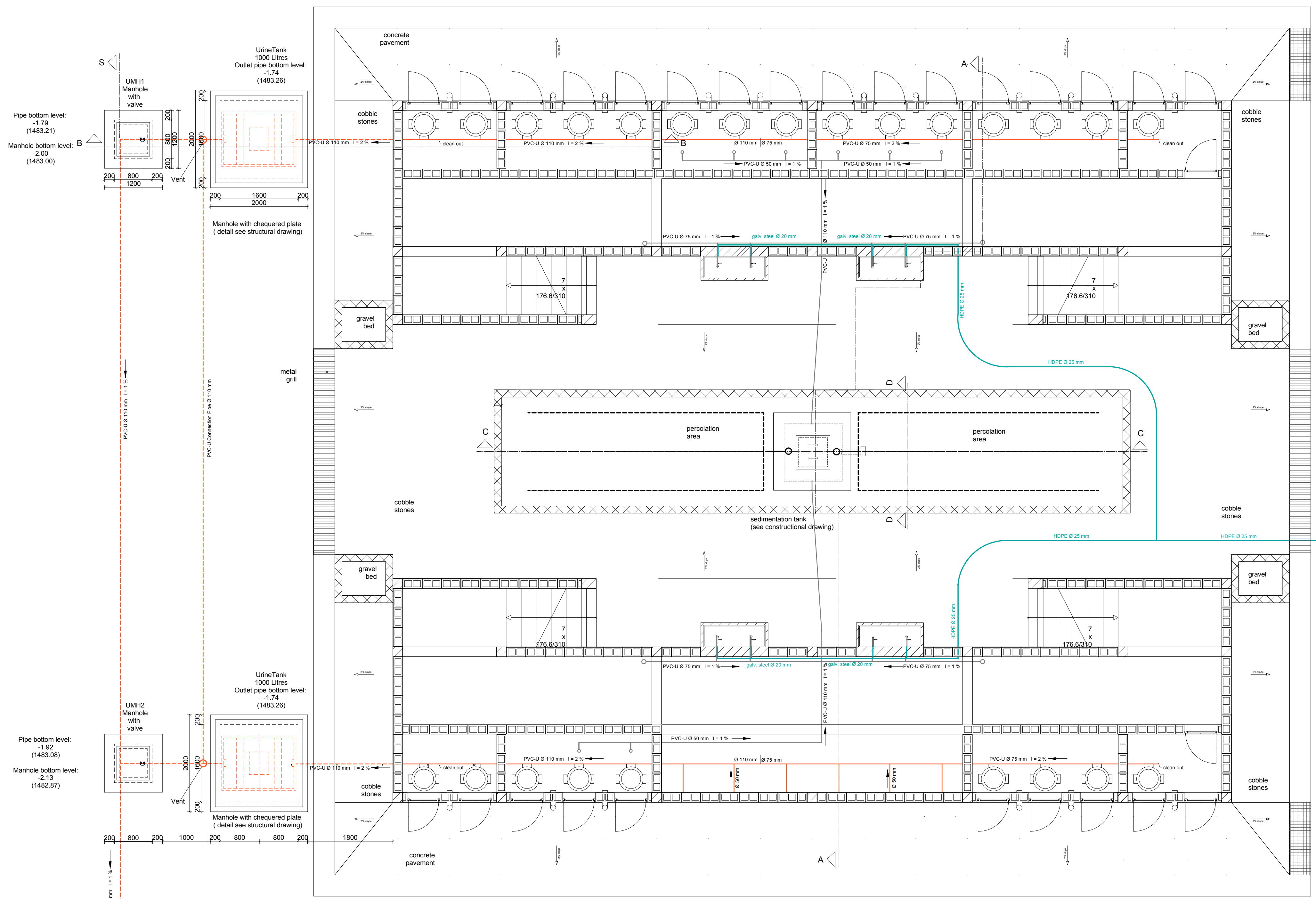


A Tender		01.05.08
NO.	REVISION	DATE SIGN
UCBP AD-SN-DT-T1-0-EP-001-A		
PROJECT IMPLEMENTING AGENCY		
<b>DESIGNED BY:</b> GTZ International Services University Capacity Building Program (UCBP) International Building TK II, Bole Road, PO Box 28127, Code 1000, Addis Ababa, Ethiopia T +251 11 662 2260 F +251 11 662 4114 E ucub@ucub-ethiopia.com		
<b>IN ASSOCIATION WITH:</b> Engelsgrube 81 D-23552 Lübeck T (+49)0451-70200-51 F (+49)0451-70200-52 E info@otterwasser.de		
MH ENGINEERING P.L.C. CONSULTING ENGINEERS AND ARCHITECTS PO Box 1553, Addis Ababa, Ethiopia T 833080 F 627768 E messesehalie@ethionet.et		
CLIENT:		MINISTRY OF EDUCATION
PROJECT:		UCBP University Capacity Building Programme
<b>URINE DIVERTING DRY TOILET (UDDT)</b>		
LOCATION:		ADAMA
EARTHQUAKE ZONE:		ZONE 4
CLIMATE:		Hot & Dry
DRAWING TITLE UDD-Toilet House, Urine sewer and Treatment site		
Date of Issue:	Drawn by:	Scale:
01.05.2008	A.A.	1 : 1000
Date of Revision:	Category:	
	SN	
Drawing Number:		Index:
AD-SN-DT-T1-0-EP-001-A		A



- fresh water
  - container for faeces
  - - - - urine pipe and -tank
  - greywater pipe
  - - - - percolation pipe
  - floor drainage
- For building details see architectural drawing
- For sedimentation tank and manholes see structural drawing
- All dimension in [mm]
- ± 0.00 = 1485.00 m AMSL

<b>A</b>	Tender	01.05.08	
<b>NO.</b>	<b>REVISION</b>	<b>DATE</b>	<b>SIGN</b>

**UCBP** AD-SN-DT-T1-0-EP-002-A

**PROJECT IMPLEMENTING AGENCY**

**DESIGNED BY:**  
 GTZ International Services  
 University Capacity Building Program (UCBP)  
 International Building TK II, Bole Road, PO Box 28127, Code 1000,  
 Addis Ababa, Ethiopia  
 T +251 11 662 2260  
 F +251 11 662 4114  
 E ucbp@ucbp-ethiopia.com

**IN ASSOCIATION WITH:**

**OtterWasser GmbH**  
 Engelsgrube 81  
 D-23552 Lübeck  
 (+49)0451-70200-51  
 info@otterwasser.de

MH ENGINEERING P.L.C.  
 CONSULTING ENGINEERS AND ARCHITECTS  
 PO Box 1553, Addis Ababa, Ethiopia  
 T 633090  
 F 627768  
 E messelehalie@ethionet.et

**CLIENT:** MINISTRY OF EDUCATION

**PROJECT:** **UCBP** University Capacity Building Programme

## URINE DIVERTING DRY TOILET (UDDT)

**LOCATION:** ADAMA

**EARTHQUAKE ZONE:** ZONE 4

**CLIMATE:** Hot & Dry

**DRAWING TITLE:** UDD - Toilet House 1/2 Sanitation

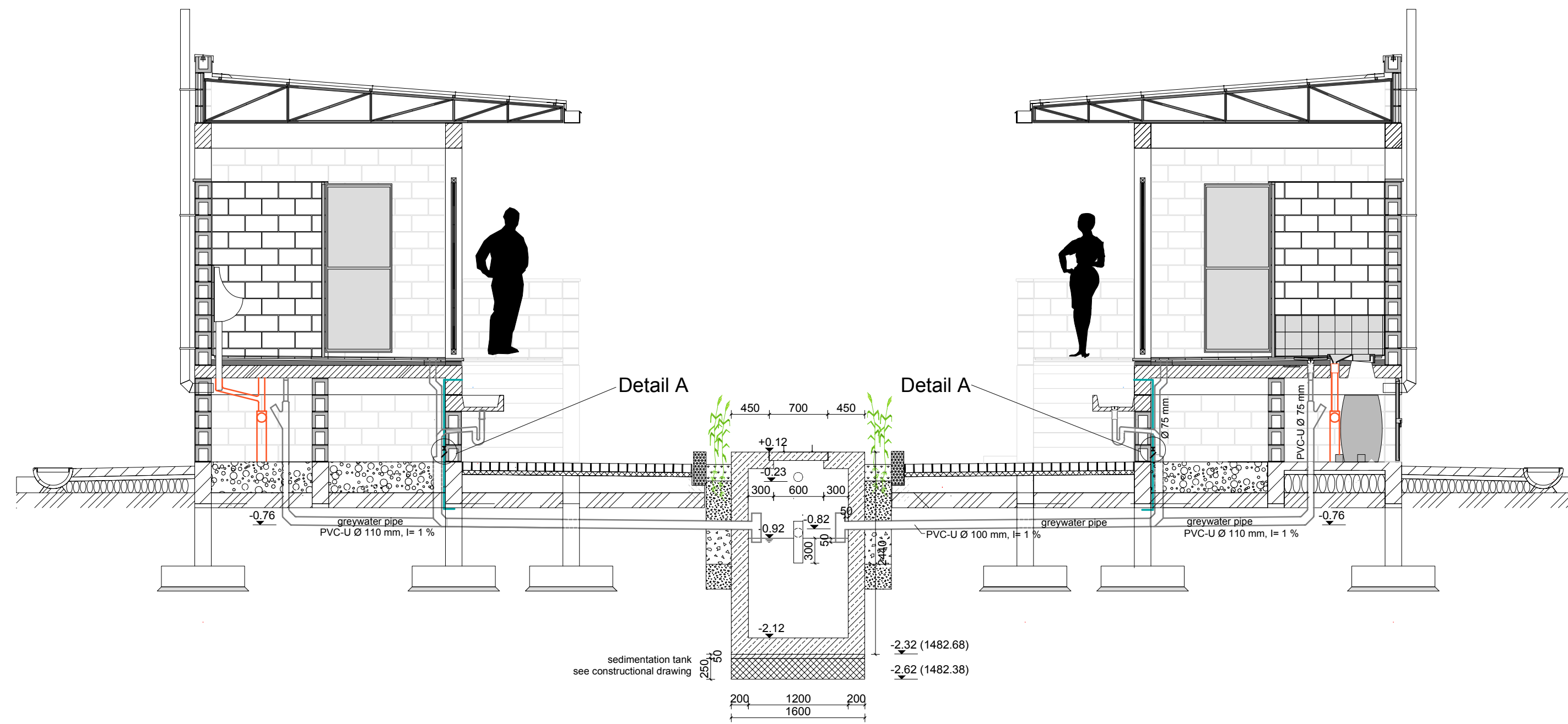
Date of Issue:	Drawn by:	Scale:	Date of Revision:	Category:
01.05.2008	M.O.	1 : 50		<b>SN</b>
Drawing Number:	Index:			<b>A</b>
<b>AD-SN-DT-T1-0-EP-002-A</b>				

MAIN FLOOR  
 sc.  
 1:50

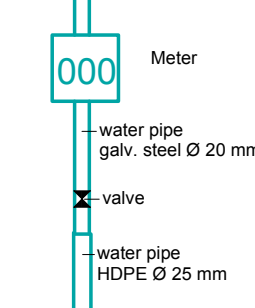
from water supply manhole vb-12-1

To storage tank  
 Section S - S  
 (See separate drawing AD-SN-DT-T1-0-EP-005)

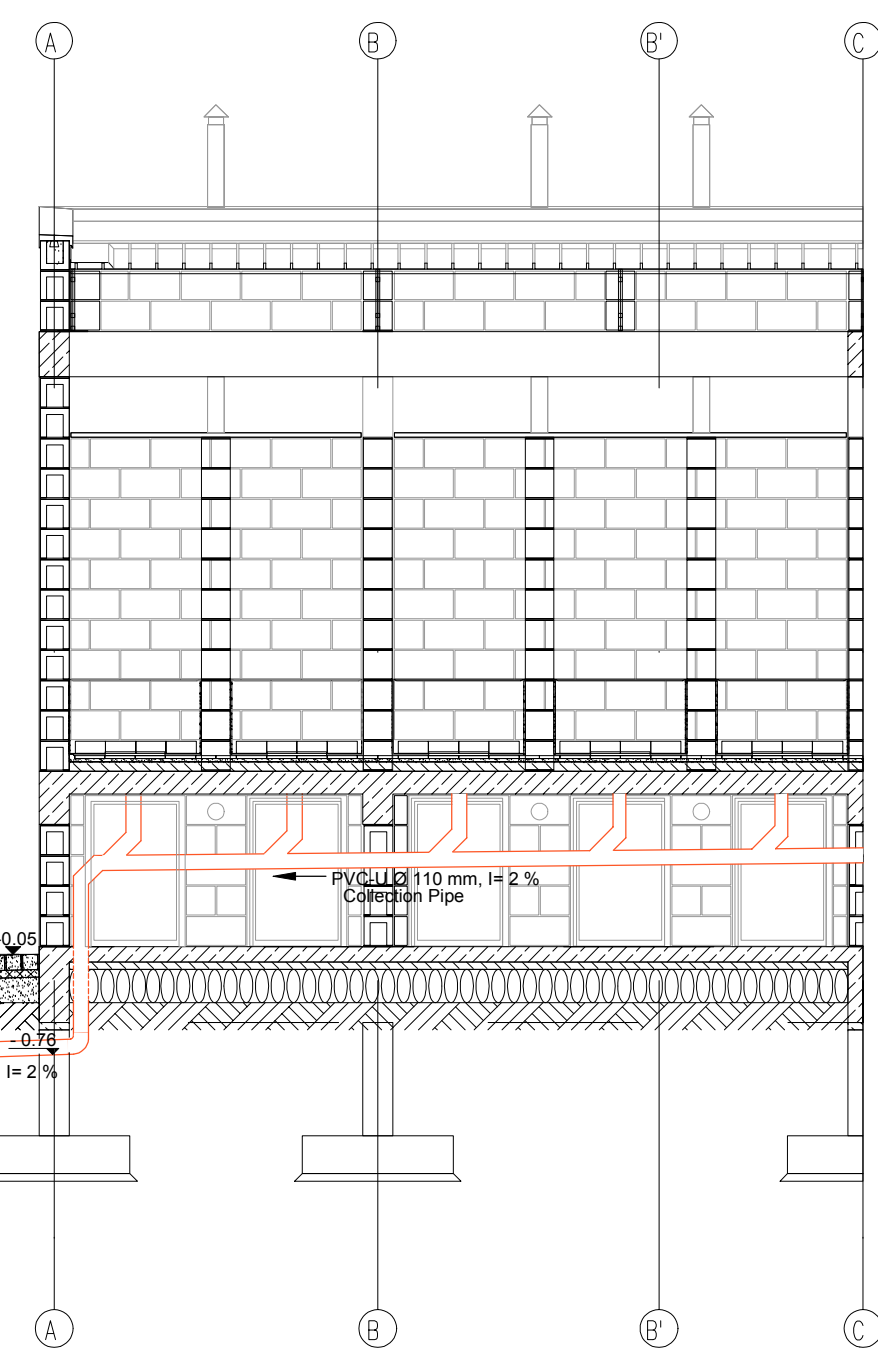
Section A - A



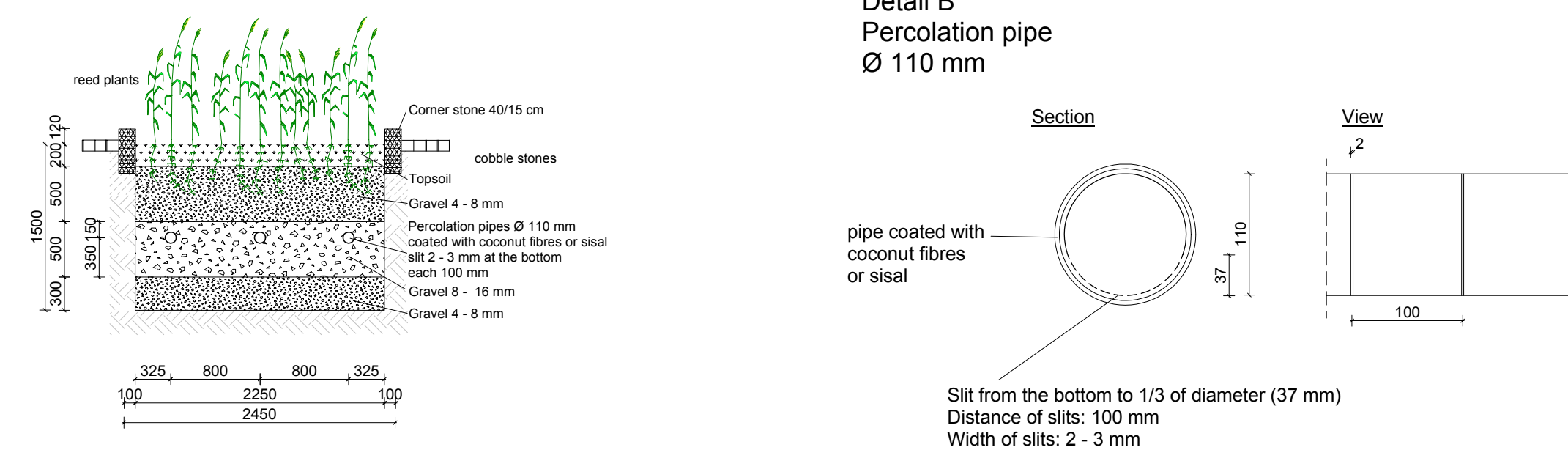
Detail A



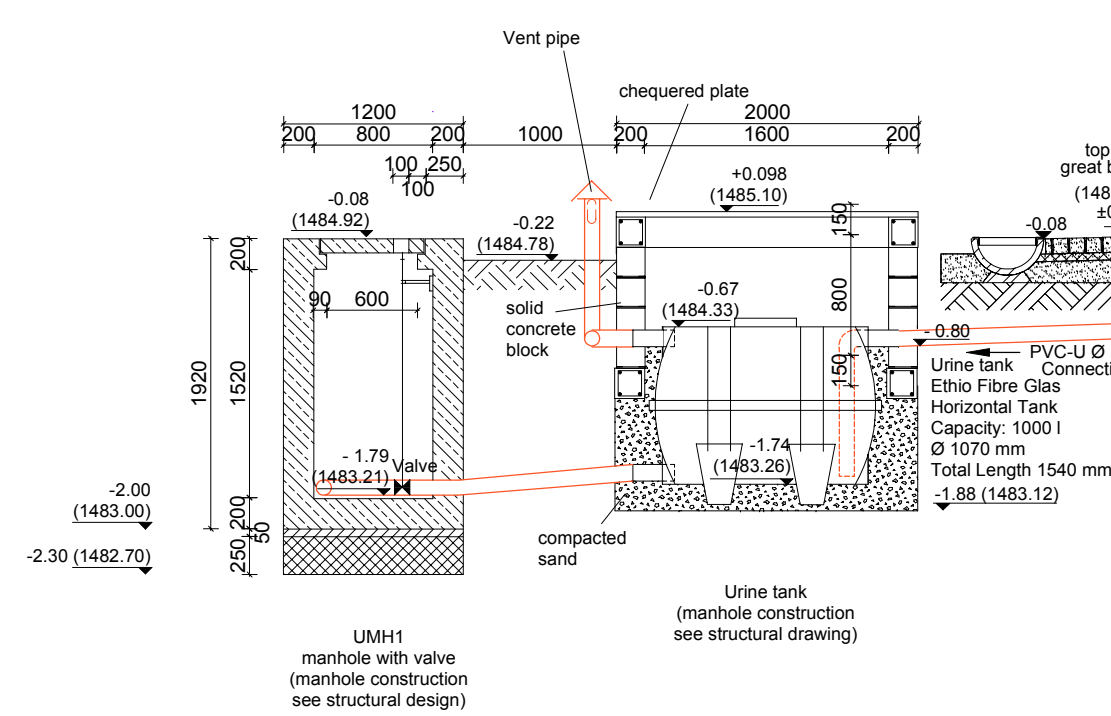
Section B - B



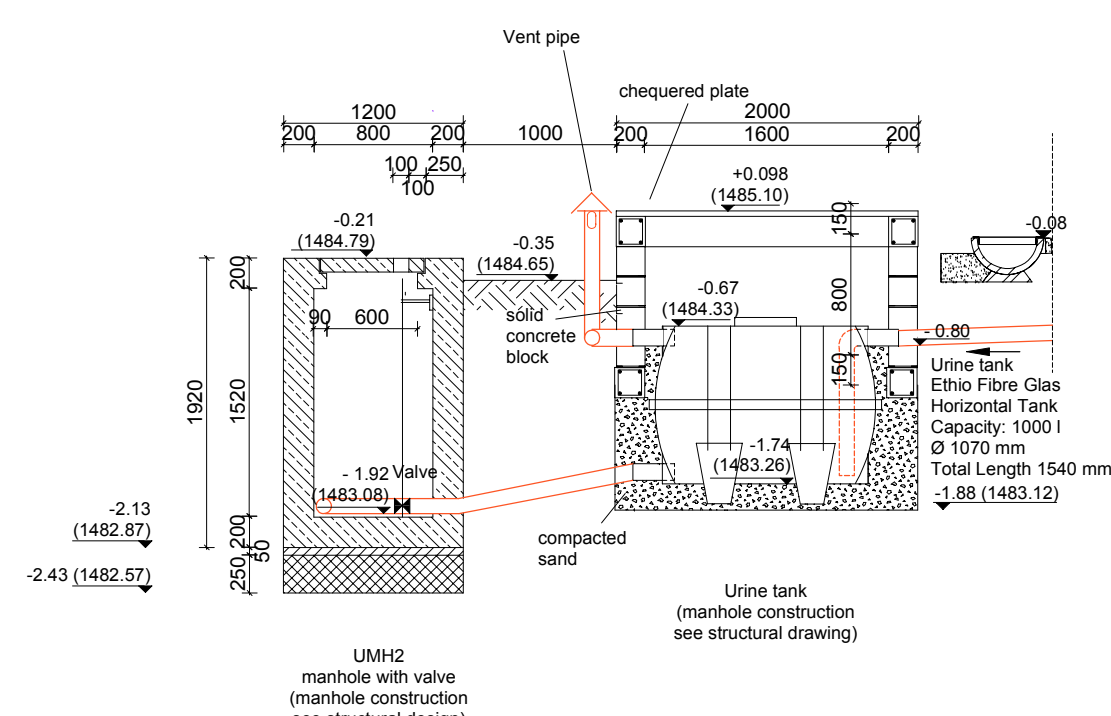
Section D - D



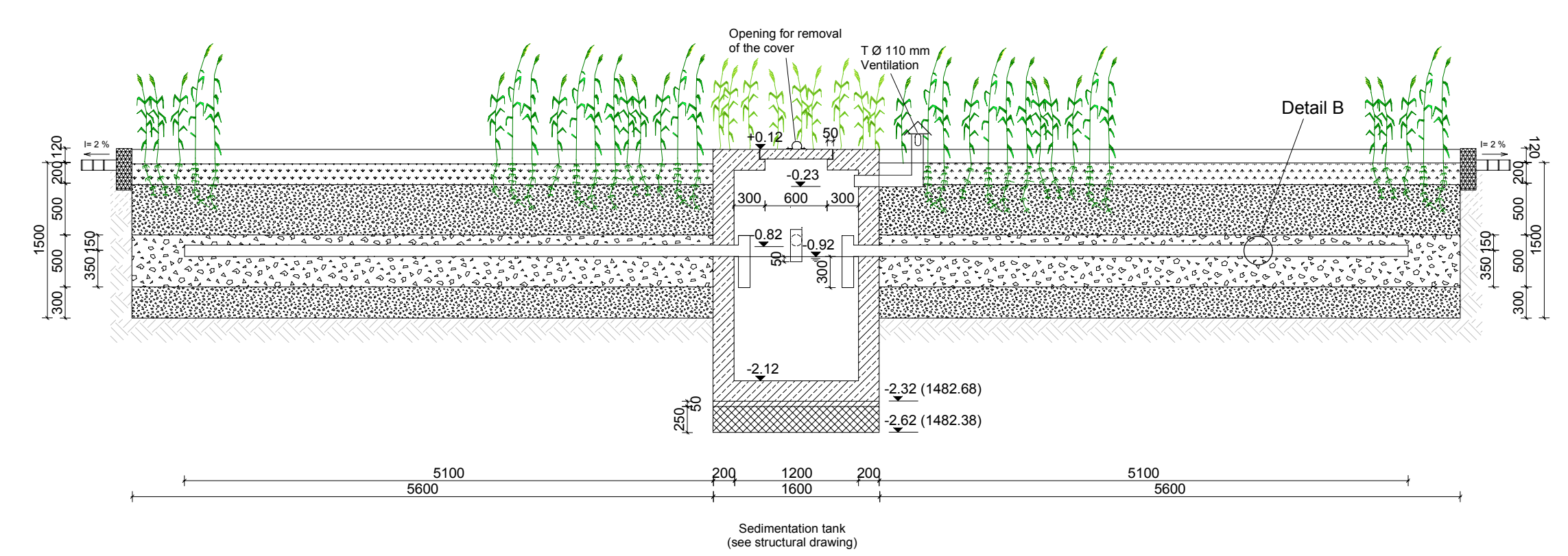
Female's unit



Male's unit



Section C - C



- Concrete without reinforcement
- Reinforced concrete
- Hard core material
- Gravel 4 - 8 mm
- Gravel 8 - 16 mm
- Soil

All dimensions in [mm]

For building details see architectural drawing

For sedimentatin tank and manholes see structural drawing

Don't use 90° elbows - use 45° elbows!

± 0.00 = 1485.00 m AMSL

A	Tender	01.05.08	
NO.	REVISION	DATE	SIGN

**UCBP AD-SN-DT-T1-0-EP-003-A**  
**PROJECT IMPLEMENTING AGENCY**

**DESIGNED BY:**  
 GTZ International Services  
 University Capacity Building Program (UCBP)  
 International Building TK II, Bole Road, PO Box 28127, Code 1000,  
 Addis Ababa, Ethiopia  
 T +251 11 662 2260  
 F +251 11 662 4114  
 E ucbsp@ucbp-ethiopia.com

**IN ASSOCIATION WITH:**  
  
 Engelsgrube 81  
 D-23552 Lübeck  
 (+49)0451-70200-51  
 info@otterwasser.de

**MH ENGINEERING P.L.C.**  
 CONSULTING ENGINEERS AND ARCHITECTS  
 PO Box 1553, Addis Ababa, Ethiopia  
 T 633080  
 F 627768  
 E messestehealle@ethionet.et

**CLIENT:** MINISTRY OF EDUCATION

**PROJECT:** UCBP University Capacity Building Programme

**URINE DIVERTING DRY TOILET (UDDT)**

**LOCATION:** ADAMA

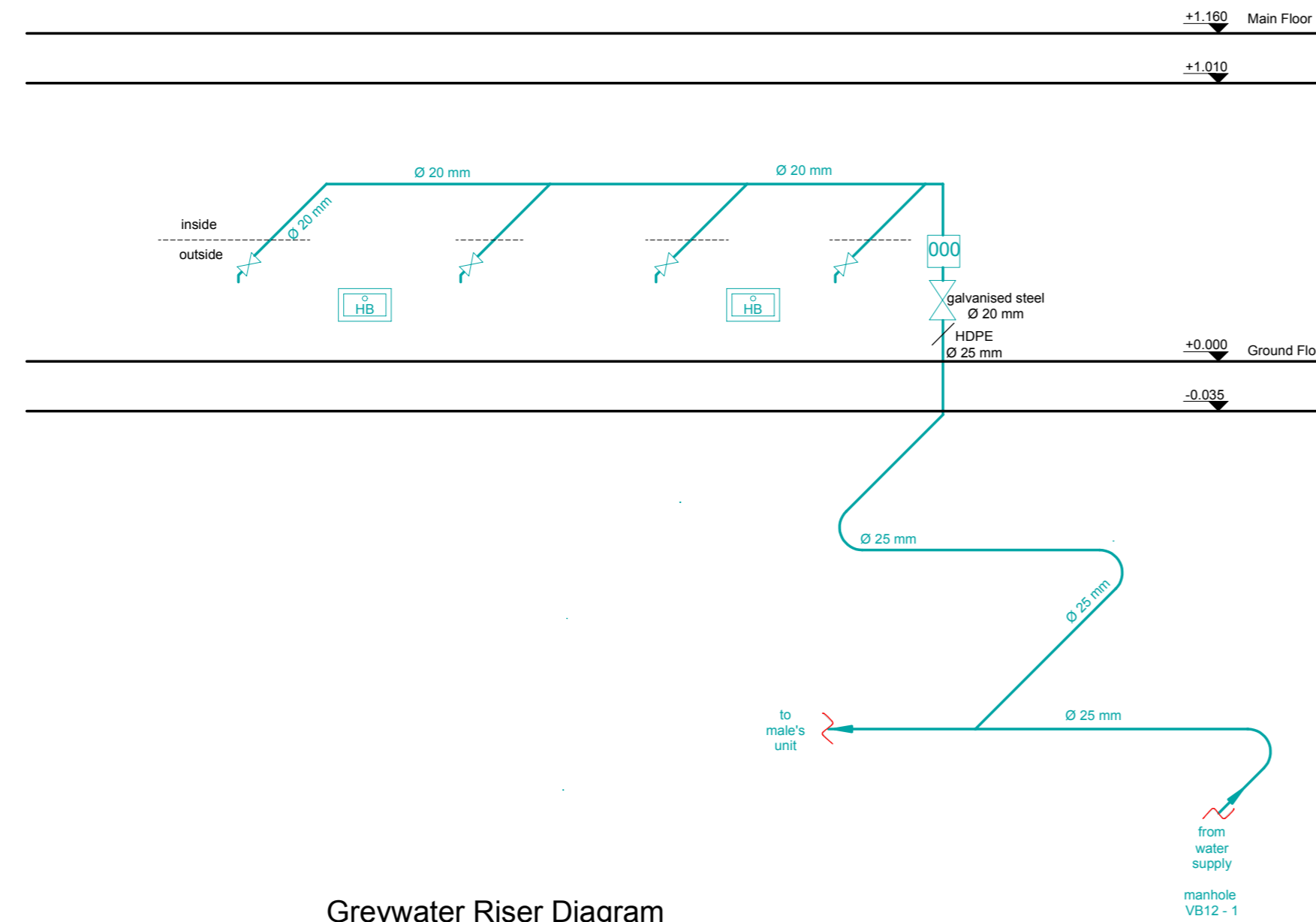
**EARTHQUAKE ZONE:** ZONE 4

**CLIMATE:** Hot & Dry

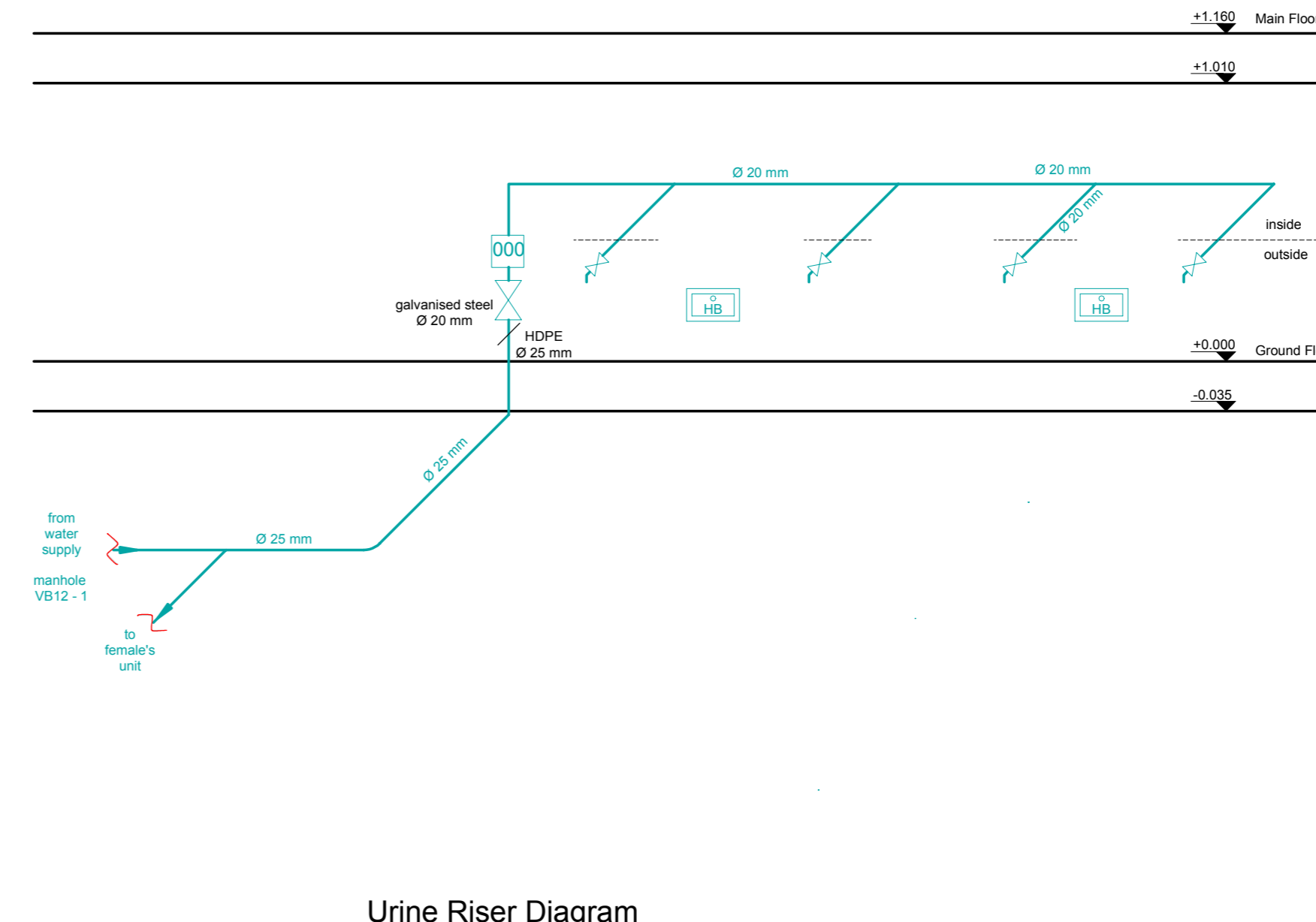
**DRAWING TITLE:** UDD - Toilet House 2/2 Sanitation

Date of Issue:	Drawn by:	Scale:	Date of Revision:	Category:
01.05.2008	M.O.	1 : 50		<b>SN</b>
Drawing Number:				Index:
<b>AD-SN-DT-T1-0-EP-003-A</b>				<b>A</b>

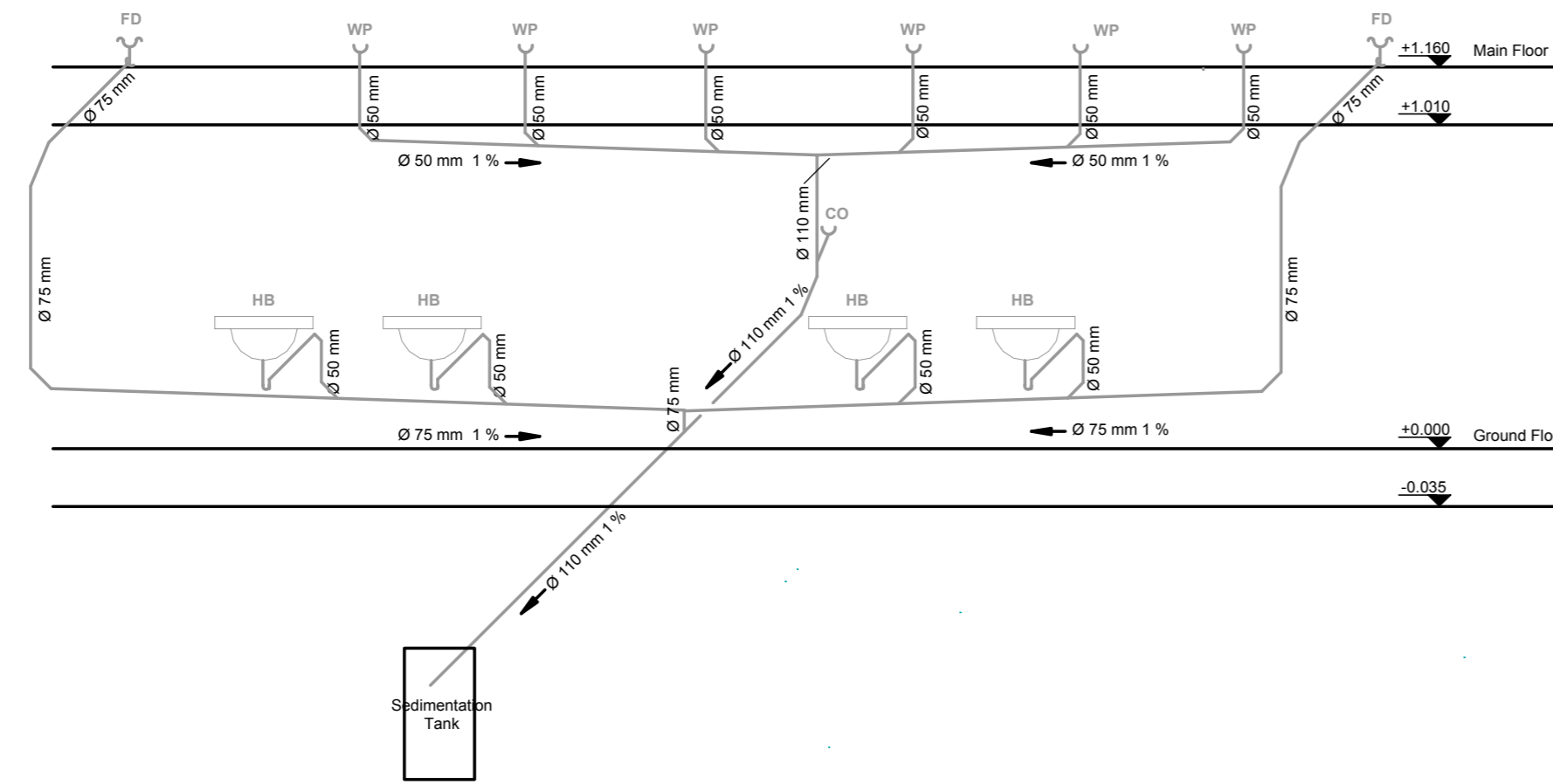
Water Supply Riser Diagram  
(female's unit)



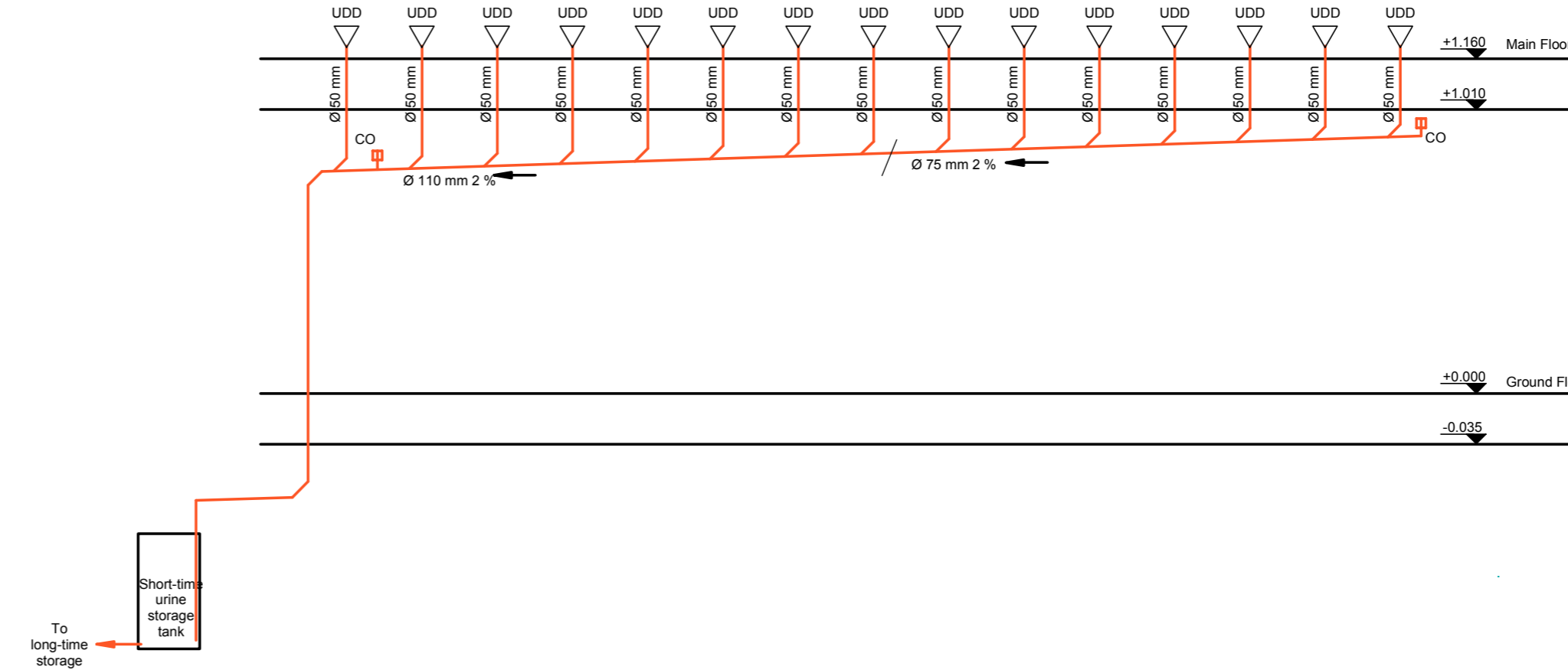
Water Supply Riser Diagram  
(male's unit)



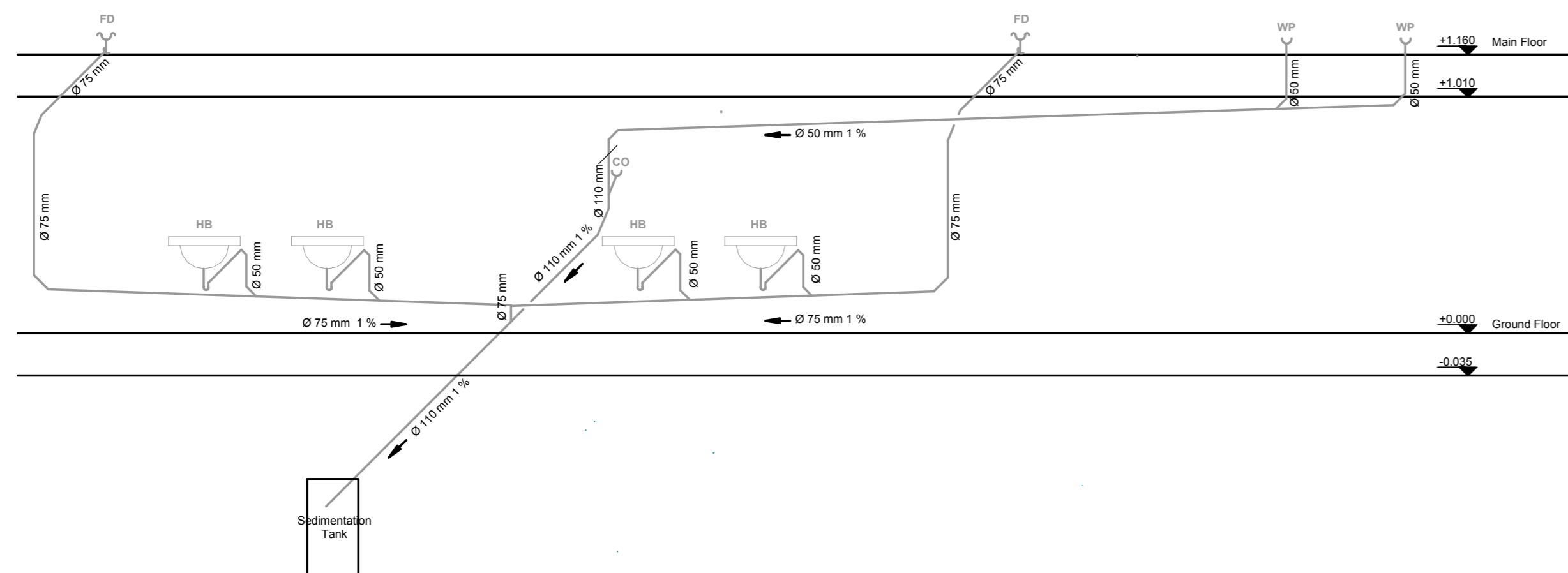
Greywater Riser Diagram  
(female's unit)  
(material: PVC-U)



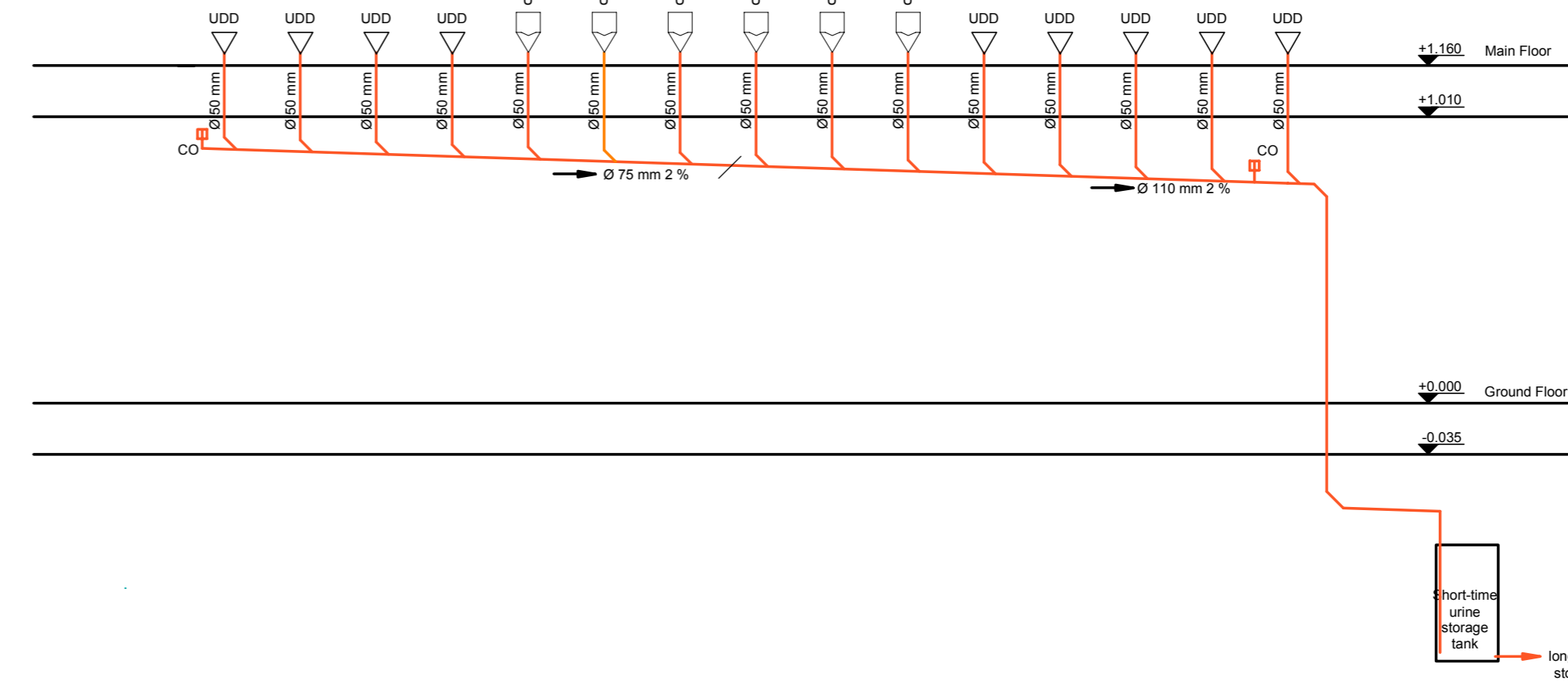
Urine Riser Diagram  
(female's unit)  
(material: PVC-U)



Greywater Riser Diagram  
(male's unit)  
(material: PVC-U)



Urine Riser Diagram  
(male's unit)  
(material: PVC-U)



Legend:

- FD Floor Drainage
- HB Handwash Basin
- CO Clean Out
- U Urinal
- UDD Outlet Urine Diversion
- WP Dry Toilet
- / Washing Place
- Change in diameter
- 000 Meter

A	Tender	01.05.08	
NO.	REVISION	DATE	SIGN

UCBP AD-SN-DT-T1-0-EP-004-A

PROJECT IMPLEMENTING AGENCY



**DESIGNED BY:**  
GTZ International Services  
University Capacity Building Program (UCBP)  
International Building TK II, Bole Road, PO Box 28127, Code 1000,  
Addis Ababa, Ethiopia  
T +251 11 662 2260  
F +251 11 662 4114  
E ucgp@ucgp-ethiopia.com

**IN ASSOCIATION WITH:**  
**OtterWasser GmbH**  
Engelsgrube 81  
D-23552 Lübeck  
T (+49)0451-70200-51  
F (+49)0451-70200-52  
E info@otterwasser.de

MH ENGINEERING P.L.C.  
CONSULTING ENGINEERS AND ARCHITECTS  
PO Box 1553, Addis Ababa, Ethiopia  
T 633080  
F 627168  
E messeslehalie@ethionet.et

**CLIENT:** MINISTRY OF EDUCATION

**PROJECT:** UCBP University Capacity Building Programme

**URINE DIVERTING DRY TOILET (UDDT)**

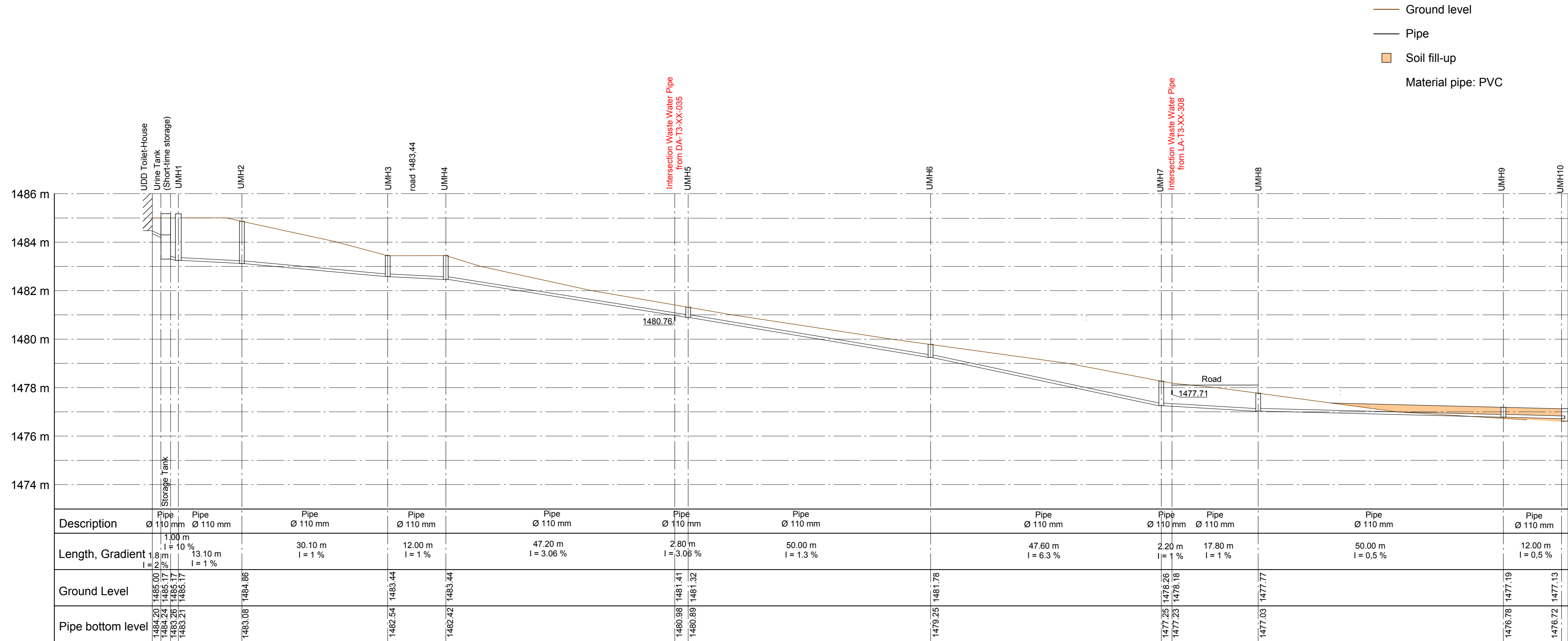
**LOCATION:** ADAMA

**EARTHQUAKE ZONE:** ZONE 4

**CLIMATE:** Hot & Dry

**DRAWING TITLE:** PIPE SCHEME

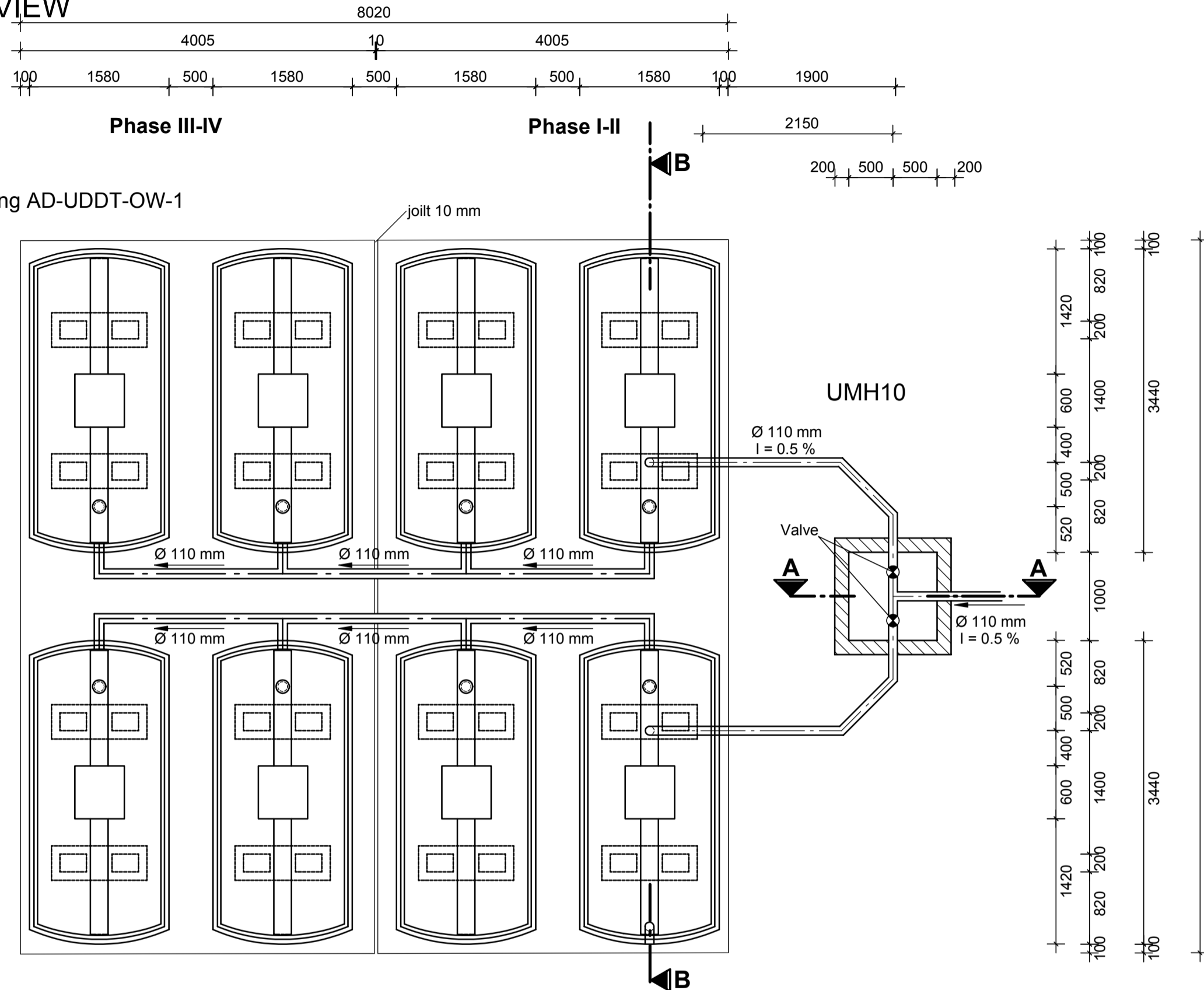
Date of Issue:	Drawn by:	Scale:	Date of Revision:	Category:
01.05.2008	M.O.			SN
Drawing Number:				Index:
AD-SN-DT-T1-0-EP-004-A				A



— Ground level  
 - - - Pipe  
 ■ Soil fill-up  
 Material pipe: PVC

<b>A</b>	Tender	01.05.08	
<b>NO.</b>	REVISION	DATE SIGN	
<b>UCBP</b> AD-SN-DT-T1-0-EP-005-A			
PROJECT IMPLEMENTING AGENCY			
 International Services			
<b>DESIGNED BY:</b> GTZ International Services University Capacity Building Program (UCBP) International Building TK II, Bole Road, PO Box 28127, Code 1000, Addis Ababa, Ethiopia T +251 11 662 2260 F +251 11 662 4114 E ucgp@uctp.ethiopia.com			
<b>IN ASSOCIATION WITH:</b>  Engelgrube 81 D-23552 Lübeck (+49)0451-70200-51 info@otterwasser.de			
MH ENGINEERING P.L.C. CONSULTING ENGINEERS AND ARCHITECTS PO Box 1553, Addis Ababa, Ethiopia T 633390 F 627768 E massehale@ethionet.et			
<b>CLIENT:</b> MINISTRY OF EDUCATION			
<b>PROJECT:</b> UCBP University Capacity Building Programme			
<b>URINE DIVERTING DRY TOILET (UDDT)</b>			
<b>LOCATION:</b> ADAMA			
<b>EARTHQUAKE ZONE:</b> ZONE 4			
<b>CLIMATE:</b> Hot & Dry			
<b>DRAWING TITLE:</b> SECTION URINE SEWER			
Date of Issue:	Drawn by:	Scale of Revision:	Category:
01.05.2008	A.A.	1:100 1:500	SN
<b>AD-SN-DT-T1-0-EP-005-A</b>			<b>A</b>

TOP VIEW



Urine tank  
Ethio Fibre Glas  
Horizontal Tank  
Capacity: 5000 l  
Ø 1500 mm  
Total Length 3440 mm

All dimensions in mm

- Sand 4/8
- Natural soil
- Reinforced concrete
- Lean concrete
- Hard core material

NO.	REVISION	DATE	SIGN
A	Tender	01.05.08	

UCBP AD-SN-DT-T1-0-EP-006-A  
PROJECT IMPLEMENTING AGENCY



DESIGNED BY:  
GTZ International Services  
University Capacity Building Program (UCBP)  
International Building TK II, Bole Road, PO Box 28127, Code 1000,  
Addis Ababa, Ethiopia  
T +251 11 662 2260  
F +251 11 662 4114  
E ucbp@ucbp-ethiopia.com

IN ASSOCIATION WITH:  
**OtterWasser GmbH**  
Engelsgrube 81  
D-23652 Lübeck  
+49(0)451-70200-51  
info@otterwasser.de

MH ENGINEERING P.L.C.  
CONSULTING ENGINEERS AND ARCHITECTS  
PO Box 1553, Addis Ababa, Ethiopia  
T 633080  
F 627788  
E messelehalie@ethionet.et

CLIENT: MINISTRY OF EDUCATION  
PROJECT: UCBP University Capacity Building Programme

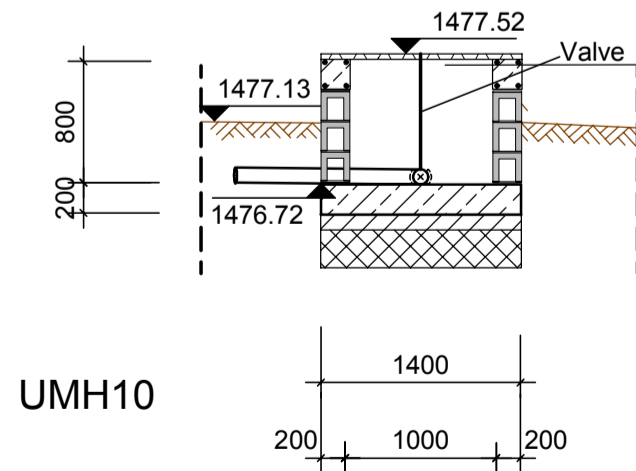
URINE DIVERTING DRY TOILET (UDDT)

LOCATION: ADAMA  
EARTHQUAKE ZONE: ZONE 4  
CLIMATE: Hot & Dry

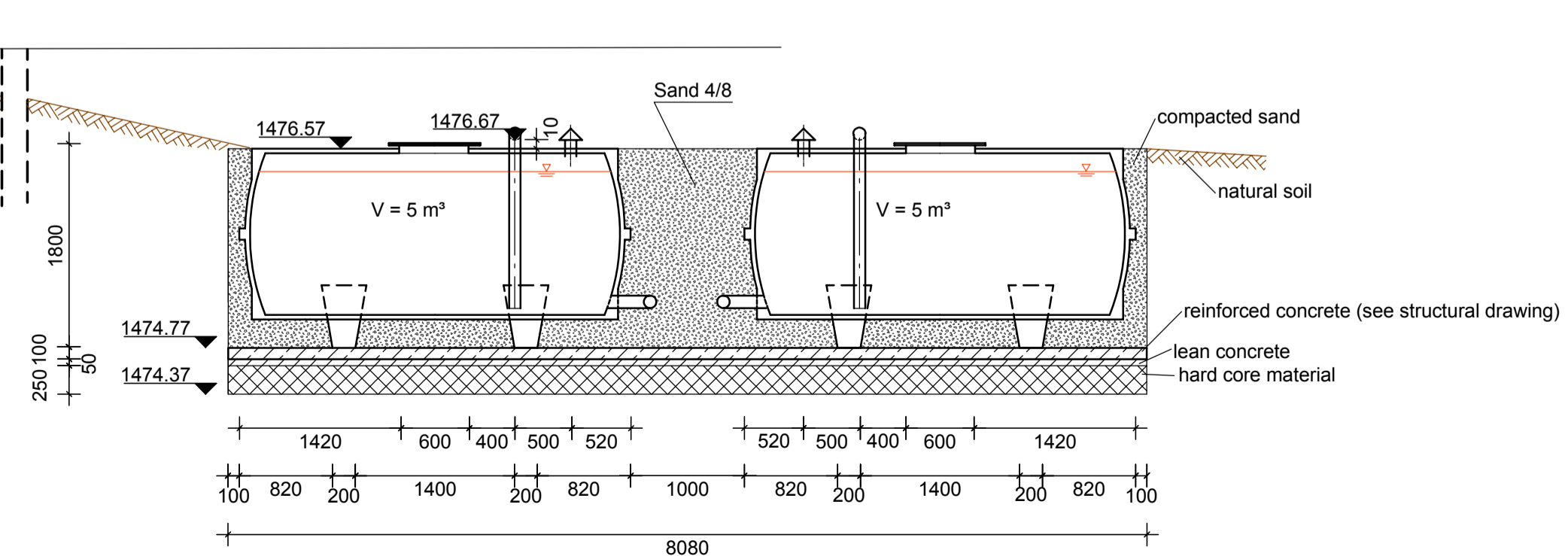
DRAWING TITLE: URINE STORAGE SITE

Date of Issue: 01.05.2008	Drawn by: A.A.	Scale: 1 : 50	Date of Revision:	Category: SN
Drawing Number: AD-SN-DT-T1-0-EP-006-A			Index:	A

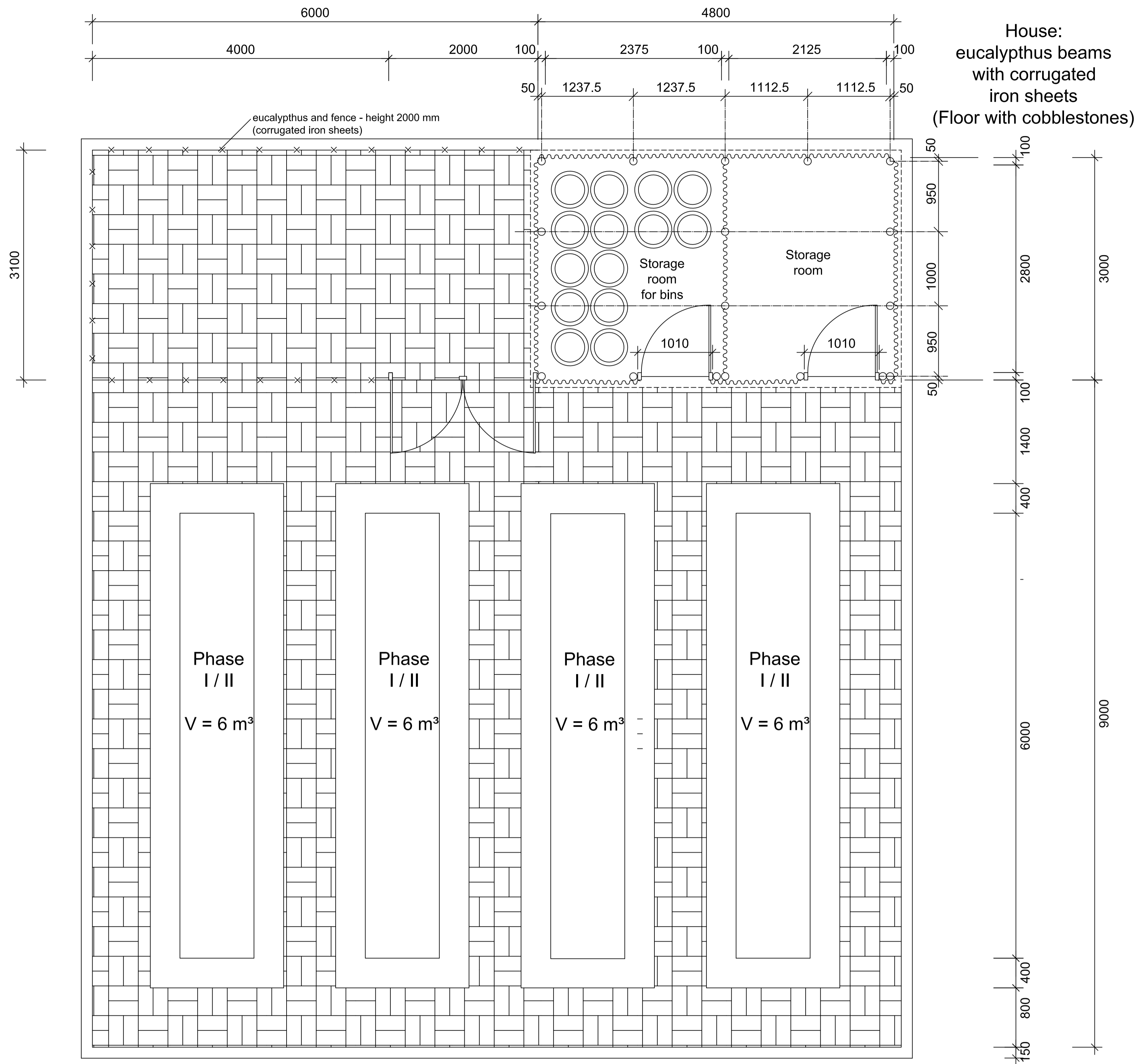
SECTION A - A



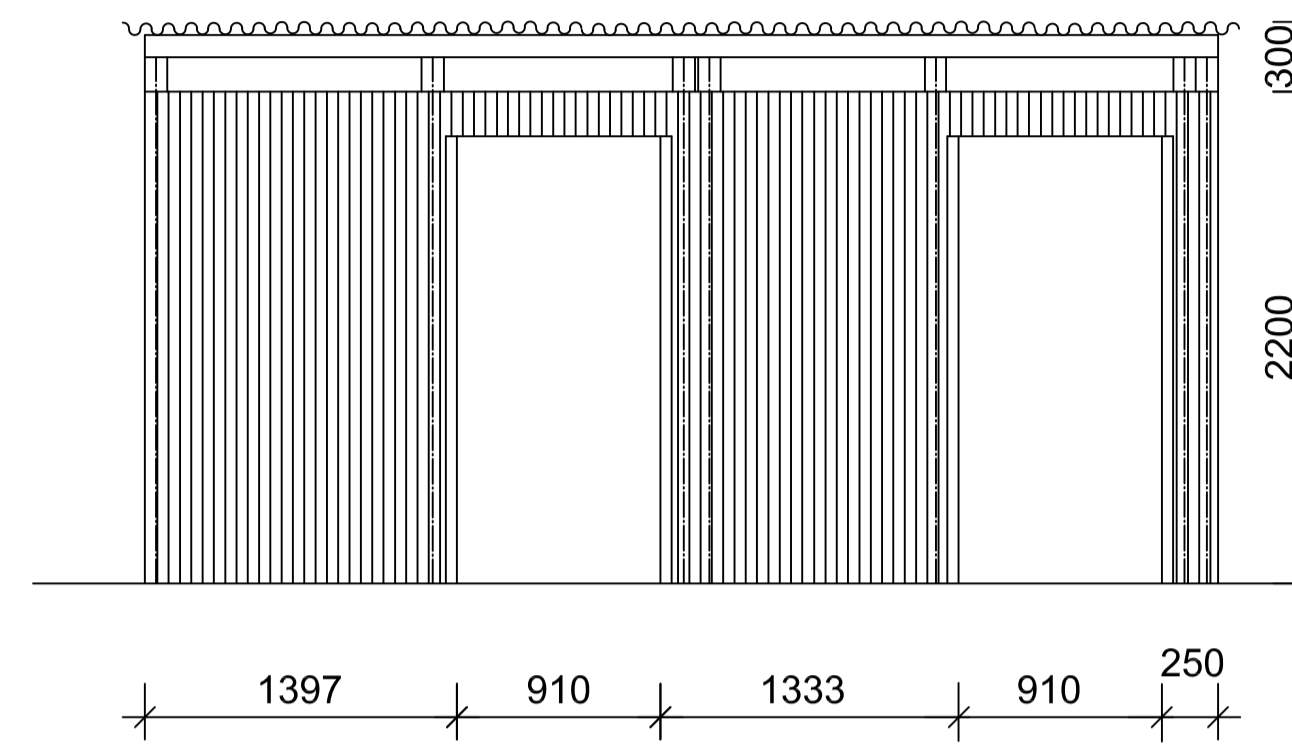
SECTION B - B



**TOP VIEW**



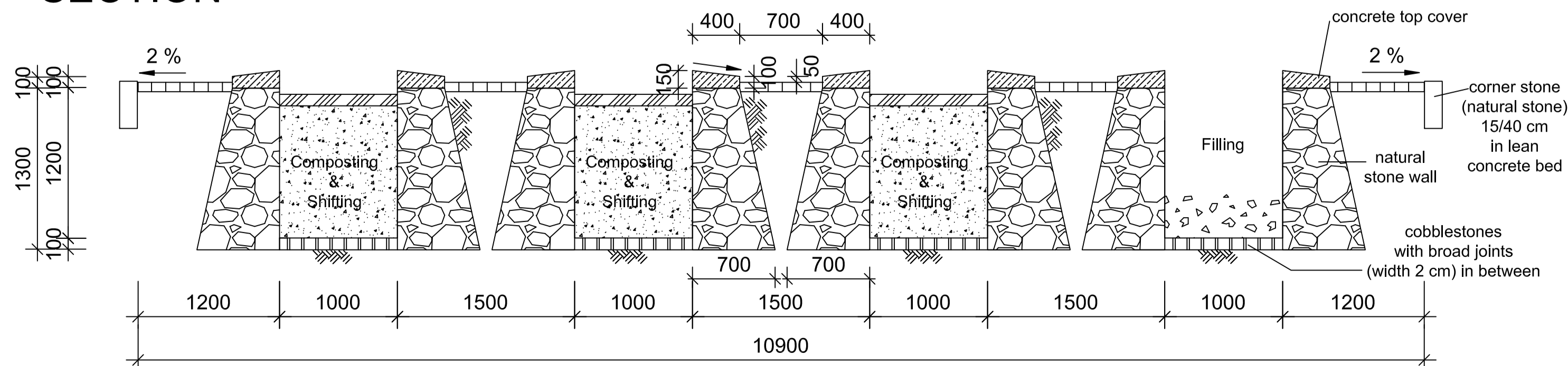
**ELEVATION HOUSE**



corner stone,  
natural stone 150x400

cobblestone area:  
- cobble stones 100 mm,  
side sloped approx. 2%  
- crashed stone 50 mm  
- red ash 50-120 mm,  
exact dim. is to clarify on site  
selected material  
compacted soil

**SECTION**



All dimensions in mm

**Legend**

- Reinforced Concrete
- Concrete
- Filling material (sand)
- Compost
- Sealed surface (cobblestone)
- Corrugated iron sheets

A	Tender	01.05.08	
NO.	REVISION	DATE	SIGN

UCBP AD-SN-DT-T1-0-EP-007-A

PROJECT IMPLEMENTING AGENCY



**DESIGNED BY:**  
GTZ International Services  
University Capacity Building Program (UCBP)  
International Building TK II, Bole Road, PO Box 28127, Code 1000,  
Addis Ababa, Ethiopia  
T +251 11 662 2260  
F +251 11 662 4114  
E ucubp@ucubp-ethiopia.com

**IN ASSOCIATION WITH:**  
 OtterWasser GmbH  
Engelsgrube 81  
D-23552 Lübeck  
(+49)0451-70200-51  
info@otterwasser.de

MH ENGINEERING P.L.C.  
CONSULTING ENGINEERS AND ARCHITECTS  
PO Box 1553, Addis Ababa, Ethiopia  
T 633080  
F 627768  
E masselehaile@ethionet.et

**CLIENT:** MINISTRY OF EDUCATION

**PROJECT:** UCBP University Capacity Building Programme

**URINE DIVERTING DRY TOILET (UDDT)**

**LOCATION:**

ADAMA

**EARTHQUAKE ZONE:** ZONE 4

**CLIMATE:** Hot & Dry

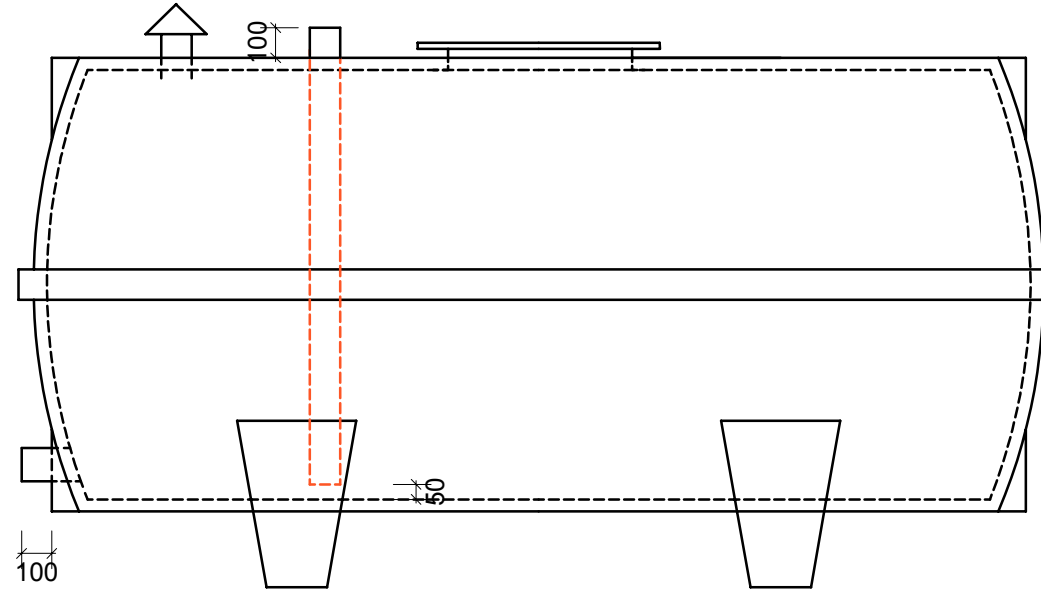
**DRAWING TITLE:** COMPOST SITE

Date of Issue:	Drawn by:	Scale:	Date of Revision:	Category:
01.05.2008	M.O.	1 : 50		SN
Drawing Number:				Index:
AD-SN-DT-T1-0-EP-007-A				A

### Horizontal Tank - Long Time Storage

Capacity: 5000 l  
 Ø 1500 mm  
 Total length: 3440 mm

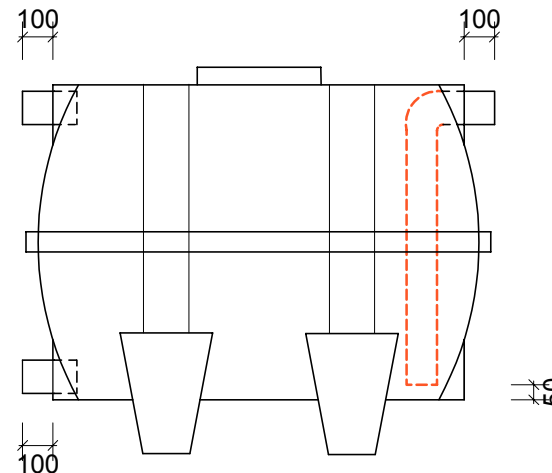
all inlet and outlet  
 Ø 110 mm



### Horizontal Tank - Short Time Storage

Capacity: 1000 l  
 Ø 1070 mm  
 Total length: 1540 mm

all inlet and outlet  
 Ø 110 mm



A	Tender	01.05.08	
NO.	REVISION	DATE	SIGN

**UCBP** AD-SN-DT-T1-0-EP-008-A

PROJECT IMPLEMENTING AGENCY

**DESIGNED BY:**  
 GTZ International Services  
 University Capacity Building Program (UCBP)  
 International Building TK II, Bole Road, PO Box 28127, Code 1000,  
 Addis Ababa, Ethiopia  
 T +251 11 662 2200  
 F +251 11 662 4114  
 E ucbp@ucbp-ethiopia.com

**IN ASSOCIATION WITH:**

Engelsgrube 81  
 D-22526 Lübeck  
 (+49)0451-70200-51  
 info@ottewasser.de

MH ENGINEERING P.L.C.  
 CONSULTING ENGINEERS AND ARCHITECTS  
 PO Box 1553, Addis Ababa, Ethiopia  
 T 633080  
 F 627768  
 E mcs@mhale@ethionet.et

**CLIENT:** MINISTRY OF EDUCATION

**PROJECT:** UCBP University Capacity Building Programme

**URINE DIVERTING DRY TOILET (UDDT)**

**LOCATION:** ADAMA  
**EARTHQUAKE ZONE:** ZONE 4  
**CLIMATE:** Hot & Dry

**DRAWING TITLE:** Specification Urine Tanks

Date of Issue:	Drawn by:	Scale:	Date of Revision:	Category:
01.05.2008	A.M.	1 : 25		<b>SN</b>
Drawing Number:				Index:
AD-SN-DT-T1-0-EP-008-A				<b>A</b>