

# MBT Facility No. 1



<b>Facility Owner:</b>	Undisclosed
<b>Contact:</b>	Undisclosed
<b>Location:</b>	Undisclosed
<b>Telephone:</b>	00-353-21-462-1721
<b>Size:</b>	4.0 acres
<b>Feed stock:</b>	MSW and brown bin
<b>Capacity:</b>	50,000 tonnes per year
<b>Commissioned:</b>	Due for commissioning 2010/2011

## Facility History:

This facility which recently achieved planning permission will process MSW and brown bin material. Celtic was commissioned to develop the facility layout and design to allow the dry fermentation and in-vessel composting of the combined inputs.

## Processing Equipment:

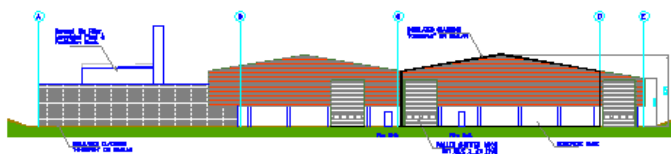
14 dry fermentation chambers, 8 composting tunnels, three solid state pasteurisers within 12,000 m<sup>2</sup> completely enclosed building.

## Process Technology:

Pre-separated wiMSW fines and brown bin material will be delivered to the facility and this material is loaded into the dry fermentation chambers for 56 days of dry digestion. The facility will have 1,300 kW CHP electrical capacity. Post digestion, the material will be post composted within aerobic tunnels to fully stabilise the material prior to back-end solid state pasteurisation. The final sanitised compost will be used in restoration and agriculture.

## Financial Summary

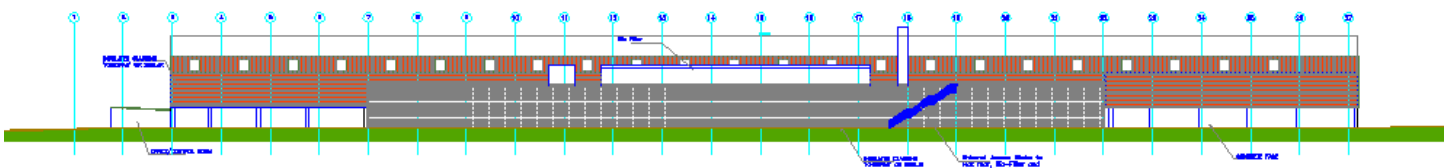
Not currently available.



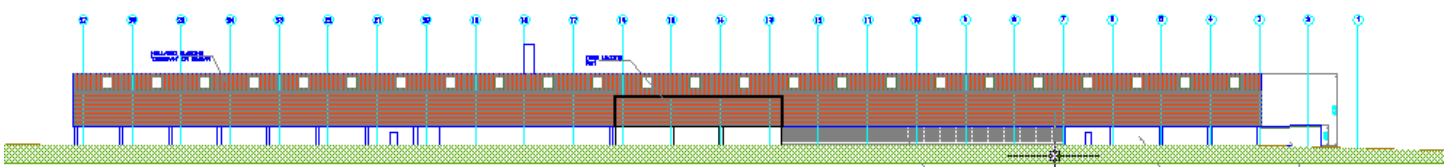
North Elevation  
Scale 1:200



South Elevation  
Scale 1:200



East Elevation  
Scale 1:200



West Elevation  
Scale 1:200



**Facility Owner:** Undisclosed  
**Contact:** Undisclosed  
**Location:** Undisclosed  
**Telephone:** 00-353-21-462-1721  
**Size:** 2.0 acres  
**Feed stock:** MSW and brown bin  
**Capacity:** 20,000 tonnes per year  
**Commissioned:** Due for commissioning 2010/2011

**Facility History:**

This facility which recently achieved planning permission will process MSW and brown bin. Celtic was commissioned to develop the facility layout and design to allow the dry fermentation and in-vessel composting of the combined inputs.

**Processing Equipment:**

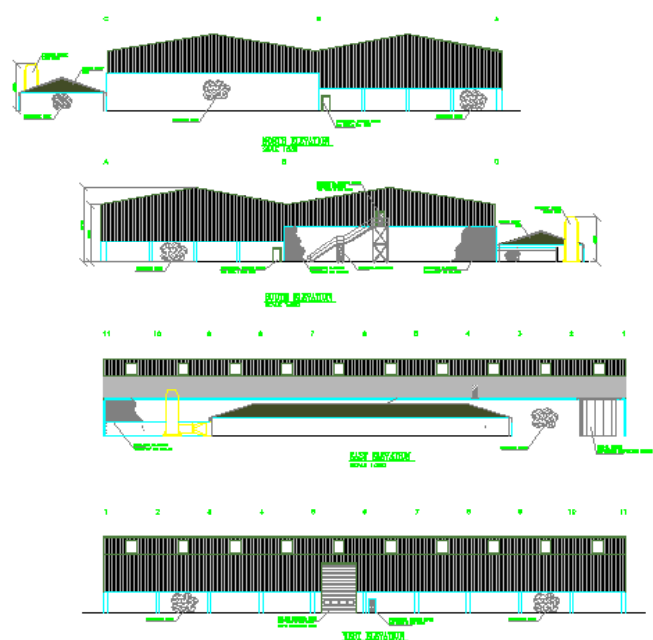
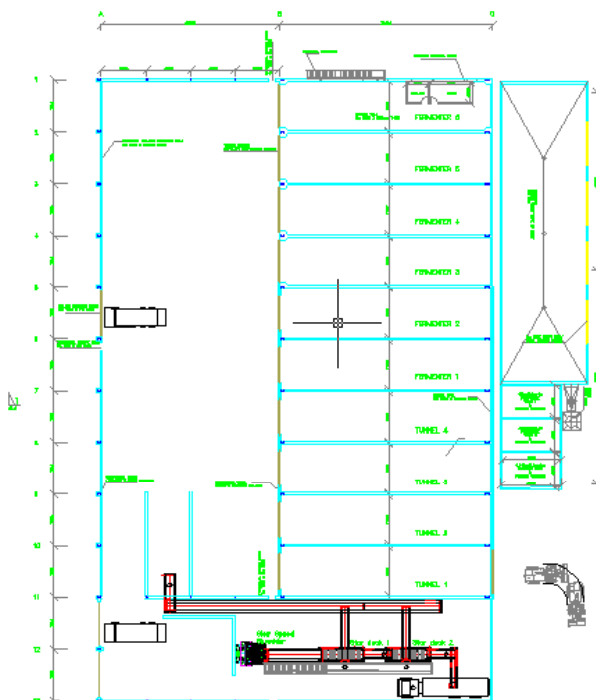
6 dry fermentation chambers, 3 composting tunnels, one solid state pasteurisers within 5,000 m<sup>2</sup> completely enclosed building.

**Process Technology:**

Pre-separated MSW fines and brown bin material will be delivered to the facility and this material is loaded into the dry fermentation chambers for 56 days of dry digestion. The facility will have 500 kW CHP electrical capacity. Post digestion, the material will be post composted within aerobic tunnels to fully stabilise the material prior to back-end solid state pasteurisation. The final sanitised compost will be used in restoration and agriculture.

**Financial Summary**

Not currently available.



# MBT Facility No. 3



**Facility Owner:** Confidential Client  
**Contact:** NA  
**Location:** UK  
**Telephone:** 00-353-21-462-1721  
**Size:** 4.0 acres  
**Feed stock:** MSW and brown bin  
**Capacity:** 60,000 tonnes per year  
**Commissioned:** Due for commissioning 2011

## Facility History:

This facility is seeking planning permission to process MSW and brown bin material in the UK. Celtic was commissioned to develop the facility layout and design to allow the dry fermentation and in-vessel composting of the combined inputs.

## Processing Equipment:

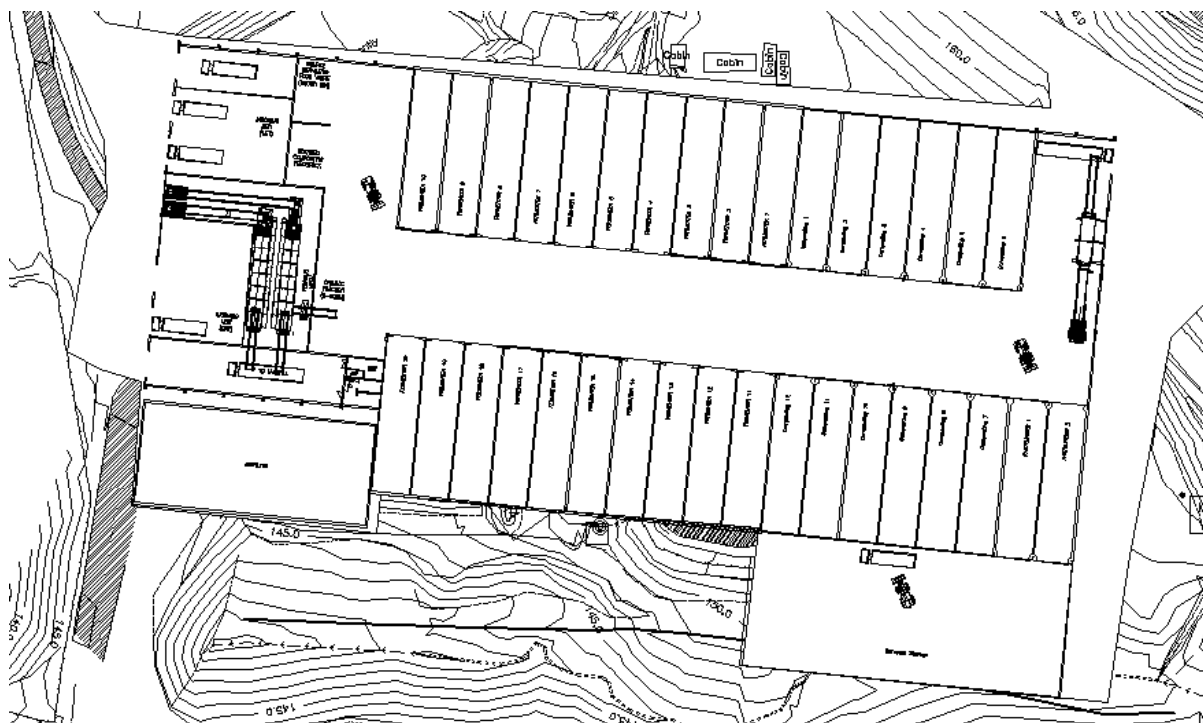
16 dry fermentation chambers, 10 composting tunnels, two solid state pasteurisers within 14,000 m<sup>2</sup> completely enclosed building.

## Process Technology:

Pre-separated MSW fines and brown bin material will be delivered to the facility and this material is loaded into the dry fermentation chambers for 56 days of dry digestion. The facility will have 1,400 kW CHP electrical capacity. Post digestion, the material will be post composted within aerobic tunnels to fully stabilise the material prior to back-end solid state pasteurisation. The final sanitised compost will be used in restoration and agriculture.

## Financial Summary

Not currently available.



# Dry Fermentation Facility No. 1



**Facility Owner:** Undisclosed  
**Contact:** Undisclosed  
**Location:** Undisclosed  
**Telephone:** 00-353-21-462-1721  
**Size:** 3.5 acres  
**Feed stock:** Domestic Brown Bin  
**Capacity:** 50,000 tpa (1,400 kW<sub>el</sub>)  
**Commissioned:** 2011

## Facility History:

The facility is currently in design. The facility will primarily process domestic brown bin material in the UK.

## Processing Equipment:

Fully enclosed fermentation hall with 14 Bioferm fermenters with the digestate being post composting with in-vessel tunnels with back end pasteurisation. The facility will produce a high grade compost product to supplement the green waste compost operations at the site and will be used in soil manufacture.

## Anaerobic Digestion Process:

The feedstock is delivered to the enclosed reception building and tipped into the reception pit. These materials are mixed and loaded into the fermenters where it is digested for periods of 28 days, with an average hydraulic retention time of 56 days. The digestate is transferred to the tunnels and post aerated and then subjected to post-pasteurisation within dedicated flow through tunnels. The biogas is collected in the head space of the fermenters and stored in a gas bag prior to feeding a battery of CHP engines. The electricity will be exported to the electrical grid.



# Dry Fermentation Facility No. 2



<b>Facility Owner:</b>	Undisclosed
<b>Contact:</b>	Undisclosed
<b>Location:</b>	Undisclosed
<b>Telephone:</b>	00-353-21-462-1721
<b>Size:</b>	3.5 acres
<b>Feed stock:</b>	Domestic Brown Bin
<b>Capacity:</b>	25,000 tpa (850 kW <sub>el</sub> )
<b>Commissioned:</b>	pre-planning

## Facility History:

The facility is currently in pre-planning. The facility will primarily process domestic brown bin material in the UK

## Processing Equipment:

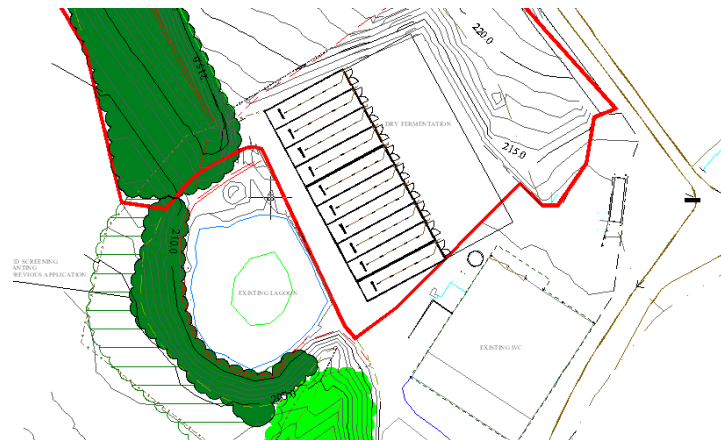
Fully enclosed fermentation hall with 10 Bioferm fermenters with the digestate being transferred to the existing tunnel composting facility at the site. The digestate will post composted to produce a high grade compost product to supplement the green waste compost operations at the site.

## Anaerobic Digestion Process and Residence Time:

The feedstocks are delivered to the enclosed reception building and tipped into the reception pit, These materials are mixed and loaded into the ten fermenters where it is digested for periods of 28 days, with an average hydraulic retention time of 56 days. The digestate is transferred by conveyor to the tunnel compost facility, post aerated and then subjected to post-pasteurisation within dedicated flow through tunnels. The biogas is collected in the head space of the fermenters and stored in a gas bag prior to feeding a battery of CHP engines. The electricity will be exported to the electrical grid.

## Financial Summary

To be determined



# Dry Fermentation Facility No. 3



**Facility Owner:** Undisclosed  
**Contact:** Undisclosed  
**Location:** Undisclosed  
**Telephone:** 00-353-21-462-1721  
**Size:** 3.0 acres  
**Feed stock:** Domestic and Commercial Brown Bin  
**Capacity:** 25,000 tpa (850 kW<sub>el</sub>)  
**Commissioned:** In planning

## Facility History:

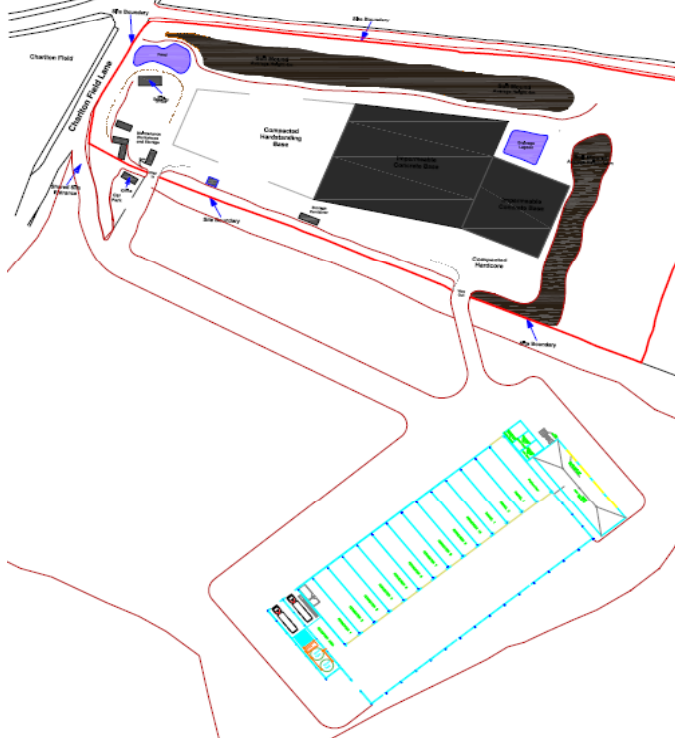
The facility is currently going through planning. The facility will primarily process domestic brown bin material in the UK. Some commercial pre-consumer food waste will also be processed at the facility.

## Processing Equipment:

Fully enclosed fermentation hall with 10 Bioferm fermenters, 10 ASP zones within an enclosed building with full ventilation and biofiltration. The digestate will post composted to produce a high grade compost product to supplement the green waste compost operations at the site.

## Anaerobic Digestion Process and Residence Time:

The feedstocks are delivered to the enclosed reception building and tipped into the reception pit, These materials are mixed and loaded into the ten fermenters where it is digested for periods of 28 days, with an average hydraulic retention time of 56 days. The digestate is post aerated with an enclosed ASP system and then subjected to post-pasteurisation within dedicated flow through tunnels. The biogas is collected in the head space of the fermenters and stored in a gas bag prior to feeding a battery of CHP engines. The electricity will be exported to the electrical grid with the renewable heat being used to heat local greenhouses.



# Dry Fermentation Plant No. 4



**Facility Owner:** Undisclosed  
**Contact:** Undisclosed  
**Location:** Undisclosed  
**Telephone:** 00-353-21-462-1721  
**Size:** 3.0 acres  
**Feed stock:** Grass and Maize silage and manure  
**Capacity:** 20,000 tpa (800 kW<sub>el</sub>)  
**Commissioned:** In planning

## Facility History:

The facility is currently going through planning. The facility will process agriculture residues with the intention of providing renewable electricity and heat to the adjacent industrial estate.

## Processing Equipment:

Fully enclosed fermentation hall with 10 Bioferm fermenters and post-composting tunnels for the bio-drying the digestate. The digestate will be used to fertilize the fields from which the silage is harvested, thus completing the nutrient cycle.

## Anaerobic Digestion Process and Residence Time:

Feedstock is a mixture of maize and grass silage. The feedstocks are delivered to the enclosed reception building and tipped into the reception pit. These materials are loaded into the ten fermenters where it is digested for periods of 28 days, with an average hydraulic retention time of 56 days. The biogas is collected in the head space of the fermenters and stored in a gas bag prior to feeding a battery of CHP engines. The electricity will be exported to the electrical grid with the renewable heat being used in a district heating system servicing the adjacent industrial estate.

## Financial Summary

To be determined

