Evaluation of Toilet Pits on Ynys Enlli /Bardsey Island







Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

Evaluation of Toilet Pits on Ynys Enlli /Bardsey Island

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Cover photograph: Members of North Wales Mammal Group excavating a toilet pit

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YNYS ENLLI TOILET PIT EVALUATION

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SUMMARY

Four pits were dug in September 2016 as soak-aways for compost bins to hold toilet waste. The digging of the pits was archaeologically monitored. No significant archaeology was found but the levels and nature of deposits at various locations around the abbey have been recorded and can inform any future work in these areas. The depth and nature of the levelling deposits for Nant Yard were investigated and the origin of human bone previously noted in this area has been established. Unusually deep deposits and a possible archaeological feature were found in Nant garden.

1. INTRODUCTION

Ynys Enlli or Bardsey Island (centred on SH11322106) is located off the end of the Llŷn Peninsula and is owned by the Bardsey Island Trust. There are many fine late 19th century farmhouses on the island that are let, along with converted barns, by the Trust to visitors and are used to house volunteers. As there is only limited water on the island and no sewage disposal system composting toilets are used for all the houses. The waste from these toilets was dumped in plywood bins in the gardens, but many of these bins were becoming dilapidated and needed replacing. The design of the plywood bins meant that they were vulnerable to breakage and were not very hygienic or easy to use. A new system was devised by Siân Stacey, the island manager, using plastic compost bins set over stone filled soak-aways to allow the drainage of fluids (see appendix III).

As the island is rich in archaeology a recent Heritage Management Plan (Kenney and Hopewell 2016) recommended archaeological investigation prior to groundworks, especially within the probable area of the medieval cemetery and around the abbey. It was therefore recommended that the locations of the pits for the soak-aways (referred to as toilet pits) should be archaeologically investigated before the compost bins were installed. As burials were found during the construction of Nant Yard and one toilet pit was to be located in the corner of the yard this was a particularly high priority.

In the absence of other funding for this work Siân Stacey arranged for volunteer labour and a professional archaeologist (the author) to volunteer to do the recording and manage the work.

2. ACKNOWLEDGEMENTS

This project has been carried out on an entirely voluntary basis, including the author. Thanks are due to the Bardsey Island Trust for providing accommodation and to Siân Stacey for assistance in organising the work. Most of the digging was done by members of the North Wales Mammal Group who had agreed to do voluntary work for 3 hours a day in return for accommodation, while they did mammal research for the rest of the time. Some did much more than their allotted 3 hours and put in considerable efforts in hard dry ground or cramped narrow trenches. Their efforts were greatly appreciated and it is hoped that their research did not suffer too much from the distraction of archaeology. The recording and supervision was done by the author.

3. METHODOLOGY

3.1. Aims and objectives

The aim of the work was to ensure that no archaeology was damaged without prior recording and that important archaeological features, especially graves, were avoided by the toilet pits. If significant archaeology was found in a pit the intention was to move the pit to another location, preventing damage to the archaeology.

3.2. Toilet pit evaluation

The preferred location of each toilet pit was identified and a trench of a suitable size was laid out. For a single compost bin the trench was 1m by 1m but where two bins were required trenches of 2m by 1m were dug. The trenches were dug as regular archaeological excavation trenches with vertical, straight sides where possible, so that the section through the deposits could be recorded. Vegetation was removed from over the area of the

trench where necessary and the deposits were dug by hand. The digging was mainly done by volunteers with no previous archaeological experience and they were instructed to dig in spits of about 5cm until the deposit changed (figure 1). Jane Kenney supervised their work and identified changes in the deposits. All finds were collected and finds from different deposits were bagged separately.

Where necessary deposits were photographed in plan once exposed. Once the trench had been dug down to the natural boulder clay one or more of the trench sides were cleaned up, photographed and the section drawn where significant features were visible. If necessary the base of the trench was planned, although this was only done where features were visible in the base. The deposits were recorded by notes on GAT proforma sheets and the depth of each layer recorded.

3.3. Human Remains

It was anticipated that human remains might be encountered in Nant Yard so a Ministry of Justice licence was obtained in advance, with the condition that any remains were to be reburied where they were found. The intention was to leave any intact burial undisturbed after recorded, to immediately rebury the remains and to move the toilet pit to another location. In fact no intact burials were located and only disarticulated remains were recovered. As this small number of disarticulated remains was not considered worth full analysis a photograph was taken of them and they were reburied close to but not in the toilet pit that they were recovered from.

4. **RESULTS**

Four pits were dug, mostly located at the bottom of gardens, with pits dug in the gardens of Nant and Hendy and $T\hat{y}$ Capel. A small pit was also dug in the north-west corner of Nant Yard. See figure 2 for the location of the pits. For detailed descriptions of each layer see appendix I.

4.1. Toilet Pit 01

Grid reference: SH 11972.5 22173.0

Figure 3

Toilet pit 01 was dug in the western corner of Nant Yard close to the yard wall. There had been a report of human remains being found in this corner when an attempt was made to turn it into a garden. The risk of finding human bone here was therefore high.

The pit was only 1m square and the natural boulder clay was 1.55m below the surface, so only a small area was exposed in the base of the pit as the sides had to be battered for stability. However this pit was very useful in understanding the make-up of the farmyard. Under 0.1m of topsoil was up to 1.2m of rubble and soil sealing a buried soil layer (106). The buried soil was about 0.25m deep and was composed of very soft dark grey sandy clay with some rounded beach pebbles. It contained no artefacts. The glacial boulder clay (107), an orange brown sandy clay, was 1.55m below the present ground surface.

The natural ground surface under the yard clearly sloped down from east to west. This can be seen by the eastern entrance to the yard being at ground level while the western door from the yard leads to a flight of steps and the ground surface inside is well over 1m above that outside the yard. The rubble layers seen in pit 01 were used to level the ground within the yard. The lowest of these layers (105) was a very dark grey sandy loam with c.20% angular stones, the stones becoming more frequent towards the base of the layer. It also contained fairly high quantities of animal bone, mainly very fragmentary and appearing to be general domestic rubbish. Above this was a layer (104) with numerous stones, lumps of brown clay, and patches of degraded mortar. The highest rubble layer was very stony (103), with sand from degraded mortar as well as lumps of mortar. While 105 appears to have been a general make-up layer with some domestic rubbish included the upper layers seem to be composed largely of building rubble, probably material either left over from building the current yard or from the demolition of earlier buildings.

The pottery found throughout these rubble layers showed that they were all of a similar and late date, although some earlier material was mixed in. The layers were probably deposited over a short period of time during the preparations for and building of the yard and its buildings.

The upper rubble layer (103) contained some human bones as well as those of other animals. These bones included a complete human radius (lower arm bone), part of a skull and other smaller fragments (figure 4). This layer is clearly the origin of the bones found previously in this area and it is clear that the bone is disturbed and redeposited; dumped unceremoniously in with the rubble. The human bones almost certainly came from a

medieval grave disturbed by the building foundations within the yard. There was no sign of a grave cut within the buried soil exposed in the base of the pit and it is unlikely that burials would have been disturbed in this western end of the yard as the ground was being built up rather than dug into. The disturbed grave is more likely to have been in the eastern side of the yard.

The human bones have been recorded on the Gwynedd Historic Environment Record (HER) as Primary Record Number (PRN) 62361 and the levelling layers as PRN 62362.

4.2. Toilet Pit 02

Grid reference: SH 12041 22203

Figure 5

This pit which measured 2m by 1m was located in the northern corner of Nant garden. The garden soil here was about 0.5m deep, as it has obviously been worked over a long period. This overlay an almost alluvial layer (203) of dark grey silty loam, 0.3m deep. Unlike the garden soil it contained no clinker, pottery or other rubbish. Below that was what appears to be a buried soil (204), a very dry and compact brownish grey clayey loam. The boulder clay was seen at 1.2m below the ground surface.

The depth of the deposits in this pit initially suggested that a ditch may run through this area but no edge to this was seen in the pit and a ditch would be expected to have cut away any buried soil. The explanation of the grey loam (203) is therefore unclear but would repay further exploration if the opportunity arose.

A possible feature was visible in the trench as a small pit or hollow [209] cut the buried soil on the SE side of the trench. The fill of the cut was indistinguishable from deposit 203. The trench also just clipped a large modern pit on its SE side. This pit [207] had numerous stones in its fill as well as plastics and other recent rubbish.

These deposits have been recorded on the Gwynedd HER as PRN 62363.

4.3. Toilet Pit 03

Grid reference: SH 12043 22210

Figure 6

This pit was dug against the north-eastern wall of Hendy garden, just fitting into a space between shrubs and the lawn. About 0.45m of garden soil overlay a possible buried soil layer (303), which was a very firm and dry. It was 0.3m deep and composed of grey brown clayey silt with c20% angular stones and occasional flecks of charcoal. No features or unusual deposits were seen in the trench apart from a slate-lined drain (305) running across the S end of the trench.

4.4. Toilet Pit 04

Grid reference: SH 12097 22193

Figure 7

Toilet pit 4 was dug in an area overgrown by trees and shrubs at the north-eastern end of Tŷ Capel garden. The topsoil here was 0.4m deep and the area had clearly formerly been a garden plot heavily dug over. Below this was a very firm, dry layer that was hard to dig through (403). This was 0.2m deep and similar to the possible buried soils in trenches 2 and 3. It was a dark brown silty loam with few stones and overlaid a similar but much stonier layer (405) with c.30% rounded and angular stones, some up to 0.15m long. A deposit similar to 405 but with fewer stones filled a shallow gully [406]. This gully ran about east-west across the trench and was 0.1m deep. It had fairly steep, well-defined sides and flat base. While it is possible that this gully is a genuine archaeological feature its position apparently sealed under what appear to be buried soil layers (403 and 405) make it likely that it was an animal burrow dug through these layers and when it collapsed was backfilled by the same deposits.

In the base of the trench was an orange brown silty clay concreted with iron oxides which represented the surface of the natural boulder clay. A slate drain (407) ran NE-SW across the north-western corner of the trench cutting through the topsoil.

4.5. Finds

Animal bones were amongst the most common finds. They need studying by a specialist to understand the assemblage but an initial inspection shows that some are bird bone and quite a lot are from rodents. There are very few fish bones, although there are fish teeth, possibly from a ray or skate, from layer 103 and a possible large fish vertebra from 303. Layer 105 contained much more bone than any other layer and these include

several sheep's teeth, occasional cattle teeth, two burnt fragments, and some rodent and bird bone. All the larger pieces from this layer are very fragmentary and worn. All the animal bone, with the exception of the rodents, is likely to be food debris, and the quantity of bone in 105 suggests that this was at least partially a midden deposit.

The shells present are all marine shells and are probably also food waste, although some may be from bait. The shells are mainly limpets, with occasional winkles, and cockles from layers 102 and 103. The upper layers of toilet pits 02 and 03 produced numerous fragments of crab shells including claws, showing that crab was eaten on the island and not just caught for sale.

Most of the metal objects found were iron, although there was part of a copper alloy spoon handle from 401 and some pieces of lead from 101. Most finds were nails of different sizes but there were also unidentifiable iron objects and a possible pony shoe from 302 and what appears to be iron slag from 301.

Ceramic finds were even more numerous than bone, but were mainly 19th or early 20th century whiteware or pieces with blue and white or other decoration. There were also sherds of heavy Buckley ware, especially from toilet pit 01. Large vessels with dark brown glaze were made in Buckley, Flintshire, in the 19th and 20th centuries, and some are still made. There are also pieces of clay pipes from toilet pit 03 and sherds of glass are fairly widely distributed.

Earlier ceramics may be represented by an eroded lump of red ceramic from fill 208 of the possible pit [209]. This is rather soft and could be medieval in date, possibly a piece of tile. In layer 103 were two sherds with brown glaze and a piece of a handle in red fabric handle, which are possibly earlier than most of the other pieces recovered. Although layer 105 contained late whiteware and Buckley sherds it also contained eroded pieces of tile, which seem to have been small and square with a red fabric with grey core, and may be medieval in date.

There were few stone objects but occasional pieces of flint were found. One piece from layer 103 is probably just a battered lump from the beach but a small flint flake with some cortex from layer 201 is deliberately produced. There was also a heavily burnt flint flake from layer 301. Layers 301 and 302 produced pieces of white quartz that might possibly have been knapped. Where flint was rare and quartz available the latter could be used to make tools.

In layer 105, towards the base of toilet pit 01 was a flake on what looks like very translucent flint the surface of which has hydrolysed like glass. This flake seems to have been deliberately knapped and it is possible that the material is a natural volcanic glass but specialist study would be required to confirm this.

From the topsoil in toilet pit 01 a part of a coconut shell was found, but this is likely to have been of quite recent origin.

Like the bones most of the ceramic and metal finds are discarded domestic waste. The ends of the gardens having been used for middens presumably since the houses were built. Specialist analysis of the pottery could perhaps give some indication of contacts and the wealth of the island in the 19th century, but these small assemblages are unlikely to provide much useful information.

The finds are currently held by Gwynedd Archaeological Trust in case of opportunities for further analysis but the intention is to deposit them with Storiel (Gwynedd Museum).

4.6. Long cist in the track (PRN 62364)

The edges of the slabs of a medieval long cist grave can be seen in the surface of the track near the entrance to $T\hat{y}$ Bach. This feature has long been known about but was largely covered with gravel when the research for the Heritage Management Plan for the island was carried out (Kenney and Hopewell 2016) and the cist was not recorded as part of that project. The opportunity will now be taken to correct that omission.

The cist is located at SH 11995 22125 within the trackway and very slightly to the north of the entrance into the grass area between Tŷ Bach and the barn (figure 2). The edges of two slabs can be seen aligned almost exactly east-west. Together these are about 0.9m long. About 0.5m to the north a short section of another slab can be seen aligned exactly parallel (figure 8). The edges of the slabs normally only just project above the gravel of the track or are entirely covered by gravel. The slabs are firmly supported by the gravel and deposits below and do

not seem to be moved in anyway by vehicles passing over them. As long as gravel is maintained in this area of the track there does not seem to be any significant erosion that will threaten the grave.

5. DISCUSSION AND CONCLUSIONS

No significant archaeology was found in the toilet pits, so the pits were filled with stone and converted into soak-aways and the compost bins could be positioned as required. Monitoring the digging of these pits has ensured that the levels and nature of deposits around the abbey have been recorded and can inform any future work in these areas. The depth and nature of the levelling deposits for Nant Yard have been investigated and the origin of human bone previously noted in this area has been established. The deep deposits and possible archaeological feature found in Nant garden could not be understood in the current work but would be worth investigating further in future if the opportunity arises.

6. **REFERENCES**

Kenney, J. and Hopewell, D., 2016. Ynys Enlli Heritage Management Plan, unpublished Gwynedd Archaeological Trust Report 1304

7. APPENDIX I: DESCRIPTIONS OF DEPOSITS IN THE TOILET PITS

Toilet Pit 01

Grid reference: SH 11972.5 22173.0 Pit size: 1m x 1m Photos: 603-609.0

Pit size: 1m x 1mPhotos: 603-609, 615-624Max Depth: 1.55mOrientation: NNW-SSE/WSW-ENE

Summary: Layers of rubble were built up against the W wall of the yard in the 19th century to level the ground. These layers were dumped on a homogenous buried soil with no sign of grave cuts or disturbance in it. Boulder clay was exposed in a small area in the base of the trench as the size and depth of the trench made it too difficult and dangerous to dig any more.

Layer	Depth of deposit	Description
101	0.05m	Active topsoil. Very dark grey sandy loam with occasional small stones and lots of roots
102	0.05m	Lower topsoil. Very dark grey sandy loam with occasional small stones and lots of roots, but more consolidated than 101
103	Up to 0.25m	Upper rubble layer. Layer of angular and sub-angular stones, up to 0.2m in length, with a sandy silt matrix varying in colour from dark grey to yellow brown. In the yellow brown areas the matrix is mostly sand. The sand is from degraded mortar and some lumps of mortar also survive. Some human remains were found in this layer near the southern side of the trench.
104	Up to 0.35m	Lower rubble layer. Dark grey sandy loam with numerous stones and lumps of brown clay. Also contains patches of degraded mortar.
105	Up to 0.9m	Made-up ground. Very dark grey sandy loam with c.20% angular stones. Towards the base of the layer the stones are more frequent, rounded and larger.
106	0.25m	Buried soil. Very soft dark grey sandy clay with few stones and no artefacts. Contains rounded beach pebbles.
107		Boulder clay. Orange brown sandy clay with iron oxide mottles.

Toilet Pit 02

Grid reference: SH 12041 22203

Pit size: 2m x 1mPhotos: 610-614, 628Max Depth: 1.2mOrientation: WSW-ENE

Summary: Deep garden soil over an almost alluvial layer (203) which overlies what appears to be a buried soil, very similar to that in TP03. The depth of the deposits suggests a ditch bit there is no firm evidence of this. A small pit cut the buried soil on the SE side of the trench. The fill of the cut was indistinguishable from deposit 203. The trench just clipped a large modern pit on its SE side.

Layer	Depth of deposit	Description							
201	0.2m	Active topsoil. Loose dark grey silty loam with a concentration of beach pebbles at the NE end of the trench							
202	0.3m	Mixed garden soil. Very dark grey silty loam with occasional small stones and very occasional clinker, and lumps of mortar.							
203	0.3m	Dark grey silty loam, slightly malleable, with occasional small stones. A clean, rather alluvial feel with no clinker and rubbish.							
204	0.2m	Possible buried soil. Brownish grey clayey loam, very dry and compact with occasional small stones and very occasional charcoal flecks Similar to 303.							
205		Boulder clay. Pale yellow-brown silty clay with orange iron oxide mottles. Very compact, with occasional small stones.							
206		Fill of cut 207. Very loose very dark grey silty loam with stones and plastic rubbish.							
207		Modern rubbish pit. Rounded base of pit just visible in SE side of trench.							
208	0.2m	Fill of cut 209. Dark grey silty loam, slightly malleable, with occasional small stones. Indistinguishable from 203.							
209		Small pit. Cut measures c. 0.4m across and c. 0.2m deep with rounded base. It cuts layer 204, but as its fill is the same as 203 the cut would not be visible within 203 if it was cut through this.							

 Toilet Pit 03

 Grid reference: SH 12043 22210

 Pit size: 2m x 0.8m
 Photos: 625-627

 Max Depth: 0.8m
 Orientation: NNW-SSE

 Summary: Garden soil over a possible buried soil layer but no features or unusual deposits seen apart from a slate-lined drain running across the S end of the trench.

Layer	Depth of deposit	Description
301	0.2m	Active topsoil. Dark grey silty loam with occasional stones and lots of roots. There was a band of brownish clay against the wall along the E side of the trench, presumably dumped within 301.
302	0.25m	Lower topsoil/former garden soil. Dark grey silty loam with occasional stones, mortar, clinker and charcoal. Slightly more compact than 301.
303	0.3m	Buried soil. Grey brown clayey silt with c20% angular stones up to 0.2m long and occasional flecks of charcoal. Few finds. Very firm and dry, hard to dig through.
304		Boulder clay. Very firm yellow-brown silty clay with occasional stones.
305		Fill and slate lining of a drain running through the garden soil. Filled with garden soil and lined with pieces of slate.
306		Cut for drain running across S end of trench, just visible in trench side. Base of drain was 0.55m below ground surface. The drain ran E-W.

Toilet Pit 04

Grid reference: SH 12097 22193

Pit size: 2m x 1m Photos: 629-631

Max Depth: 0.7m Orientation: NW-SE

Summary: Topsoil over a possible buried soil layer with a slate drain running across the W corner of the trench and shallow gully running diagonally across the middle of the trench.

Layer	Depth of deposit	Description
401	0.2m	Active topsoil. Loose dark grey silty loam with occasional stones and lots of roots.
402	0.2m	Lower topsoil/former garden soil. Dark grey silty loam with occasional stones.
403	0.2m	Buried soil? Dark brown silty loam with few stones. Few finds. Very firm and dry, hard to dig through.
404		Boulder clay. Orange brown silty clay concreted with iron oxides.
405	0.23m	Lower soil deposit? Grey brown silty clay with c.30% rounded and angular stones.
406	0.1m	Cut for shallow gully. Fairly steep well-defined sides and flat base. Runs about E-W across trench.
407		Fill and slate lining of land drain. Filled with topsoil and lined with pieces of slate.
408		Cut for land drain. Cut itself is hard to see, drain only visible where slate survives. Runs NE-SW across NW corner of trench.

8. APPENDIX II: LIST OF FINDS

Toilet	Context Ceramics		mics	Glass		Metal		Bone		Shell		Stone		Other	
Pit		Number	Weight												
		of items	(g)												
01	101	20	378	13	58	5	102	9	13	4	6			1	31
01	102	8	69	3	6			3	21	8	9				
01	103	3	18					11	1	3	24	1	23		
01	104	1	37	1	3			6	4	1	1				
01	105	14	303			2	15	87	309	1	1	1	1		
02	201	13	127			5	64	8	7	19	45	1	1		
02	208	1	8												
03	301	29	140	8	39	4	233	5	1	10	10	3	9		
03	302	32	139	14	154	4	120	1	10	3	1	5	26		
03	303							3	1						
04	401	7	36	4	33	2	18					1	75		
04	402	3	18	1	<1					2	1				

9. APPENDIX III: METHODOLOGY FOR NEW HUMAN WASTE DISPOSAL SYSTEM

Siân Stacey, Bardsey Island Trust Island Manager

Introduction

On reviewing the current state of existing plywood pits it became clear that a number are in need of replacing. Working on the basis that each property (some sharing e.g. Plas, Plas Lloft and Vols all share one pit) should have two pits. One should be used during that year, possibly over two years, whilst the other is shut up allowing the waste time to compost. Once this has happened the compost can then be spread on suitable parts of the gardens over winter.

It became apparent that all of the plywood pits have the same fundamental design problems which result in them breaking and not being very user friendly. For example, many of the lids to the pits break in the same way and none of the lids have a handle for users to hold to pull the pit open. Most of the pits are too tall, resulting in inappropriate 'steps' being used and then breaking, creating a serious health and safety risk.



Above from left: Carreg North Pit, Carreg North pit and broken pallet used as steps, Carreg South pit destroyed.

As a result of these problems I have worked with Gwyn Stacey (my brother) to produce this proposal to innovate the existing model with a view to making the system work better for guests, staff and be more cost efficient for the Trust.

Overview

- 1. To replace the use of plywood pits for composting human waste.
- 2. To implement an alternative system that
 - a. composts waste by the most effective means and reduces environmental impacts
 - b. has a 20 year lifespan
 - c. is compatible with future changes to waste separation strategies (Liquid and Solid wastes)
 - d. is of a comparative cost to plywood pits
 - e. produces a final waste product that is usable.

Specification

The proposed system will utilise a standard 330L compost bins made from recycled plastic. Below which will be a pit excavated to ~0.5m depth and 0.8m Diameter. This pit will be back filled with large rocks for 0.35m, gravel for 0.1m and finally a top layer of sand 0.05m thick. This will allow for liquids to slowly drain out and have partial biological filtering. Sods removed before excavation will be laid around the circumference of the compost bin to provide stability and alleviate liquids leakage.



Benefits

The proposed system will:

- Not degrade, utilising long lasting materials which will not rot
- Keep rainwater out improving the decomposition process
- Allow liquids to drain (improving solids decomposition) and be partially biologically filtered by the layer of sand
- Reduce odours whilst lid is in place
- Provide an easy to use and hygienic lid for users
- Provide a clearer rotation process
- This system is compatible with the future plans to separate solid and liquid waste in order compost human waste more effectively.

Potential Issues

• The system will have minimal airflow (slowing, not stopping decomposition). A compost aerator could be used to lift and mix the compost with ease after initial decomposition. If this is not done the waste will still turn to compost.

http://www.evengreener.com/Shop/Composting_Accessories/TURNER03_Compost_Aerator.html

• The system will cause an odour when the lids of the bins are lifted, with the odour being reduced significantly once the lids are back in place. This odour will not occur when separating systems are implemented.

Siting & Construction

Ideally compost bins should be located in sheltered locations with access to daylight. For certain areas where existing pits are in place within gardens the new compost bins could be placed in alternative positions.

- 1. Remove sods to diameter of compost bin, retain for reuse
- 2. Dig pit to 0.5m deep 0.8m diameter separating and retaining any large stones.
- 3. Backfill pit to 0.35m with large stones
- 4. Fill 0.1m of 20mm gravel above this
- 5. Finally level with 0.05m of sand
- 6. Place compost bin in place
- 7. Place sods around circumference of compost bin.

Soak

A soak in a compost bin is used to provide carbon to allow for effective decomposition. Currently fresh grass cuttings and/or wood shavings are used as a soak on Bardsey. Fresh grass is not advisable as the carbon content is less effective when wet. Sawdust, Straw or shredded paper is a more effective soak than grass. A long term strategy should look to move away from grass and to these alternatives.

An option for Bardsey is to use seasoned & shredded gorse/bracken. This will allow for the soak to come from a readily available source.

Management

It is advised at this time that two units are implemented to replace a single plywood pit. Ideally one unit will be used per season however for larger houses such as Carreg two may be needed. Hence if two are needed the second will already be in place.

Daily management: None – Visitors empty their own waste into the pit

Weekly Management: A sprinkling of sawdust (or seasoned island gorse chippings) are added to the unit in use on changeover day to be carried out by staff/volunteers

Seasonal Management: During the spring and summer - aeration of the previous year's unit

During the autumn/spring – emptying of the unit from the season before last – to be carried out by staff/volunteers.

10. FIGURES

- Figure 1. Members of North Wales Mammal Group excavating toilet pit 01 (above) and pit 03 (below)
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Figure 1. Members of North Wales Mammal Group excavating toilet pit 01 (above) and pit 03 (below)







Location of toilet pit 01



N facing section of toilet pit 01 with layer 106 exposed in base of pit

Figure 3. Section drawings and photographs of toilet pit 01



Rubble layer 103 with human radius



Human radius fully exposed



Human bones from layer 103 in toilet pit 01

Figure 4. Human bone from toilet pit 01



Figure 5. Plan, section drawings and photographs of toilet pit 02



Location of toilet pit 03



WSW facing section of toilet pit 03



Plan of toilet pit 04 (red line indicates position of section drawing)

SW facing section of toilet pit 04



Toilet pit 04 from the south-west



SW facing section of toilet pit 04



Location of grave, seen just behind the ranging rod



Detail of grave slabs just protruding through the gravel of the track

Figure 8. Photographs of cist grave PRN 62364





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