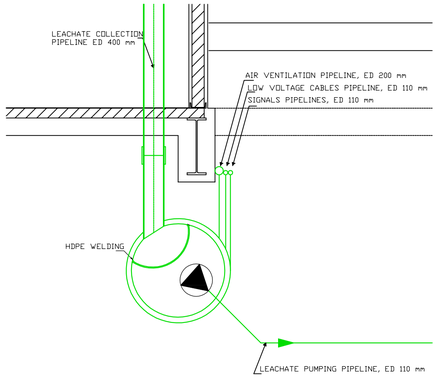
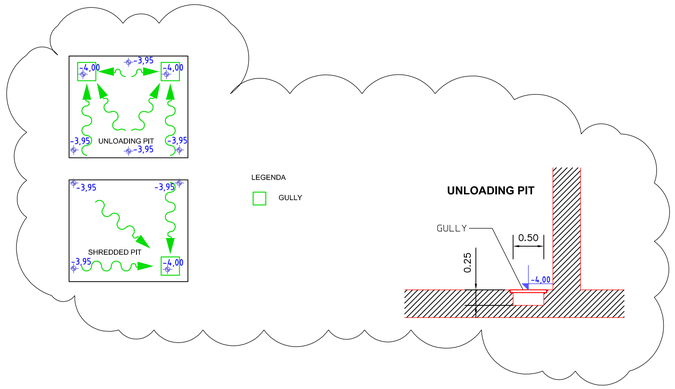
DETAIL 1: LEACHATE COLLECTION PIPELINE BIODRYING AREA

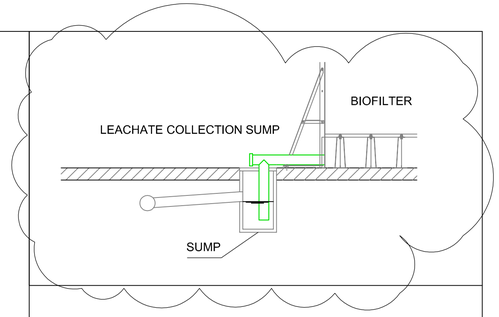


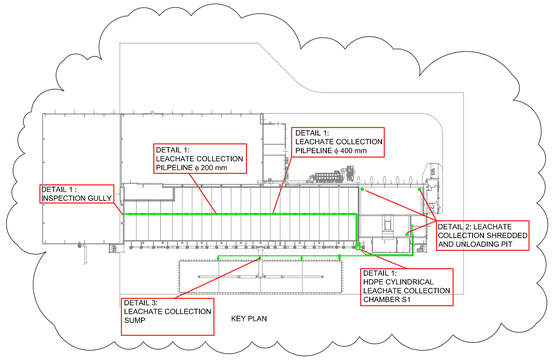
HDPE CYLINDRICAL LEACHATE COLLECTION CHAMBER LAYOUT

DETAIL 2: LEACHATE COLLECTION SHREDDED AND UNLOADING PIT



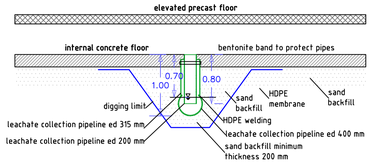
DETAIL 3: LEACHATE COLLECTION BIOFILTER

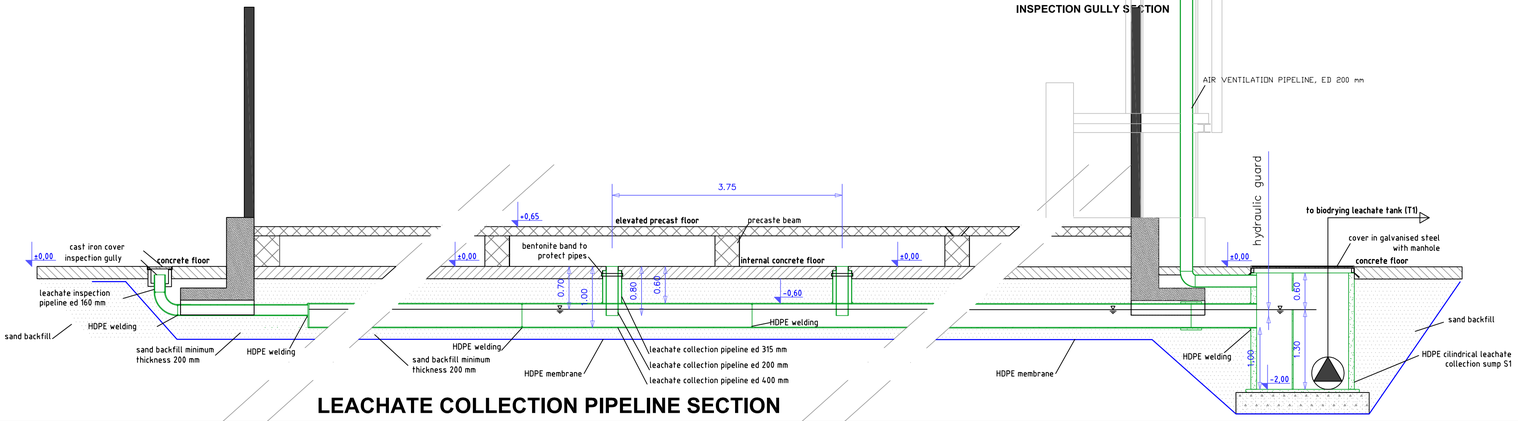




KEY:
MODIFICATIONS

SECTION A-A: LEACHATE COLLECTION PIPELINE





LEACHATE COLLECTION PIPELINE SECTION

FOR LAYOUT SEE DRAWING T073PR17FAB001

Revision	Date	Description
03	23.01.2009	Updated slab and gullies reception - and shredded waste pit Added detail 3
02	24.06.2008	General revision
01	20.03.2008	General revision
00	10.03.2008	First issue

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Project title: HESPIN WOOD

Document title: Leachate collection system - Details

Created by - CAD technician	Checked by - Design engineer	Approved by - Project manager
Cattaneo	v.d. Boomgaard	Minetti

Drawing

Scale: 1:20

Plot scale: 1:1

Design engineer

Client

Document number: T073-PR-17F-AA001-R03

Clerk of the works

Contractor

Drawn by

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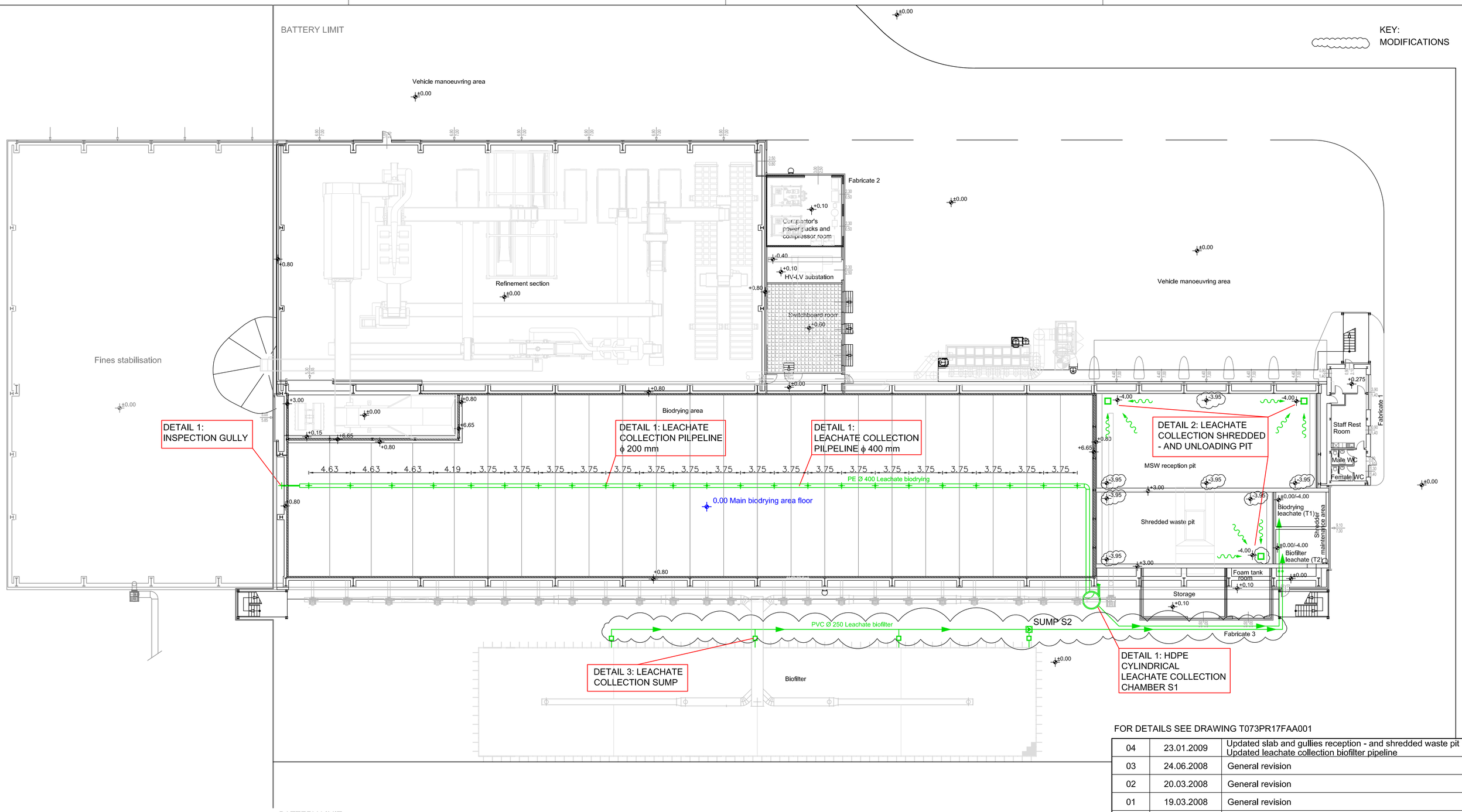

GROUND FLOOR PLAN

FOR DETAILS SEE DRAWING T073PR17FAA001

Revision	Date	Description
04	23.01.2009	Updated slab and gullies reception - and shredded waste pit Updated leachate collection biofilter pipeline
03	24.06.2008	General revision
02	20.03.2008	General revision
01	19.03.2008	General revision
00	10.03.2008	First issue

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Project title: HESPIN WOOD

Document title: Leachate collection system - Layout

Created by - CAD technician	Checked by - Design engineer	Approved by - Project manager
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Drawing

Scale: 1:200

Plot scale: 1:1

Design engineer

Client

Document number: T073-PR-17F-AB001-R04

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Document title	**LEACHATE COLLECTION SPECIFICATION**
Document code :	**T073-PR-17F-AS001**
Edited by :	**Paolo Mandara**
Checked by :	**Derk Van Den Boomgaard**
Approved by :	**Franco Balestrini**
Date of issue	**23-01-2009**
File name	**T073PR17FAS001R01 – Leachate collection specification**
Site	**HESPIN WOOD (CUMBRIA)**

Table of revisions

Rev. N°	Date	Pag.	Description	Done by :
00	20/03/2008			
01	23/01/2009	2, 3	changed Leachate chamber h, from 6200 to 2000mm changed Leachate collection system Biofilters changed Leachate collection system Pits	v/d Boomgaard
02				
03				
04				

LEACHATE COLLECTION SPECIFICATION

SCOPE

The Scope of this document is to describe in detail the suggested leachate collection system for , biodrying area, biofilter, unloading and shredded pits.

See attachment Leachate collection system - Layout T073PR17FAB001 and Leachate collection system - Details T073PR17FAA001.

1. LEACHATE COLLECTION SYSTEM DESIGN

☐ General description:

The leachate produced in the **biodrying process area** (leachate from process) is collected with pipelines, located under the internal floor of the building in a HDPE Leachate collection chamber (S1). The Chamber functions also as an hydraulic guard, this to avoid interference of false air in the ventilation system. From the sump the leachate, by means of an electrical pump, is sent into a dedicated concrete tank (T1).

The leachate produced by the **biofilter** is collected into precast concrete leachate collection gullies (one for each section of the biofilter): use of polypropylene material is recommended. The above mentioned gullies function also as an hydraulic guard, this to avoid interference of false air in the ventilation system. Finally the leachate is carried by gravity to a collection sump (S2), from which it is pumped to the dedicated concrete tank (T2).

The leachate produced in the **unloading and shredded material pits** will be collected in several small sumps at the bottom of the pit, from where it can be pumped out by an external pump into the biodrying concrete leachate tank (T1).

☐ Description of the different leachate collection system:

<u>Leachate collection system for biodrying area</u>

The system consists in:

- 1 HDPE cylindrical leachate collection sump (S1) Φ 2016 mm x h 2000 mm – 110 mm thick, with a bottom HDPE panel 50 mm thick.
- 1 HDPE horizontal leachate collection pipeline: Φ 400 mm – 12,4 mm thick provided with an inspection and flushing gully.
- 23 HDPE vertical leachate collection pipelines: Φ 200mm – 6,2 mm thick
  Each of the above 23 pipes is protected by a second external HDPE pipe: Φ 315mm – 9,8 mm thick.
- 1 HDPE pipeline, to locate the air ventilation pipe: Φ 200 mm – 6,2 mm thick.
- 1 HDPE pipeline, to locate the leachate pumping pipe: Φ 110 mm – 3,5 mm thick.
- 2 HDPE pipelines to locate low voltage cables and signals: Φ 110 mm – 3,5 mm thick
- The drain well is provided with a pump and five level sensors.

<u>Leachate collection systems for biofilters</u>

The system consists in:

- 4 precast concrete leachate collection gullies: dimensions 500 mm x 500 mm x h 1000 mm.
- 4 polypropylene pipes connected to the biofilter that drain into the gullies: Φ 110 mm.

- PVC (or polypropylene pipeline welded on gullies) leachate collection pipeline with O ring packing: Φ 250 mm.
- 1 precast concrete (or polypropylene) collection sump (S2) : dimensions 1000 mm x 1000 mm x h 1500mm.
- The collection sump (S2) is provided with a pump (if needed) and level sensors (if needed); the leachate is pumped to its dedicated concrete tank (T2).

Leachate collection system for the unloading pit and the shredded pit

The system consists in:

- 2 concrete collection gullies in the unloading pit and 1 in the shredded waste pit, dimensions 500 mm x 500 mm x h circa 250 mm.

Leachate storage system

The system consists in:

- 2 concrete tanks, one for biodrying leachate (T1) and one for biofilter leachate (T2); overall capacity of the above tanks is about 220 m^3. N.B.: how to devide the total capacity over the two tanks to be decided.
- 1 pump, each tank.
- 2 level sensors and 1 sonar for continuous level control, each tank.

2. TESTING OF LEACHATE COLLECTION SYSTEM

When the leachate collection system has been completed and before the concrete slab has been placed over the pipeline, a testing of the system must be carried out to make sure that all welds are perfectly done and no leaks are present.

The test is a simple test carried out at environmental pressure.

The whole system must be filled with clean water and the level must be marked within the sump and gullies which gives the possibility to check any level difference.

The system full of water must be on rest for at least 24 hours and then the level must be checked again.

Any visible difference will be a signal of some leak and the leachate system must be checked to find out where the leak is located.

Some help to find out the leak location can be obtained using geoelectric system.

3. ATTACHMENTS

- Leachate collection system - Layout drawing T073PR17FAB001
- Leachate collection system - Details drawing T073PR17FAA001