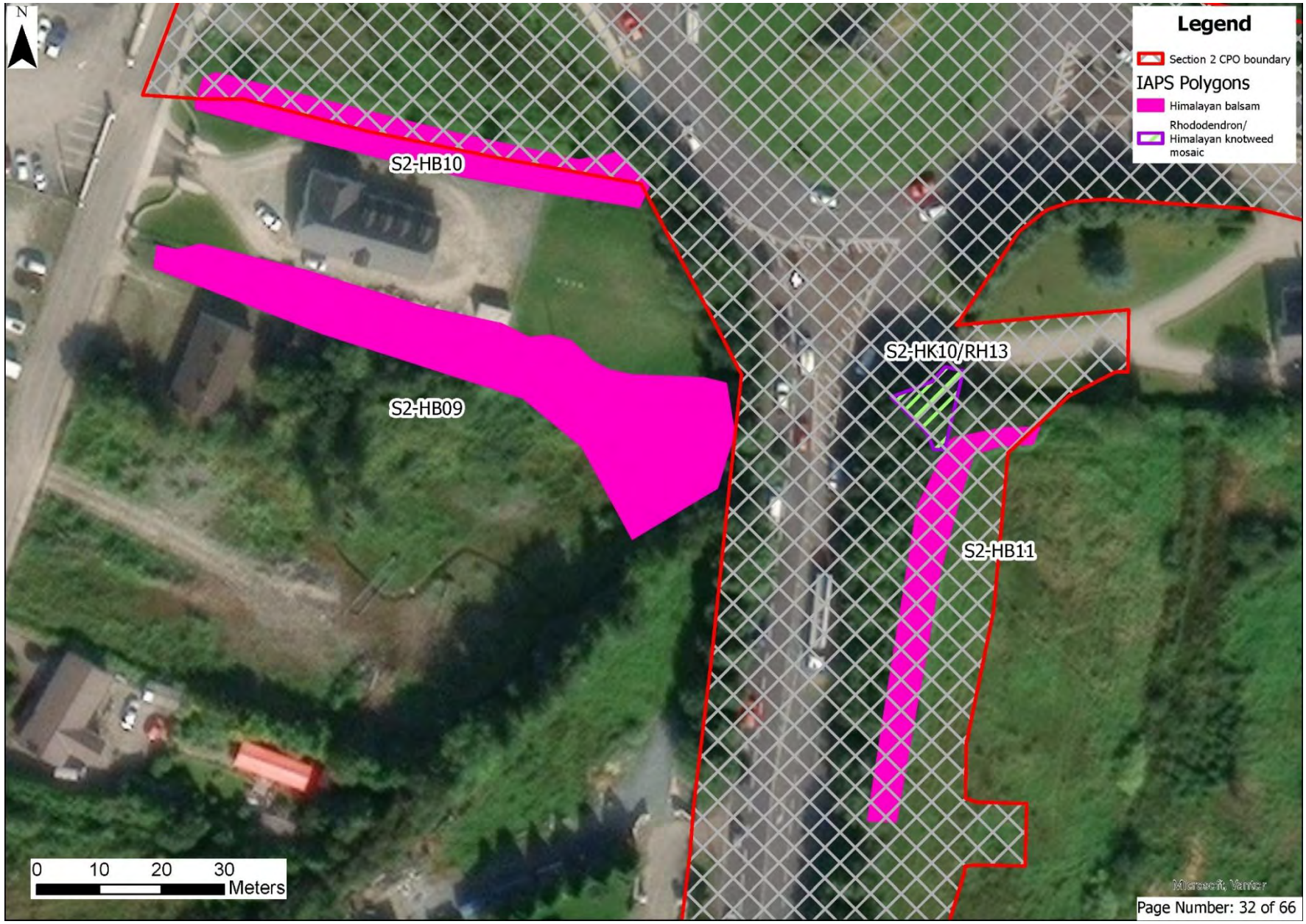
Section 2 CPO boundary
IAPS Polygons
Butterfly bush
Himalayan knotweed
Rhododendron
Rhododendron/ Himalayan knotweed mosaic
S2-HK09
S2-HK08
S2-BB02
S2-HK07
S2-HK06/RH12
S2-HK05
S2-RH11
S2-HK04
0 10 20 30
Meters
Microsoft Vantor


N
S2-HK05
S2-RH11
S2-HK04
Legend
Section 2 CPO boundary
IAPS Polygons
Himalayan knotweed
Rhododendron
0 10 20 30
Meters
Microsoft Vantor


N
Legend
Section 2 CPO boundary
IAPS Points
Salmonberry
S2-SA03
0 10 20 30
Meters
Microsoft, Vantor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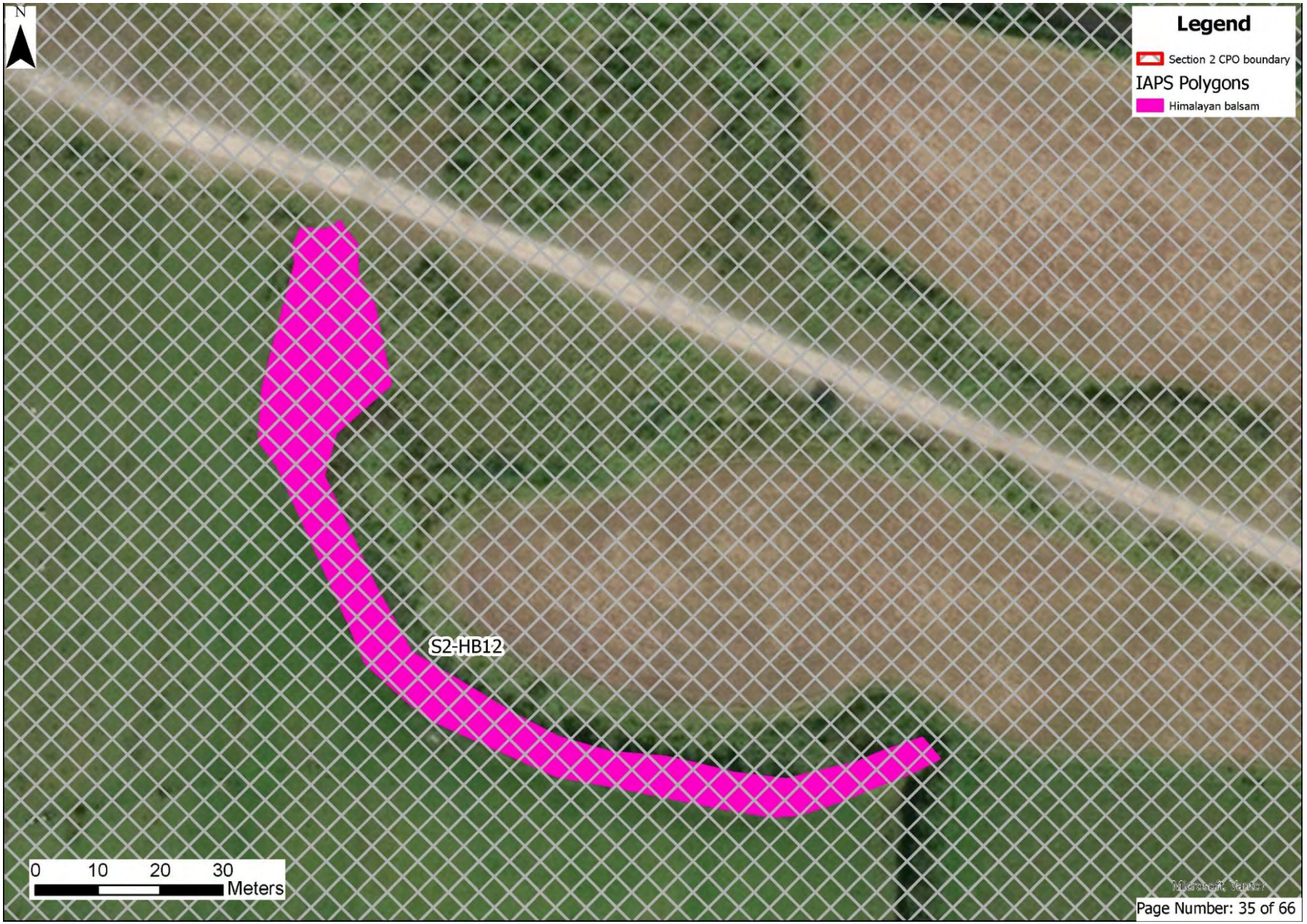
Section 2 CPO boundary
IAPS Polygons
Himalayan balsam
Rhododendron/ Himalayan knotweed mosaic
S2-HB10
S2-HB09
S2-HK10/RH13
S2-HB11
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 2 CPO boundary
IAPS Polygons
Snowberry
S2-SN03
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 33 of 66


N
Legend
Section 2 CPO boundary
IAPS Points
Salmonberry
S2-SA02
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 34 of 66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Section 2 CPO boundary
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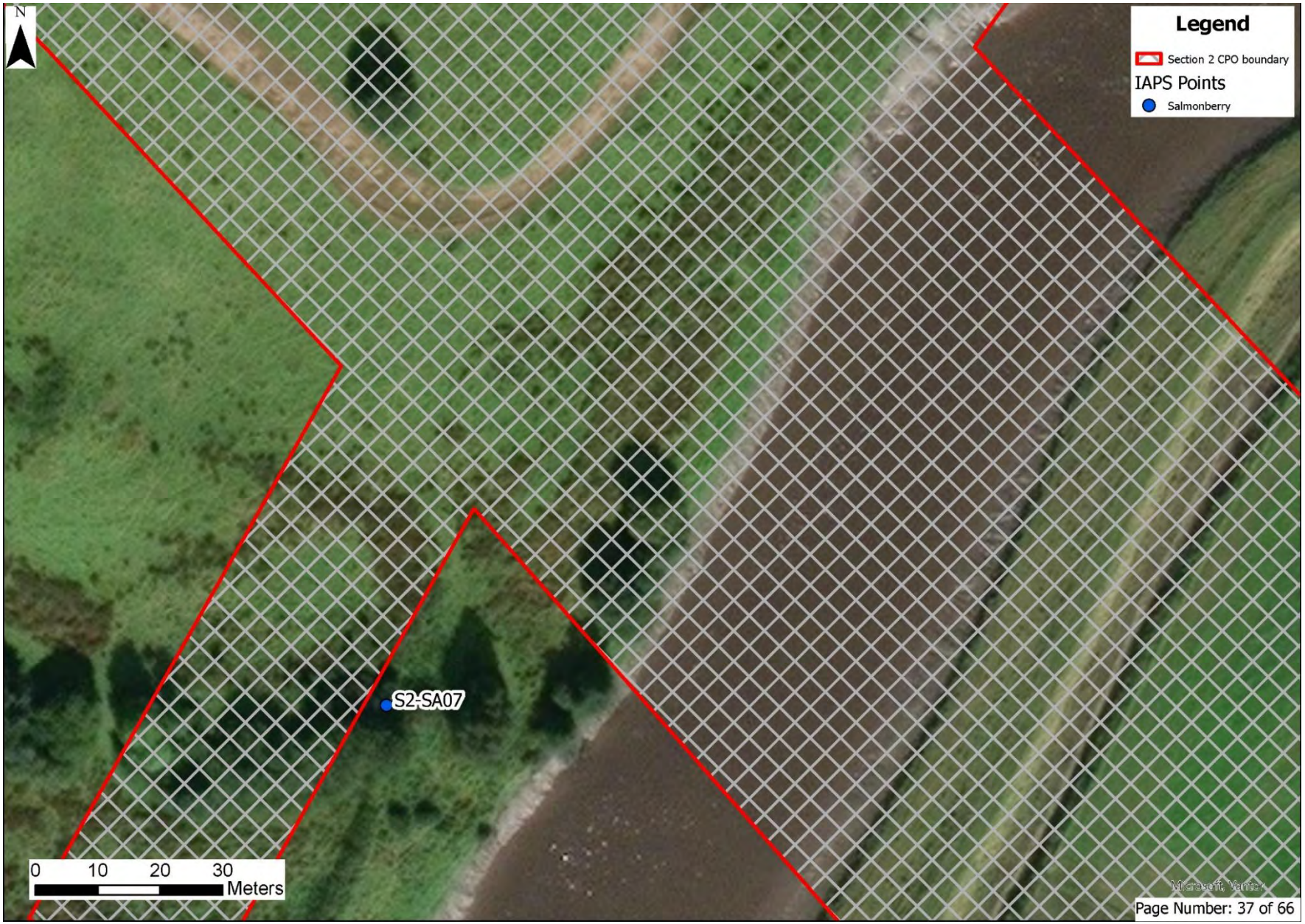
Himalayan balsam
S2-HB12
0 10 20 30
Meters
Microsoft Vantor
Page Number: 35 of 66


N
Legend
Section 2 CPO boundary
IAPS Points
Salmonberry
S2-SA08
0 10 20 30
Meters
Microsoft Vantor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Section 2 CPO boundary
IAPS Points
Salmonberry
S2-SA07
0 10 20 30
Meters
Microsoft, Vantor


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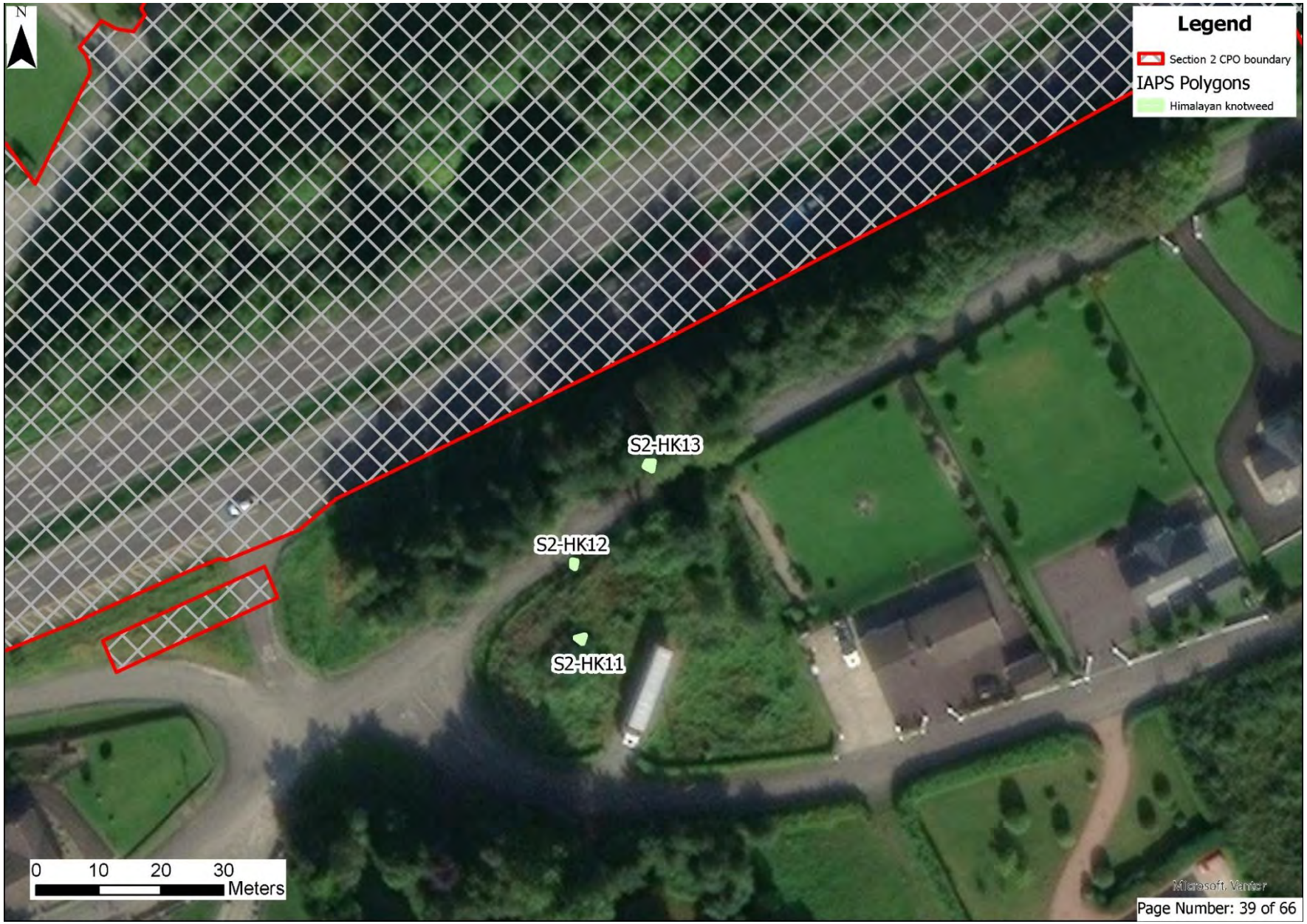
Section 2 CPO boundary
IAPS Points
Salmonberry
S2-SA01
S2-SA05
S2-SA06
0 10 20 30
Meters
Microsoft Vantor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Section 2 CPO boundary
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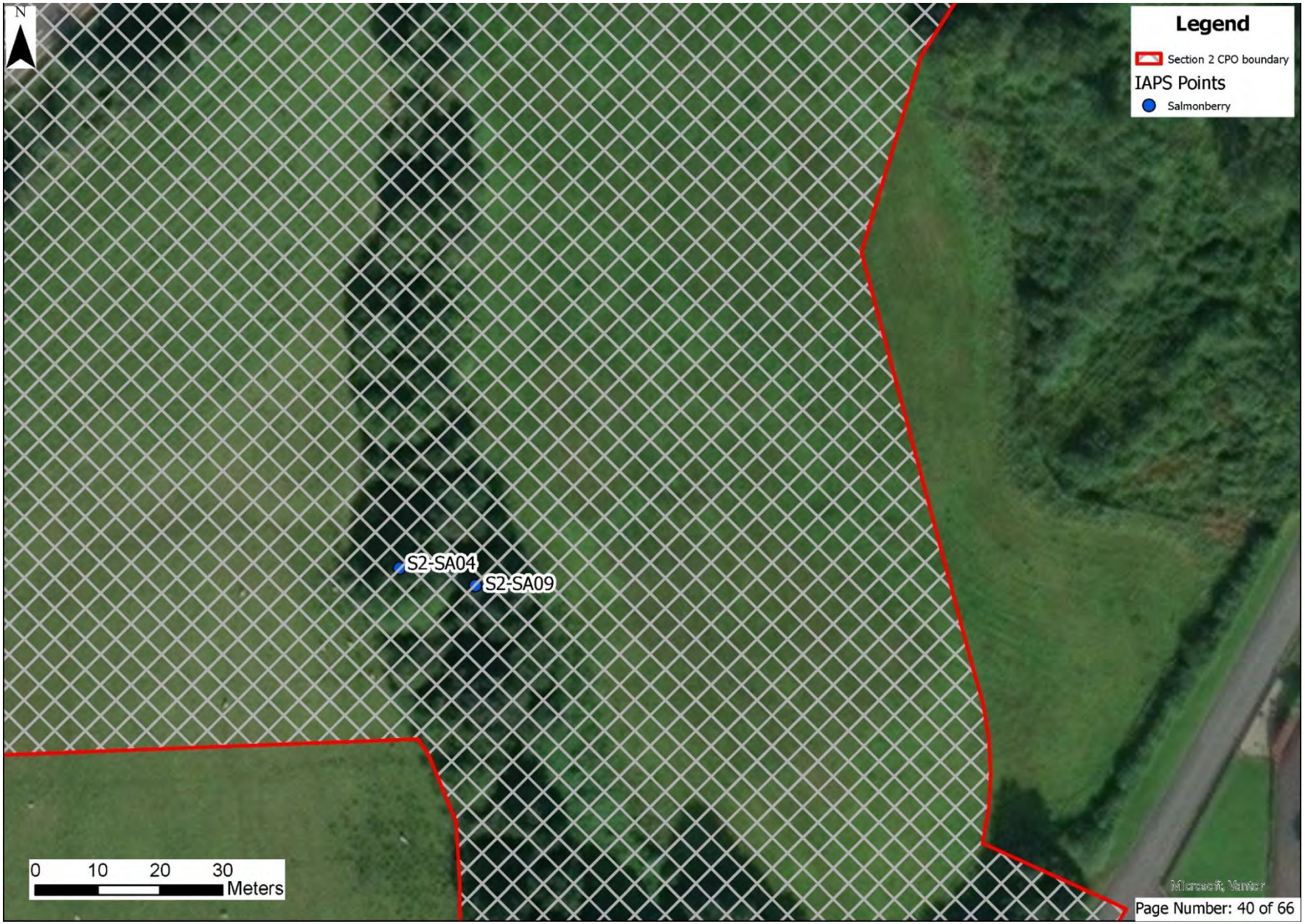
Himalayan knotweed
S2-HK13
S2-HK12
S2-HK11
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 39 of 66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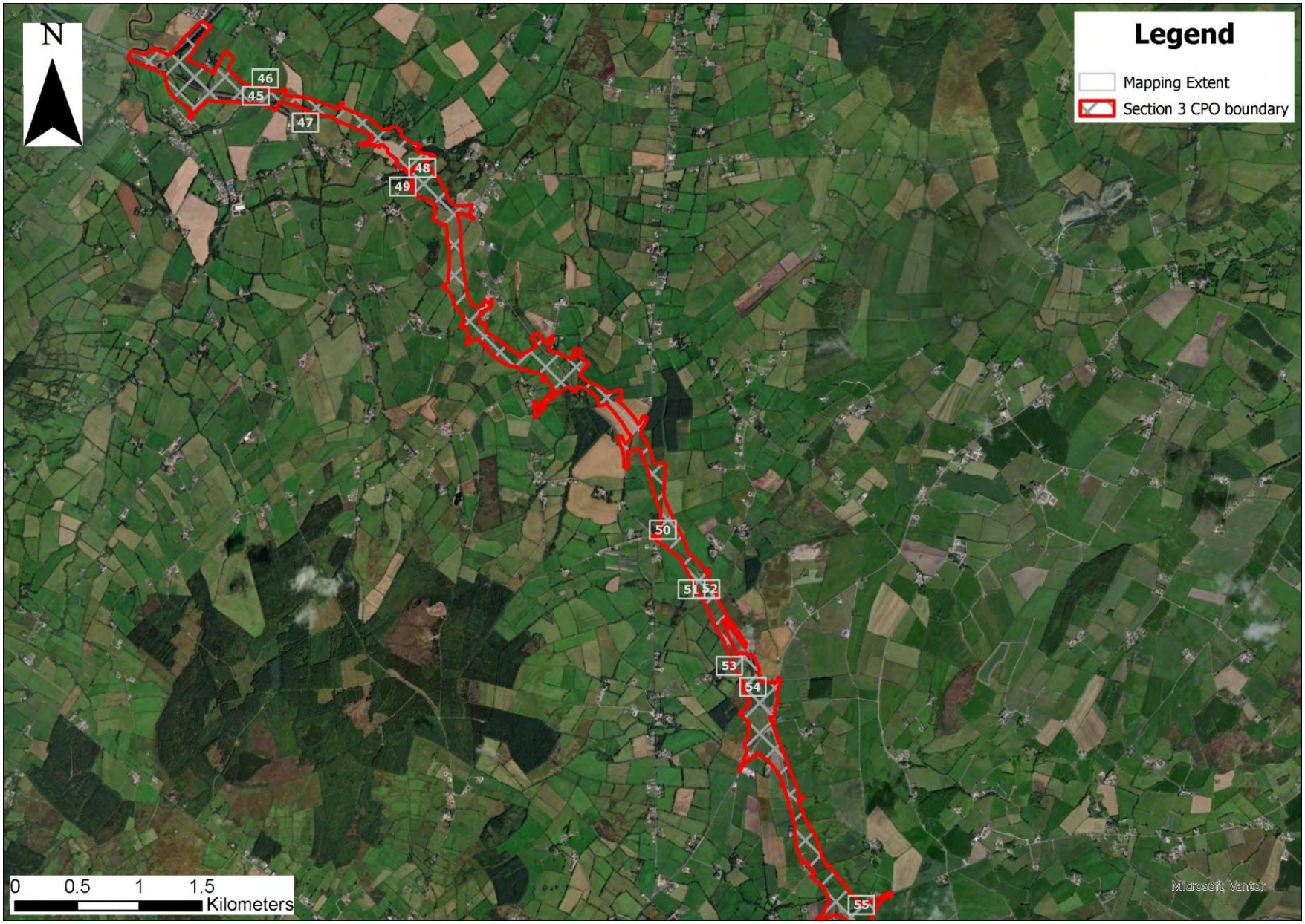
Legend
Section 2 CPO boundary
IAPS Points
Salmonberry
S2-SA04
S2-SA09
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 2 CPO boundary
IAPS Polygons
Himalayan knotweed
Japanese knotweed
Snowberry
S2-HK15
S2-HK14
S2-HK16
S2-HK17
S2-JK25
S2-SN04
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 2 CPO boundary
IAPS Polygons
Snowberry
S2-SN05
0 10 20 30
Meters
Microsoft Vanior
Page Number: 42 of 66


N
Legend
Section 2 CPO boundary
IAPS Polygons
Himalayan balsam
S2-HB13
0 10 20 30
Meters
Microsoft Vantor


N
Legend
Section 2 CPO boundary
IAPS Polygons
Japanese knotweed
S2-JK26
S2-JK27
0 10 20 30
Meters
Microsoft Vantor
Page Number: 44 of 66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Mapping Extent
Section 3 CPO boundary
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54
55
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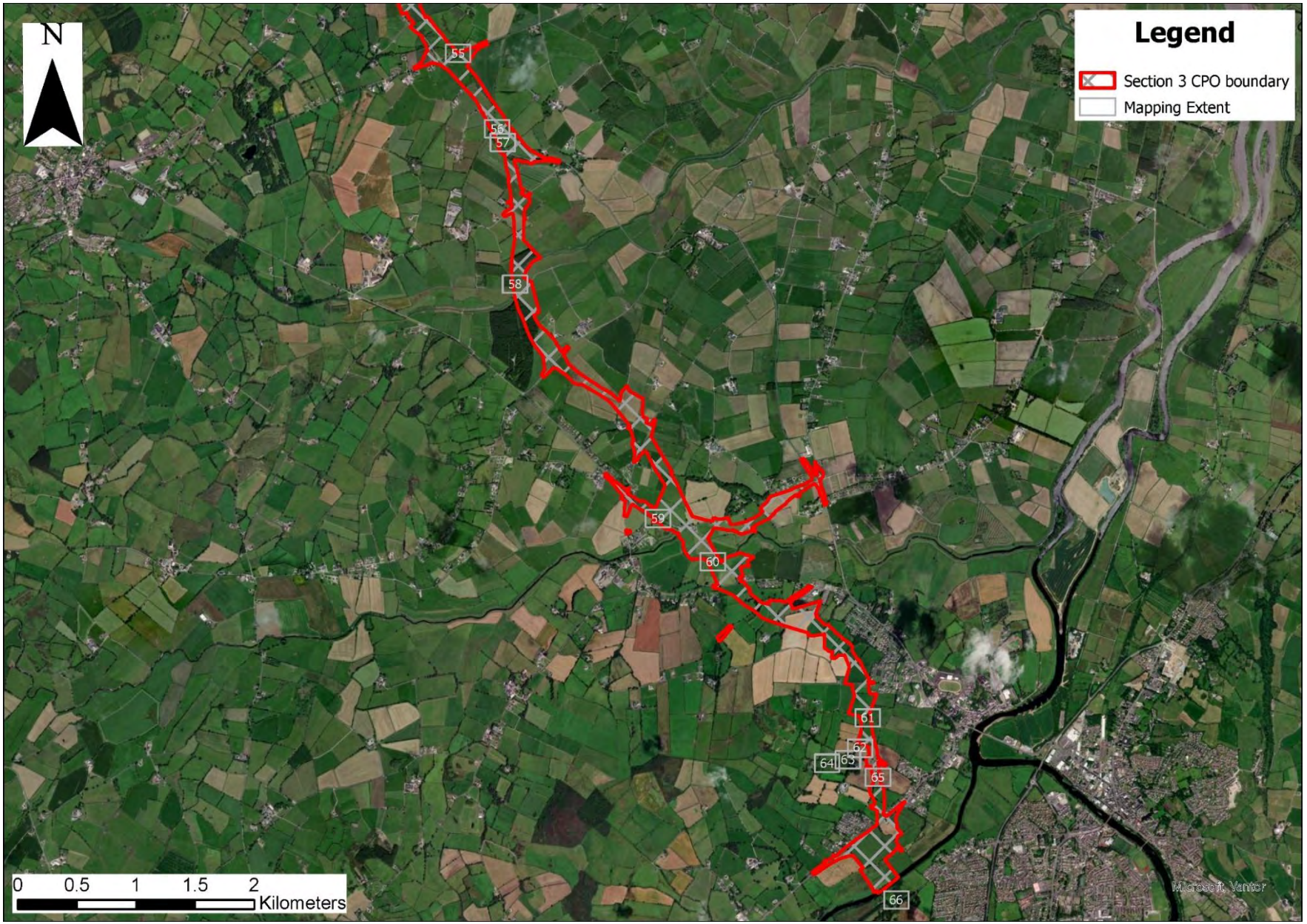
Kilometers
Microsoft, Vantor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Section 3 CPO boundary
Mapping Extent
55
56
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62
64
65
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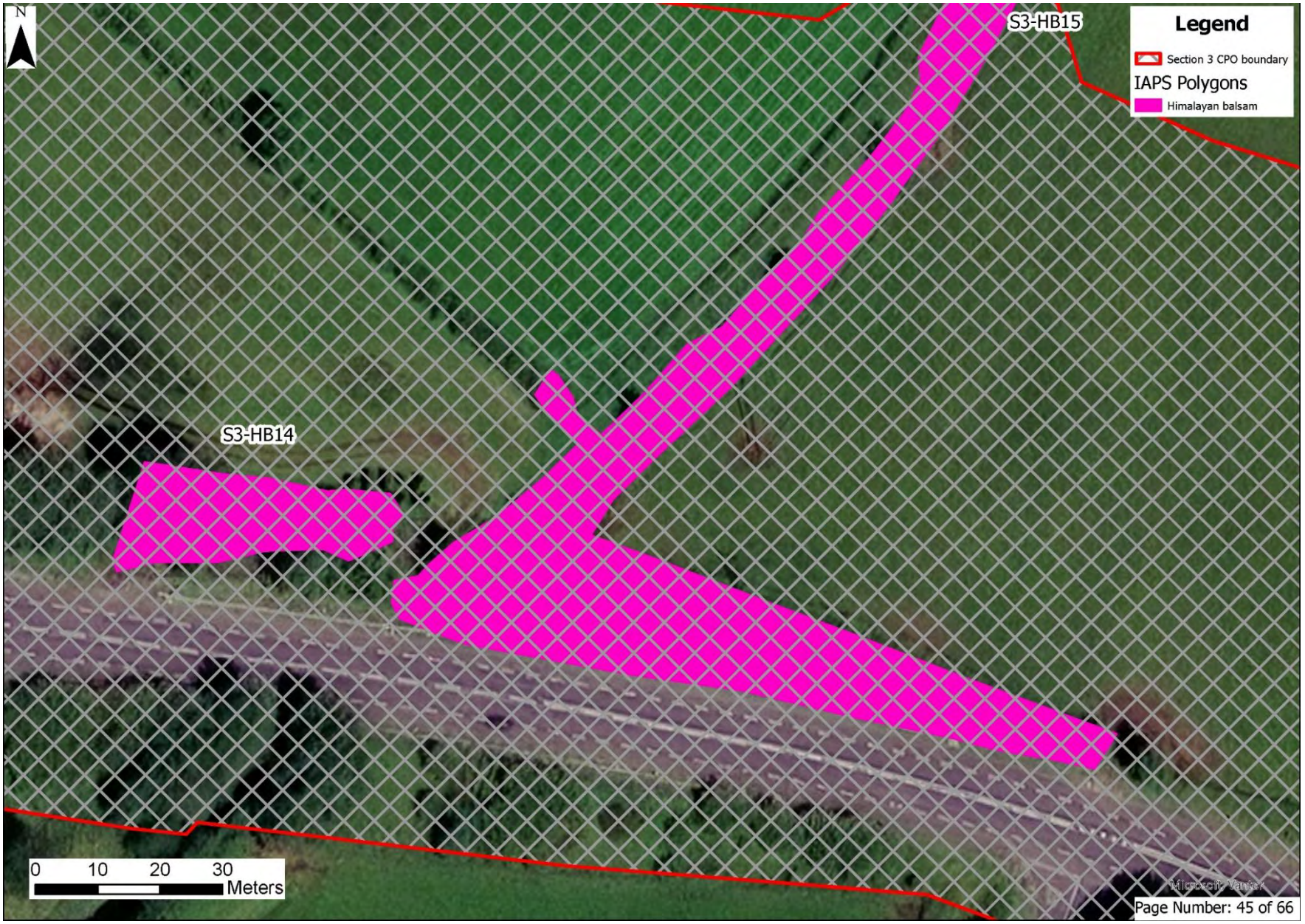
66
0 0.5 1 1.5 2
Kilometers
Microsoft Vantor


N
S3-HB15
S3-HB14
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
0 10 20 30
Meters
Microsoft Vantage
Page Number: 45 of 66


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
0 10 20 30
Meters
S3-HB15
Microsoft, Vantor


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB16
0 10 20 30
Meters
Microsoft, Vantor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Section 3 CPO boundary
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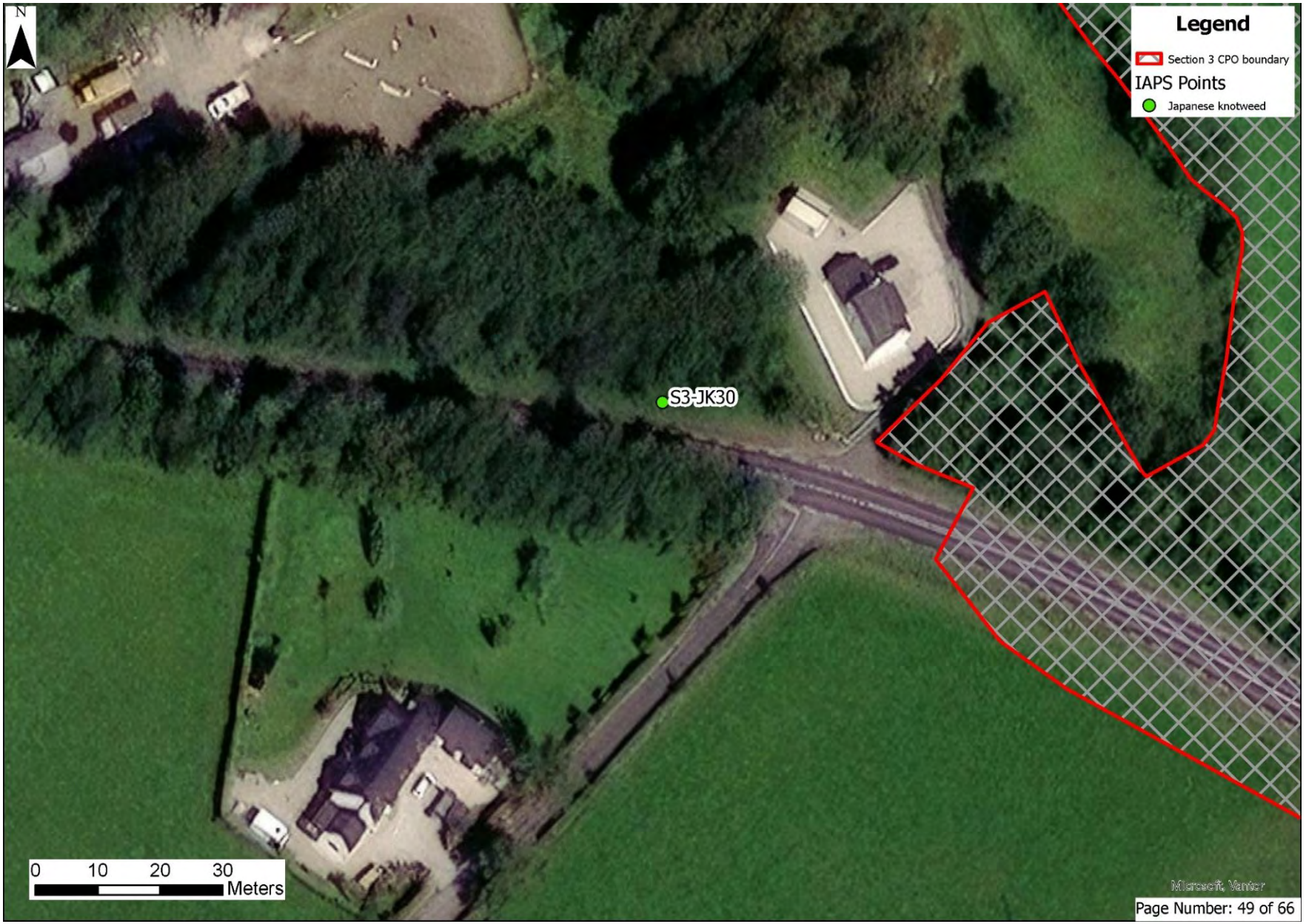
Himalayan balsam
S3-HB17
0 10 20 30
Meters
Microsoft Vantor


N
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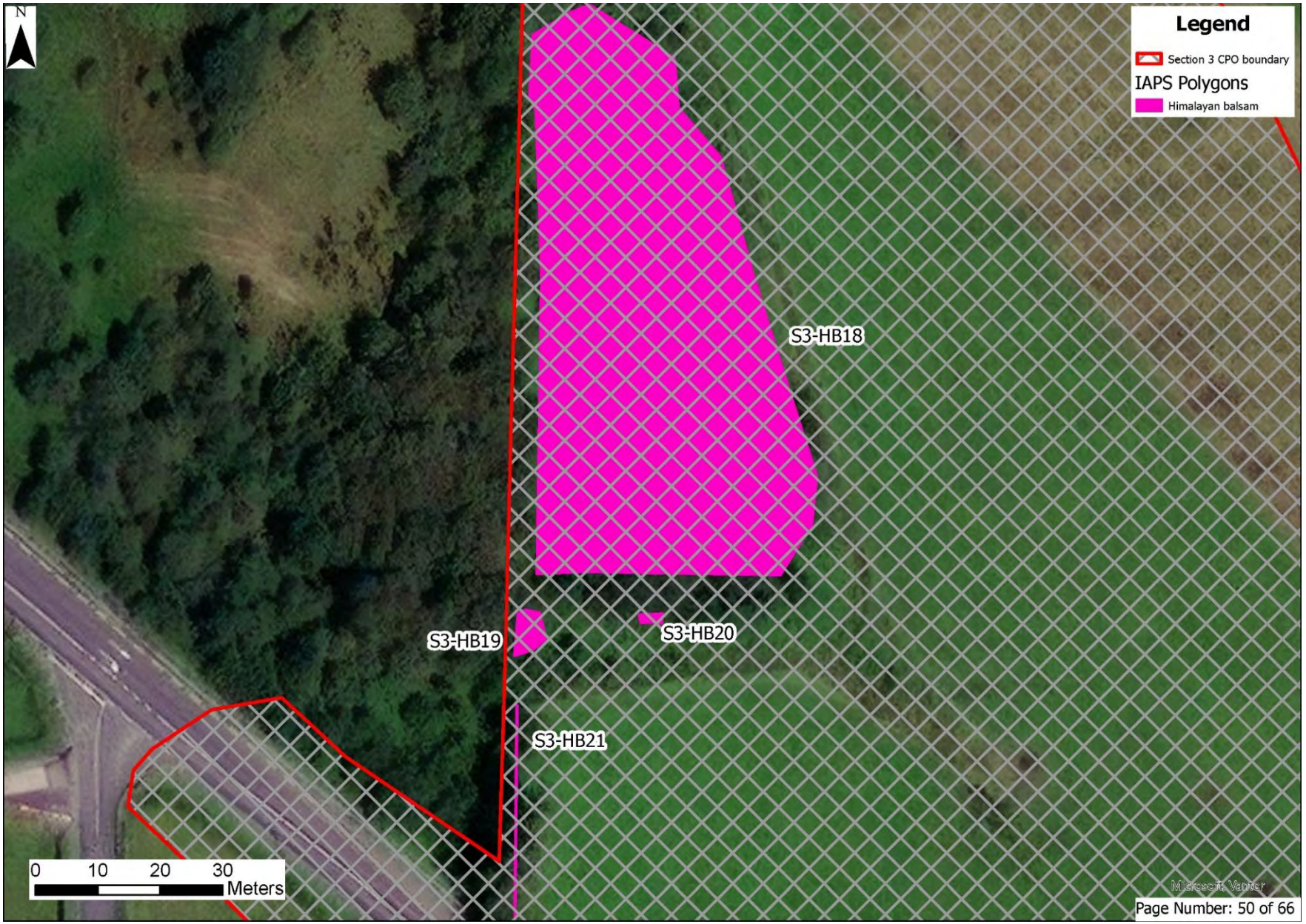
Section 3 CPO boundary
IAPS Points
Japanese knotweed
S3-JK30
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 49 of 66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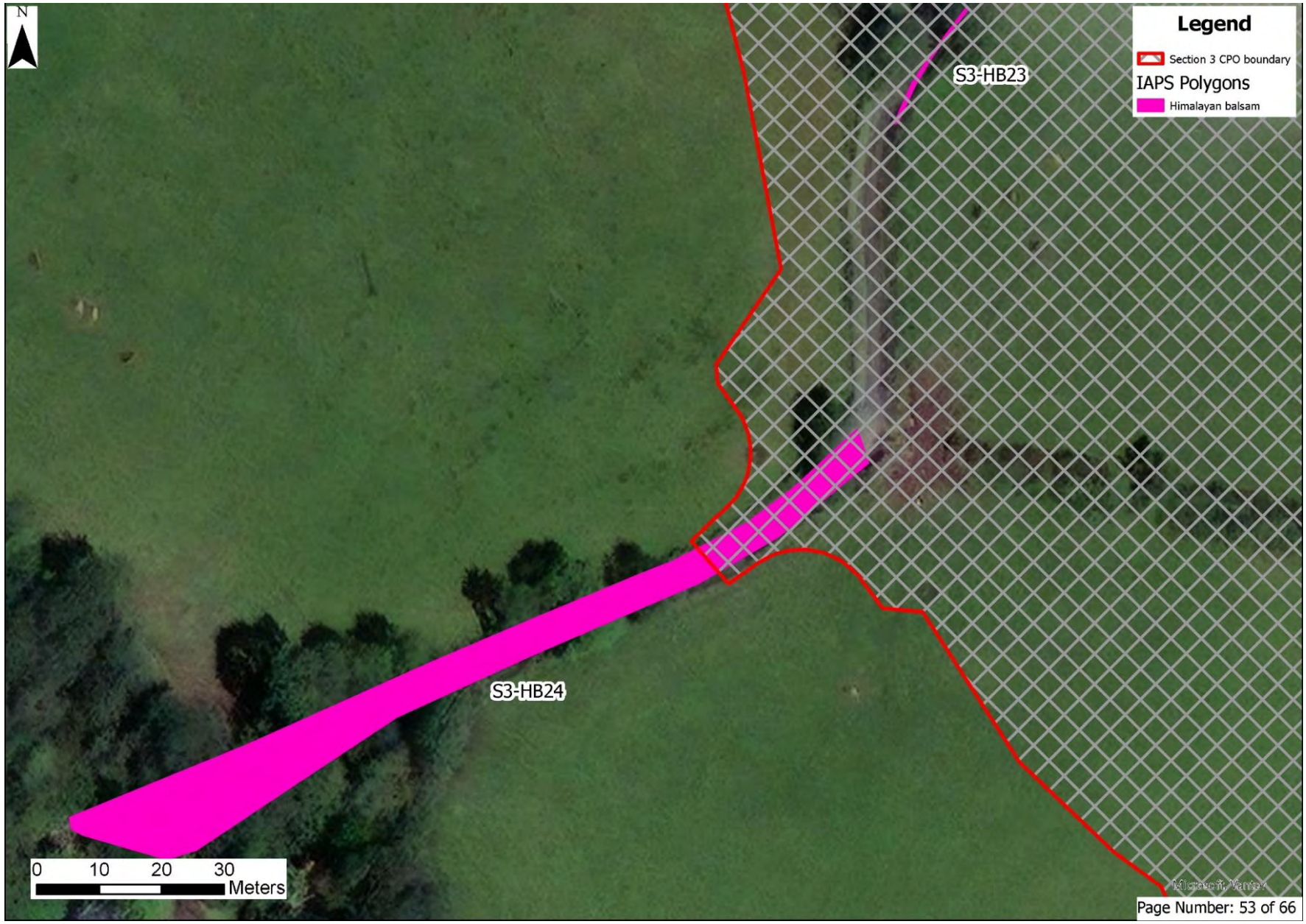
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB18
S3-HB19
S3-HB20
S3-HB21
0 10 20 30
Meters
Microsoft Vantor


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB22
0 10 20 30
Meters
Microsoft Vantor
Page Number: 51 of 66


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB22
0 10 20 30
Meters
Microsoft Vantor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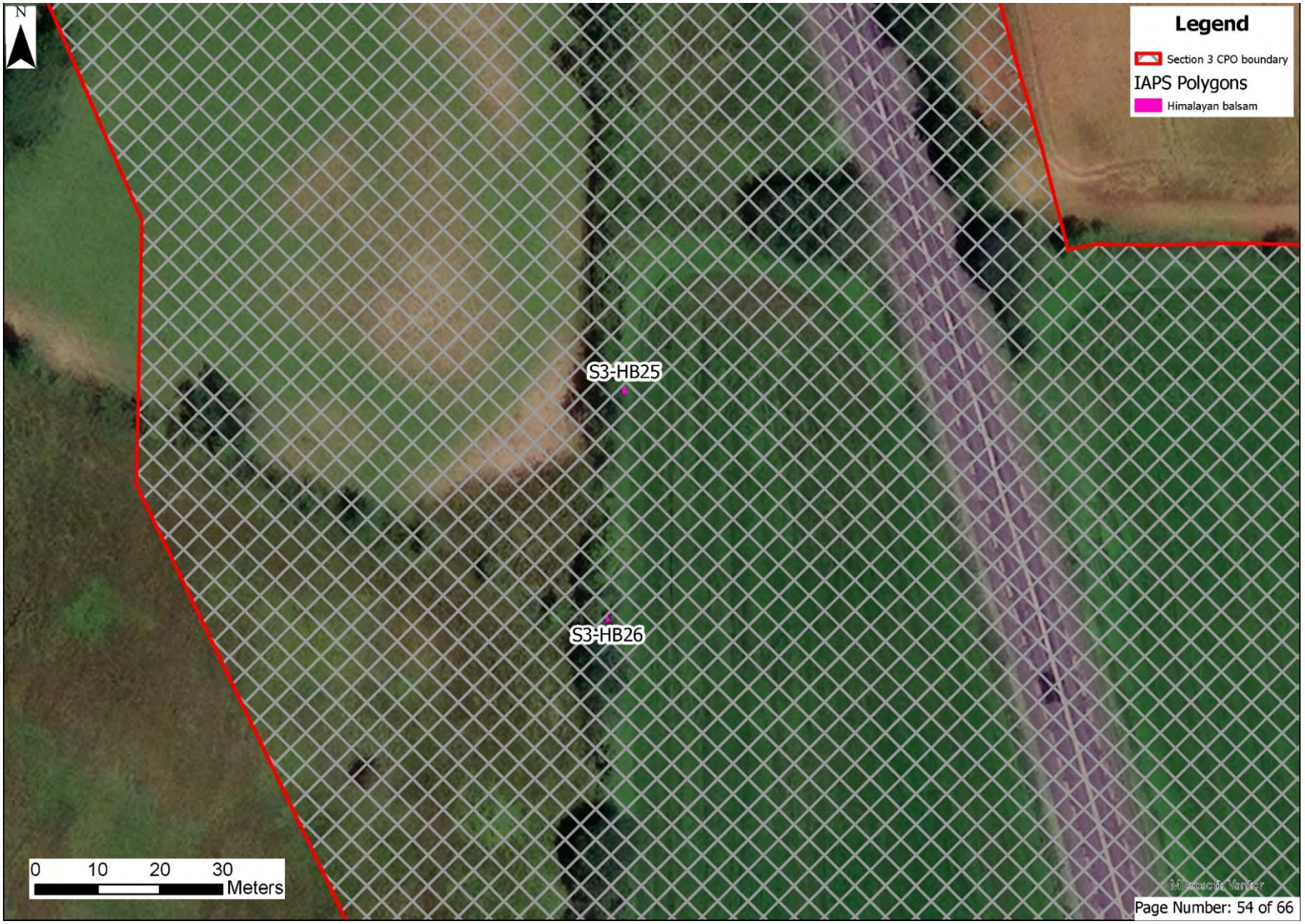
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB23
S3-HB24
0 10 20 30
Meters
Microsoft Virtual
Page Number: 53 of 66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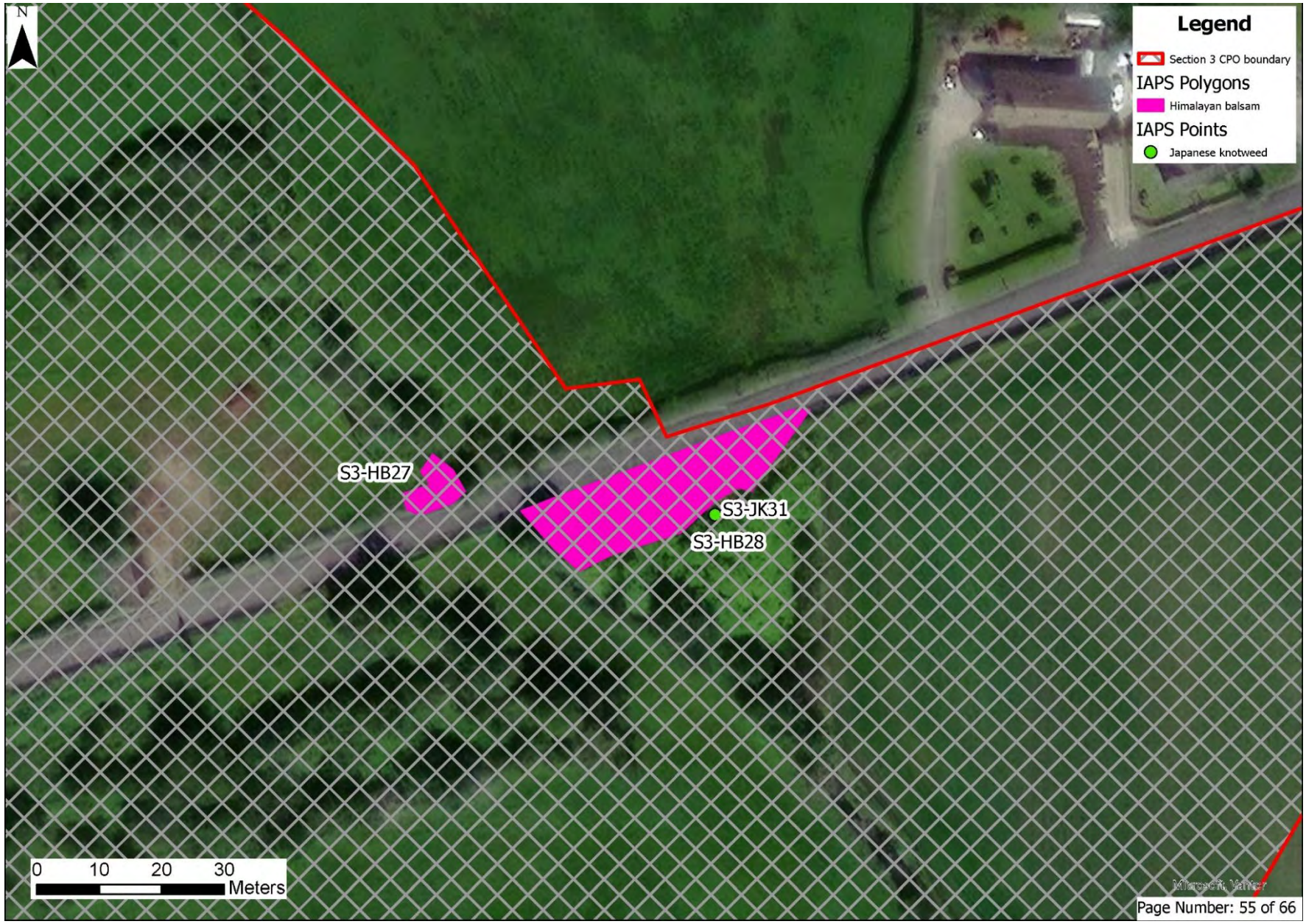
Himalayan balsam
S3-HB25
S3-HB26
0 10 20 30
Meters
Microsoft Vantage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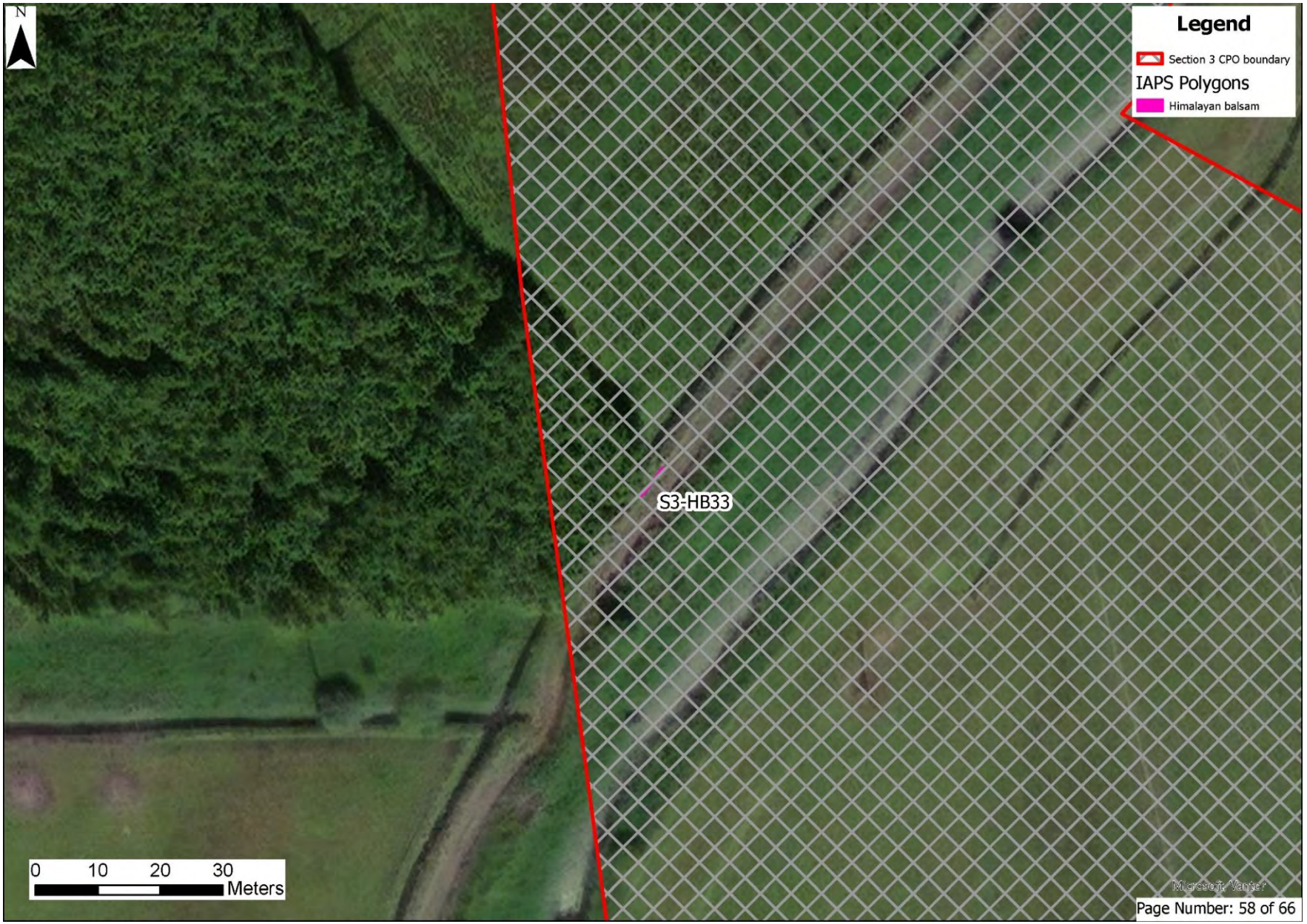
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
IAPS Points
Japanese knotweed
S3-HB27
S3-JK31
S3-HB28
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB30
S3-HB31
S3-HB29
0 10 20 30
Meters
Microsoft Vantor
Page Number: 56 of 66


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB29
S3-HB32
0 10 20 30
Meters
Microsoft Vantor
Page Number: 57 of 66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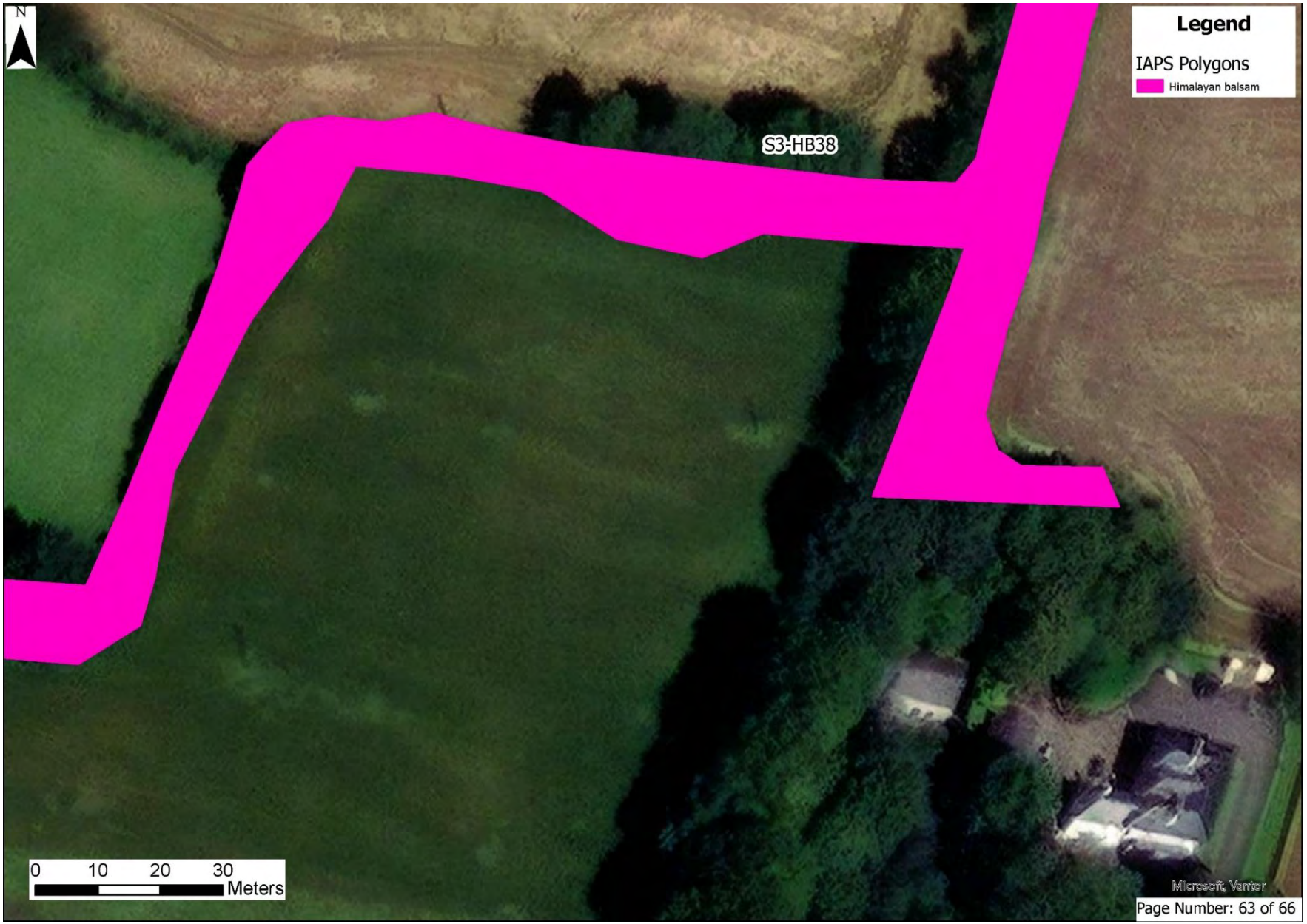
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB33
0 10 20 30
Meters
Microsoft Vantor
Page Number: 58 of 66


N
Legend
Section 3 CPO boundary
IAPS Points
Himalayan balsam
S3-HB47
0 10 20 30
Meters
Microsoft, Maxar


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB34
0 10 20 30
Meters
Microsoft Virtual


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB35
0 10 20 30
Meters
Microsoft, Vantor


N
Legend
Section 3 CPO boundary
IAPS Polygons
Himalayan balsam
S3-HB36
S3-HB37
S3-HB38
0 10 20 30
Meters
Microsoft Vantor
Page Number: 62 of 66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Legend
IAPS Polygons
Himalayan balsam
S3-HB38
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 63 of 66


N
Legend
IAPS Polygons
Himalayan balsam
S3-HB39
S3-HB38
0 10 20 30
Meters
Microsoft Vantor


N
Legend
Section 3 CPO boundary
IAPS Polygons
Japanese knotweed
S3-JK28
0 10 20 30
Meters
Microsoft Vantor
Page Number: 65 of 66


N
Legend
IAPS Points
Himalayan balsam
Rhododendron
S3-HB48
S3-RH15
0 10 20 30
Meters
Microsoft, Vantor
Page Number: 66 of 66