Republic of Uganda

KAMULI DISTRICT LOCAL GOVERNMENT

KASOZI-BUGOBI
MINI SOLAR PIPED WATER SUPPLY PROJECT

Volume 3: BOOK OF DRAWINGS

May 2019

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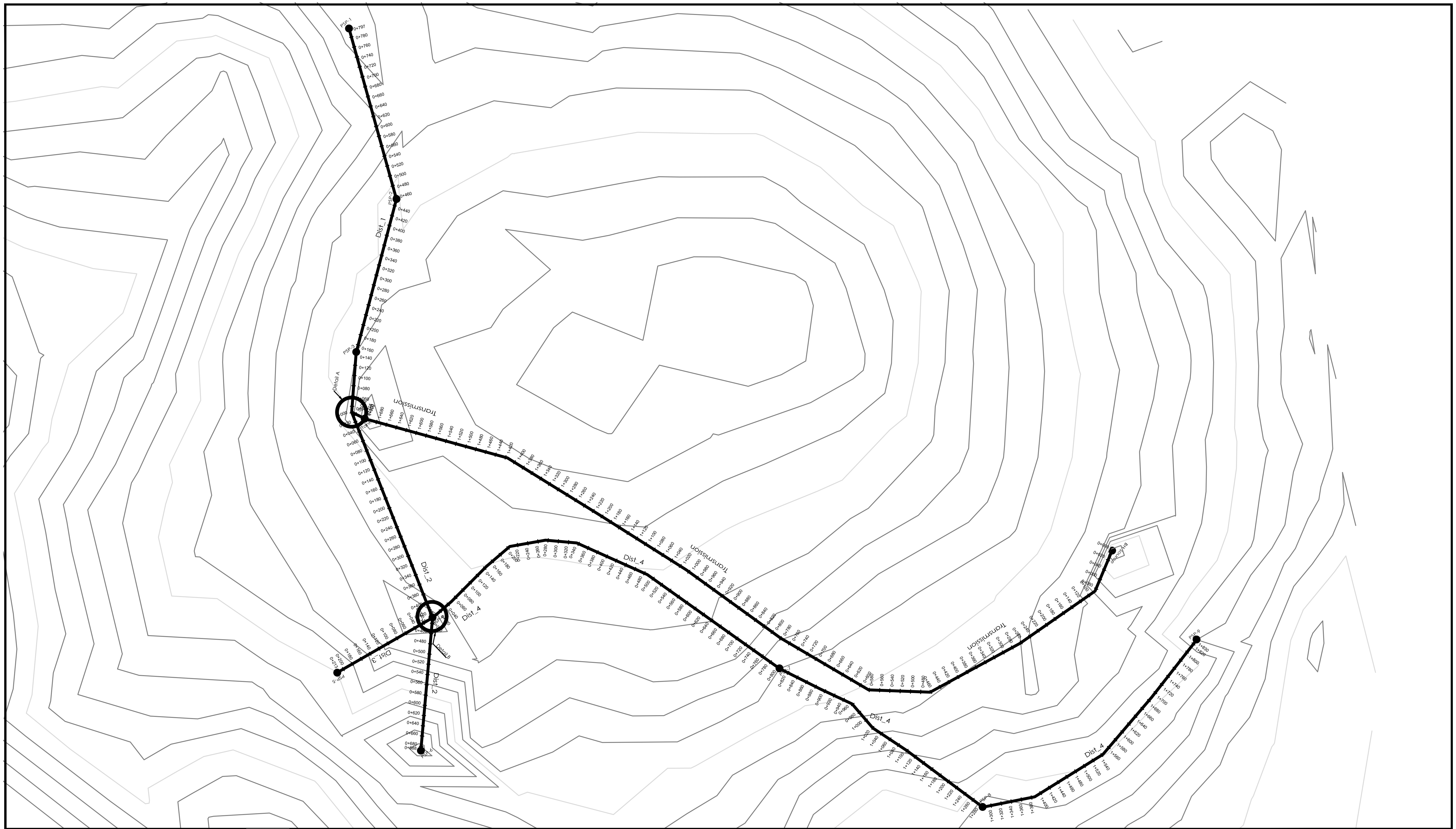


THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

CONSULTANT

Kamuli District Water Office

PROJECT

Kisozi-Bugobi Mini Piped Water Scheme

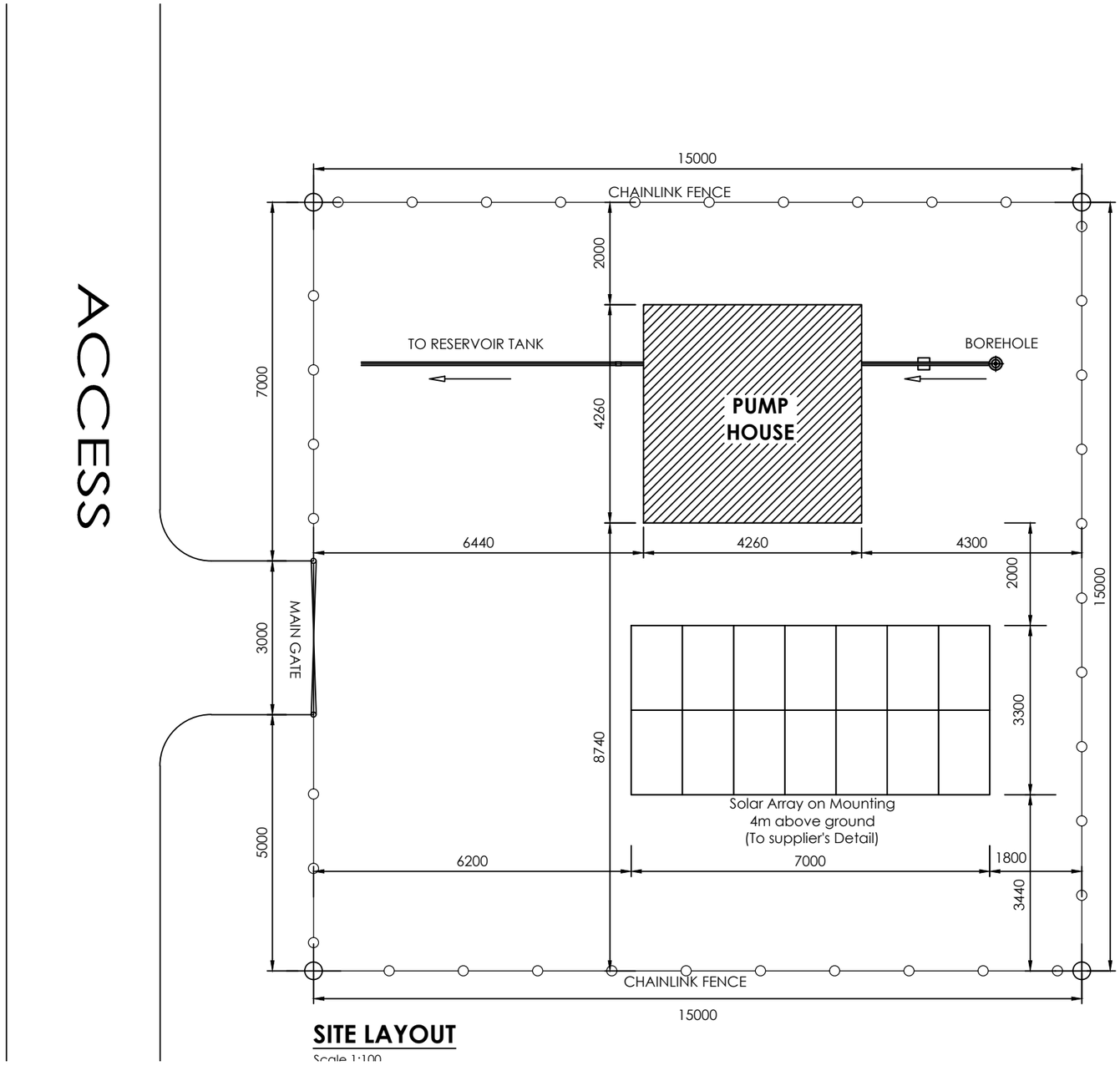
DRAWING TITLE

GENERAL SYSTEM LAYOUT

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: Kas-Bug/1.1



SITE LAYOUT

Scale 1:100

NOTES

All dimensions are in mm unless stated otherwise.
All levels are in metres above sea level.
Structural details are not included.
All structural concrete is Class 25/20.
All mass concrete is Class 15/20.

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

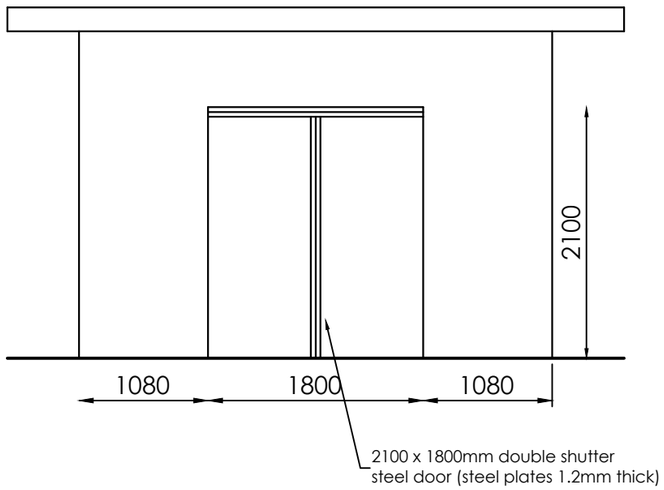
BOREHOLE PUMPHOUSE

SITE LAYOUT PLAN

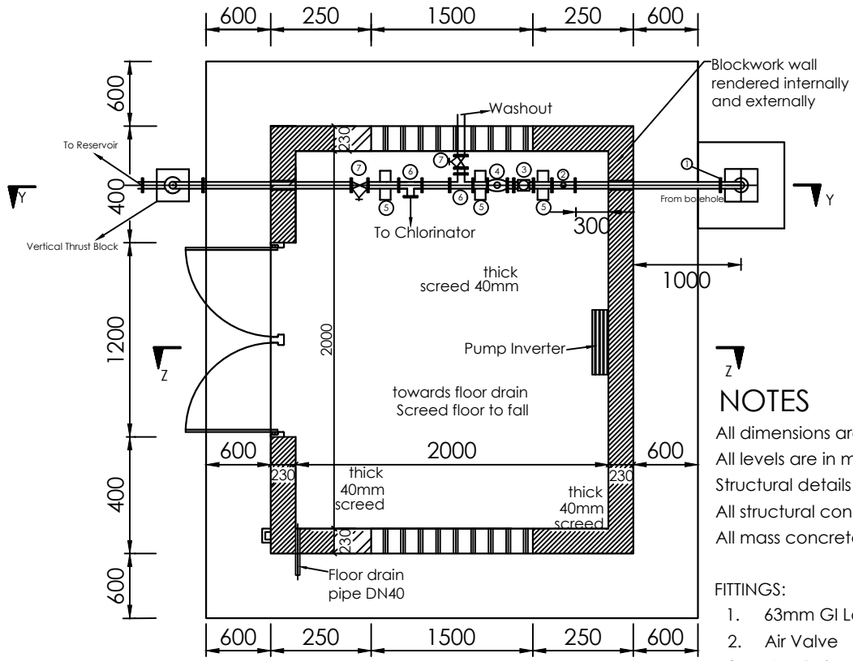
SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: KDLG/Kas_Bug/2.1



FRONT ELEVATION



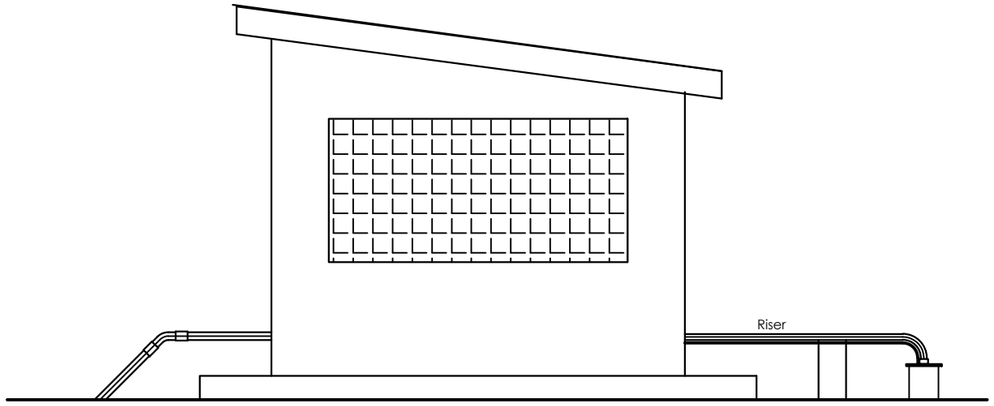
PLAN

NOTES

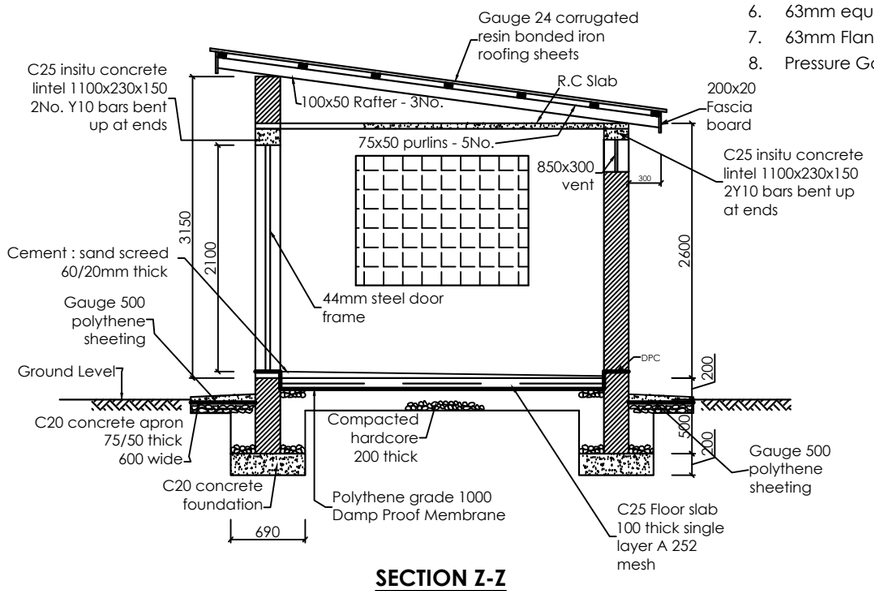
All dimensions are in mm unless stated otherwise.
All levels are in meters above sea level.
Structural details are not included.
All structural concrete is Class 25/20.
All mass concrete is Class 15/20.

FITTINGS:

1. 63mm GI Long elbow
2. Air Valve
3. Non Return Valve
4. Bulk Water Meter
5. Thrust Block
6. 63mm equal Tee
7. 63mm Flanged Gate Valve
8. Pressure Gauge



TYPICAL SIDE ELEVATION



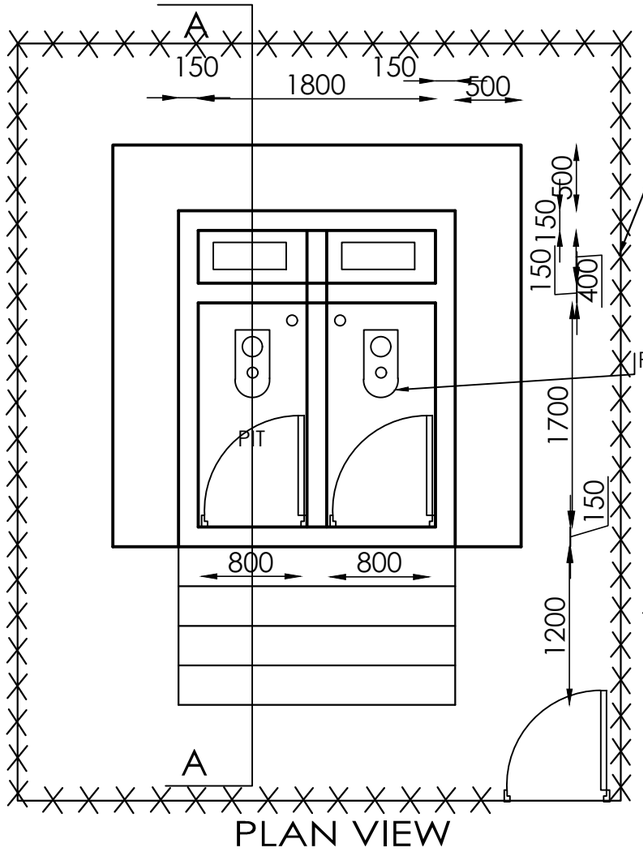
SECTION Z-Z

Scale 1:50

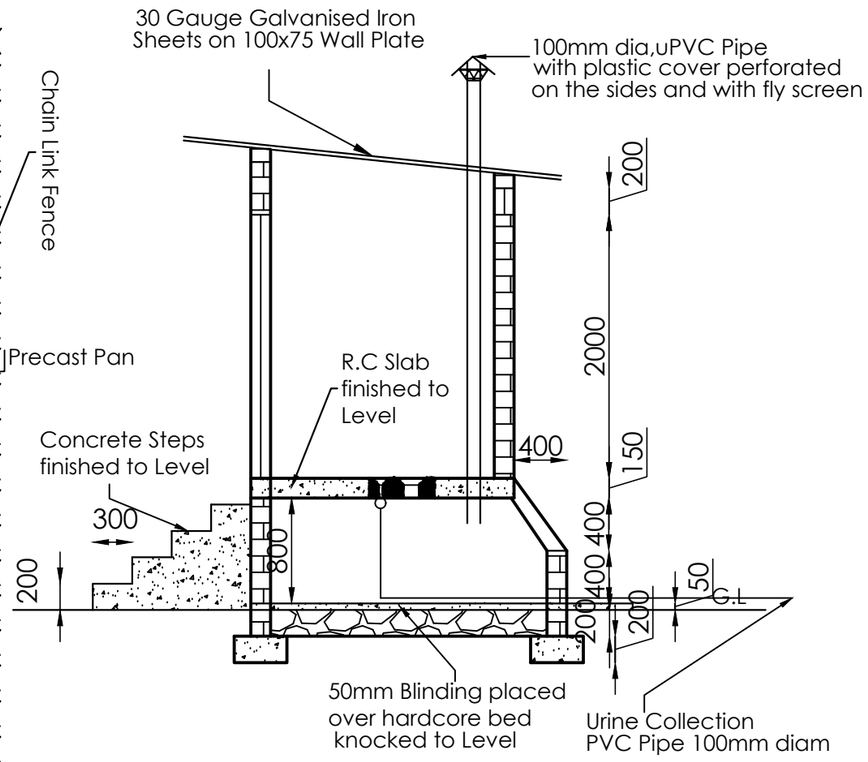
	THE REPUBLIC OF UGANDA Kamuli District Local Government Department of Works District Water Office	Designed By: Kamuli District Water Office	PROJECT **Kasozi-Bugobi Mini Solar Piped Water System** DRAWING TITLE **BOREHOLE PUMPHOUSE DETAILS**	SCALE: As Shown SURVEYED: DESIGNED: E.K DRAWN: E.K CHECKED: T.K APPROVED: T.K	DATE: May 2019 DRG. No.: KDLG/Kas_Bug/3.1

NOTES

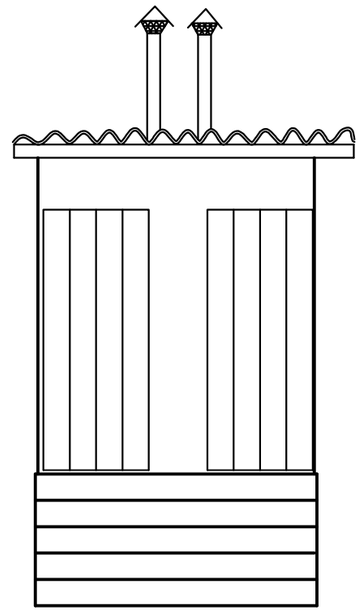
All dimensions are in mm unless stated otherwise.
All levels are in meters above sea level.
Structural details are not included.
All structural concrete is Class 25/20.
All mass concrete is Class 15/20.



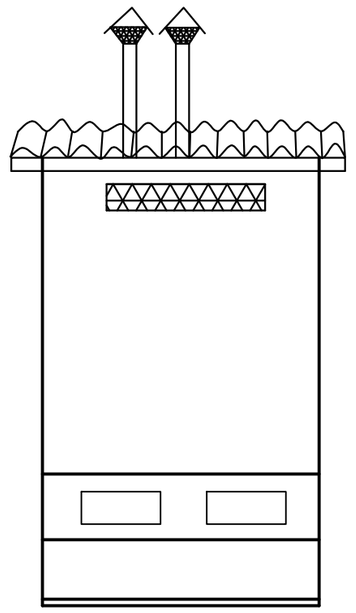
PLAN VIEW



SECTION A-A



FRONT ELEVATION



REAR ELEVATION

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

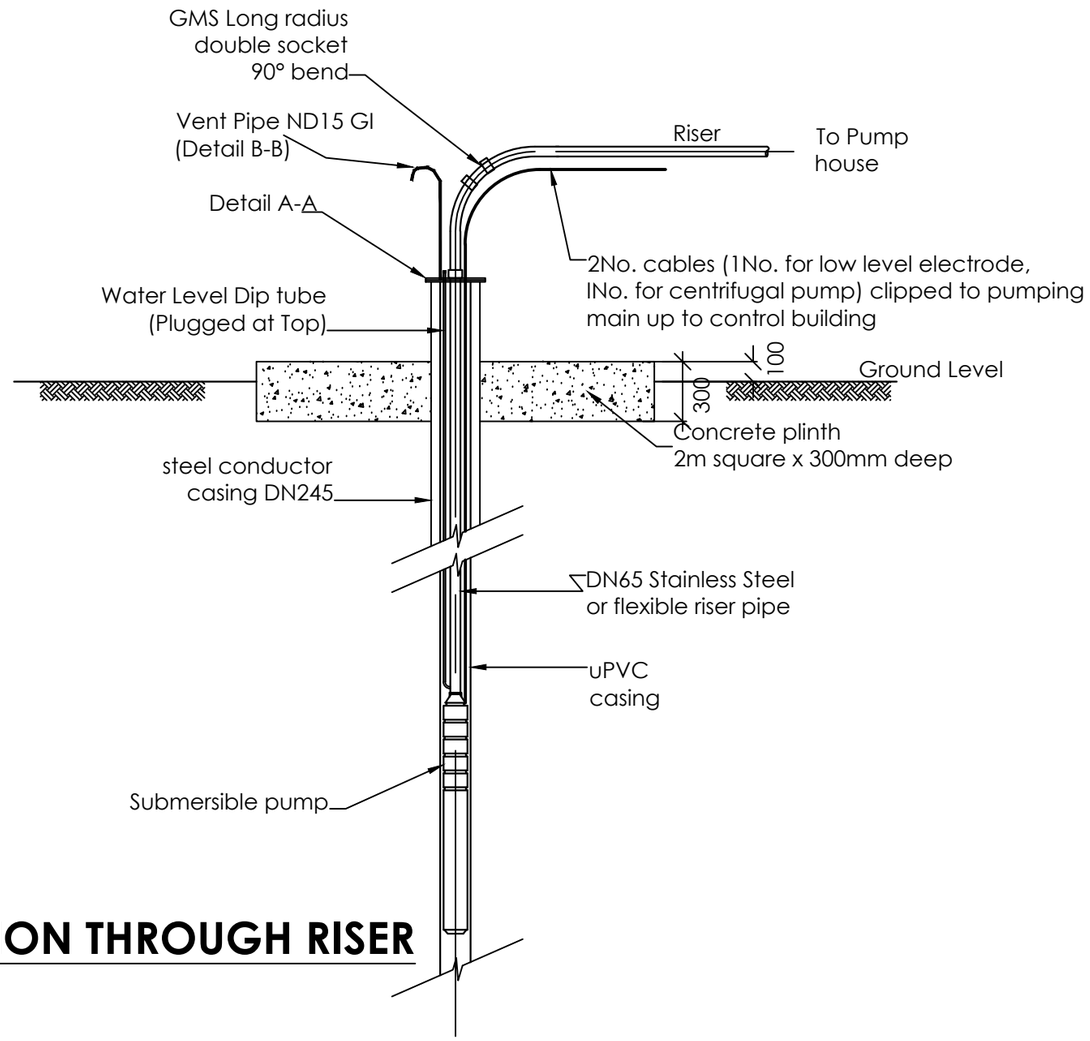
DRAWING TITLE

ECOSAN TOILET DETAILS

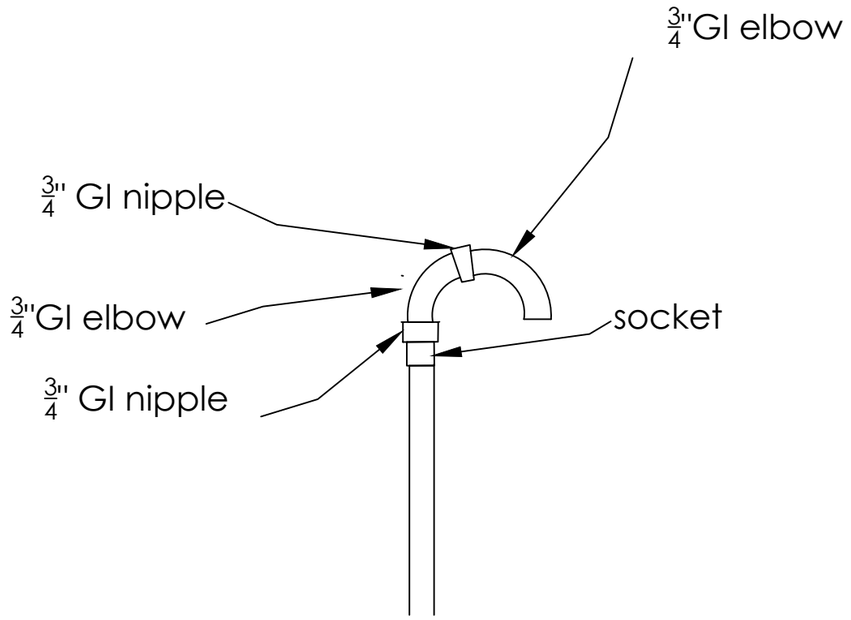
SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: KDLG/Kas_Bug/4.1



SECTION THROUGH RISER



NOTES

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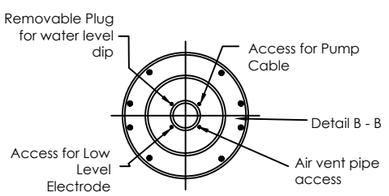
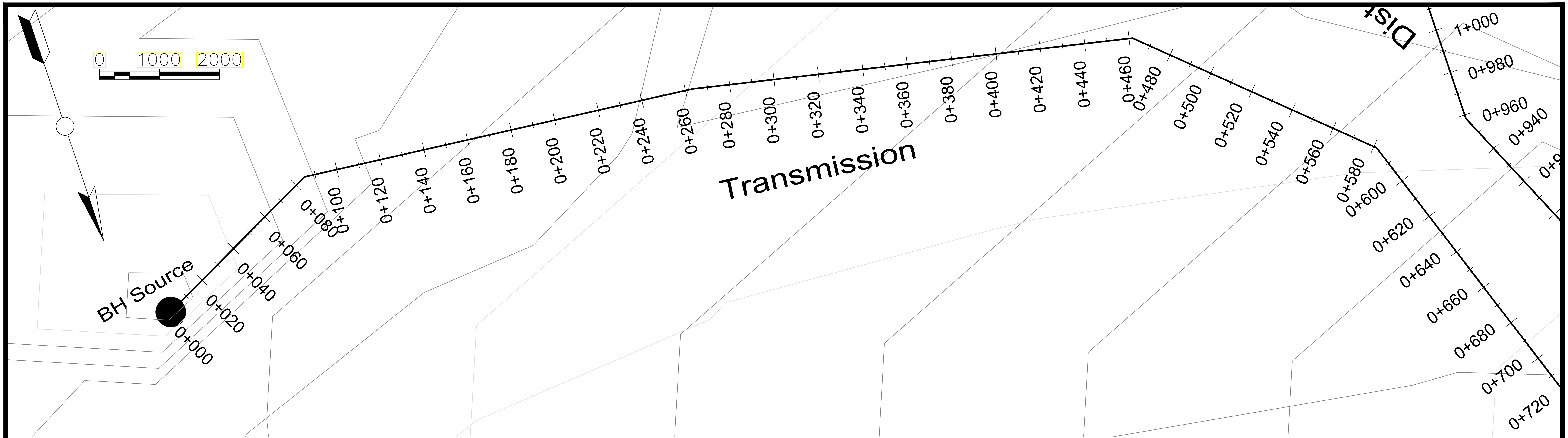
All levels are in meters above sea level.
Structural details are not included.
All structural concrete is Class 25/20.
All mass concrete is Class 15/20.

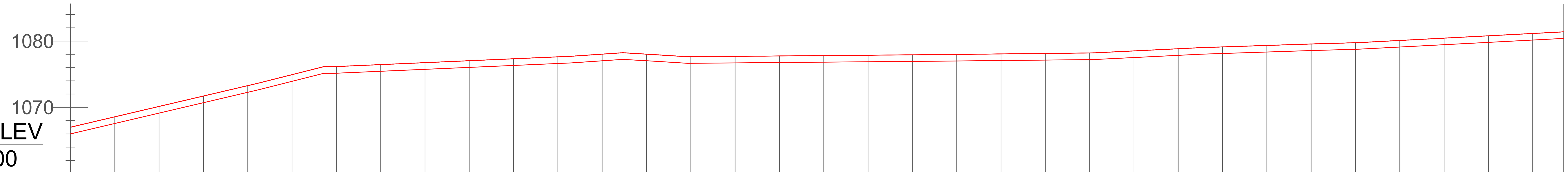
DETAIL AT B - B



DETAIL AT A - A

THE REPUBLIC OF UGANDA Kamuli District Local Government Department of Works District Water Office	Designed By: Kamuli District Water Office	PROJECT **Kasozi-Bugobi Mini Solar Piped Water System** DRAWING TITLE **BOREHOLE DETAILS**	SCALE: As Shown SURVEYED: DESIGNED: E.K DRAWN: E.K CHECKED: T.K APPROVED: T.K	DATE: May 2019 DRG. No.: KDLG/Kas_Bug/5.1





Ground Elevation (m)	1067.0	1068.6	1070.1	1071.7	1073.3	1074.9	1076.2	1076.4	1076.7	1077.0	1077.3	1077.6
Chainages (m)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220
Pipe Details	50mm HDPE PN10											
Invert Level (m)	1066.0	1067.6	1069.1	1070.7	1072.3	1073.9	1075.2	1075.4	1075.7	1076.0	1076.3	1076.6
Flow Velocity m/s	0.53											

Ground Elevation (m)	1078.0	1078.0	1077.6	1077.7	1077.8	1077.8	1077.9	1077.9	1078.0	1078.1	1078.1	1078.2
Chainages (m)	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460
Invert Level (m)	1077.0	1077.0	1076.6	1076.7	1076.8	1076.8	1076.9	1076.9	1077.0	1077.1	1077.1	1077.2

Ground Elevation (m)	1078.5	1078.8	1079.1	1079.3	1079.6	1079.8	1080.1	1080.4	1080.8	1081.1	1081.4
Chainages (m)	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+674
Invert Level (m)	1077.5	1077.8	1078.1	1078.3	1078.6	1078.8	1079.1	1079.4	1079.8	1080.1	1080.4

REVISIONS		
REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

Kamuli District Water Office

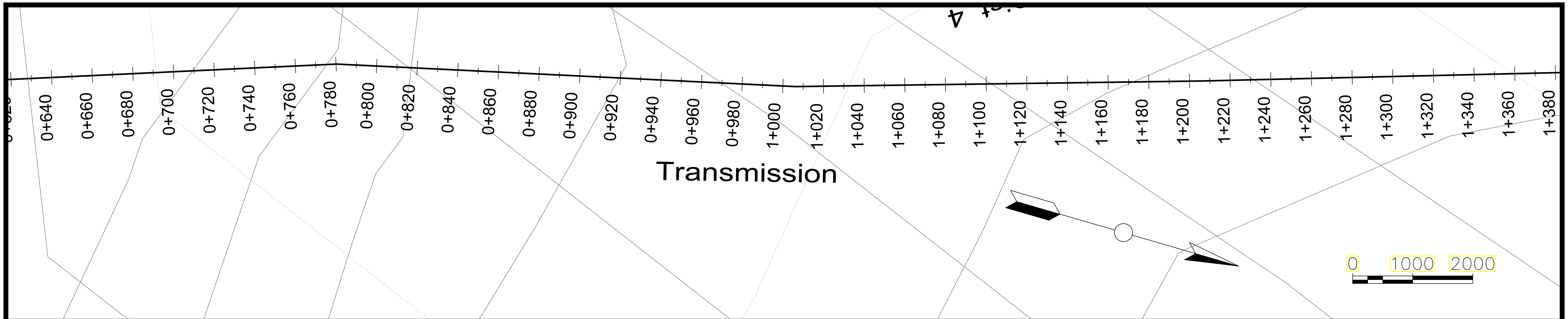
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

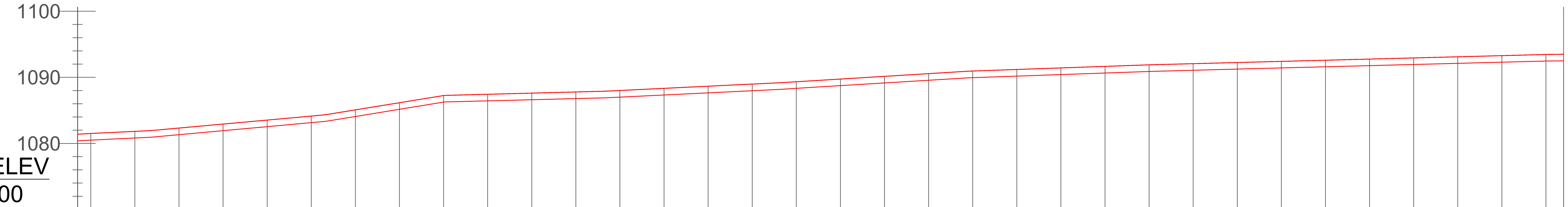
DRAWING TITLE
Transmission Line

SCALE: As Shown
SURVEYED: E.K
DESIGNED: E.K
DRAWN: E.K
CHECKED: Eng.Tom Kisubi
APPROVED: Eng.Tom Kisubi

DATE: May 2019
DRG. No.: KDLG/Trans/001

Bugobi Profiles.dwg
19.03.2007





Chainages (m)	Ground Elevation (m)	Invert Level (m)
0+674	1081.4	1080.4
0+680	1081.5	1080.5
0+700	1081.8	1080.8
0+720	1082.3	1081.3
0+740	1082.9	1081.9
0+760	1083.5	1082.5
0+780	1084.1	1083.1
0+800	1085.1	1084.1
0+820	1086.2	1085.2
0+840	1087.2	1086.2
0+860	1087.4	1086.4
0+880	1087.6	1086.6
0+900	1087.8	1086.8
0+920	1088.0	1087.0
0+940	1088.3	1087.3
0+960	1088.7	1087.7
0+980	1089.0	1088.0
1+000	1089.3	1088.3
1+020	1089.7	1088.7
1+040	1090.2	1089.2
1+060	1090.6	1089.6
1+080	1091.0	1090.0
1+100	1091.2	1090.2
1+120	1091.4	1090.4
1+140	1091.7	1090.7
1+160	1091.9	1090.9
1+180	1092.1	1091.1
1+200	1092.2	1091.2
1+220	1092.4	1091.4
1+240	1092.6	1091.6
1+260	1092.8	1091.8
1+280	1092.9	1091.9
1+300	1093.1	1092.1
1+320	1093.3	1092.3
1+340	1093.5	1092.5
1+348	1093.5	1092.5

Pipe Details: 50mm HDPE PN10

Flow Velocity m/s: 0.53

Bugobi Profiles.dwg

19.03.2007

REVISIONS

REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

Transmission Line

SCALE: As Shown

SURVEYED: E.K

DESIGNED: E.K

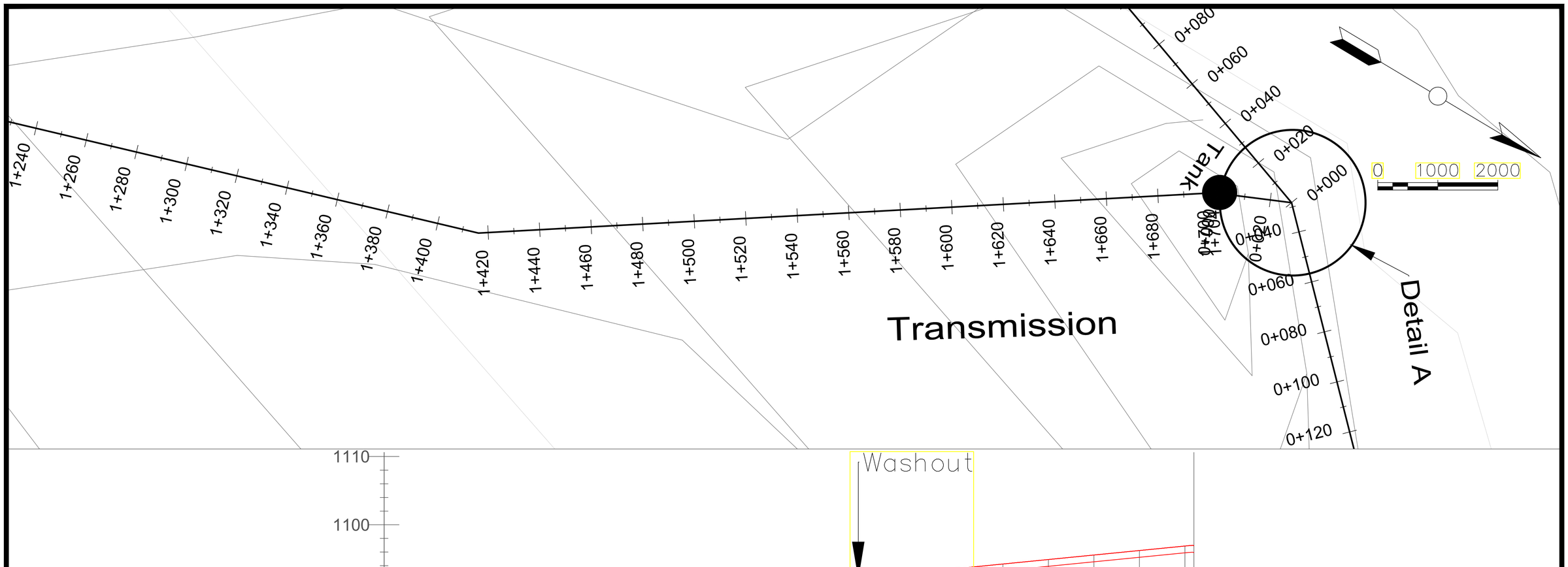
DRAWN: E.K

CHECKED: Eng.Tom Kisubi

APPROVED: Eng.Tom Kisubi

DATE: May 2019

DRG. No.: KDLG/Trans/002



Ground Elevation (m)	1093.5	1093.5	1093.5	1093.5	1093.5	1093.3	1093.2	1093.1	1092.9	1092.8	1092.4	1092.3	1092.9	1093.6	1094.2	1094.9	1095.6	1096.2	1096.9	1096.9
Chainages (m)	1+348	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+500	1+520	1+540	1+560	1+580	1+600	1+620	1+640	1+660	1+680	1+700	1+703.9
Pipe Details	50mm HDPE PN10																			
Invert Level (m)	1092.5	1092.5	1092.5	1092.5	1092.5	1092.3	1092.2	1092.1	1091.9	1091.8	1091.4	1091.3	1091.9	1092.6	1093.2	1093.9	1094.6	1095.2	1095.9	1095.9
Flow Velocity m/s	0.53																			

Bugobi Profiles.dwg

19.03.2007

REVISIONS

REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

Transmission Line

SCALE: As Shown

SURVEYED: E.K

DESIGNED: E.K

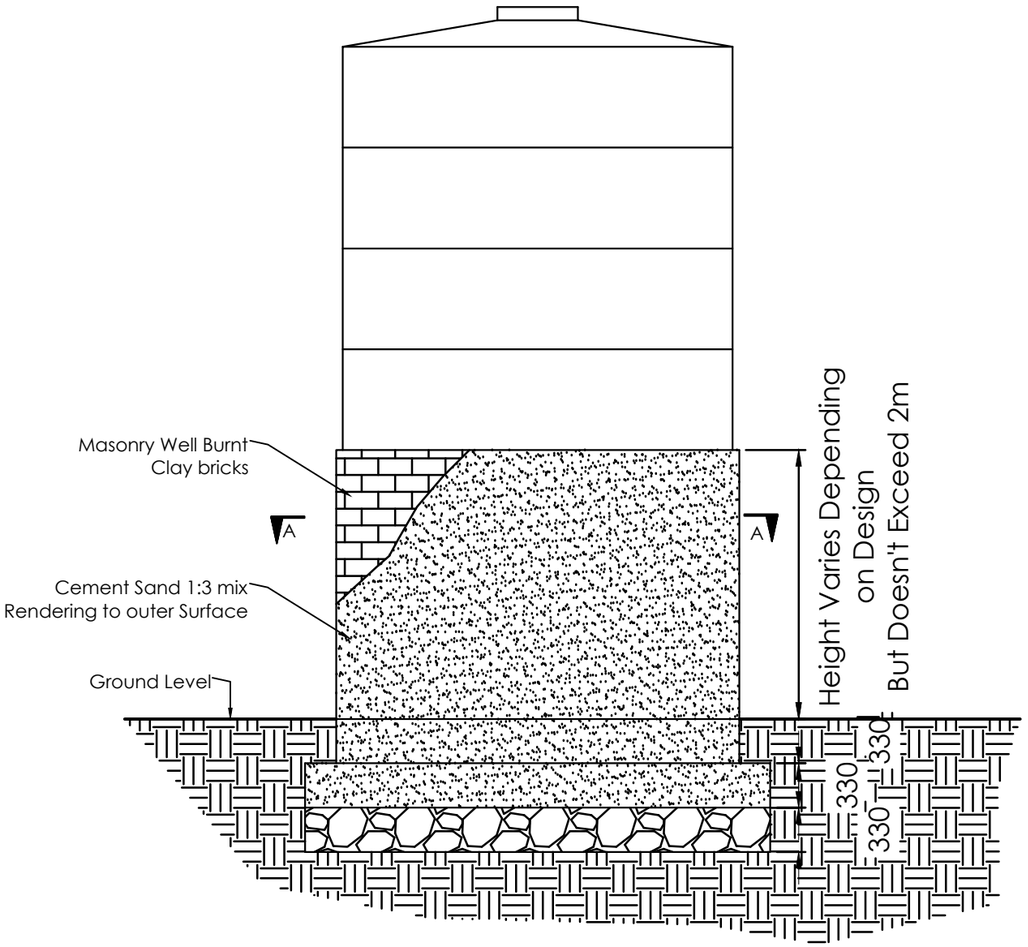
DRAWN: E.K

CHECKED: Eng.Tom Kisubi

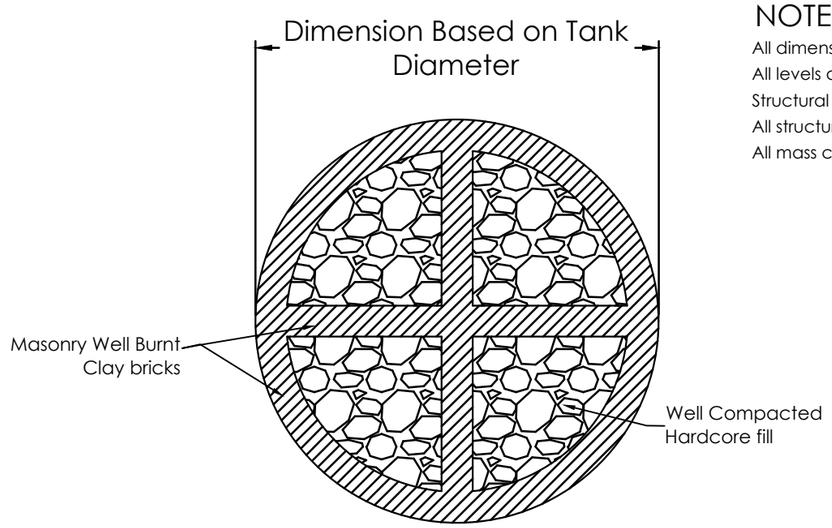
APPROVED: Eng.Tom Kisubi

DATE: May 2019

DRG. No.: KDLG/Trans/003



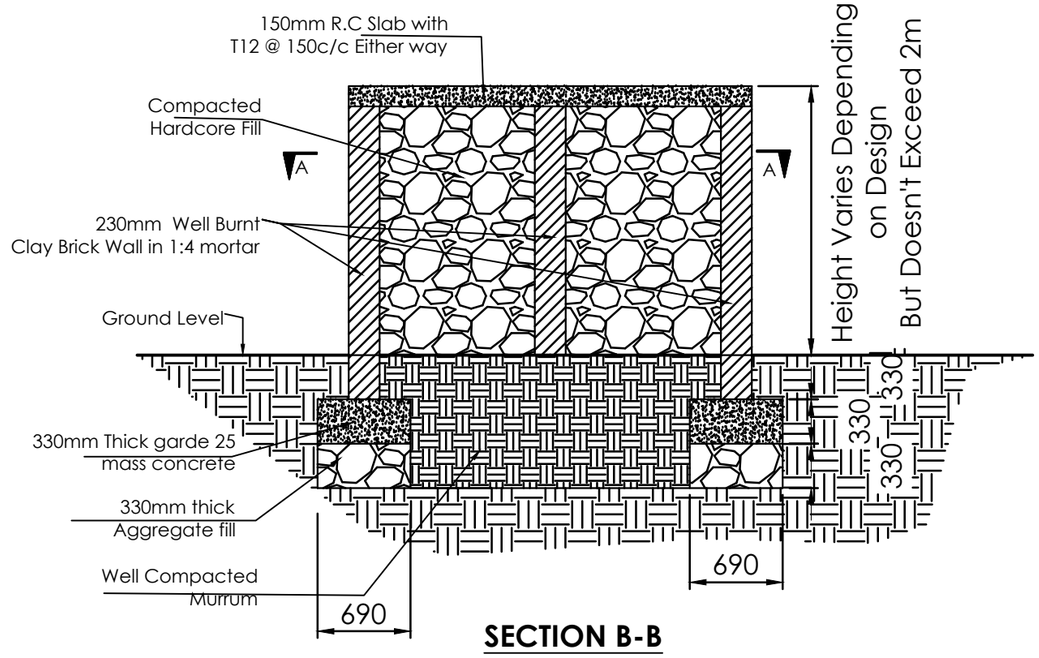
SIDE ELEVATION



SECTION A-A

NOTES

All dimensions are in mm unless stated otherwise.
All levels are in meters above sea level.
Structural details are not included.
All structural concrete is Class 25/20.
All mass concrete is Class 15/20.



SECTION B-B

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

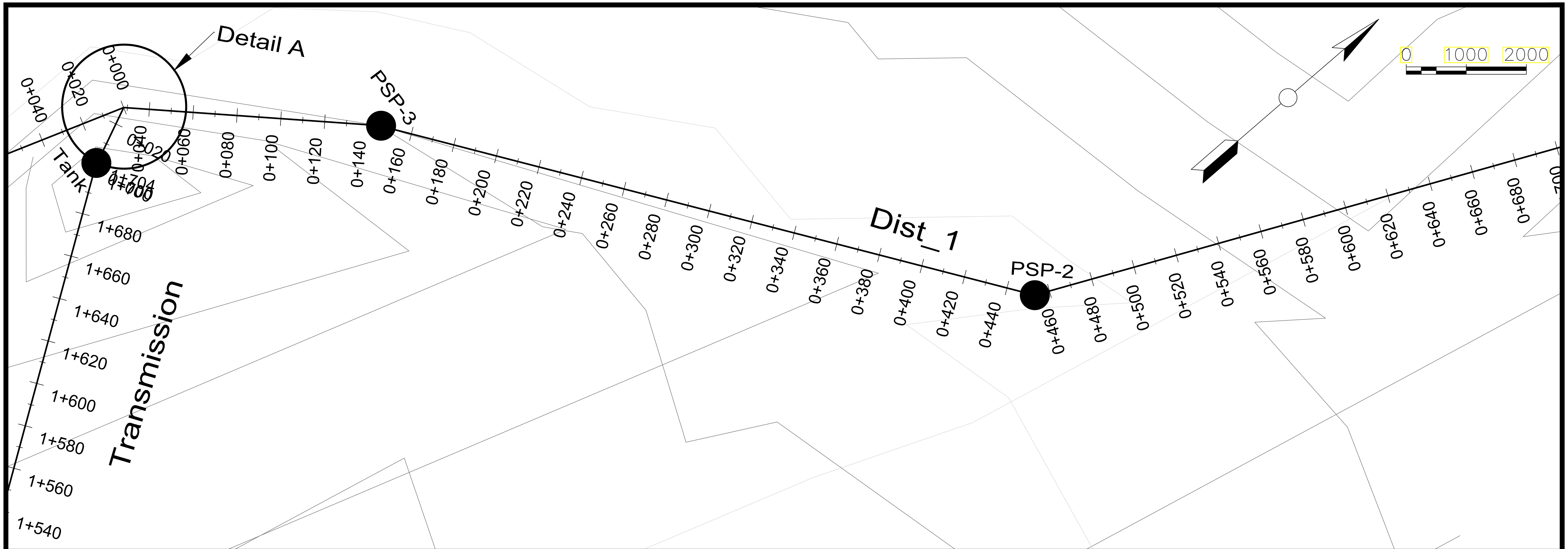
Designed By:
Kamuli District Water Office

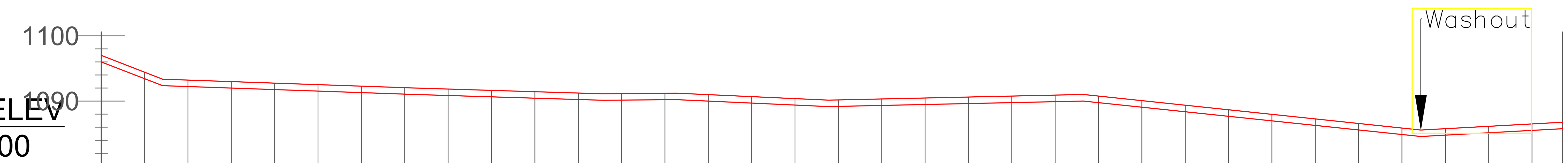
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE
MASONRY TANK PAD DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019
DRG. No.: KDLG/Kas_Bug/6.1



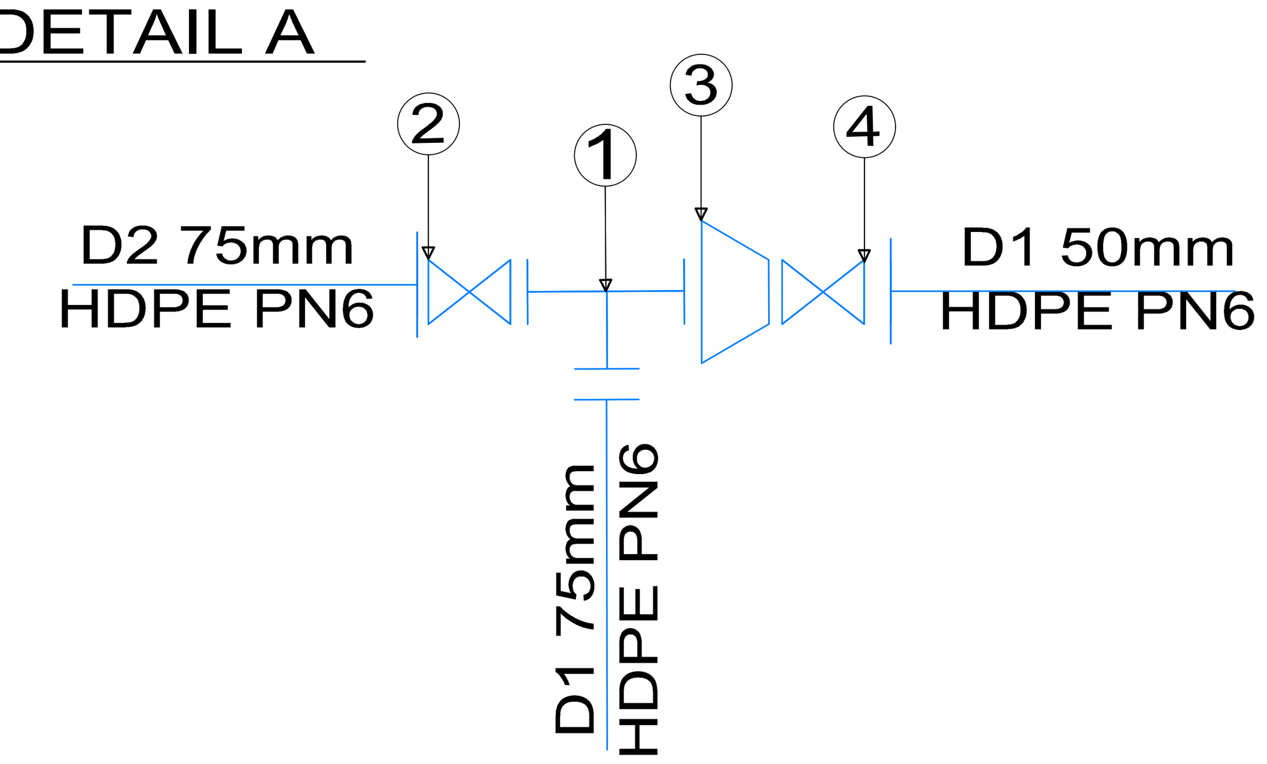


DATUM ELEV
1080.000

Ground Elevation (m)	1097.0	1094.4	1093.2	1093.0	1092.8	1092.5	1092.3	1092.1	1091.8	1091.6	1091.4	1091.2	1091.1	1091.2	1091.0	1090.7	1090.4
Chainages (m)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320
Pipe Details	75mm HDPE PN6				50mm HDPE PN6												
Invert Level (m)	1096.0	1093.4	1092.2	1092.0	1091.8	1091.5	1091.3	1091.1	1090.8	1090.6	1090.4	1090.2	1090.1	1090.2	1090.0	1089.7	1089.4
Flow Velocity m/s	0.72				0.55												

Ground Elevation (m)	1090.2	1090.3	1090.5	1090.6	1090.8	1090.9	1090.8	1090.1	1089.4	1088.7	1088.0	1087.3	1086.6	1085.9	1085.8	1086.1	1086.5	1086.8
Chainages (m)	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+674
Pipe Details																		
Invert Level (m)	1089.2	1089.3	1089.5	1089.6	1089.8	1089.9	1089.8	1089.1	1088.4	1087.7	1087.0	1086.3	1085.6	1084.9	1084.8	1085.1	1085.5	1085.8
Flow Velocity m/s																		

DETAIL A



1. 1No. Equal Tee 75mm PN16
2. 1No. Flanged Gate Vale $2\frac{1}{2}$"
3. 1No. Flanged Reducer Coupler $2\frac{1}{2}$" to $1\frac{1}{2}$"
4. 1No. Flanged Gate Vale $1\frac{1}{2}$"

REVISIONS		
REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

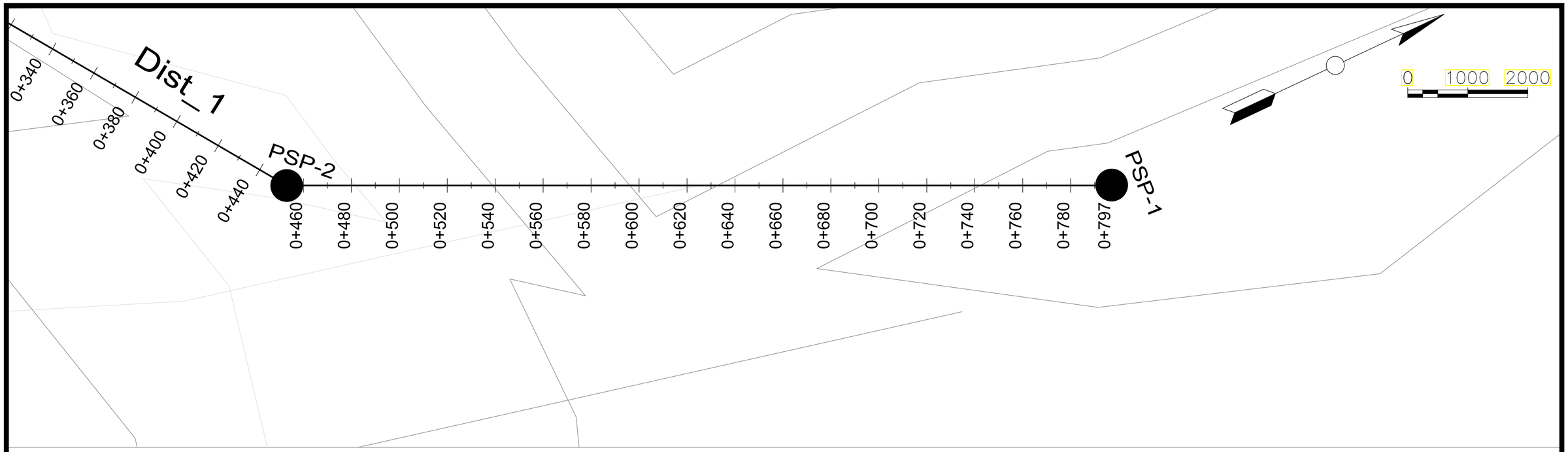
Kamuli District Water Office

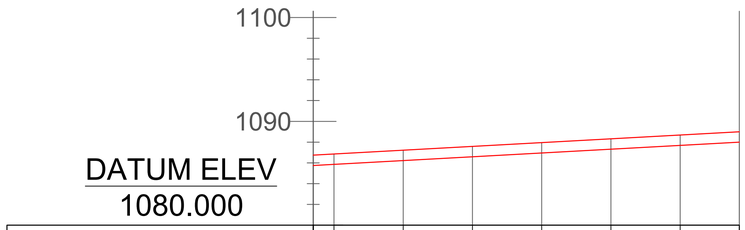
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE
Distribution Line 1

SCALE: As Shown
SURVEYED: E.K
DESIGNED: E.K
DRAWN: E.K
CHECKED: Eng.Tom Kisubi
APPROVED: Eng.Tom Kisubi

DATE: May 2019
DRG. No.: KDLG/D1/001





Ground Elevation (m)	1086.8 1086.9	1087.2	1087.6	1088.0	1088.3	1088.7	1089.0
Chainages (m)	0+674 0+680	0+700	0+720	0+740	0+760	0+780	0+797.1
Pipe Details	50mm HDPE PN6						
Invert Level (m)	1085.8 1085.9	1086.2	1086.6	1087.0	1087.3	1087.7	1088.0
Flow Velocity m/s	0.55						

Bugobi Profiles.dwg

19.03.2007

REVISIONS

REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

Distribution Line 1

SCALE: As Shown

SURVEYED: E.K

DESIGNED: E.K

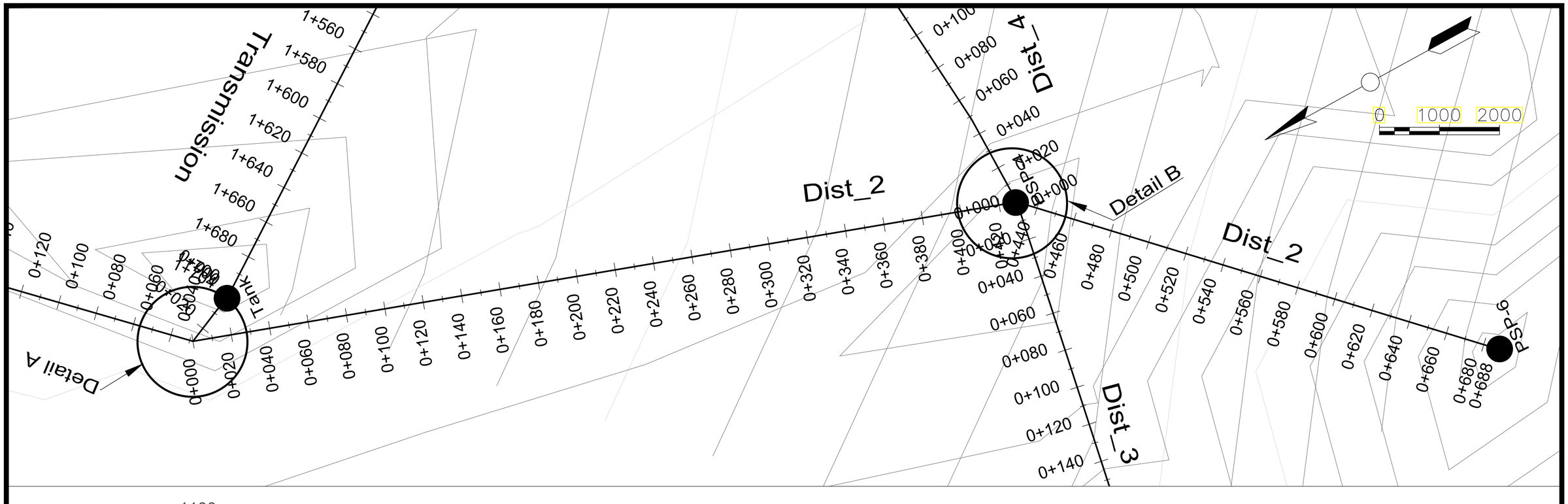
DRAWN: E.K

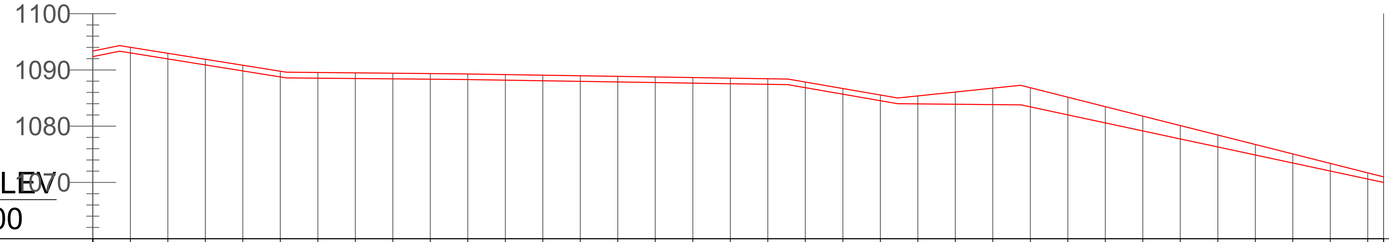
CHECKED: Eng.Tom Kisubi

APPROVED: Eng.Tom Kisubi

DATE: May 2019

DRG. No.: KDLG/D1/002

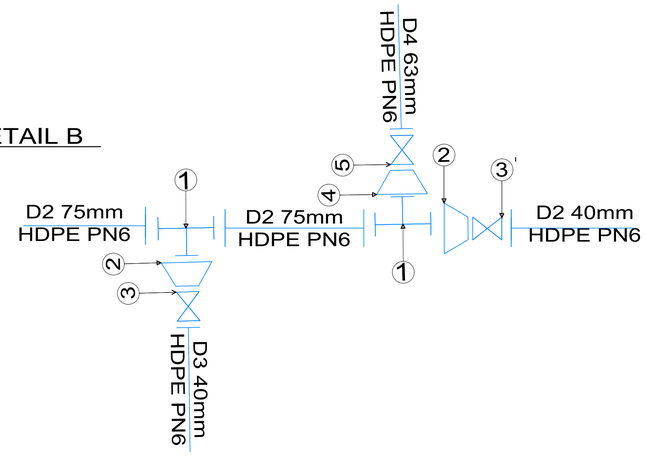




DATUM ELEV
1060.000

Ground Elevation (m)	1093.4	1094.0	1093.0	1091.9	1090.8	1089.8	1089.5	1089.5	1089.4	1089.3	1089.3	1089.2	1089.1	1089.0	1088.9	1088.8	1088.6	1088.5	1088.4	1087.8	1086.7	1085.5	1085.4	1086.1	1086.8	1086.8	1085.1	1083.5	1081.8	1080.1	1078.4	1076.7	1075.1	1073.4	1071.7	1071.0
Chainages (m)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+688.4
Pipe Details	75mm HDPE PN6																							40mm HDPE PN6												
Invert Level (m)	1092.4	1093.0	1092.0	1090.9	1089.8	1088.8	1088.5	1088.5	1088.4	1088.3	1088.3	1088.2	1088.1	1088.0	1087.9	1087.8	1087.6	1087.5	1087.4	1086.8	1085.7	1084.5	1084.0	1083.9	1083.8	1083.4	1082.0	1080.6	1079.2	1077.7	1076.3	1074.9	1073.5	1072.0	1070.6	1070.0
Flow Velocity m/s	0.54																							0.45												

DETAIL B



① 2No. Equal Tee 75mm PN16
② 2No. Flanged Reducer Coupler $2\frac{1}{2}$" to $1\frac{1}{4}$"
③ 2No. Flanged Gate Vale $1\frac{1}{4}$"
④ 1No. Flanged Reducer Coupler $2\frac{1}{2}$" to 2"
⑤ 1No. Flanged Gate Vale 2"

REVISIONS

REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

Kamuli District Water Office

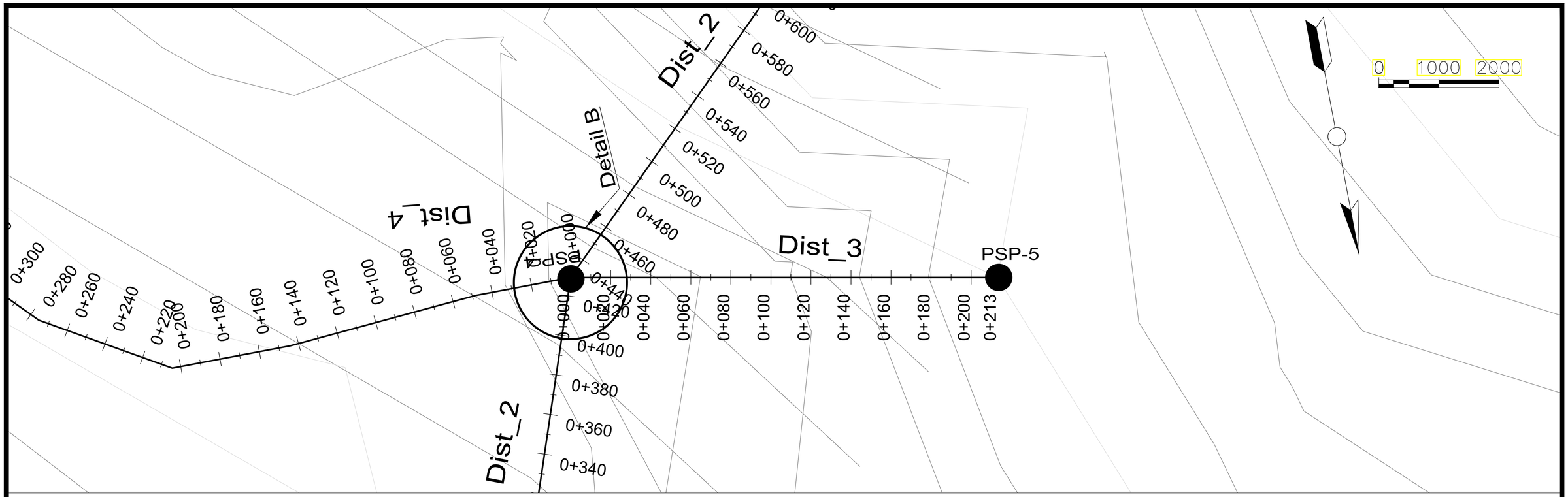
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

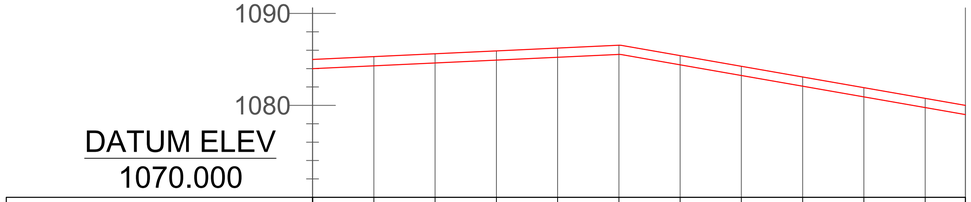
DRAWING TITLE
Distribution Line 2

SCALE: As Shown
SURVEYED: E.K
DESIGNED: E.K
DRAWN: E.K
CHECKED: Eng.Tom Kisubi
APPROVED: Eng.Tom Kisubi

DATE: May 2019
DRG. No.: KDLG/D2/001

Bugobi Profiles.dwg
19.03.2007





DATUM ELEV
1070.000

Ground Elevation (m)	1085.0	1085.3	1085.6	1085.9	1086.2	1086.5	1085.4	1084.3	1083.1	1081.9	1080.8	1080.0
Chainages (m)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+213.2
Pipe Details	40mm HDPE PN6											
Invert Level (m)	1084.0	1084.3	1084.6	1084.9	1085.2	1085.5	1084.4	1083.3	1082.1	1080.9	1079.8	1079.0
Flow Velocity m/s	0.47											

REVISIONS		
REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

Kamuli District Water Office

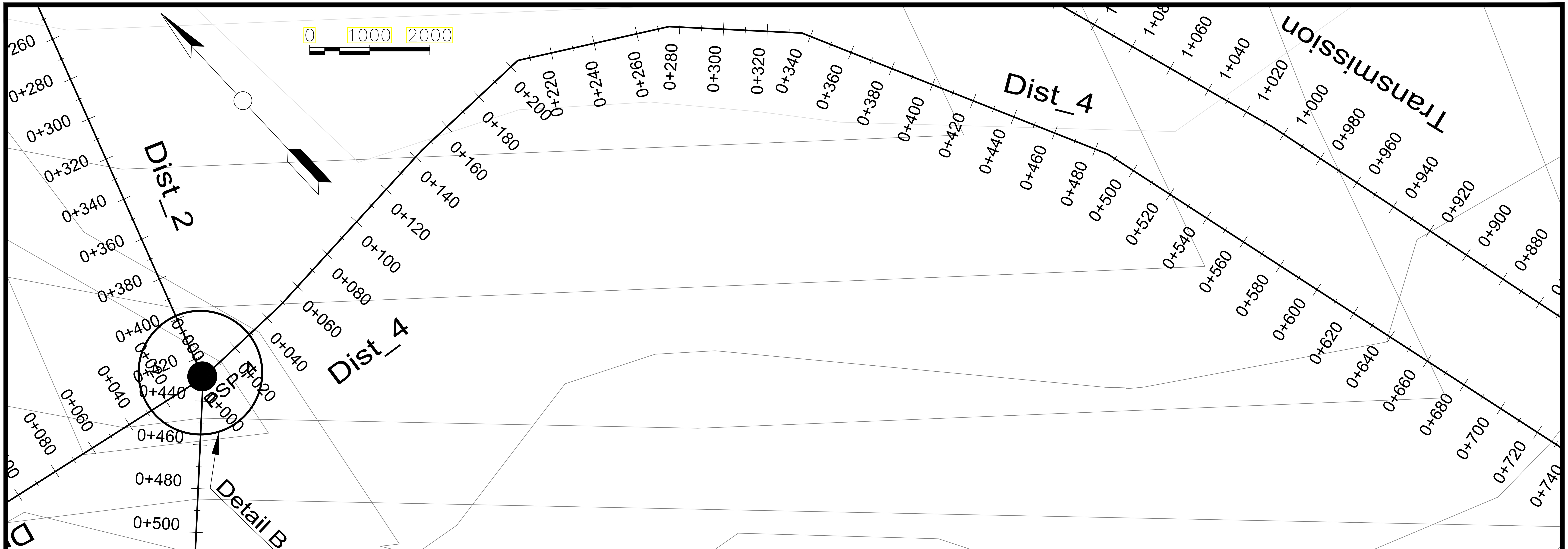
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

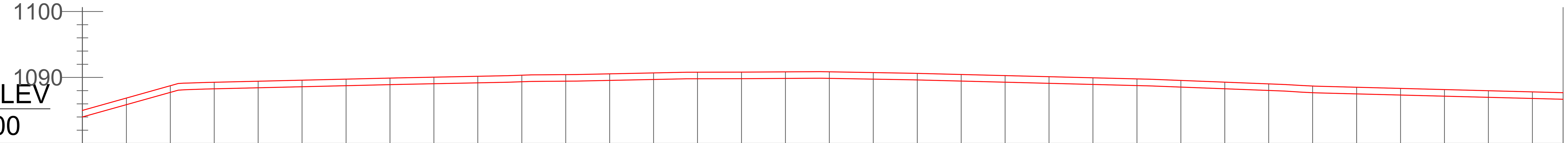
DRAWING TITLE
Distribution Line 3

SCALE:	As Shown
SURVEYED:	E.K
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	Eng.Tom Kisubi
APPROVED:	Eng.Tom Kisubi

DATE: May 2019
DRG. No.: KDLG/D3/001

Bugobi Profiles.dwg
19.03.2007





Chainages (m)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320
Ground Elevation (m)	1085.0	1086.9	1088.7	1089.3	1089.4	1089.6	1089.7	1089.9	1090.0	1090.2	1090.3	1090.4	1090.6	1090.7	1090.8	1090.8	1090.9
Pipe Details	63mm HDPE PN6																
Invert Level (m)	1084.0	1085.9	1087.7	1088.3	1088.4	1088.6	1088.7	1088.9	1089.0	1089.2	1089.3	1089.4	1089.6	1089.7	1089.8	1089.8	1089.9
Flow Velocity m/s	0.46																

Chainages (m)	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+674
Ground Elevation (m)	1090.9	1090.7	1090.6	1090.5	1090.3	1090.1	1089.9	1089.8	1089.5	1089.3	1089.0	1088.7	1088.5	1088.3	1088.2	1088.0	1087.8	1087.7
Pipe Details																		
Invert Level (m)	1089.9	1089.7	1089.6	1089.5	1089.3	1089.1	1088.9	1088.8	1088.5	1088.3	1088.0	1087.7	1087.5	1087.3	1087.2	1087.0	1086.8	1086.7
Flow Velocity m/s																		

REVISIONS		
REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

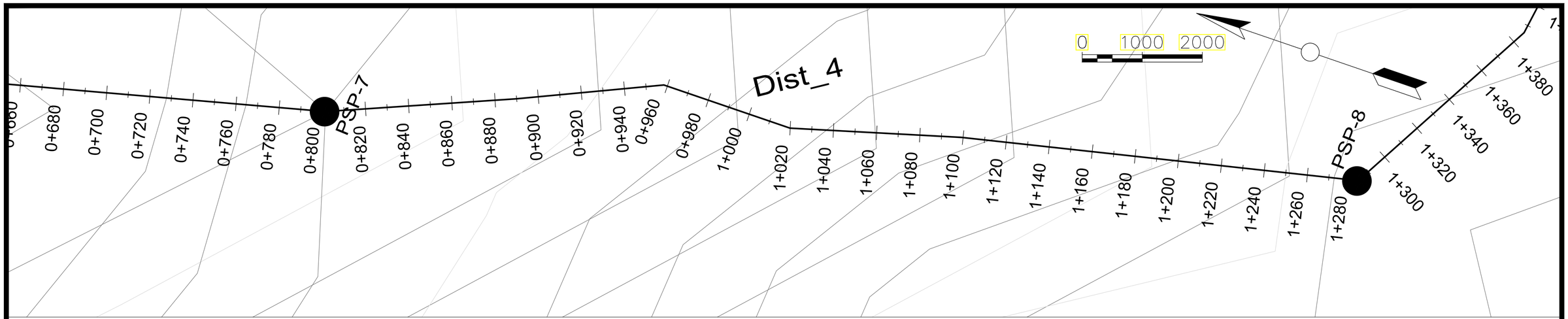
Kamuli District Water Office

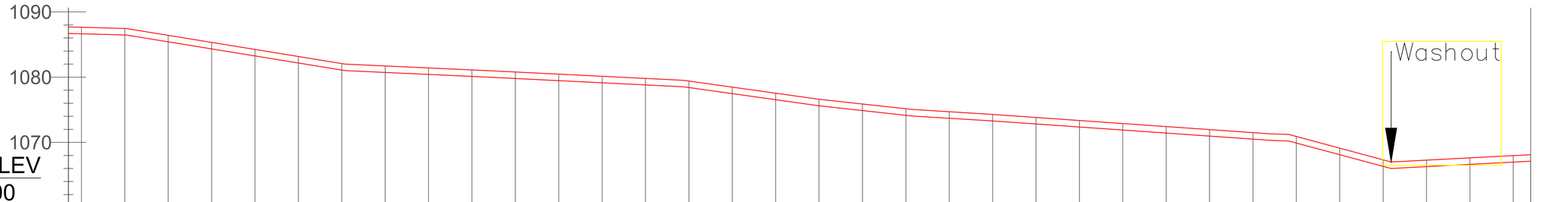
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE
Distribution Line 4

SCALE: As Shown
SURVEYED: E.K
DESIGNED: E.K
DRAWN: E.K
CHECKED: Eng.Tom Kisubi
APPROVED: Eng.Tom Kisubi

DATE: May 2019
DRG. No.: KDLG/D4/001





DATUM ELEV
1060.000

Ground Elevation (m)	1087.7	1087.6	1087.5	1086.4	1085.3	1084.2	1083.2	1082.1	1081.7	1081.4	1081.1	1080.8	1080.5	1080.1	1079.8	1079.4	1078.5	1077.5	1076.6	1075.9	1075.2	1074.7	1074.3	1073.8	1073.4	1072.9	1072.4	1072.0	1071.5	1070.9	1069.1	1067.3	1067.3	1067.6	1068.0	1068.1
Chainages (m)	0+674	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+348
Pipe Details	63mm HDPE PN6																				50mm HDPE PN6															
Invert Level (m)	1086.7	1086.6	1086.5	1085.4	1084.3	1083.2	1082.2	1081.1	1080.7	1080.4	1080.1	1079.8	1079.5	1079.1	1078.8	1078.4	1077.5	1076.5	1075.6	1074.9	1074.2	1073.7	1073.3	1072.8	1072.4	1071.9	1071.4	1071.0	1070.5	1069.9	1068.1	1066.3	1066.3	1066.6	1067.0	1067.1
Flow Velocity m/s	0.46																				0.52															

REVISIONS		
REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA
Kamuli District Local Government
Department of Works
District Water Office

Kamuli District Water Office

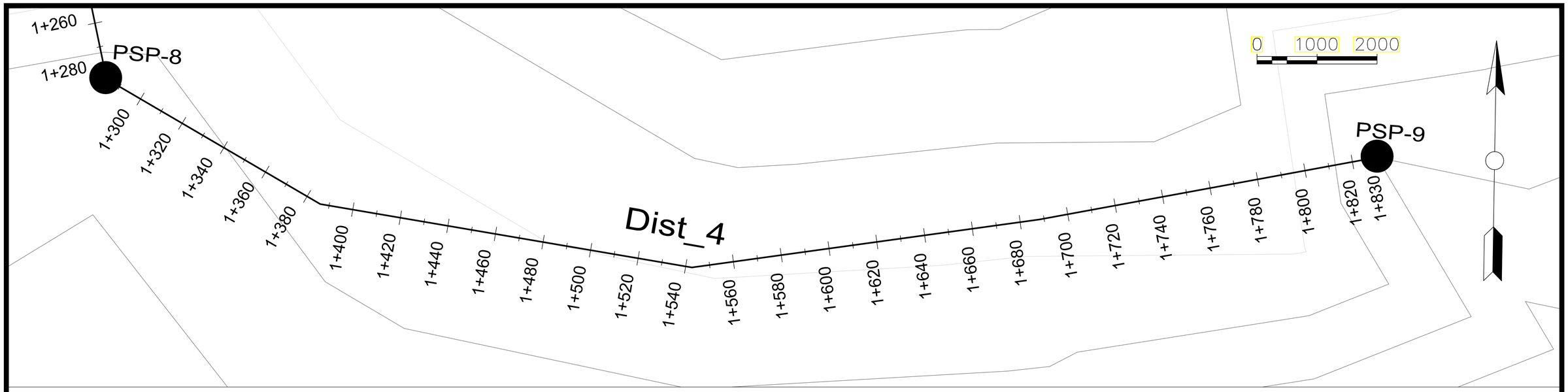
PROJECT
Kasozi-Bugobi Mini Solar Piped Water System

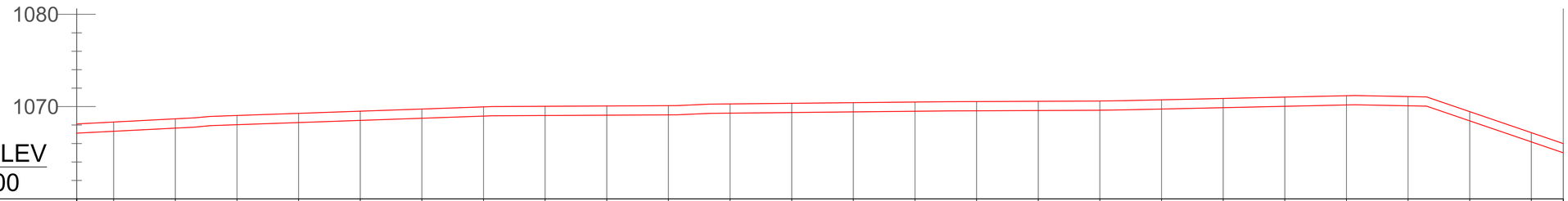
DRAWING TITLE
Distribution Line 4

SCALE:	As Shown
SURVEYED:	E.K
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	Eng.Tom Kisubi
APPROVED:	Eng.Tom Kisubi

DATE: May 2019
DRG. No.: KDLG/D4/002

Bugobi Profiles.dwg
19.03.2007





Chainages (m)	Ground Elevation (m)	Invert Level (m)
1+348	1068.1	1067.1
1+360	1068.3	1067.3
1+380	1068.7	1067.7
1+400	1069.0	1068.0
1+420	1069.3	1068.3
1+440	1069.5	1068.5
1+460	1069.7	1068.7
1+480	1070.0	1069.0
1+500	1070.0	1069.0
1+520	1070.1	1069.1
1+540	1070.1	1069.1
1+560	1070.3	1069.3
1+580	1070.4	1069.4
1+600	1070.4	1069.4
1+620	1070.5	1069.5
1+640	1070.5	1069.5
1+660	1070.6	1069.6
1+680	1070.6	1069.6
1+700	1070.7	1069.7
1+720	1070.9	1069.9
1+740	1071.0	1070.0
1+760	1071.2	1070.2
1+780	1071.1	1070.1
1+800	1069.5	1068.5
1+820	1067.2	1066.2
1+830.3	1066.0	1065.0

Pipe Details: 50mm HDPE PN6 (1+348 to 1+620); 40mm HDPE PN6 (1+640 to 1+830.3)

Flow Velocity m/s: 0.52 (1+348 to 1+620); 0.57 (1+640 to 1+830.3)

REVISIONS

REV	DATE	DESCRIPTION

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

Distribution Line 4

SCALE:	As Shown
SURVEYED:	E.K
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	Eng.Tom Kisubi
APPROVED:	Eng.Tom Kisubi
DATE:	May 2019
DRG. No.:	KDLG/D4/003

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19.03.2007

GENERAL NOTES FOR STANDARD DETAIL DRAWINGS

1) Anchor block designs are based on the following ground conditions.

Dry soil density:	1800 kg/m^3
Submerged soil density:	1090 kg/m^3
Angle of internal friction:	30°
Passive resistance factor:	3

Where considerably better ground conditions, such as rock, are encountered, the dimensions of anchor blocks may be reduced. Supporting calculations for any reduced size anchor blocks must be submitted to the Project Manager 48 hours before construction of the particular anchor block commences and may be concreted only after his approval.

2) Bases and thrust faces of anchor blocks are to be cast against undisturbed ground, or against blinding cast against undisturbed ground.

3) Pipework joints as shown for the water supply details are diagrammatic only.

4) The following notes apply to reinforced concrete chambers.

a) Concrete in walls and base and cover slab

Characteristic strength (N/mm^2):	30
Maximum aggregate size (mm):	20
Cement type:	SR
Minimum cement content (kg/m^3):	330
Maximum cement content (kg/m^3):	400
Maximum free water/cement ratio:	0.47

b) Concrete in blinding

Characteristic strength (N/mm^2):	1030
Maximum aggregate size (mm):	40
Cement type:	SR
Minimum cement content (kg/m^3):	230

c) Cover to reinforcement 40mm unless positioned centrally

d) Minimum reinforcement lap 300 mm

e) Corners of rectangular openings to have T8 bars 500 mm long set diagonally

5) All dimensions are in millimetres unless shown otherwise.

6) Do not scale dimensions from standard Detail drawings.

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

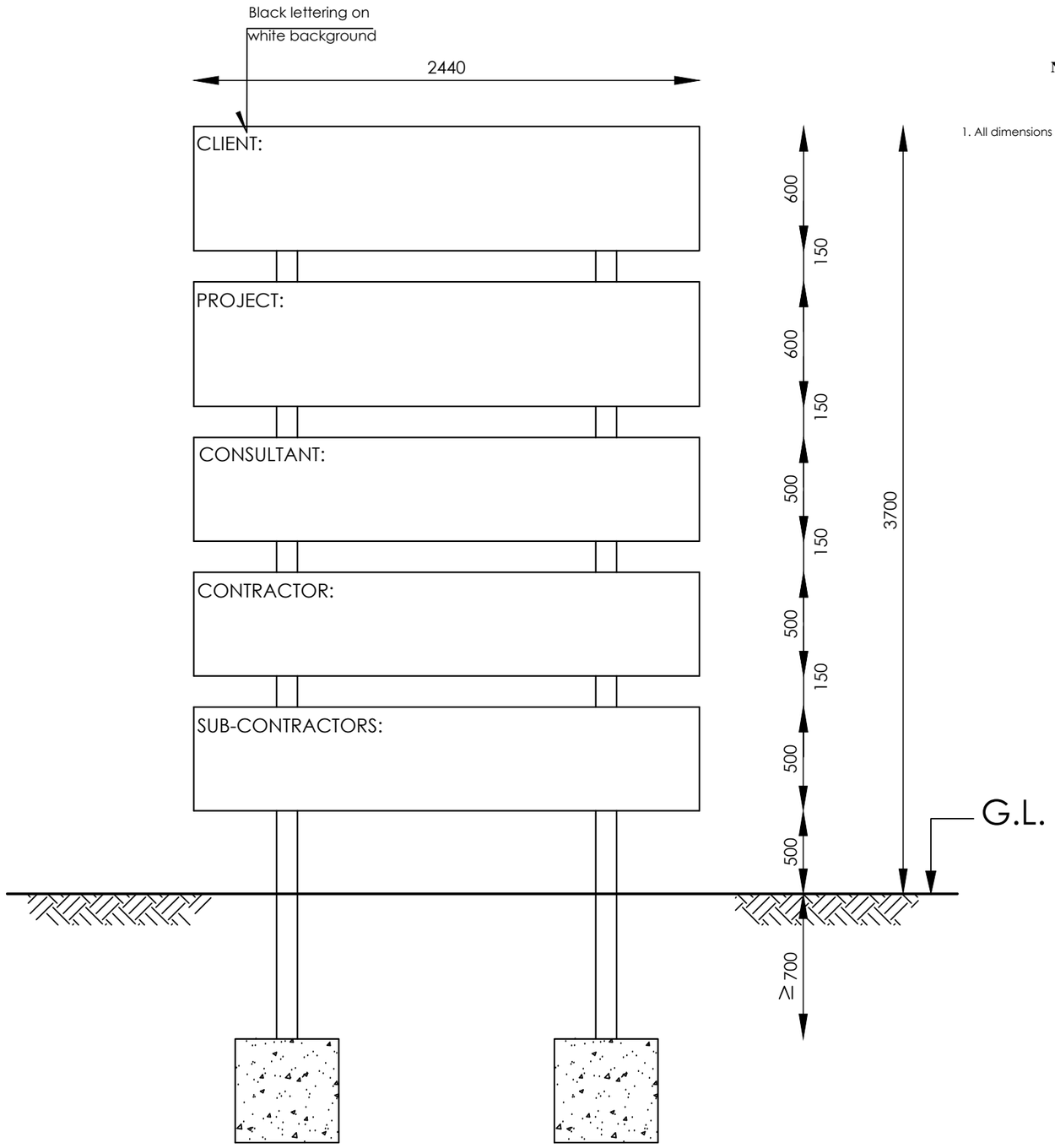
DRAWING TITLE

GENERAL NOTES

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: KDLG/SD/001



NOTES:

1. All dimensions shown are in millimetres

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

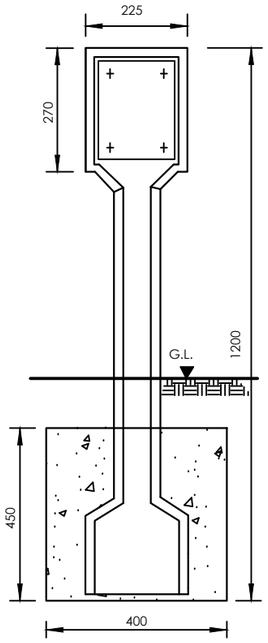
SIGN BOARD DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

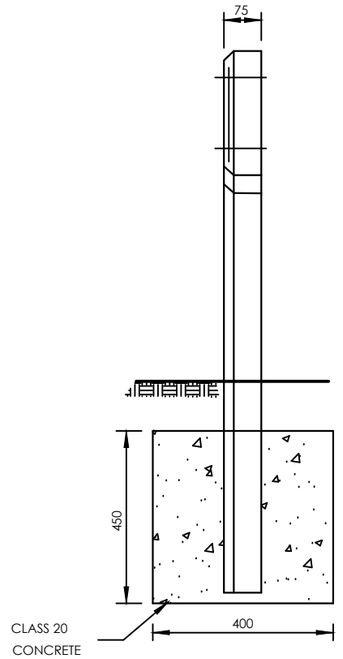
DATE: May 2019

DRG. No.: BDFCDP-II/SD/002

INDICATOR POSTS

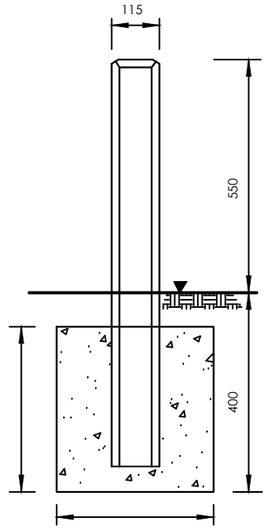


FRONT ELEVATION

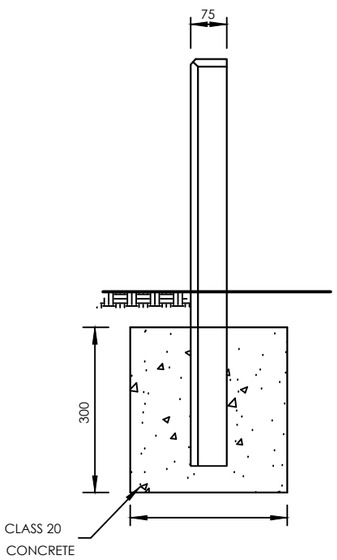


SIDE ELEVATION

MAKER POSTS



FRONT ELEVATION



SIDE ELEVATION

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

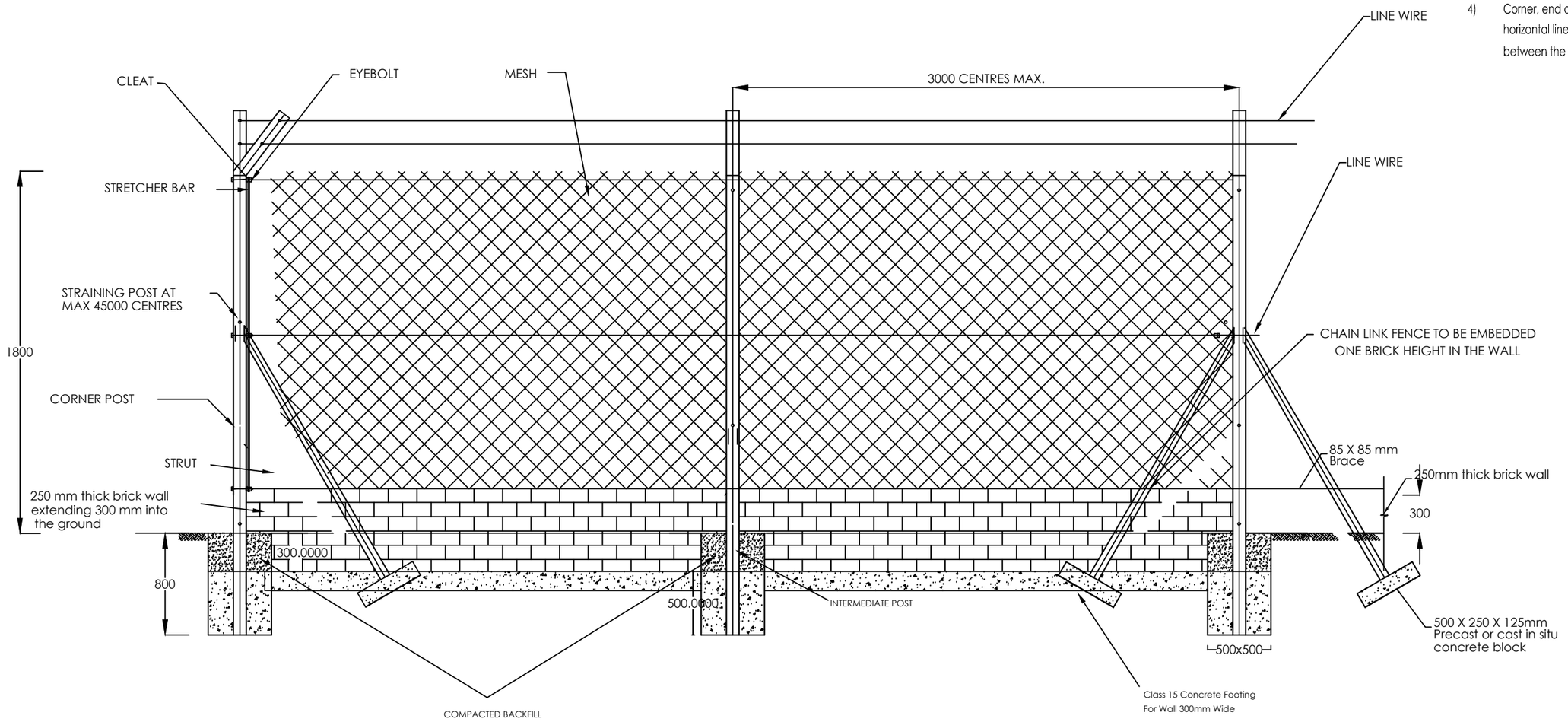
MARK POST DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE:	May 2019
DRG. No.:	KDLG/SD/003

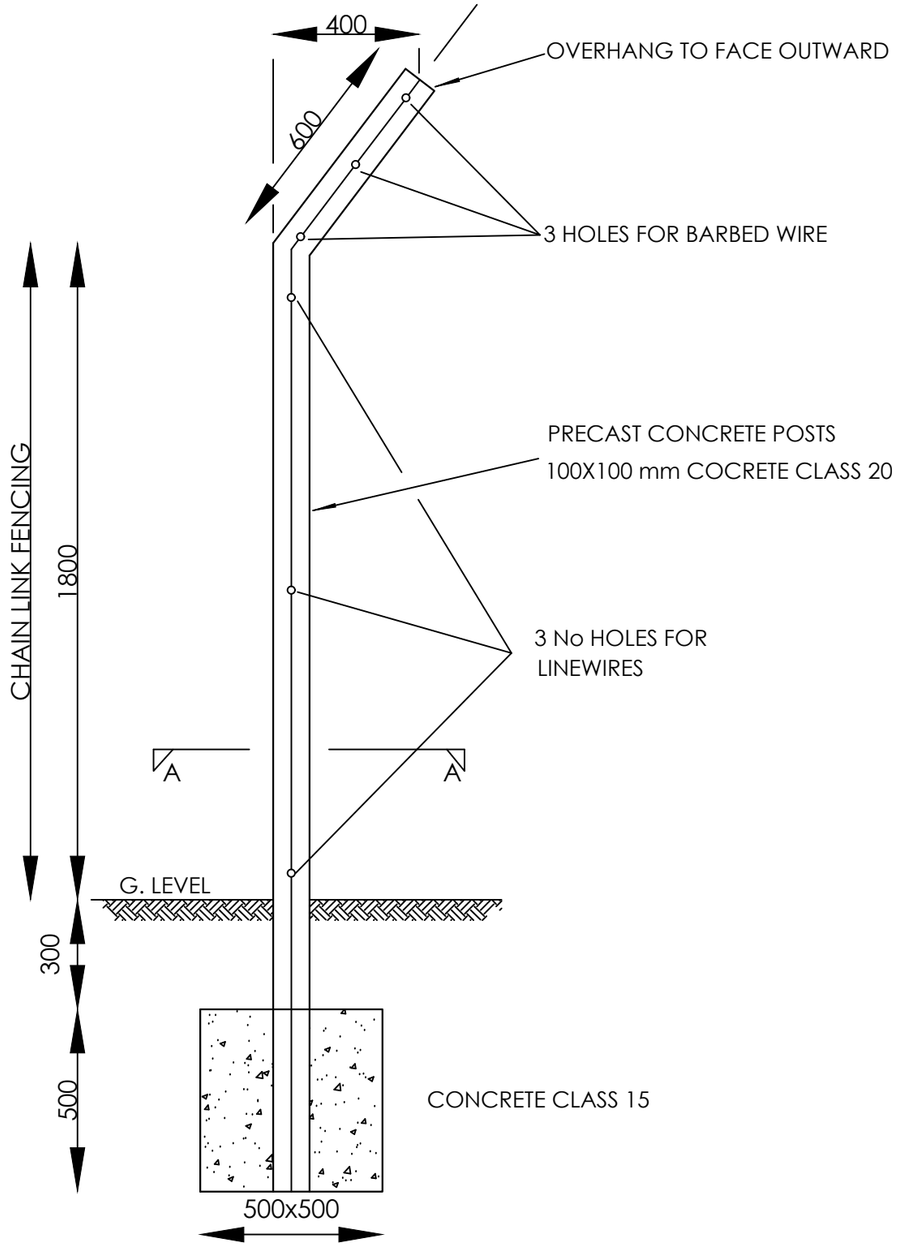
NOTES

1) Compliance with BS 1722: Part 1; 1986 is required
2) Posts and Struts to be Precast reinforced concrete
3) 1.8 m high fencing with 1.8m RC post placed every 3 metres apart embedded in cement concrete blocks.
4) Corner, end and every 10th post is to be strutted provided with 9 horizontal lines and two diagonals of barbed wire 9.38 kg/100m between the two posts fitted

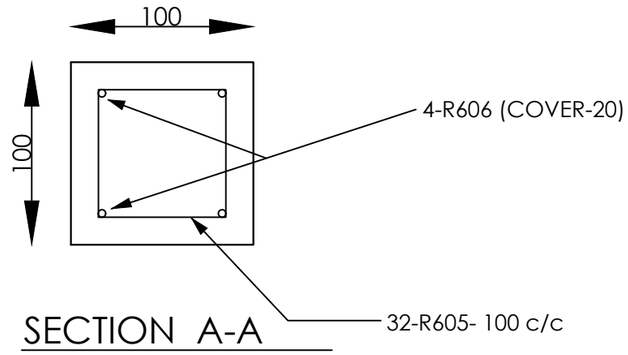


CHAINLINK FENCE

THE REPUBLIC OF UGANDA Kamuli District Local Government Department of Works District Water Office	Designed By: Kamuli District Water Office	PROJECT **Kasozi-Bugobi Mini Solar Piped Water System** DRAWING TITLE **CHAIN-LINK FENCE**	SCALE: As Shown SURVEYED: DESIGNED: E.K DRAWN: E.K CHECKED: T.K APPROVED: T.K	DATE: May 2019 DRG. No.: KDLG/SD/004a

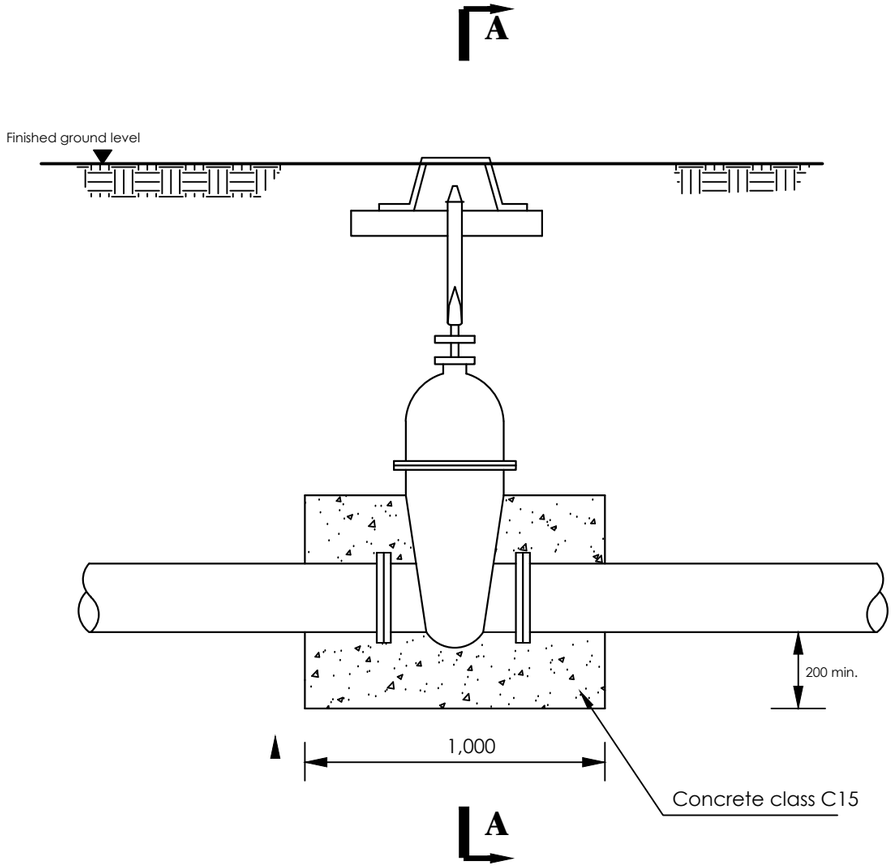


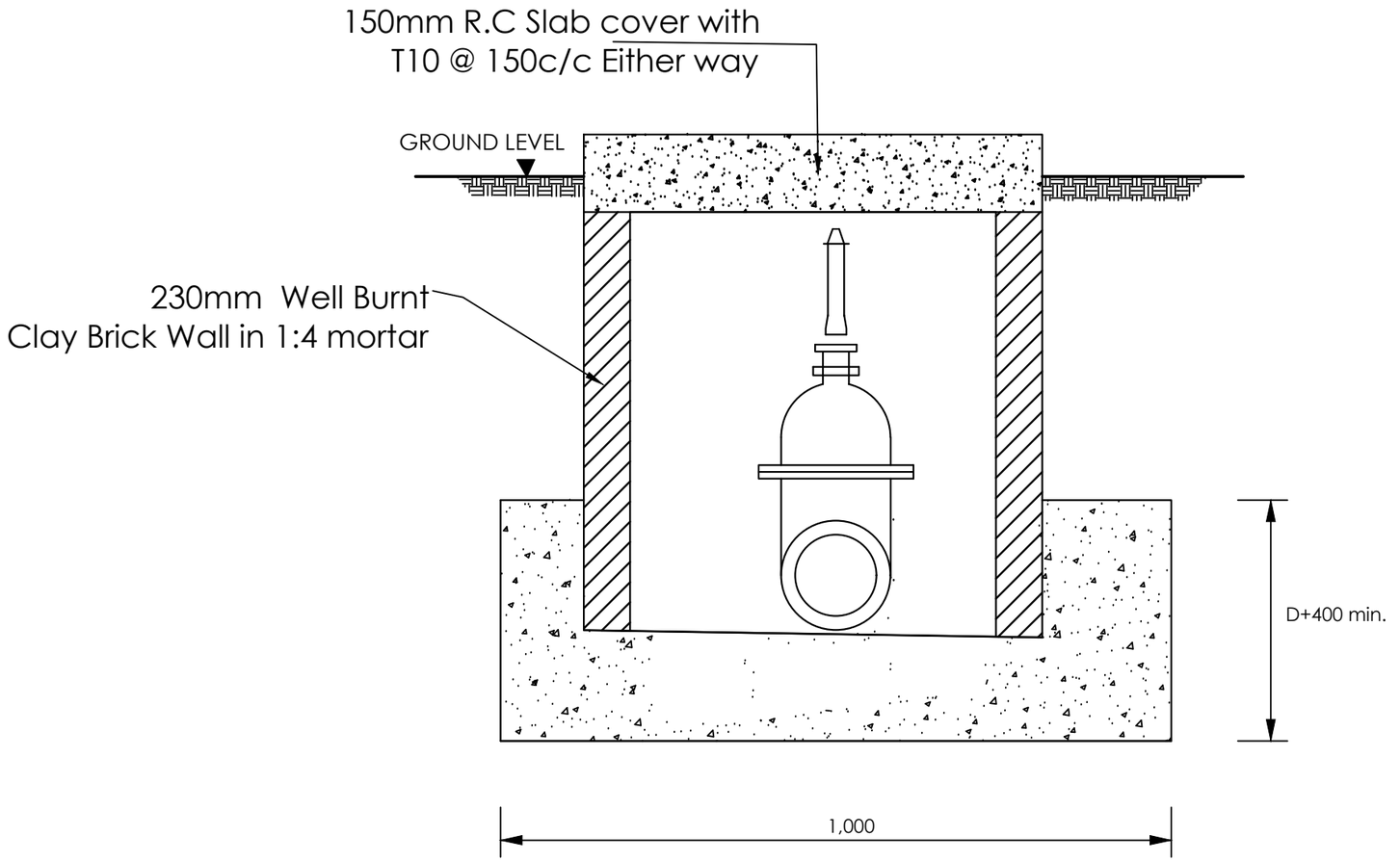
CHAIN LINK FENCING POST



SECTION A-A

THE REPUBLIC OF UGANDA Kamuli District Local Government Department of Works District Water Office	Designed By: Kamuli District Water Office	PROJECT **Kasozi-Bugobi Mini Solar Piped Water System** DRAWING TITLE **CHAIN-LINK FENCE POST**	SCALE: As Shown SURVEYED: DESIGNED: E.K DRAWN: E.K CHECKED: T.K APPROVED: T.K	DATE: May 2019 DRG. No.: KDLG/SD/004b





SECTION A-A

THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

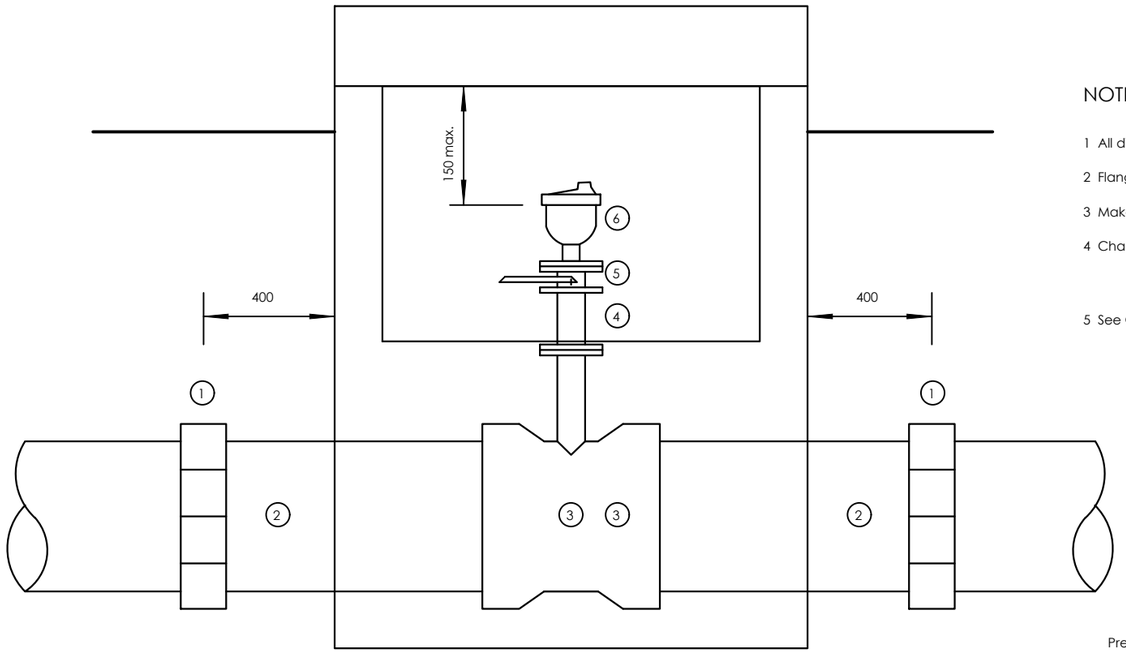
Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

GATE VALVE DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE:	May 2019
DRG. No.:	KDLG/SD/005



NOTES

1 All dimensions are in millimetres

2 Flanged pipework to be ductile iron

3 Make up pipes to be ductile iron

4 Chamber to be 1200x900 internal dimensions

For details see standard drawing SD 112D

5 See General Notes

SCHEDULE

ITEM DESCRIPTION

1 Flexible adaptor if required

2 Make-up pipe

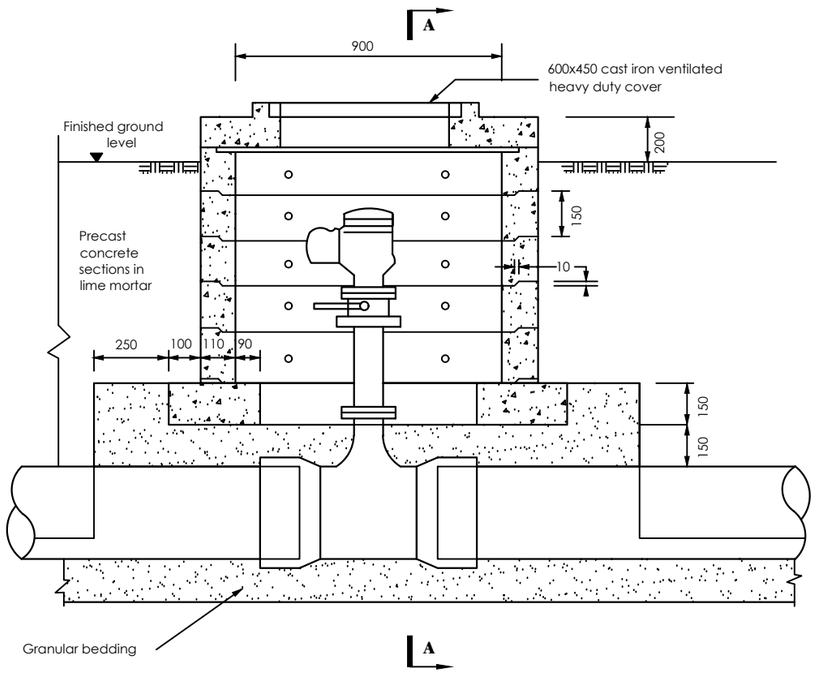
3 Socket tee flanged branch 80/50 dia as required

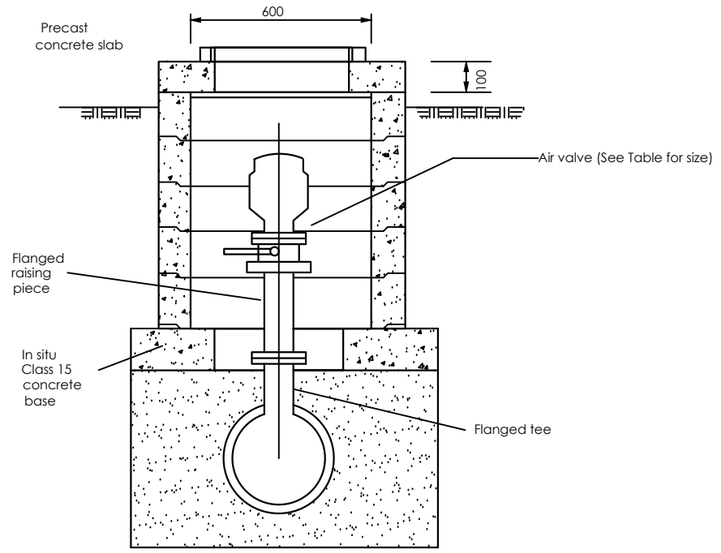
4 Flanged pipe 80/50 dia as required

5 Isolating valve } { main 100-300dia valve 50 dia

6 Air valve } { main 350-600dia valve 80dia

Main dia.	Air valve inlet dia.
100-300	50
350-500	80





THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

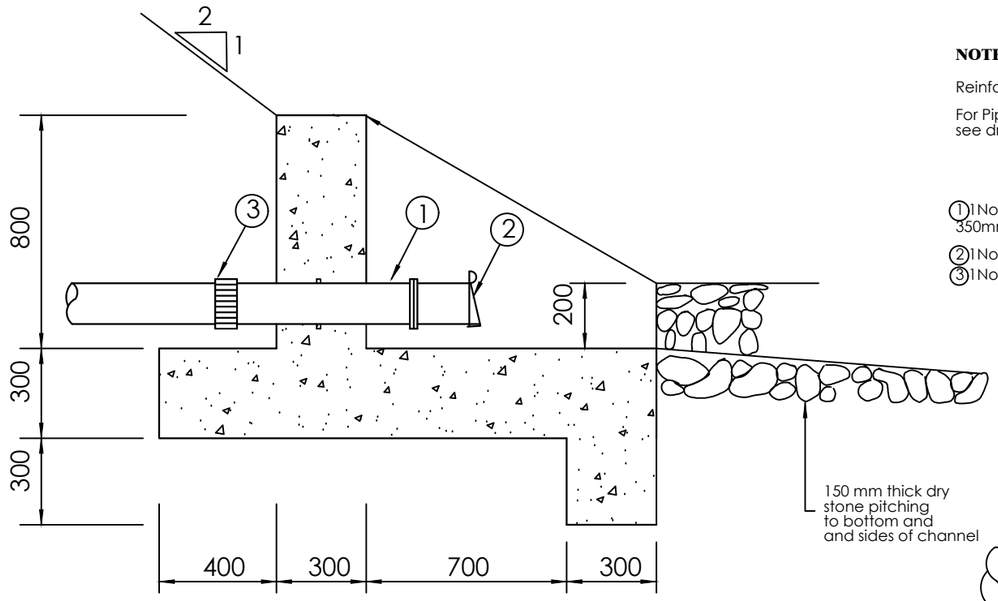
DRAWING TITLE

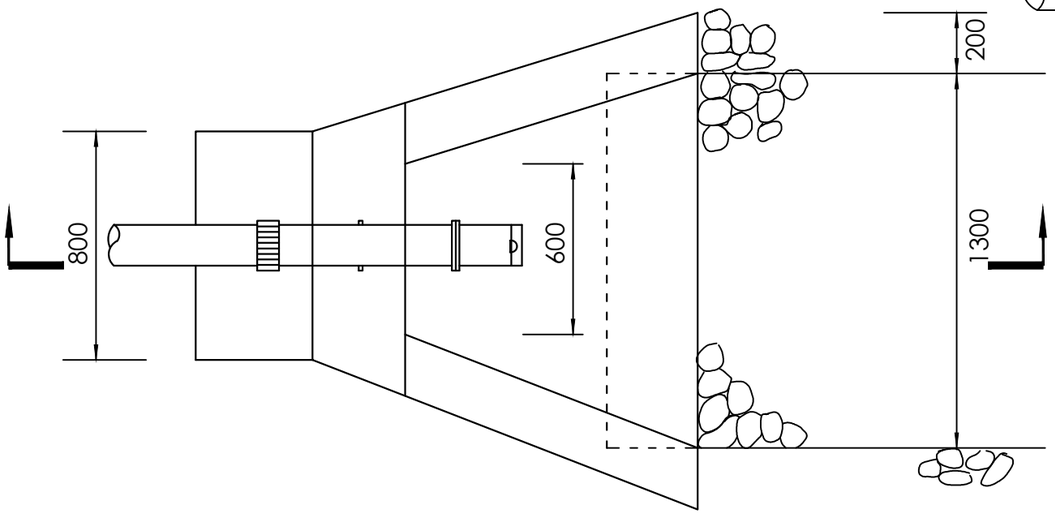
AIR VALVE DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: KDLG/SD/006





NOTES

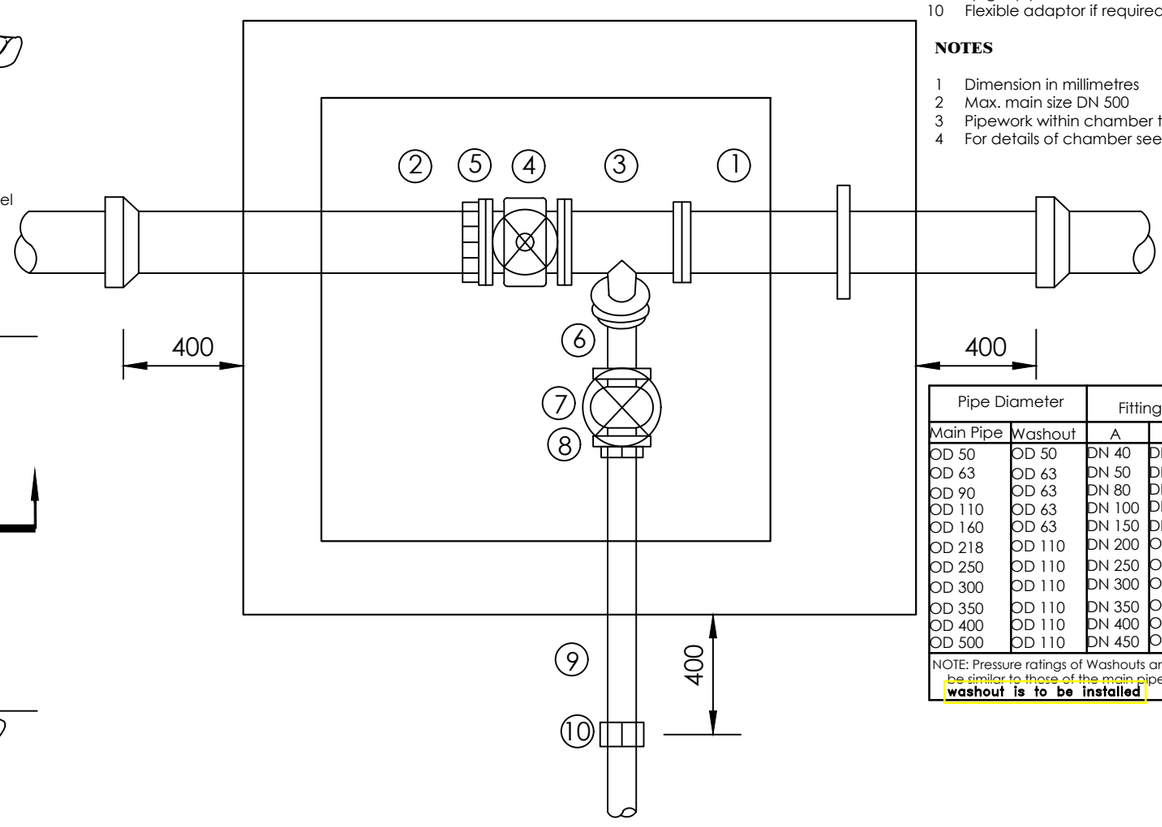
Reinforcement to be one layer A252 mesh throughout

For Pipe fittings diameter and pressure ratings, see drawing No. SD 114

① 1No. Flanged socket piece with paddle flange 350mm from flange, length not exceeding 750mm

② 1No. Flange flap valve

③ 1No. Viking Johnson flexible coupling



SCHEDULE

ITEM	DESCRIPTION
1	Flanged spigot pipe 1200 long with thrust flange
2	Make-up pipe
3	All flanged tee, branch DN A/B
4	Flanged in-line gate valve DN A
5	Flange adaptor DN A
6	Flanged 45o bend to DN
7	Flanged gate valve DN B
8	Flanged adaptor DN B
9	Spigot pipe to DN
10	Flexible adaptor if required DNB

NOTES

1. Dimension in millimetres
2. Max. main size DN 500
3. Pipework within chamber to be ductile iron
4. For details of chamber see standard detail drawing SD135

Pipe Diameter		Fittings Diameter	
Main Pipe	Washout	A	B
OD 50	OD 50	DN 40	DN 40
OD 63	OD 63	DN 50	DN 50
OD 90	OD 63	DN 80	DN 50
OD 110	OD 63	DN 100	DN 50
OD 160	OD 63	DN 150	DN 50
OD 218	OD 110	DN 200	OD 100
OD 250	OD 110	DN 250	OD 100
OD 300	OD 110	DN 300	OD 100
OD 350	OD 110	DN 350	OD 100
OD 400	OD 110	DN 400	OD 100
OD 500	OD 110	DN 450	OD 100

NOTE: Pressure ratings of Washouts and Fittings shall be similar to those of the main pipe on which the washout is to be installed

THE REPUBLIC OF UGANDA

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Kamuli District Water Office

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Kasozi-Bugobi Mini Solar Piped Water System

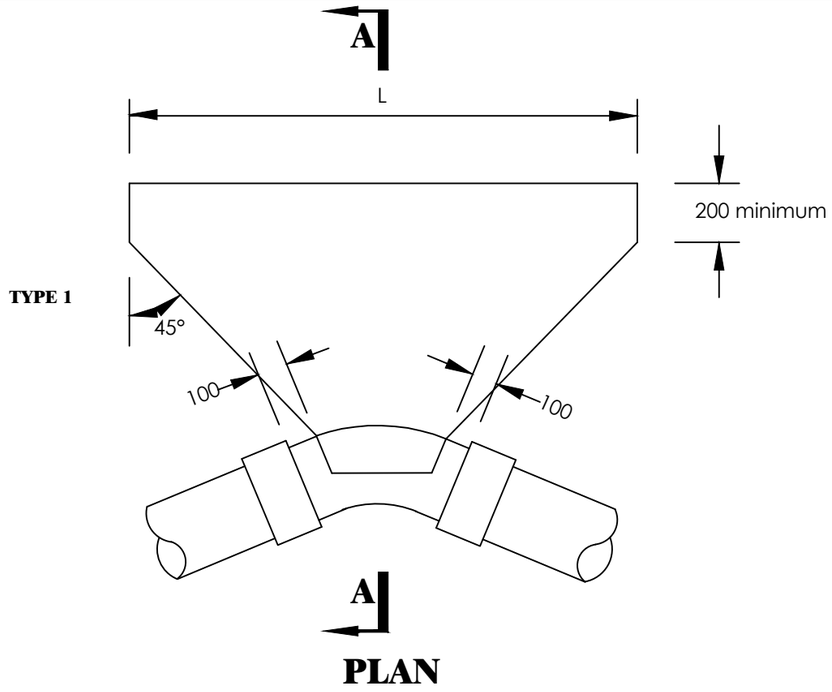
DRAWING TITLE

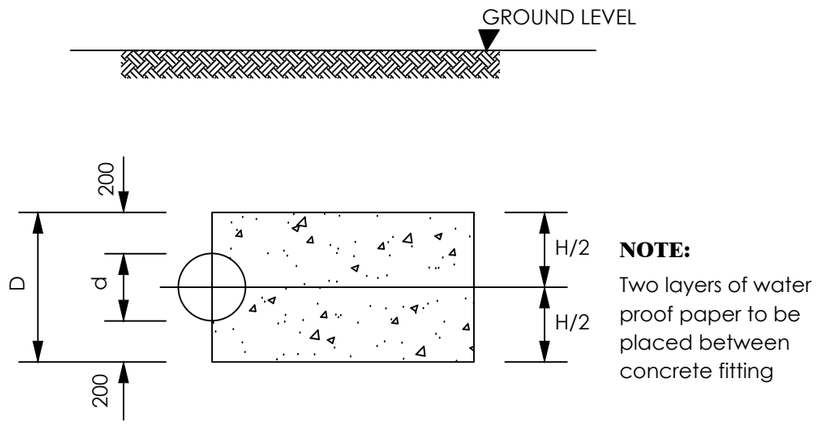
WASHOUT PIPE & CHAMBER DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: KDLG/SD/007





SECTION A-A

NOTE:
Two layers of water proof paper to be placed between concrete fitting

GROUND CONDITION			DRY			
TEST PRESSURE (Bar)			15			
BEND ANGLE			11¼°	22½°	45°	90°
PIPE DIAMETER (mm)	80	H	480	460	480	460
		L	200	300	350	700
	80 < d < 150	H	550	550	550	550
		L	300	750	900	1700
	150 < d < 300	H	700	700	700	
		L	650	1250	2500	
	300 < d < 400	H	800	800		
		L	900	1800		
	450	H	900	900		
		L	2500	5000		
	500		SEE SD 118A			

THE REPUBLIC OF UGANDA

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Kamuli District Water Office

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Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

ANCHOR BLOCKS DETAILS

SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

DRG. No.: KDLG/SD/008

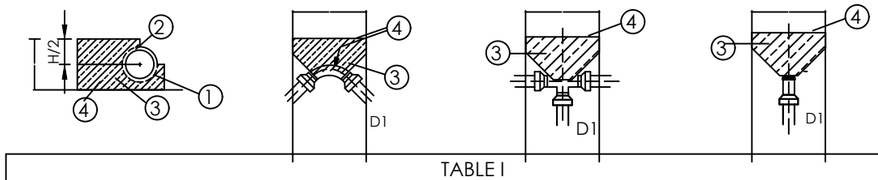
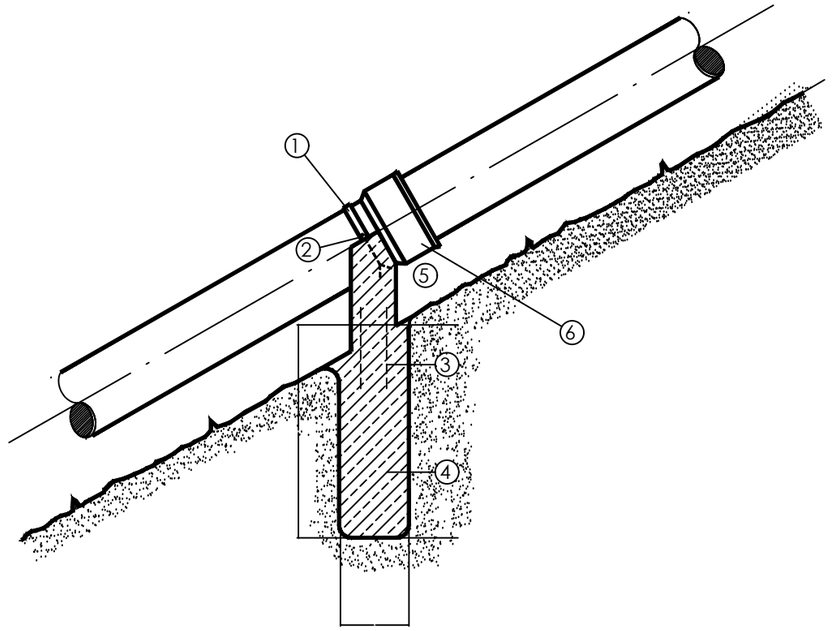


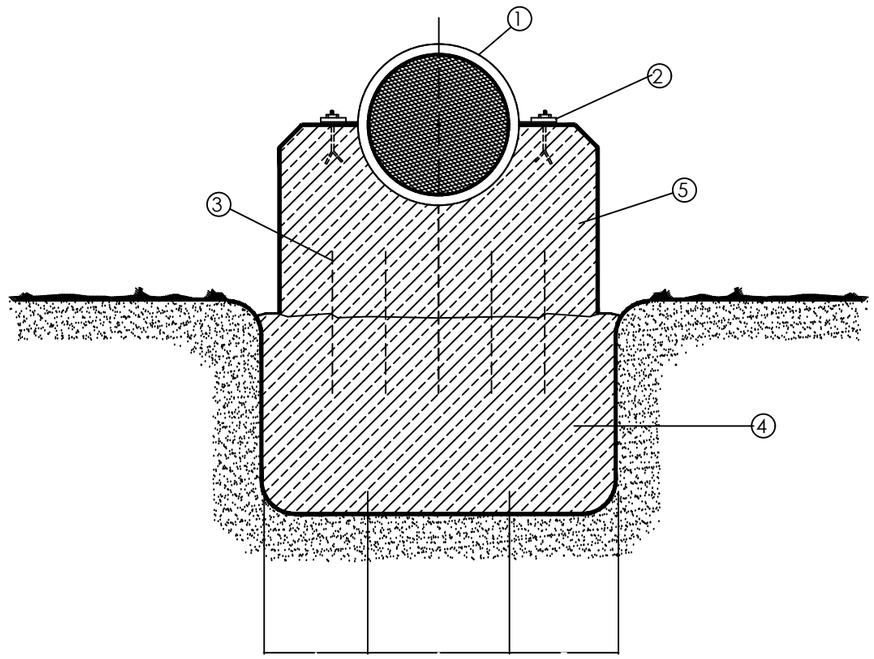
TABLE I

	C	B	A1	A2	A3	A4	A5	A6
D1	F F D1 D1	F D1	D1 90°	D1 60°	D1 45°	D1 30°	D1 22°	D1 11°
mm	mm 2	mm 2	mm 2	mm 2	mm 2	mm 2	mm 2	mm 2
65	0.05	0.05	0.07	0.05	0.04	0.03	0.02	0.01
80	0.08	0.08	0.11	0.08	0.06	0.04	0.03	0.02
1.00	0.11	0.11	0.16	0.11	0.08	0.06	0.04	0.02
1.50	0.25	0.25	0.35	0.25	0.19	0.13	0.10	0.05
2.00	0.40	0.40	0.56	0.40	0.31	0.21	0.16	0.08
2.50	0.66	0.66	0.93	0.66	0.51	0.34	0.25	0.13
3.00	0.94	0.94	1.33	0.94	0.72	0.49	0.37	0.19
4.00	1.66	1.66	2.34	1.66	1.29	0.36	0.65	0.33
5.00	2.50	2.50	3.53	2.5	1.93	1.30	0.98	0.50
6.00	3.61	3.61	5.09	3.51	2.78	1.88	1.41	0.72
7.00	4.90	4.90	5.91	4.9	3.77	2.55	1.91	0.98
8.00	6.39	6.39	9.01	6.39	4.92	3.32	2.49	1.29
9.00	8.10	8.10	11.42	8.10	6.24	4.21	3.16	1.62

TABLE II

P2(bar) \ P1(bar)	10	15	20	25	30
2.0	0.5	0.75	10	1.25	1.5
1.5	0.67	1.0	1.33	1.57	2.0
1.0	1.0	1.5	2.0	2.5	3.0
0.5	2.0	3.0	4.0	5.0	6.0





THE REPUBLIC OF UGANDA

Kamuli District Local Government

Department of Works

District Water Office

Designed By:

Kamuli District Water Office

PROJECT

Kasozi-Bugobi Mini Solar Piped Water System

DRAWING TITLE

TRUST BLOCKS DETAILS

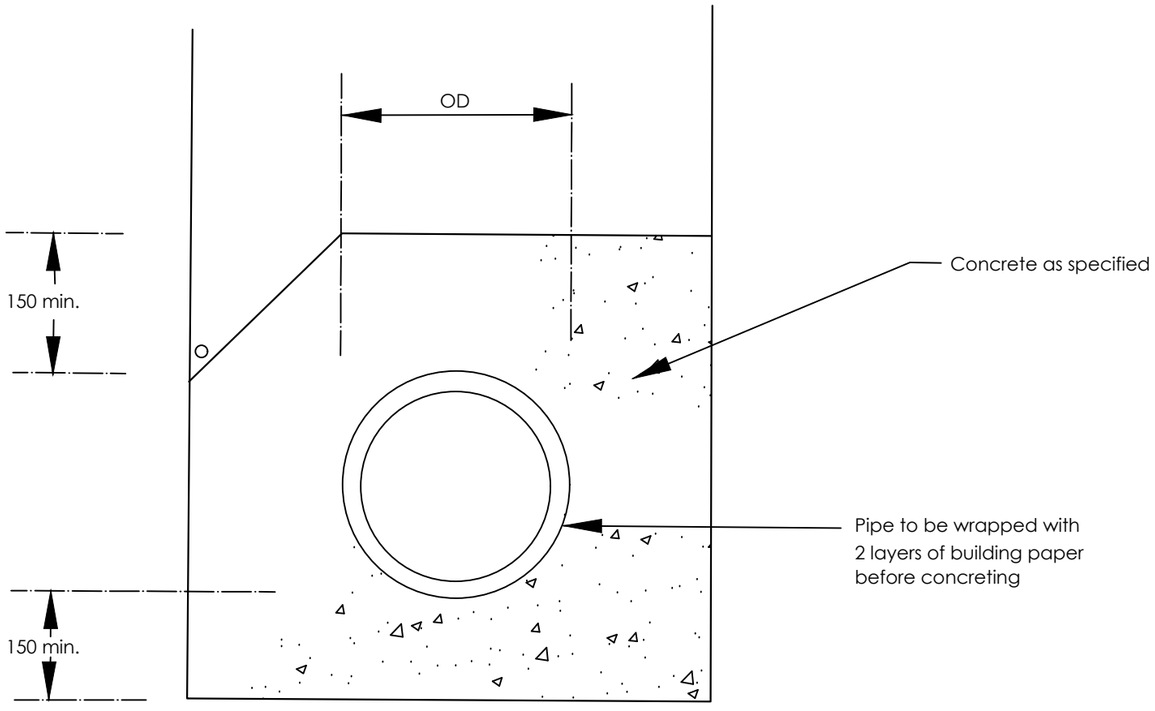
SCALE:	As Shown
SURVEYED:	
DESIGNED:	E.K
DRAWN:	E.K
CHECKED:	T.K
APPROVED:	T.K

DATE: May 2019

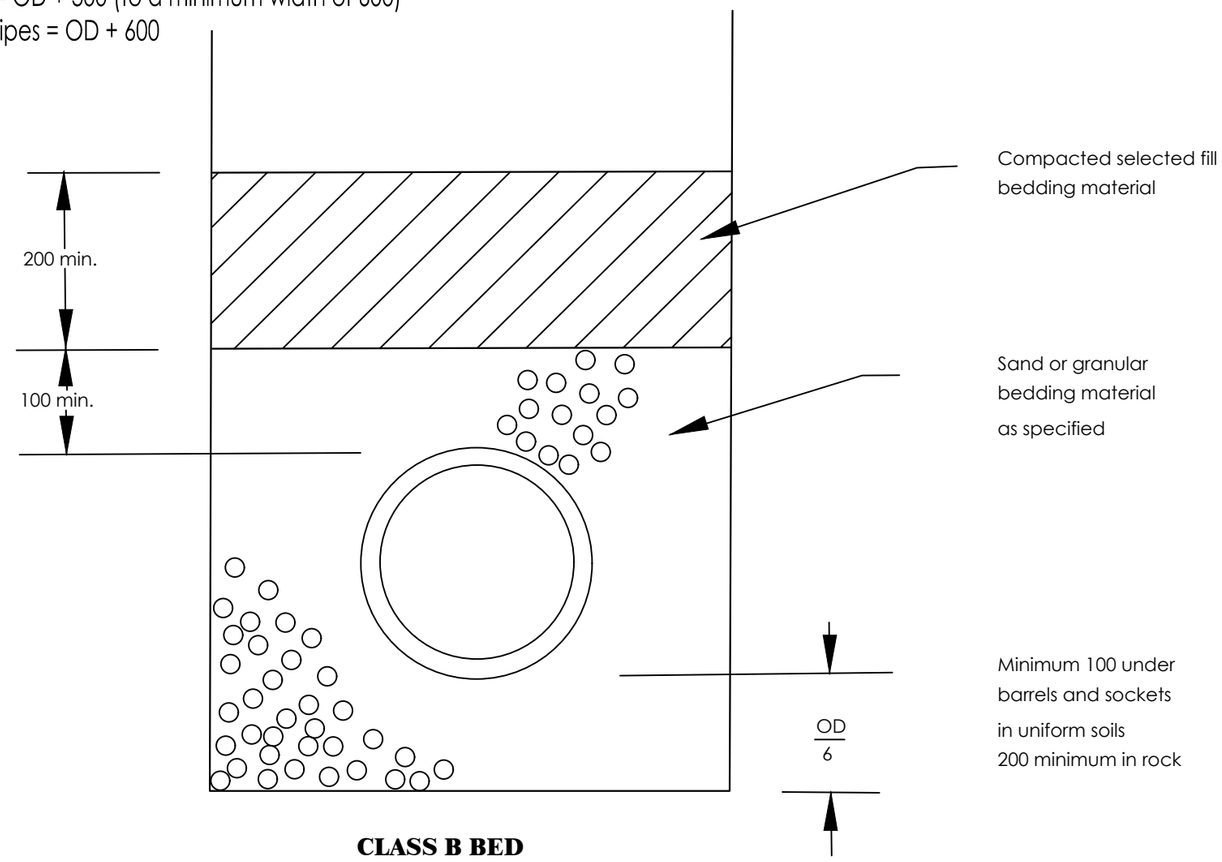
DRG. No.: KDLG/SD/009

Notes

1. OD = Outside diameter pipe
2. o Indicates cable position where cable is to be laid in pipe trench
3. Minimum trench width for uPVC pipes -= OD + 300 (to a minimum width of 600)
4. Minimum trench width for Ductile Iron pipes = OD + 600



CONCRETE SURROUND



CLASS B BED

	THE REPUBLIC OF UGANDA Kamuli District Local Government Department of Works District Water Office	Designed By: Kamuli District Water Office	PROJECT **Kasozi-Bugobi Mini Solar Piped Water System** DRAWING TITLE **PIPE BEDDING DETAILS**	SCALE: As Shown SURVEYED: DESIGNED: E.K DRAWN: E.K CHECKED: T.K APPROVED: T.K	DATE: May 2019 DRG. No.: KDLG/SD/010