

Appendix C – Invasive Species Report

Invasive Plant Management & Herbicide Treatment Plan – Including Biosecurity Documents



Site Address: Derrinnumera Landfill Newport Co. Mayo

Client: Mayo County Council – Mr Peter Gill

Prepared By: The Japanese Knotweed Company, Co. Kerry
Doc. File Name: 011/18-01

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1. Introduction to Site

1.1 Description of the Site

This site is located at Derrinnumera, Newport, Co Mayo and in the past has been an active landfill, this landfill area has now been capped and is at a monitoring stage. The recycling operation at the facility is still active, this site is accessed from the public highway R311. There is a water connectivity between this site and Beltra Lough which is within an special area of conservation (SAC).

A site survey was carried out on 30/10/18 to determine the extent of non-native invasive plant present on site.

The convention on Biological Diversity defines an alien invasive species as '*an alien species which become established in natural or semi-natural ecosystems or habitats, is an agent of change and threatens native biological diversity*'. The terrestrial invasive plant species Gunnera, (Gunnera Tinctoria) and Himalayan Knotweed (Persicaria Wallichii) were recorded on site and a species account of each is described below:

Gunnera, is a non-native invasive plant that was first introduced to Ireland over 100 years ago as an ornamental plant. It is predominantly found in western coastal counties. Gunnera is a large herbaceous plant that forms dense colonies it can grow up to 2 metres in height. It has large leathery umbrella shaped leaves, with spikes on the back of the leaves and along the stems. The size of the leaves and their early spring emergence prevent native plants from germinating or growing due to shading. Gunnera has a large rhizome which can grow up to 2 metres in length along the ground, it can re-sprout from tiny fragments of the rhizome and can reproduce by seed, this allows the plant to spread rapidly and makes it very difficult to eradicate.

Himalayan Knotweed, is a robust rhizomatous perennial that can grow to 1.8 metres and produces loosely clustered pinkish or white flowers in late summer into early autumn.

Similar to the other Knotweeds this plant was introduced as an ornamental and has become very persistent in many areas where soil movement has taken place such as construction site, roadsides, riverbanks and where there is green waste being disposed of. Himalayan knotweed is not as common in Ireland as the other knotweed species, although it is considered to be in expansive mode at present.

The western area of this site has a mature infestation of Gunnera, at some point in the past soils were removed from this area and utilised to cap the landfill area to the south east. During the soil removal process the Gunnera was unwittingly spread throughout the site. All of the Gunnera that has been located at the south east of the site is young in nature, should this non-native invasive plant be left untreated it has the capacity to rapidly colonise this site.

Approximately 200m² of Himalayan Knotweed was located in 3 separate locations to the north of this site, the condition of the crown material of the plant suggests that this Himalayan Knotweed is over 4 years old.

1.2 Site management objectives

The site objectives relevant to this management plan are to gain control and manage the infestations of Gunnera and Himalayan Knotweed that are present on this site by means of a 4 year weed wipe and herbicide injection programme and to ensure that they pose no further threat to this site as a whole and to the biodiversity of the surrounding environments. This is to be followed by an ongoing monitoring programme.

1.3 Limitations and threats to management objectives

Each Gunnera plant produces a seed pod which sheds its seeds in mid June, these seeds are viable and can lay dormant in the surrounding soils for approximately 3 years, herbicide treatment of this plant needs to take place in late May to early June time. The largest of the seed pods will need to be removed in conjunction with the planned herbicide treatment programme. A threat will be posed to the management objectives of this plan if the Gunnera is treated later than mid June and the seed pods let shed their seeds.

1.4 Inventory of the Site

This site contains built structures, car park areas, playgrounds and sports fields. A hardstanding area is located to the south entrance to the school

1.5 Legislative Framework

At an international level Ireland has signed up to a number of treaties and conventions, including the **Convention on Biological Diversity**. Such treaties and conventions require the Irish Government to address issues of invasive alien species. This has been implemented through the **Wildlife Act 1976 and 2000** and further regulated through the **European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011)**

Regulation 49

‘a person shall be guilty of an offence if they: plant; disperse; allow or cause to disperse; spread or cause to grow the plant in the Republic of Ireland’. The list of species in the Third Schedule includes Japanese Knotweed, Himalayan Knotweed, Giant Knotweed & Gunnera

Regulation 50

‘an offence to or intend to; import; buy; sell; breed; reproduce or propagate; offer or expose for sale; advertise; publish a price list; transport; and distribute any plant species or vector material listed in the Third Schedule’.

Non-native species subject to restrictions under Regulations 49 and 50 are included in the third schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011). The invasive species listed in the Third Schedule include: Japanese Knotweed, Giant Knotweed, Gunnera, Himalayan Balsam, Himalayan Knotweed, Bohemian Knotweed and Rhododendron.

The vector material (i.e. facilitates spread), referred to in the regulations (Third Schedule Part 3) which applies to Knotweed species is:

“Soil or spoil taken from places infested with Japanese Knotweed, Himalayan Knotweed, Giant Knotweed, Hybrid Bohemian Knotweed and Gunnera

The Waste Management Act 1996, as amended and associated regulations must be complied with if Himalayan Knotweed & Gunnera contaminated material is to be moved off site.

It is a requirement to dispose of this material to a fully licenced wasted facility, capable of accepting such contaminated material. This disposal requirement applies to all Knotweed & Gunnera material including untreated and treated plant material. It also applies to soil containing the plant material, i.e. a 7m radius around the above ground stand and up to 3m deep below the stand, this is site specific.

If Knotweed & Gunnera contaminated material is removed off site it will require a **licence from the National Parks and Wildlife Service** in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477)

1.6 Guidance Documents

The following guidance documents and literature sources were consulted during the preparation of this report:

- National Roads Authority NRA (2010). *Guidelines on management of noxious weeds and non-native invasive plant species on national roads.*
- Crushell, P., Foss P., Hurley C. & O' Loughlin B. (2011). *County Kerry Invasive Species Survey 2011 – Pilot Mapping Study of the River Lee Catchment, Tralee.* Report prepared for Kerry County Council and The Heritage Council
- Environmental Agency (UK) (2013). *The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013)*
- Stokes, K., O' Neill K., & McDonald R.A. (2004) *Invasive Species in Ireland* Unpublished Report
- NPWS (2011) *Actions for Biodiversity 2011-2016, Irelands second National Biodiversity Plan.* Department of Arts Heritage and the Gaeltacht.
- Department of Environment (2013). *An invasive alien Species Strategy for Northern Ireland.* www.doeni.gov.uk
- Irish Water Report. *Information and Guidance Document on Japanese Knotweed Asset Strategy and Sustainability*

1.7 Invasive Species

The convention on Biological Diversity defines an alien invasive species as '*an alien species which become established in natural or semi-natural ecosystems or habitats, is an agent of change and threatens native biological diversity*' The terrestrial invasive plant species Gunnera & Himalayan Knotweed was recorded on the Derrinumera Landfill Site, Newport, Co Mayo

2. Overview of Management plan

2.1 Brief description of management plan

All factors specific to this site have been taken into consideration and a 4 year herbicide treatment programme consisting of a weed wipe and herbicide injection is the most appropriate treatment option for these infestations. On completion of this 4 year herbicide treatment programme an ongoing monitoring programme will need to be undertaken

Please note: Management records and biosecurity records to be updated on a daily basis and attached to the management plan, all records to be signed and dated.

2.2 Setting Priorities

No further earth works should take place on this site due to the high level of infestation that is present, should earthworks be required it is recommended that a certified surveyor in non-native invasive plant materials is present to oversee such works to ensure that all required biosecurity measures are implemented. Signage should be erected highlighting the presence of these non-native invasive plants and all personnel involved in the daily operations of this landfill should be made aware of the threats associated in dealing with non-native invasive plants.

Please note: Management records and biosecurity records to be updated on a daily basis and attached to the management plan, all records to be signed and dated.

2.3 Preventing further spread – High priority

Ensure all site users are aware of invasive species, management plan and planned treatment methodologies, this can be achieved through tool-box talks before work begins on the site. Foot baths will need to be provided for personnel who will have access to these infested areas, it is important that these footbaths are utilised to prevent further spread on site.

All herbicide personnel will be trained through City & Guilds and will have their unique candidate number with them at all times on site.

3. Specific controls plans for Invasive Plants

3.1 Management Objectives

The certified surveyor will be responsible for ensuring that this management plan is implemented on site. The certified surveyor on the completion of the 4 year herbicide treatment programme will furnish a completed management plan attaching all relevant documentation and updates for transparency.

3.2 Management Preferred Options specific to this site

- 4 year herbicide treatment programme with a subsequent ongoing monitoring programme
- Certified surveyor to oversee all planned soils works on this site
- Erection of signage

These options were chosen as the most sustainable both environmentally & economically

3.3 Biosecurity Measures & Site Hygiene Practices

- Tool box talk on invasive plant material to be provided to all relevant personnel involved in the works being undertaken at this site
- No unauthorised personnel to be admitted within the infested areas
- On site foot baths to be provided as footwear acts as a vector for the spread of invasive plants
- All machinery being brought to site must be inspected for any soils that may contain invasive plant material before being allowed to enter this landfill site

Please note: Management records and biosecurity records to be updated on a daily basis and attached to the management plan, all records to be signed and dated.

3.4 Actions Planned

All works will be carried out in accordance with this management plan, should this management plan need to be amended due to any unforeseen constraints, these changes must be documented, dated and signed by a certified surveyor of invasive plants.

Records of all inductions and biosecurity checks must be documented and attached to this management plan for transparency.

Clear signage must be erected throughout the site warning of the dangers of cross-contamination that are posed by the non-native invasive plants Himalayan Knotweed & Gunnera that are present on this site.

3.5 How actions will be evaluated

The certified surveyor will conduct monitoring prior to any works being carried out to act as a baseline for future monitoring. Recording sheets will document any further visits and action taken.

3.6 Resources required to design & create management plan

- Site survey carried out 30/10/18

3.7 Results of evaluations

Site inspection forms contained within the appendix, this activity is carried out during the process. An audit trail shall be part of the completion package.

4. Summary of Information

Table 1	Priority Areas	Risk
Gunnera & Himalayan Knotweed	Site as a whole	High Risk to surrounding environment

Table 2	Control Methods	Risk
Gunnera	Herbicide Treatment	High Risk
Himalayan Knotweed	Herbicide Treatment	Medium Risk

It is estimated that Year 1 Herbicide Treatment will require 4 certified technicians approximately 10 days to carry out the herbicide application process

Table 3	Implementation Schedule
Phase 1: Initial site survey	Completed on 30/10/18
Phase 2: Management Plan	Completed 06/11/18
Phase 3: Year 1 Herbicide Treatment 2019	
Phase 4: Year 2 Herbicide Treatment 2020	To be confirmed ...
Phase 5: Year 3 Herbicide Treatment 2021	To be confirmed ...
Phase 6: Year 4 Herbicide Treatment 2022	To be confirmed ...
Phase 7: Implementation of ongoing monitoring programme	To be confirmed ...
Phase 8: All recording sheets & documentation to be attached to this management plan	All attachments to be added on completion

Appendix A

Daily Onsite Biosecurity & Management Forms

Date:		
Inspected by:	Initial:	Sign:
Site:		
Client:		

	Yes	No	Comment
Transport routes free of soils/debris			
Fencing	Still in place	Damaged/Removed	Comment
Clear Signage	Still in place	Damaged/Removed	Comment
Clean Zones Inspected	Yes	No	Comment
All Machinery/Plant inspected			
Have any vehicles left or entered the site ?			
Is the site secure?			
Notes/Comments			

A new form is to be used on each working day – it must be signed and dated by the appointed certified surveyor – it must be attached to the management plan at all times for transparency

Appendix B: Site Herbicide Record Sheet

Date:			
Inspected by:	Initial:	Sign:	
Site:			
Client:			

Dose of Product	Volume Applied	Product Quantity	Total area Treated	Start Time	Finish Time

Names / Certificate Nos of Other Operators	

PPE		WORN	
Gloves			
Boots			
Coverall			
Apron			
Face Shield			
Hard Hat			
Respirator			

Notes: Harvest interval, exclusion period, problems, equipment faults/repairs, notification of neighbour	Wind Direction	N	NE	E	SE	S	SW	W	NW
<p>Technicians need to be fully qualified in PA1, PA6, PA6 AW & PA6 ING – Must also be a registered pesticide user</p> <p>Registered Pesticide Number _____</p> <p>Signed By: _____</p>	Wind Speed	Nil		Light		Moderate		Strong	
	Temperature	Cold		Cool		Warm		Hot	
	COSHH Sheets Present	Yes				No			
	Warning signs in place	Yes				No			

This form is to be used on each separate site visit and herbicide treatment – it must be attached to the management plan at all times for transparency

Appendix C: Environmental Risk Assessment Classifications – **Extreme** – **High** – **Medium** – **Low Risk** – **No Risk**

Hazard	Source	Pathway	Receptor	Risk	Abatement Measures
Japanese Knotweed & Infested soils	Excavation of trenches	Ground	Cross contamination onsite		All infested areas on infestation are to be fenced off 7 m from the nearest stems using high visibility fencing; signs will be displayed notifying all workers on site of the presence of invasive weeds. All infested soils to be contained within identified holding area. All machinery to be cleaned before moving to a different area.
Particulates	Plant & Machinery	Air	Residents - site staff		Ensure vehicles and plant in good operating condition.
Spillage's of oils & fuels	Plant & Machinery	Ground	Ground Water		Bulk Fuels to be contained within a bunded fuel tank. Vehicles to be inspected for leaks. Ensure vehicles & plant in good operation condition. Provide spillage control equipment.
Noise	Plant & Machinery	Air	Residents – site staff		Ensure vehicles and plant in good operation with silencers. Locate plant to minimise effect. Use plant at appropriate time.
Mud & Debris	Plant & Machinery	Ground	Public roadway - residents		All machinery shall be cleaned before leaving site. If required provide wheel wash facilities. If required provide road sweeper.
Dust	Plant Movement	Air	Adjoining land Residents Site staff		Spray water during dry spells. Deploy water bowser. Employ road sweeper to damp down roads.

Dated:	Signed:
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This form is to be used on each separate site visit and herbicide treatment – it must be attached to the management plan at all times for transparency

Appendix D: Control of Substances Hazardous to Health Assessment

Substance/Contaminant/Chemical : Herbicides
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Activity / Element	Hazards in contact with	Who / What Risk	Initial Rating			Control Measures Specified	Residual Risk Rating				
			L	C	R		L	C	RRR		
Decanting	Eyes	Operatives				Training/ Awareness of the task, the equipment and the chemicals involved must be given to anyone about to use this system. Attention must be drawn and information must be given and readily available for refresher reasons on the effects of this chemical; <ul style="list-style-type: none"> How to store it safely.. How to decant it safely.. How to use it.. What to do in case someone has been affected by it.. <u>First Aid</u> Eyes – flush immediately with water for about 15 mins. If the irritation persists seek medical advice Skin – Remove affected clothing and wash the underlying skin with copious amounts of soap and water. If the irritation persists seek medical advice Swallowing – Seek medical aid immediately and take the chemicals information (Material Safety Data Sheet) with you					
Spraying	Skin	Other site personnel									
Storage	Air passage ways	Members of the public									
Transport	Digestive System	Other									
Other	Other										
Notes:	Notes	Notes									
L = Likelihood			1 = Improbable, 2 = Unlikely, 3 = Likely, 4 = Very Likely, 5 = Certain								
C = Consequence			1 = Injury no lost time, 2 = Minor injury less than 3 days, 3 = Injury more than 3 lost days, 4 = Major Injury, 5 = Fatality								
R = Risk Rating			The risk rating is the value given to the Risk when the likelihood is multiplied by the Consequence								
RRR = Residual Risk			The residual risk rating is the value of the risk once all the control measures have been put into place and practise								
In the case of an environmental affect the Consequences rating should reflect the severity of that effect											
Date of Assessment:						Name of Assessor:					
Review Date:						Reviewed By:					

This form is to be used on each separate site visit and herbicide treatment – it must be attached to the management plan at all times for transparency

Appendix E – Site Map



All information relevant to this management plan will be attached on an ongoing basis for the duration of the trenching works and the herbicide treatment programme as outlined in this



document, until all risk areas identified have been treated under the supervision of a certified surveyor. All monitoring and results of evaluations to be fully documented and recorded with photographs to be attached to the management plan.






Kieren O' Shea – 06/11/18

Certified Surveyor – The Japanese Knotweed Company

Appendix D – Site Investigation Data

Project Name: Derrinnumera Landfill ICW	Project No. B1853	Co-ords: 504589.00 - 794070.00 Level:	Date 08/08/2022
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Location: Derrinnumera Landfill, Co. Mayo	Dimensions (m): <input type="text"/>	Scale 1:25
Client: Mayo County Council	Depth 3.35	Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30			Brownish-black fibrous PEAT with some pieces of timber.
	0.50		HVP=50				Soft to firm pinkish brown with orange mottling dense slightly gravelly sandy CLAY/SILT with occasional sub-rounded to angular cobble and some boulders
	0.70	B					
	2.40	B		2.30			Loose to medium dense light brown to brown slightly gravelly sandy CLAY/SILT with some Peat traces.
	2.70	B		2.60			Loose to mdium dense pinkish brown very slightly clayey slightly gravelly SAND with some sub-rounded to angular cobbles.
				3.35 3.35			TP ends due to hard digging on possible bedrock End of Pit at 3.35m

Remarks: B Bulk Sample ES Environmental Sample, HVP Insitu Vane Test



Stability: TP dry and Stable



Project Name: Derrinnumera Landfill ICW Project No. B1853 Co-ords: 504690.00 - 794005.00 Date 08/08/2022

Location: Derrinnumera Landfill, Co. Mayo Dimensions (m): Scale 1:25

Client: Mayo County Council Depth 2.80 Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	2.80	B		2.80			Brownish-black fibrous PEAT with some pieces of timber.
				3.10 3.10			Loose to very dense pinkish brown slightly clayey gravelly SAND with occasional sub-rounded to angular cobbles.
							TP ends due to the side collapsing at 1.5m bgl End of Pit at 2.80m



Remarks: Heavy water ingress at 2.8m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Unstable



Project Name: Derrinnumera Landfill ICW	Project No. B1853	Co-ords: 504496.00 - 793965.00 Level:	Date 08/08/2022
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Location: Derrinnumera Landfill, Co. Mayo	Dimensions (m): <input type="text"/>	Scale 1:25
Client: Mayo County Council	Depth 1.50	Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.40			Brownish-black fibrous PEAT with some pieces of timber.
	0.80	B					Loose to dense pinkish brown very slightly clayey slightly gravelly SAND with occasional sub-rounded to angular cobbles
	1.50	B		1.50 1.50			TP ends due to the side collapsing at 0.7m bgl End of Pit at 1.50m



Remarks: Moderated water ingress at 1.5m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Unstable



Project Name: Derrinnumera Landfill ICW	Project No. B1853	Co-ords: 504603.00 - 793953.00 Level:	Date 08/08/2022
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Location: Derrinnumera Landfill, Co. Mayo	Dimensions (m): <input type="text"/>	Scale 1:25
Client: Mayo County Council	Depth 3.50	Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							Brownish-black fibrous PEAT with some pieces of timber.
	3.20	B		3.20			Loose to dense pinkish brown very slightly clayey slightly gravelly SAND with occasional sub-rounded to angular cobbles
				3.50 3.50			TP ends due to the side collapsing at 2.5m bgl End of Pit at 3.50m

Remarks: Moderated water ingress at 3.0m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Unstable



Project Name: Derrinnumera Landfill ICW

Project No.
B1853

Co-ords: 504704.00 - 794068.00
Level:

Date
08/08/2022

Location: Derrinnumera Landfill, Co. Mayo



Dimensions (m):

Scale
1:25

Client: Mayo County Council

Depth
3.00

Logged
AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	2.80	B		2.50			Brownish-black fibrous PEAT with some pieces of timber.
				3.00			Loose to medium dense pinkish brown dense very slightly gravelly slightly silty clayey SAND with occasional sub-rounded to angular cobbles
				3.00			TP ends due to the side collapsing at 1.2m bgl End of Pit at 3.00m


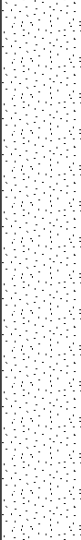
Remarks: Moderate water ingress at 2.5m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Unstable

Project Name: Derrinnumera Landfill ICW Project No. B1853 Co-ords: 504674.00 - 794091.00 Date 08/08/2022

Location: Derrinnumera Landfill, Co. Mayo Dimensions (m): Scale 1:25

Client: Mayo County Council Depth 2.90 Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				1.10			Brownish-black fibrous PEAT with some pieces of timber.
	1.30	B					Loose to medium dense pinkish brown dense very slightly gravelly slightly silty clayey SAND with occasional sub-rounded to angular cobbles
	1.80	B					
				2.90 2.90			TP ends due to the side collapsing at 0.8m bgl End of Pit at 2.90m



Remarks: Moderate water ingress at 1.1m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Unstable



Project Name: Derrinnumera Landfill ICW	Project No. B1853	Co-ords: 504604.00 - 794094.00 Level:	Date 08/08/2022
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Location: Derrinnumera Landfill, Co. Mayo	Dimensions (m): <input type="text"/>	Scale 1:25
Client: Mayo County Council	Depth 2.30	Logged AF




Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.80			Brownish-black fibrous PEAT with some pieces of timber.
	1.70	B		2.30 2.30			Loose to medium dense pinkish brown dense very slightly gravelly slightly silty clayey SAND with occasional sub-rounded to angular cobbles
							TP ends due to the side collapsing at 1.5m bgl End of Pit at 2.30m

Remarks: Heavy water ingress at 0.8m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Unstable



Project Name: Derrinnumera Landfill ICW	Project No. B1853	Co-ords: 504500.00 - 794075.00 Level:	Date 09/08/2022
Location: Derrinnumera Landfill, Co. Mayo		Dimensions (m): <input type="text"/>	Scale 1:25
Client: Mayo County Council		Depth 2.30	Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.45			Brownish-black fibrous PEAT with some pieces of timber.
	1.00	B		1.20			Loose to medium dense light greyish brown very slightly sandy slightly clayey SAND with some occasional pieces of timber
	1.70	B		2.30			Loose to dense pinkish brown dense very slightly gravelly slightly silty clayey SAND with occasional sub-rounded to angular cobbles
				2.30			TP ends due to the side collapsing at 1.2m bgl End of Pit at 2.30m

Remarks:	Moderate water ingress at 0.5m bgl. B Bulk Sample, HVP Insitu Vane Test
Stability:	TP Unstable



Project Name: Derrinnumera Landfill ICW

Project No.
B1853

Co-ords: 504489.00 - 794154.00
Level:

Date
09/08/2022

Location: Derrinnumera Landfill, Co. Mayo

Dimensions (m):


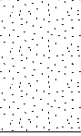



Scale
1:25

Client: Mayo County Council

Depth
0.75

Logged
AF



Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40	B		0.30		 Brownish-black fibrous PEAT with some pieces of timber.	
				0.75		 Loose to medium dense light greyish brown very slightly sandy slightly clayey SAND with occasional sub-rounded to angular cobbles	
				0.75		 TP ends due to hard digging on possible bedrock End of Pit at 0.75m	

Remarks: slight water ingress at 0.3m bgl. B Bulk Sample, HVP Insitu Vane Test

Stability: TP Stable

Project Name: Derrinnumera Landfill ICW	Project No. B1853	Co-ords: 504443.00 - 794044.00 Level:	Date 09/08/2022
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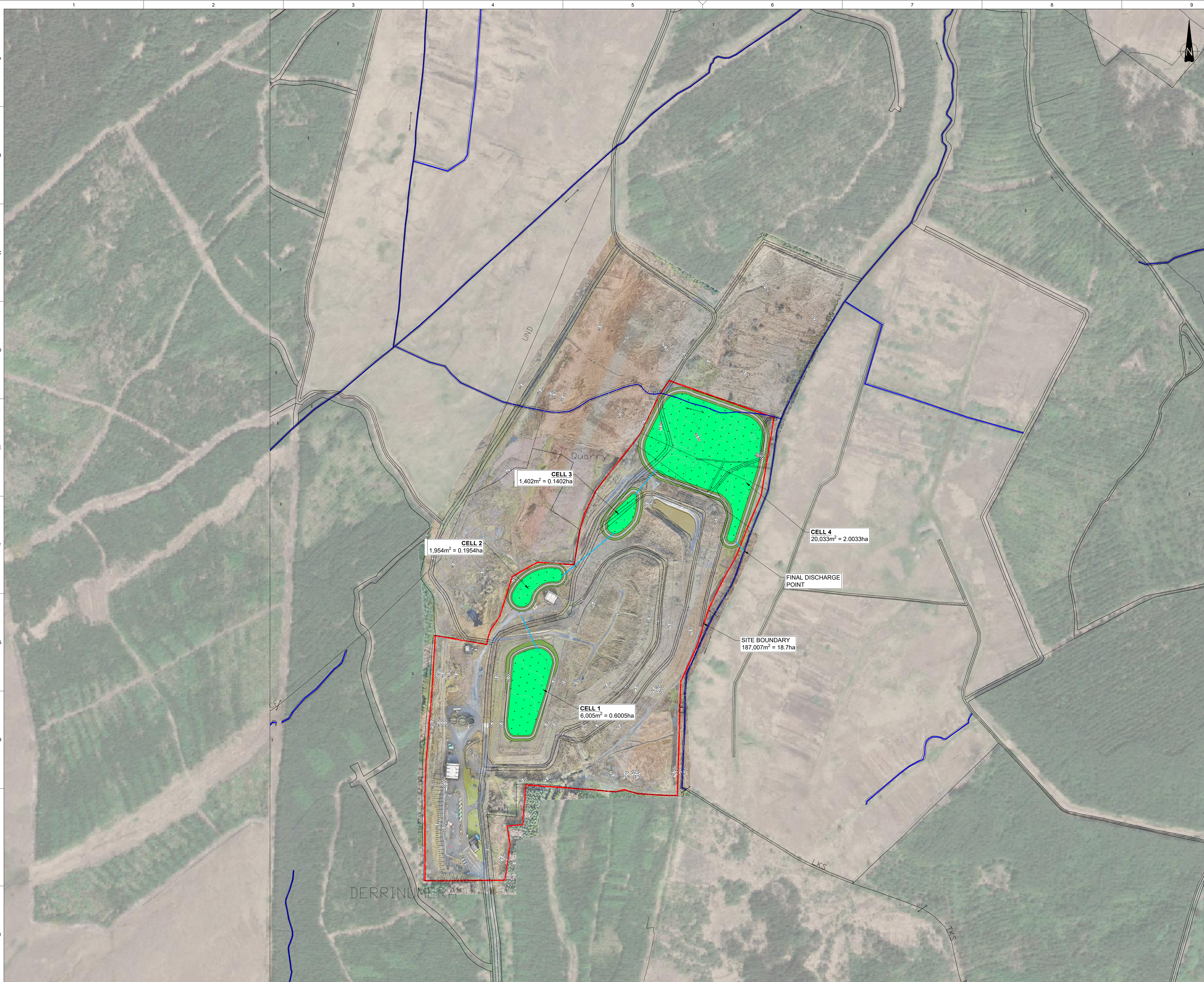
Location: Derrinnumera Landfill, Co. Mayo	Dimensions (m): <input type="text"/>	Scale 1:25
Client: Mayo County Council	Depth 1.75	Logged AF

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
						 Brownish-black fibrous PEAT with some pieces of timber.	
	1.40	B		1.20		 Loose to medium dense light greyish brown very slightly sandy slightly clayey SAND with occasional sub-rounded to angular cobbles	
				1.75 1.75		TP ends due to hard digging on possible bedrock End of Pit at 1.75m	

Remarks:	Heavy water ingress at 1.2m bgl. B Bulk Sample, HVP Insitu Vane Test
Stability:	TP Unstable

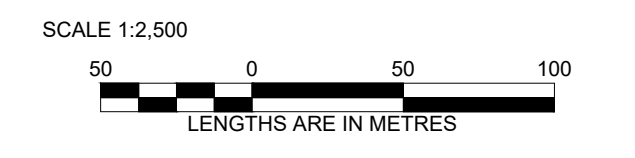


Appendix E – Drawings



- NOTES:**
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- LEGEND:**
- SITE BOUNDARY (TBC)
 - RIVER WATERBODIES
 - PROPOSED PIPEWORK
 - PROPOSED CELL
 - EMBANKMENT
 - ACCESS PATH
 - CONTOURS PRODUCED FROM DRONE SURVEY 5 MARCH 2022

DRAFT #: ##
 DATE: 19-05-2022
 DRAWN: ROS



A	ISSUED FOR FEASIBILITY	ROS	XYZ
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

CONSULTANT:
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 15D EURO BUSINESS PARK
 LITTLE ISLAND, CORK, IRELAND.
 T: +353 21 452 4632
 E: INFO@VESIENVIRO.COM
 W: WWW.VESIENVIRO.COM

CLIENT:
MAYO COUNTY COUNCIL
 Comhairle Contae Mhaigh Eo
 Mayo County Council

PROJECT:
 DIRRENUMERA LANDFILL, CO. MAYO

TITLE:
 PROPOSED ICW LOCATION

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:2500	MAR 2022	ROS	AC
PROJECT NO:	DRAWING NO:	REVISION:	
21452	21452_2_02	A	



GENERAL NOTES

1. DO NOT SCALE OFF DRAWING.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
3. ALL LEVELS IN METRES (MALIN HEAD) UNLESS OTHERWISE NOTED.
4. COORDINATES SYSTEM ITM

LEGEND:
■ = TRIAL PIT

S.I COORDINATES		
Value	Position X	Position Y
TP01	504589.000	794070.000
TP02	504690.000	794005.000
TP03	504496.000	793965.000
TP04	504603.000	793953.000
TP05	504704.000	794068.000
TP06	504674.000	794091.000
TP07	504604.000	794094.000
TP08	504500.000	794075.000
TP09	504489.000	794154.000
TP10	504443.000	794044.000

Rev	Date	Description	By	Chk	App
00	13/03	FOR REVIEW		AI	MR JB



CLIENT
 MAYO COUNTY COUNCIL

PROJECT
 DERRINUMERA LANDFILL ICW Co. MAYO

DRAWING TITLE
 SITE INVESTIGATION

STATUS
 FOR REVIEW

Date	Scale	AS NOTED	Drawn	AI	Chk	MR	App	JB
13/03/23	B1853	B1853-1000						00

PLAN TRIAL PIT PLAN LAYOUT
 SCALE 1:1000