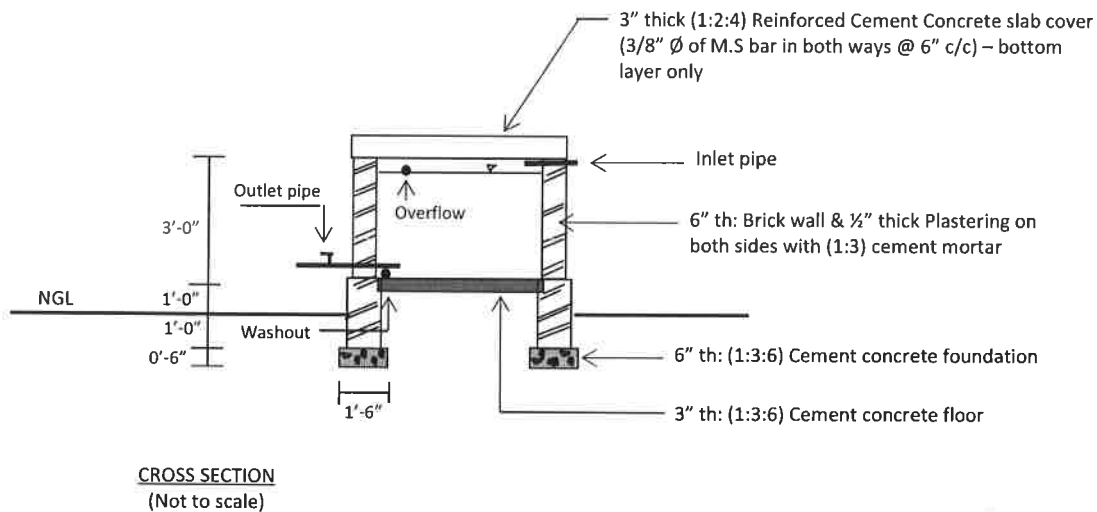
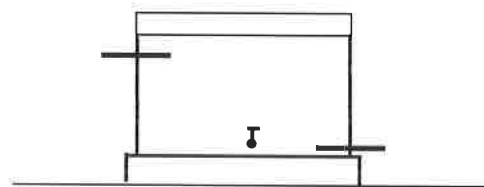
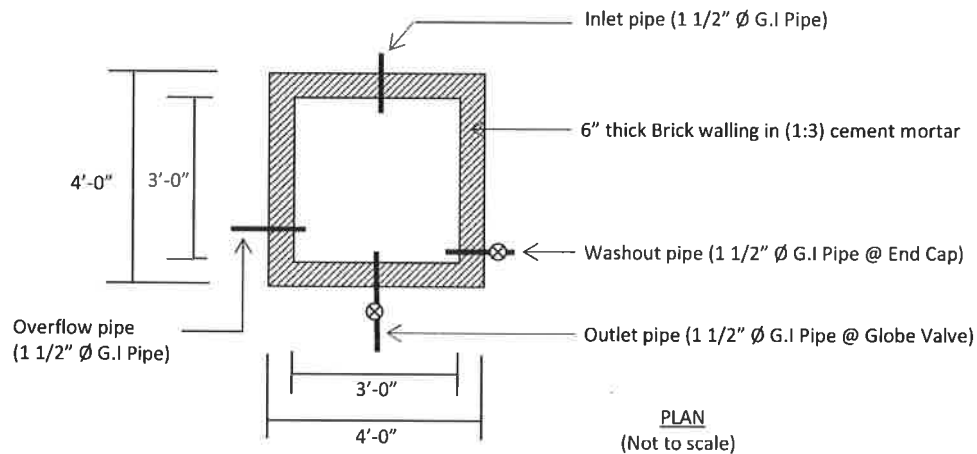


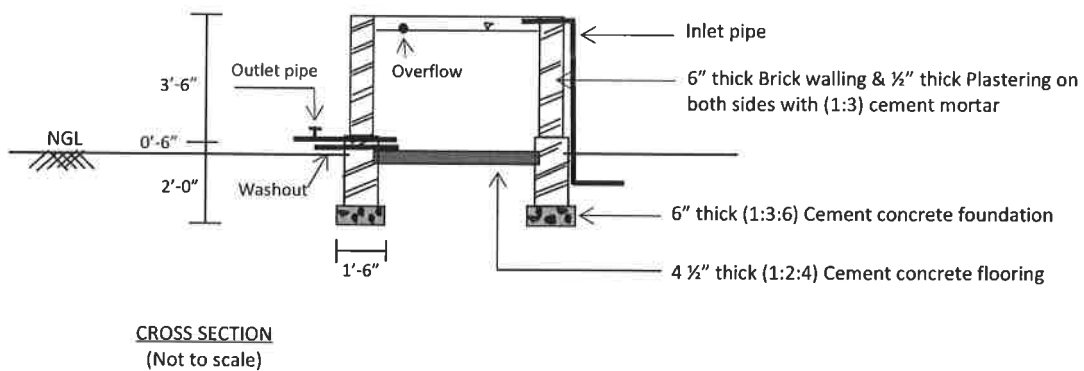
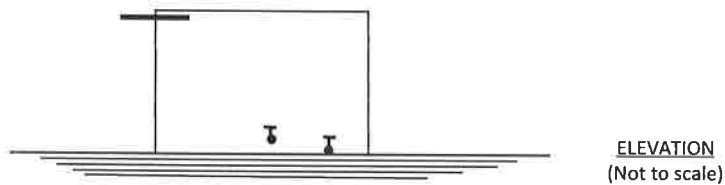
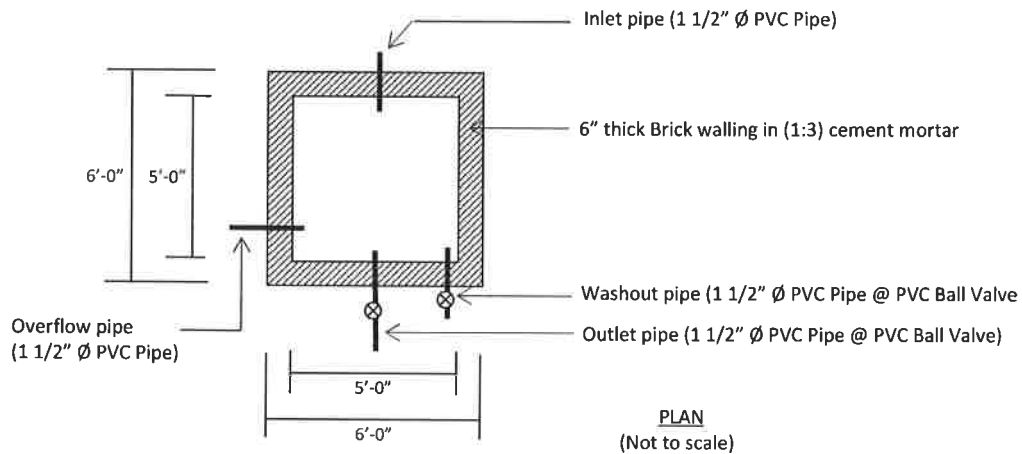
Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

Typical Design of Intake Tank/Break Pressure Tank
(3'-0" x 3'-0" x 3'-0")



Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

Water Tank Construction



Kyein lchan - Loilen

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production
PIPELINE DESIGN TABLE

Village: Kyein Khan		Village Tract : Hwe Taut				Township: Loilen							
Reach	Flow	Pipe Length	Total Pipe Length	Pipe Size (I.D)	Frictional Factor	Head Loss	HGL@ Station I	Elevation @ Station II	HGL@ Station II	Residual Head @ Station II	Pipe Quality	Remark	
Sta: I	Sta: II	(LPS)	(M)	(M)	(mm)	(100M)	(M)	(M)	(M)	(M)			
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	BPT	0.300	500	500	25	1.63	8.15	1438.00	1275.00	1429.85	154.85	PVC 8.5 bar	Water Source/Intake
BPT	2	0.300	594	1094	25	1.63	9.68	1275.00	1199.00	1265.32	66.32	PVC 8.5 bar	PH Module Site
2	3												

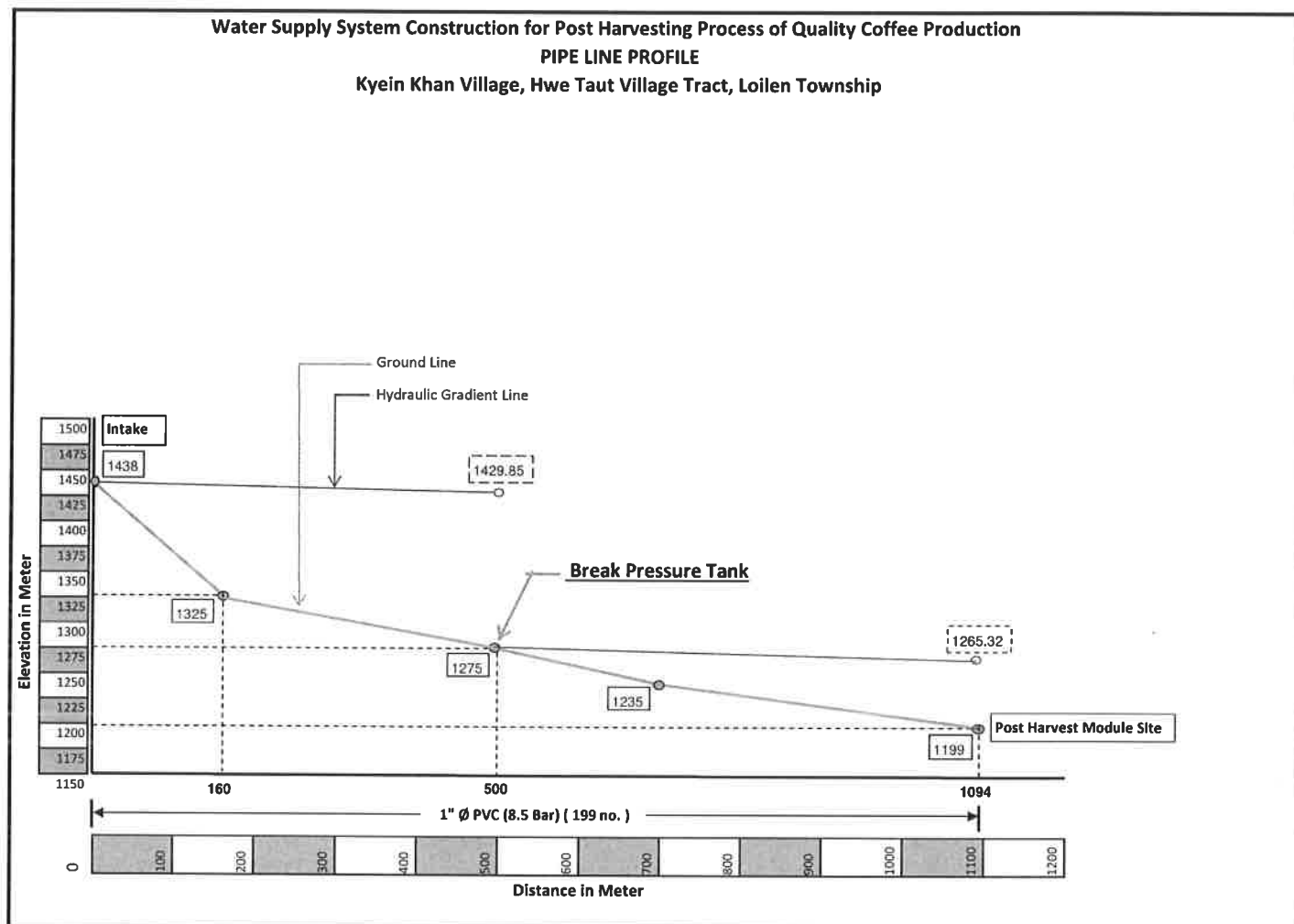
SUMMARY OF PIPE REQUIREMENT

		Main Line	Dist: Line	Total			
Pipe size (mm)	Pipe size (inch); Inside Ø	Pipe length (meter)	Pipe length (meter)	Pipe length (meter)	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2" Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0
25	1" Ø PVC (8.5)	1094	0	1094	3588	3768	198.3
	1" Ø PVC (13.5)	0	0	0	0	0	0
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
	Total length	1094	0	1094	3588	3768	198.3

Say ~ 199

Say ~ 199

Annex- 4 Drawing Lot-3
Kyein Khan - Loilen



Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Lae Laung

Village Tract : Hwe Taut

Township: Loilen

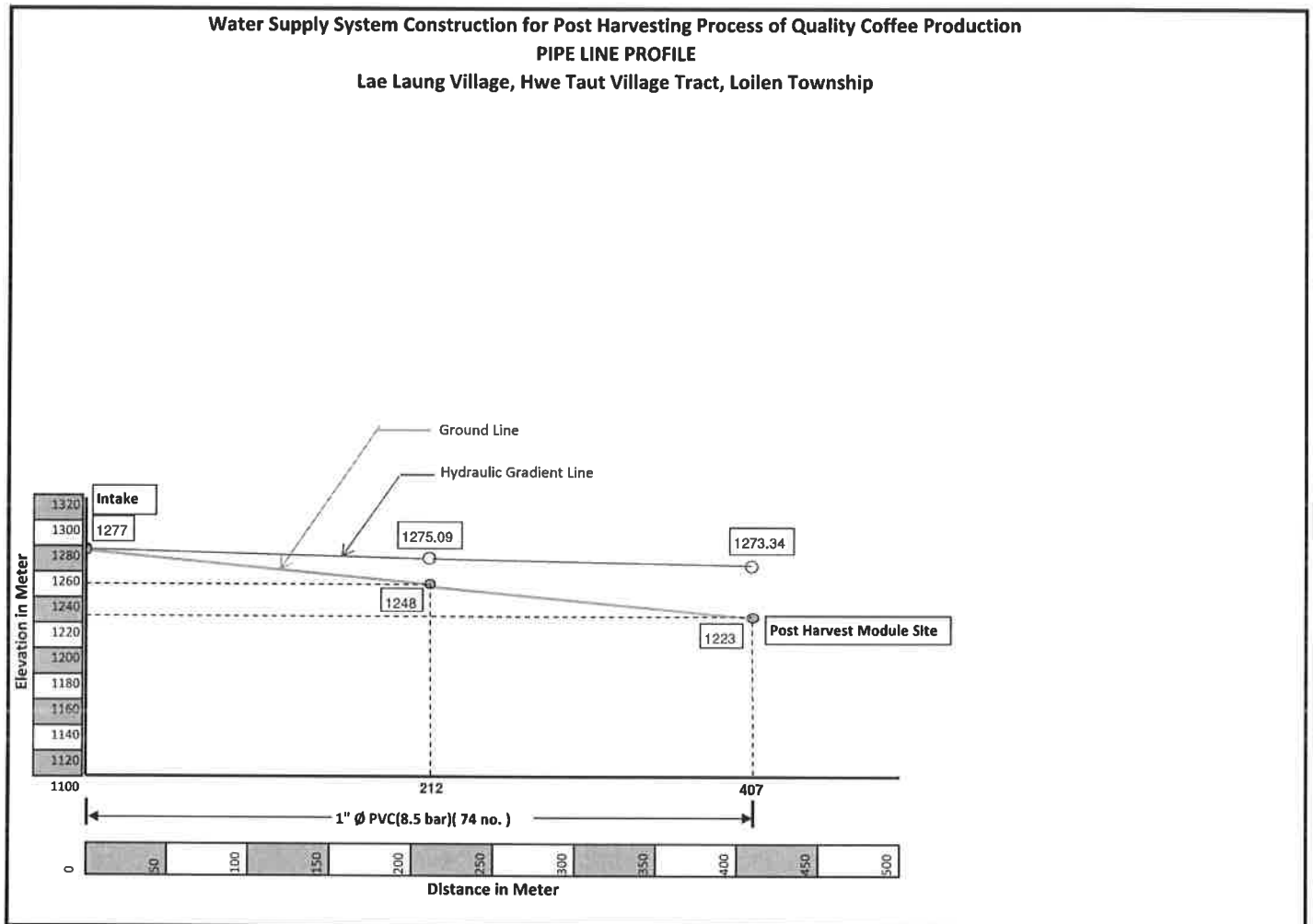
Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.225	212	212	25	0.90	1.91	1277.00	1248.00	1275.09	27.09	PVC 8.5 bar	Water Source/Intake
2	3	0.225	195	407	25	0.90	1.76	1275.09	1223.00	1273.34	50.34	PVC 8.5 bar	PH Module Site
3	4												

SUMMARY OF PIPE REQUIREMENT

		Main Line	Dist: Line	Total			
Pipe size (mm)	Pipe size (inch); Inside Ø	Pipe length (meter)	Pipe length (meter)	Pipe length (meter)	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2" Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0
25	1" Ø PVC (8.5)	407	0	407	1335	1402	73.8
	1" Ø PVC (13.5)	0	0	0	0	0	0
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
	Total length	407	0	407	1335	1402	73.8

Say ~ 74

Say ~ 74

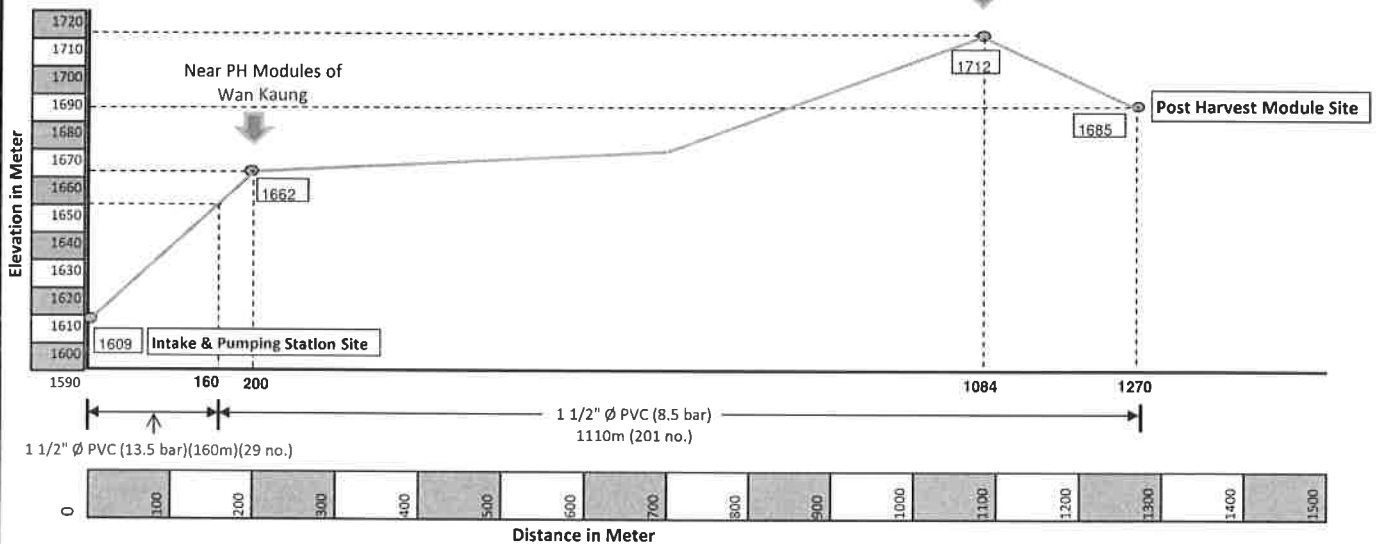


Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPE LINE PROFILE

Pan Lem Village, Nan Hta Mo Village Tract, Loilen Township

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total		Added 5% to length (ft)	No. of PVC pipe (19'/ No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)	Pipe length (feet)			
40	1 1/2" Ø PVC (8.5)	1110	0	1110	3641	3823	201.2	Say ~ 201
	1 1/2" Ø PVC (13.5)	160	0	160	525	551	29.0	Say ~ 29
25	1" Ø PVC (8.5)	0	350	350	1148	1205	63.4	Say ~ 63
Total		1270	350	1620	5314	5579	293.6	Say ~ 293

Highest point before PH
Modules at Pan Lem

Annex- 4 Drawing Lot - 3

Lone Tway - Loilen

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Lone Tway

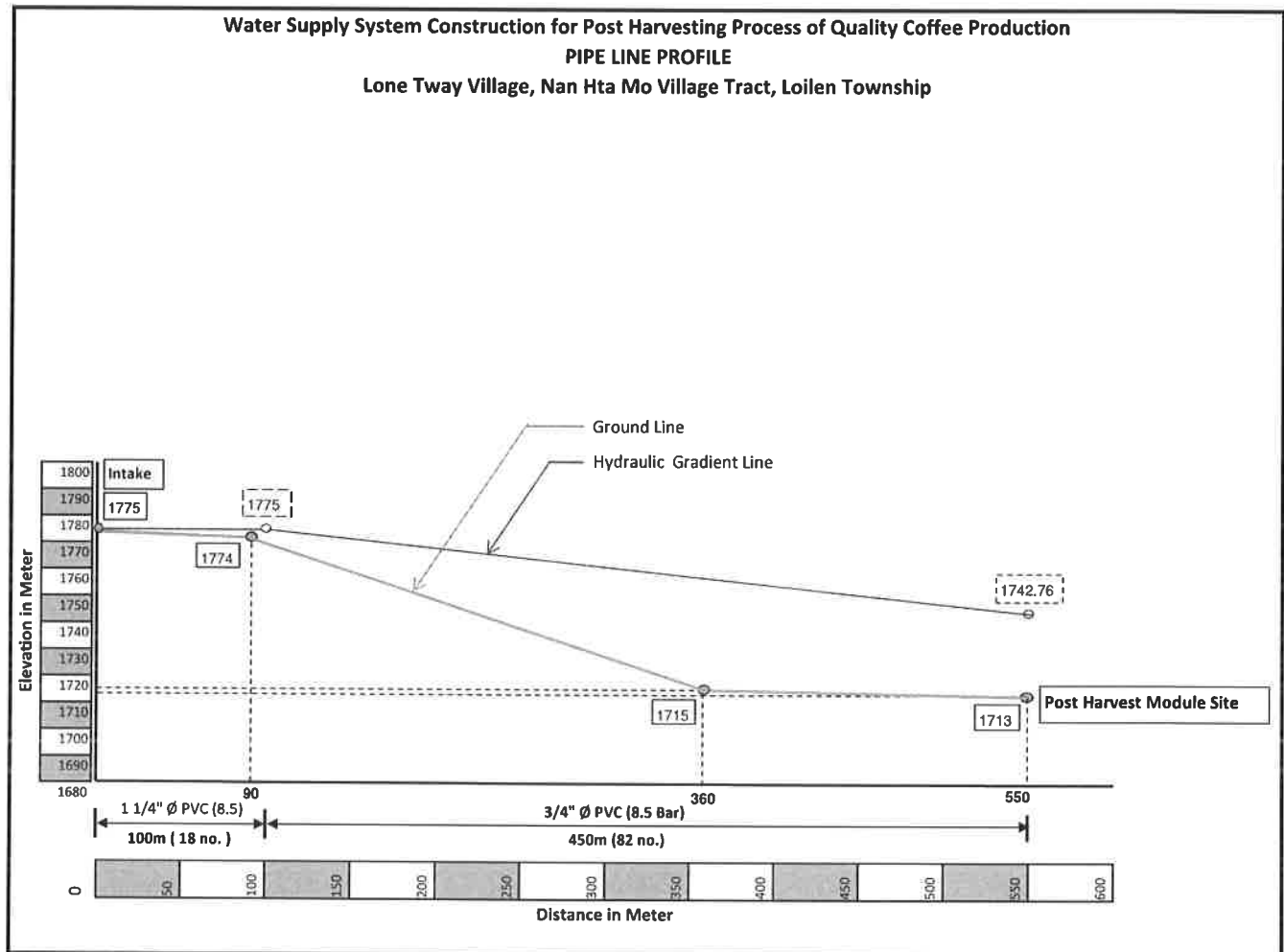
Village Tract : Nan Hta Mo

Township: Loilen

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.225	100	100	32	0.00	0.00	1775.00	1774.00	1775.00	1.00	PVC 8.5 bar	Water Source/Intake
2	3	0.225	450	550	20	7.165	32.24	1775.00	1713.00	1742.76	29.76	PVC 8.5 bar	PH Module Site
3	4												

SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (Inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (feet)	Added 5% to length (ft)	No. of PVC pipe (19' / No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	Say ~ 18
	2" Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	100	0	100	328	344	18.1	
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0	
25	1" Ø PVC (8.5)	0	0	0	0	0	0.0	Say ~ 82
	1" Ø PVC (13.5)	0	0	0	0	0	0	
20	3/4" Ø PVC (8.5)	450	0	450	1476	1550	81.6	
	Total length	550	0	550	1804	1894	99.7	Say ~ 100



Annex - 4

Lot 3

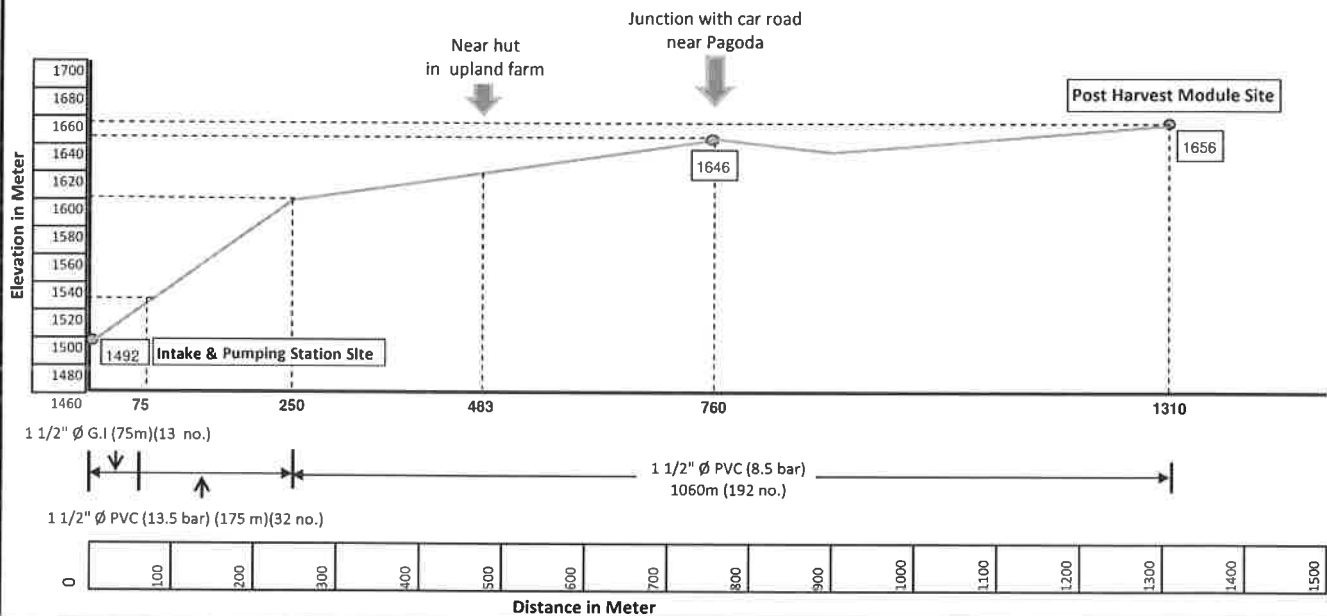
Long Awng - Loilen

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPE LINE PROFILE

Long Awng Village, Sin Chay Phone Village Tract, Loilen Township

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (feet)	Added 5% to length (ft)	No. of PVC pipe (19'/ No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
40	1 1/2" Ø PVC (8.5)	1060	0	1060	3477	3651	192.1	Say ~ 192
	1 1/2" Ø PVC (13.5)	175	0	175	574	603	31.7	Say ~ 32
40	1 1/2" Ø G.I	75	0	75	246	258	13.6	Say ~ 13
Total		1310	0	1310	4296.8	4511.6	237.5	Say ~ 237



Annex - 4

Lot 3

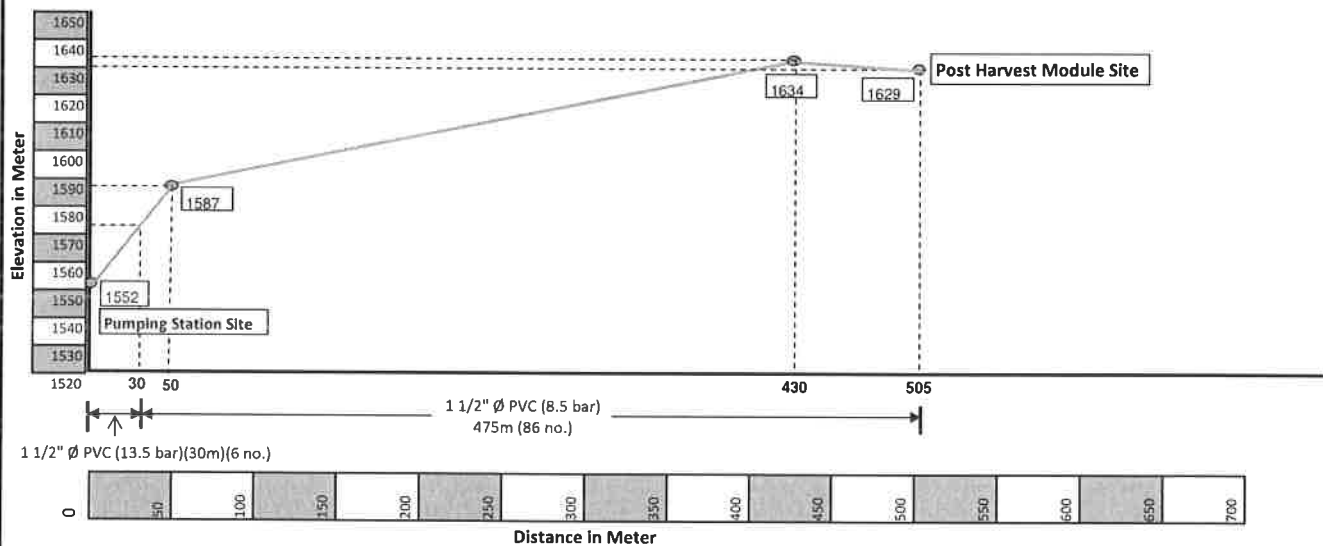
long khaw - Loilen

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPE LINE PROFILE

Long Khaw Village, Nan Hta Mo Village Tract, Loilen Township

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total		Added 5% to length (ft)	No. of PVC pipe (19'/No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)	Pipe length (feet)			
40	1 1/2" Ø PVC (8.5)	475	0	475	1558	1636	86.1	Say ~ 86
	1 1/2" Ø PVC (13.5)	30	0	30	98	103	5.4	Say ~ 6
Total		505	0	505	1656.4	1739.22	91.5	Say ~ 92



Annex-4

Lot - 3

Nin Hee - Loi Len

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Nin Hee

Village Tract : Hsa Nin

Township: Loi Len

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.225	1050	1050	32	0.00	0.00	1663.00	1644.00	1663.00	19.00	PVC 8.5 bar	Water Source/Intake
2	3	0.225	330	1380	25	0.90	2.97	1663.00	1648.00	1660.03	12.03	PVC 8.5 bar	PH Module Site
3	4												

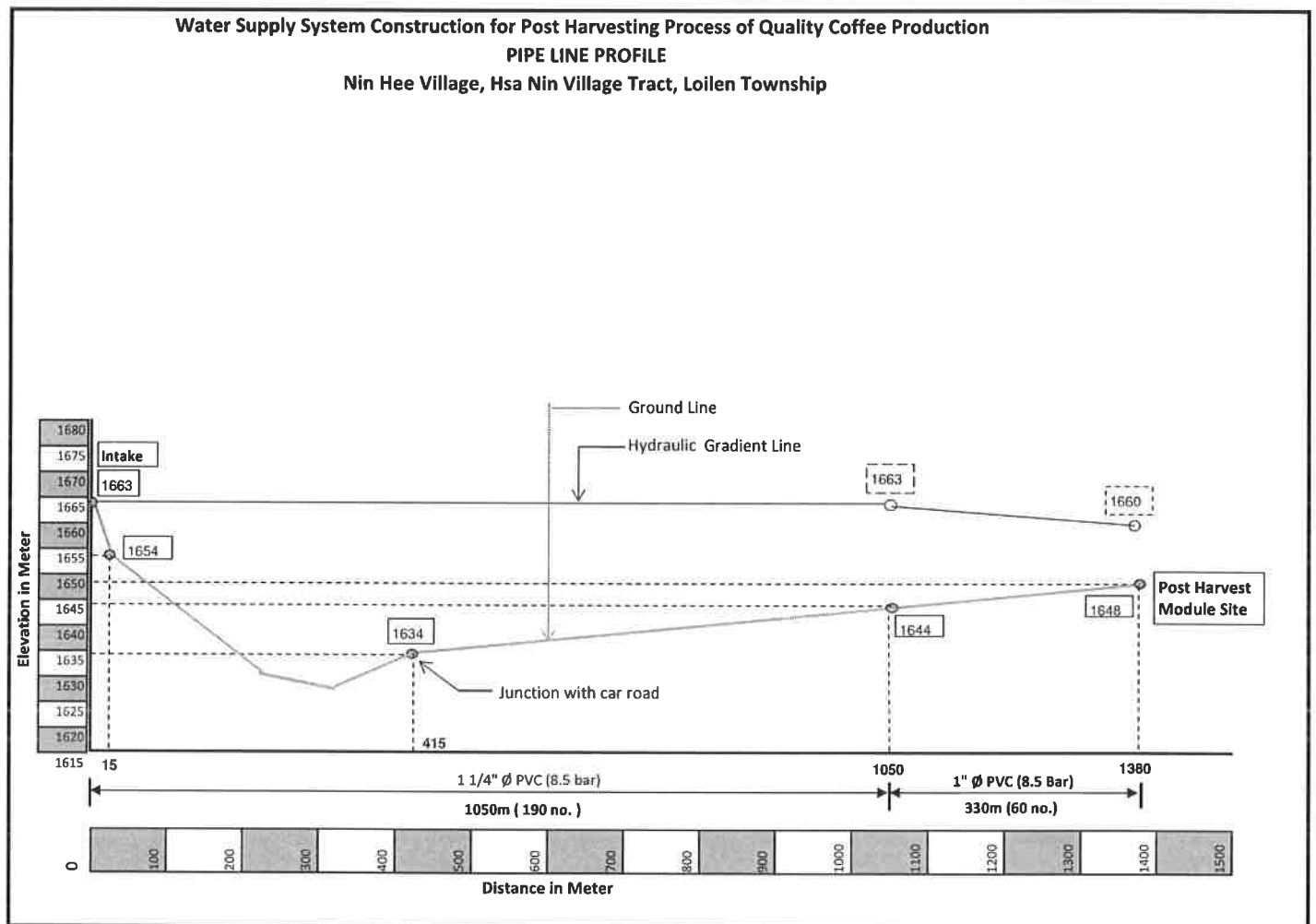
SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (Inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (feet)	Added 5% to length (ft)	No. of PVC pipe (19' / No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	
	2" Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	1050	0	1050	3444	3616	190.3	Say ~ 190
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0	
25	1" Ø PVC (8.5)	330	0	330	1082	1137	59.8	Say ~ 60
	1" Ø PVC (13.5)	0	0	0	0	0	0	
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0.0	
	Total length	1380	0	1380	4526	4753	250.1	Say ~ 250

Annex - 4

Lot - 3

Nin Hee - Loilen



Annex - 4 Lol - 3

Wan kaut lon - Loilen

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Wan Kaut Lon

Village Tract : Hsa Nin

Township: Loilen

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
Intake	PH Site	0.225	230	230	25	0.90	2.07	1596.00	1580.00	1593.93	13.93	PVC 8.5 bar	Intake

SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Lne	Dist: Lne	Total		Added 5% to length (ft)	No. of PVC pipe (19'/No.)
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)	Pipe length (feet)		
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2"Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2"Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/4"Ø PVC (13.5)	0	0	0	0	0	0
25	1" Ø PVC (8.5)	230	0	230	754	792	41.7
	1" Ø PVC (13.5)	0	0	0	0	0	0
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
	Total length	230	0	230	754	792	41.7

Say ~ 42

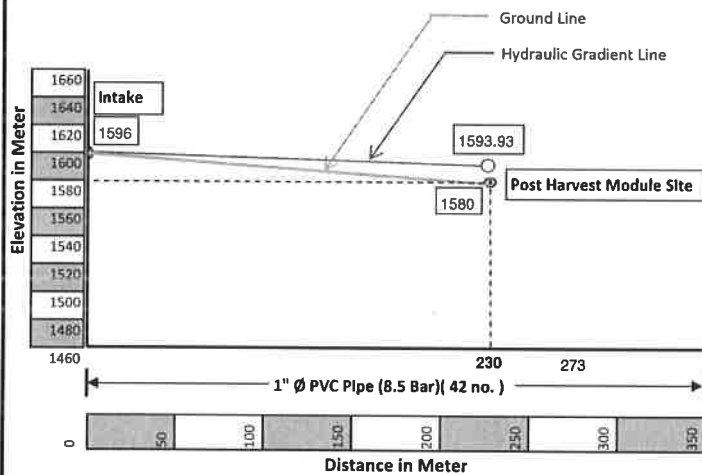
Say ~ 42

Annex - 4

Lot - 3

Wan Kaut Lon - Loilen

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production
PIPE LINE PROFILE
Wan Kaut Lon Village, Hsa Nin Village Tract, Loilen Township



Annex - 4 Drawing

Lot 3

Hsa Aun - Hopong

**Water Supply System Construction for Post Harvesting Process of Quality Coffee Production
PIPELINE DESIGN TABLE**

Village: Hsa Aun

Village Tract : Hsa Ngaw

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.300	800	800	32	0.43	3.44	1344.00	1323.00	1340.56	17.56	PVC 8.5 bar	Water Source/Intake
2	3	0.300	360	1160	25	1.63	5.87	1340.56	1314.00	1334.69	20.69	PVC 8.5 bar	Near Monastery entrance
3	4	0.300	128	1288	25	1.63	2.09	1334.69	1302.00	1332.61	30.61	PVC 8.5 bar	PH Module Site

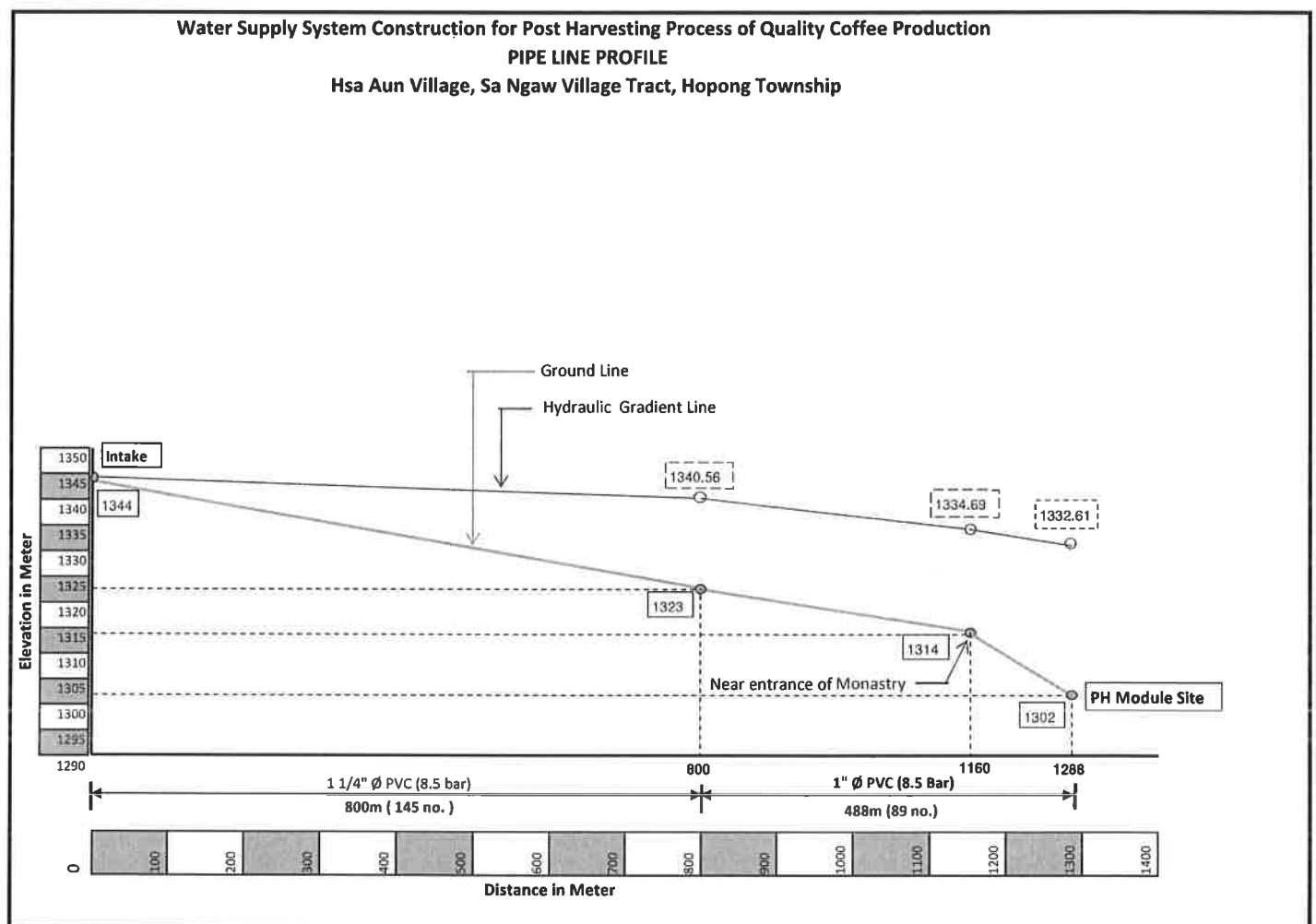
SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (Inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (feet)	Added 5% to length (ft)	No. of PVC pipe (19' / No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	
	2" Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	800	0	800	2624	2755	145.0	Say ~ 145
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0	
25	1" Ø PVC (8.5)	488	0	488	1601	1681	88.5	Say ~ 89
	1" Ø PVC (13.5)	0	0	0	0	0	0	
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0.0	
	Total length	1288	0	1288	4225	4436	233.5	Say ~ 234

Annex - 4 Drawing

Lot 3

Hsa Aun - Hopong



Annex - 4

lot 3

Pang Hlyan - Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production
PIPELINE DESIGN TABLE

Village: Pang Hlyan

Village Tract : Sa Ngaw

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	BPT	0.300	190	190	20	11.70	22.23	1720.00	1580.00	1697.77	117.77	PVC 8.5 bar	Intake site
BPT	2	0.300	410	600	25	1.63	6.68	1580.00	1515.00	1573.32	58.32	PVC 8.5 bar	
2	3	0.300	672	1272	25	1.63	10.95	1573.32	1515.00	1562.36	47.36	PVC 13.5 bar	PH Module Site

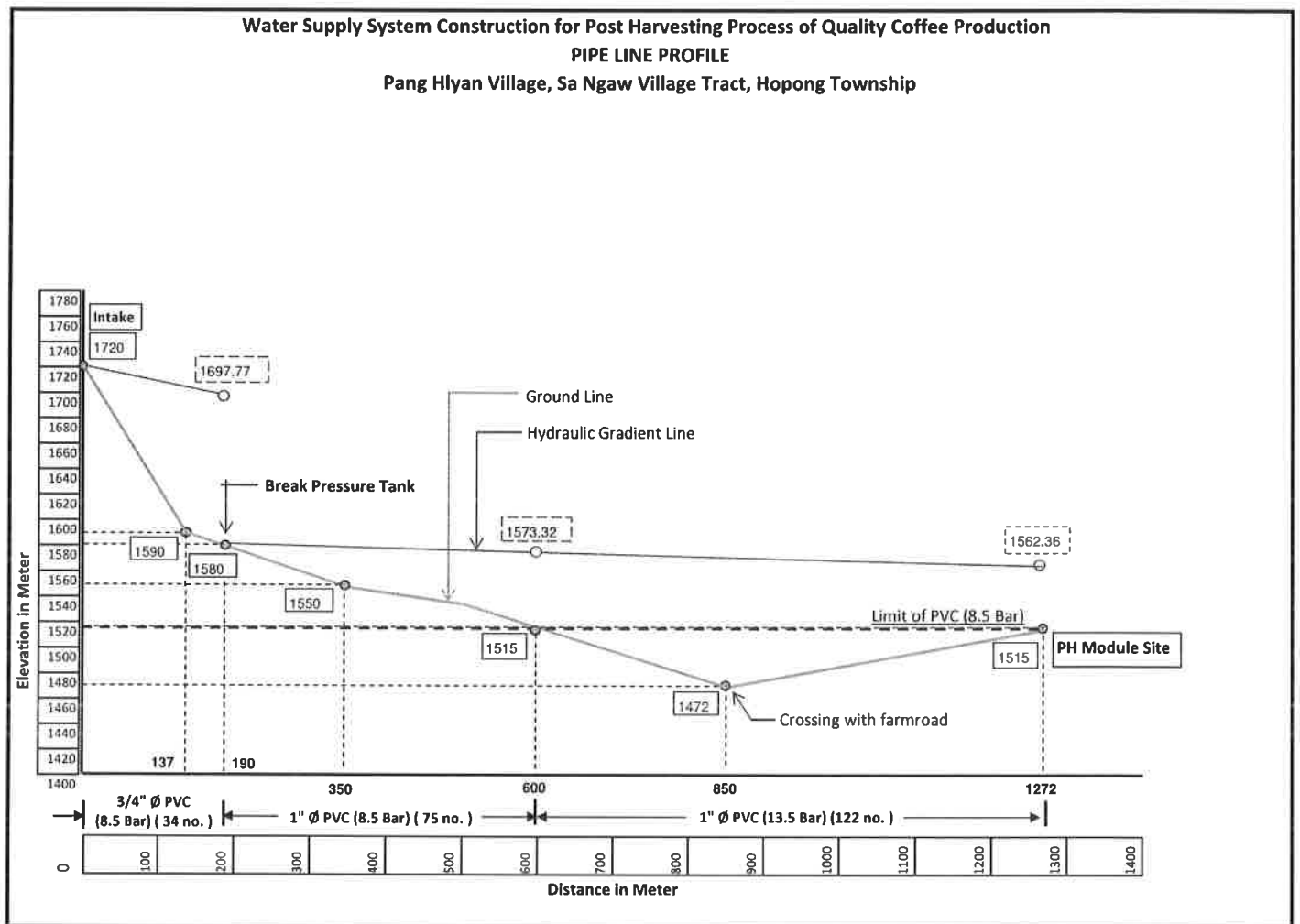
SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	
	2"Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2"Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/4"Ø PVC (13.5)	0	0	0	0	0	0	
25	1" Ø PVC (8.5)	410	0	410	1345	1412	74.32	Say ~ 75
	1" Ø PVC (13.5)	672	0	672	2204	2314	121.81	Say ~ 122
20	3/4" Ø PVC (8.5)	190	0	190	623	654	34.44	Say ~ 34
	Total length	1272	0	1272	4172	4381	230.6	Say ~ 231

Annex - 4

Lot 3

Pan Hlyan Village - Hopong



Annex - 4

Lot - 3

Dong Kaung - Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Dong Kaung

Village Tract : Sa Ngaw

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-l		
1	BPT	0.450	475	475	25	3.12	14.82	1730.00	1685.00	1715.18	30.18	PVC 8.5 bar	Intake site to BPT
BPT	2	0.450	485	960	32	1.73	8.39	1685.00	1610.00	1676.61	66.61	PVC 8.5 bar	
2	3	0.450	1970	2930	32	1.73	34.08	1676.61	1625.00	1642.53	17.53	PVC 13.5 bar	PH Module Site

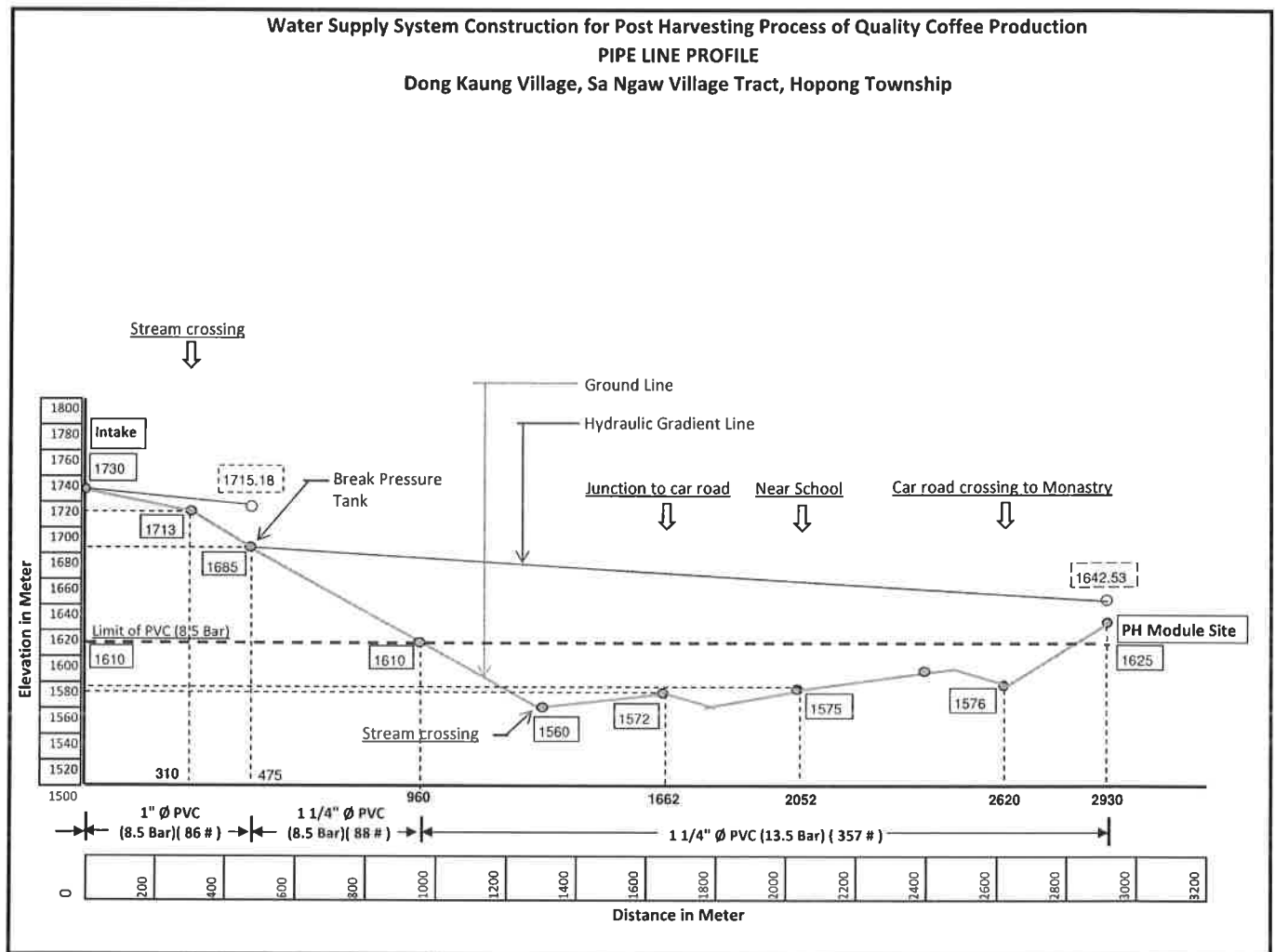
SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	
	2" Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	485	0	485	1591	1670	87.9	Say ~ 88
	1 1/4" Ø PVC (13.5)	1970	0	1970	6462	6785	357.1	Say ~ 357
25	1" Ø PVC (8.5)	475	0	475	1558	1636	86.10	Say ~ 86
	1" Ø PVC (13.5)		0	0	0	0	0.00	
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0	
Total length		2930	0	2930	9610	10091	531.1	Say ~ 531

Annex - 4

lot - 3

Dong Kaung - Hopong



Annex - 4

Lot - 3

Bank Sauk - Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Bant Sauk

Village Tract : Sam Hpu

Township: Hopong

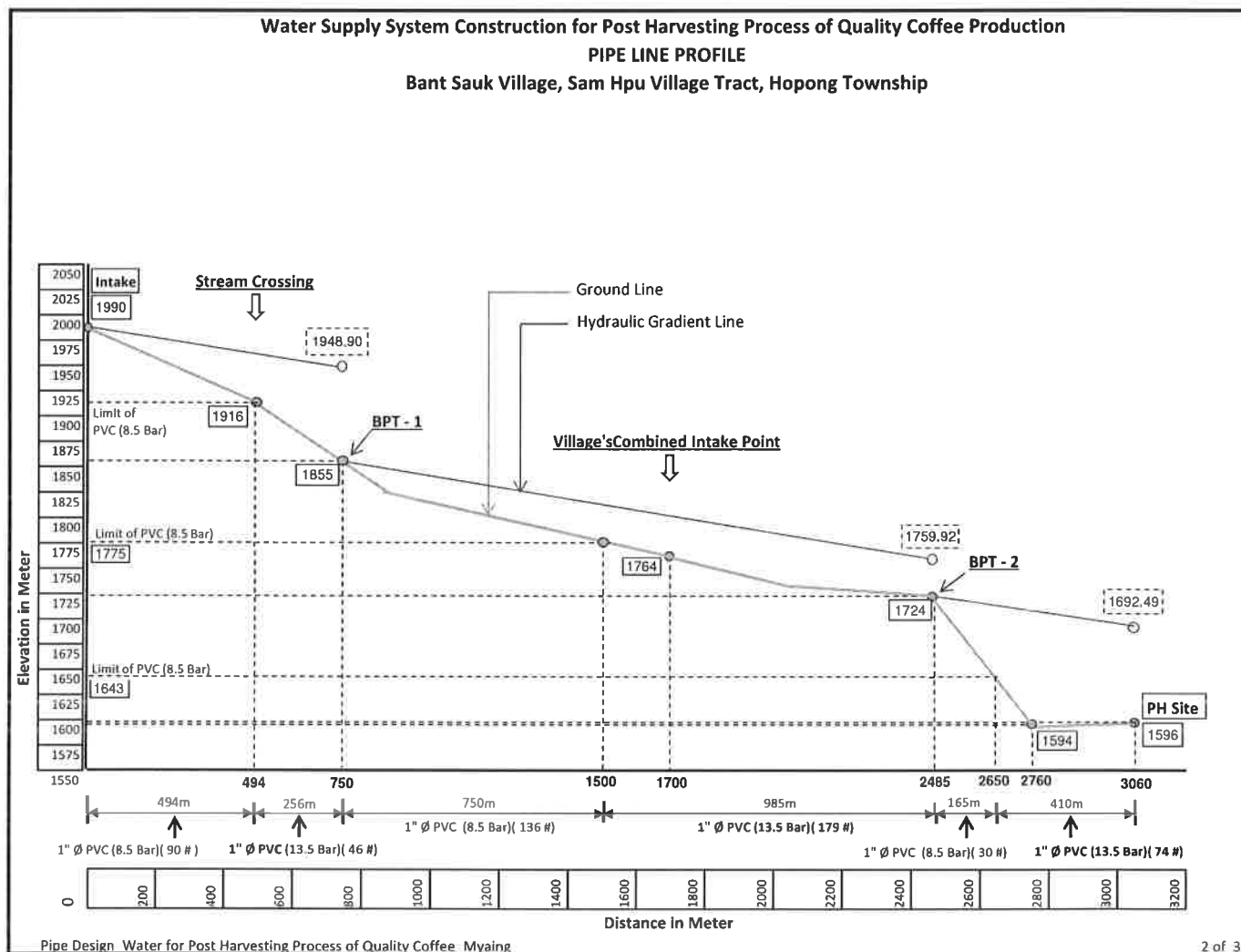
Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL @ Station I (M)	Elevation @ Station II (M)	HGL @ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-j	=i-k		
1	BPT 1	0.610	750	750	25	5.48	41.10	1990.00	1855.00	1948.90	93.90	PVC 8.5 & 13.5	Intake
BPT 1	BPT 2	0.610	1735	2485	25	5.48	95.08	1855.00	1724.00	1759.92	35.92	PVC 8.5 & 13.5	
BPT 2	PH	0.610	575	3060	25	5.48	31.51	1724.00	1596.00	1692.49	96.49	PVC 8.5 & 13.5	PH Module Site

SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (15'/No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	
	2" Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0	
25	1" Ø PVC (8.5)	1409	0	1409	4622	4853	255.40	Say ~ 255
	1" Ø PVC (13.5)	1651	0	1651	5415	5686	299.27	Say ~ 300
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0	
	Total length	3060	0	3060	10037	10539	554.7	Say ~ 555

Annex -4 Lot - 3

Bant Sauk - Hopong



Annex - 4

lot 3 -

Bant Kun - Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production
PIPELINE DESIGN TABLE

Village: Bant Kun

Village Tract : Sam Hpu

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.610	600	600	25	5.48	32.88	1876.00	1800.00	1843.12	43.12	PVC 8.5 bar	Intake site
2	3	0.610	200	800	32	3.04	6.08	1843.12	1770.00	1837.04	67.04	PVC 8.5 bar	
3	4	0.610	463	1263	25	5.48	25.37	1837.04	1733.00	1811.67	78.67	PVC 13.5 bar	PH Module Site

SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)			
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2" Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/4" Ø PVC (13.5)	200	0	200	656	689	36.3
25	1" Ø PVC (8.5)	600	0	600	1968	2066	108.76
	1" Ø PVC (13.5)	463	0	463	1519	1595	83.92
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
	Total length	1263	0	1263	4143	4350	228.9

Say ~ 36

Say ~ 109

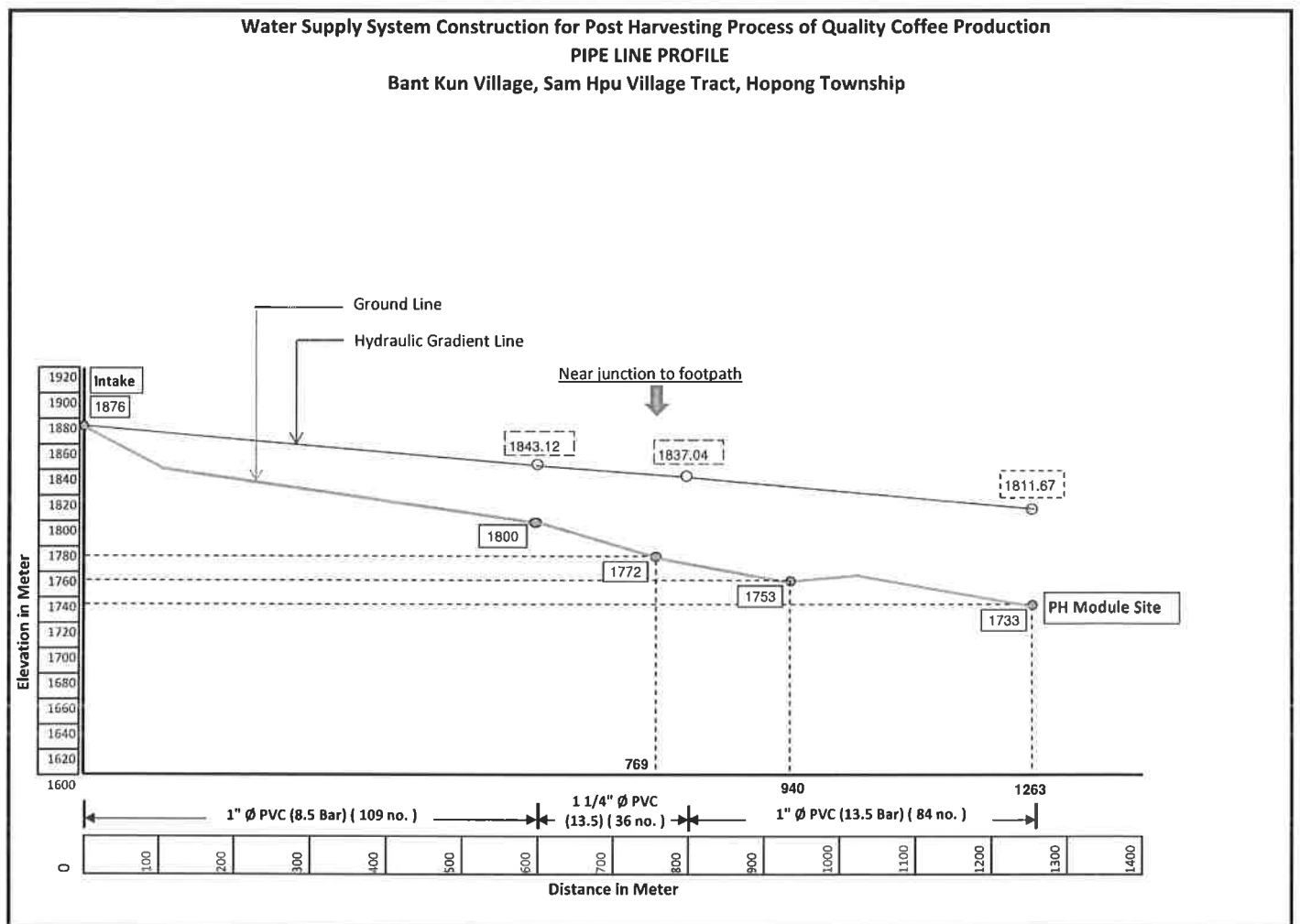
Say ~ 84

Say ~ 229

Annex - 4

Lot 3.

Bant kun - Hopong



Annex - 4

Drawn by

Lot - 3

Sam Hpu, Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Sam Hpu

Village Tract : Sam Hpu

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.400	700	700	25	2.28	15.96	1760.00	1685.00	1744.04	59.04	PVC 8.5 bar	Intake site
2	3	0.400	975	1675	25	2.28	22.23	1744.04	1665.00	1721.81	56.81	PVC 13.5 bar	PH Module Site
3	4												

SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)			
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2" Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0
25	1" Ø PVC (8.5)	700	0	700	2296	2411	126.88
	1" Ø PVC (13.5)	975	0	975	3198	3358	176.73
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
Total length		1675	0	1675	5494	5769	303.6

Say ~ 127

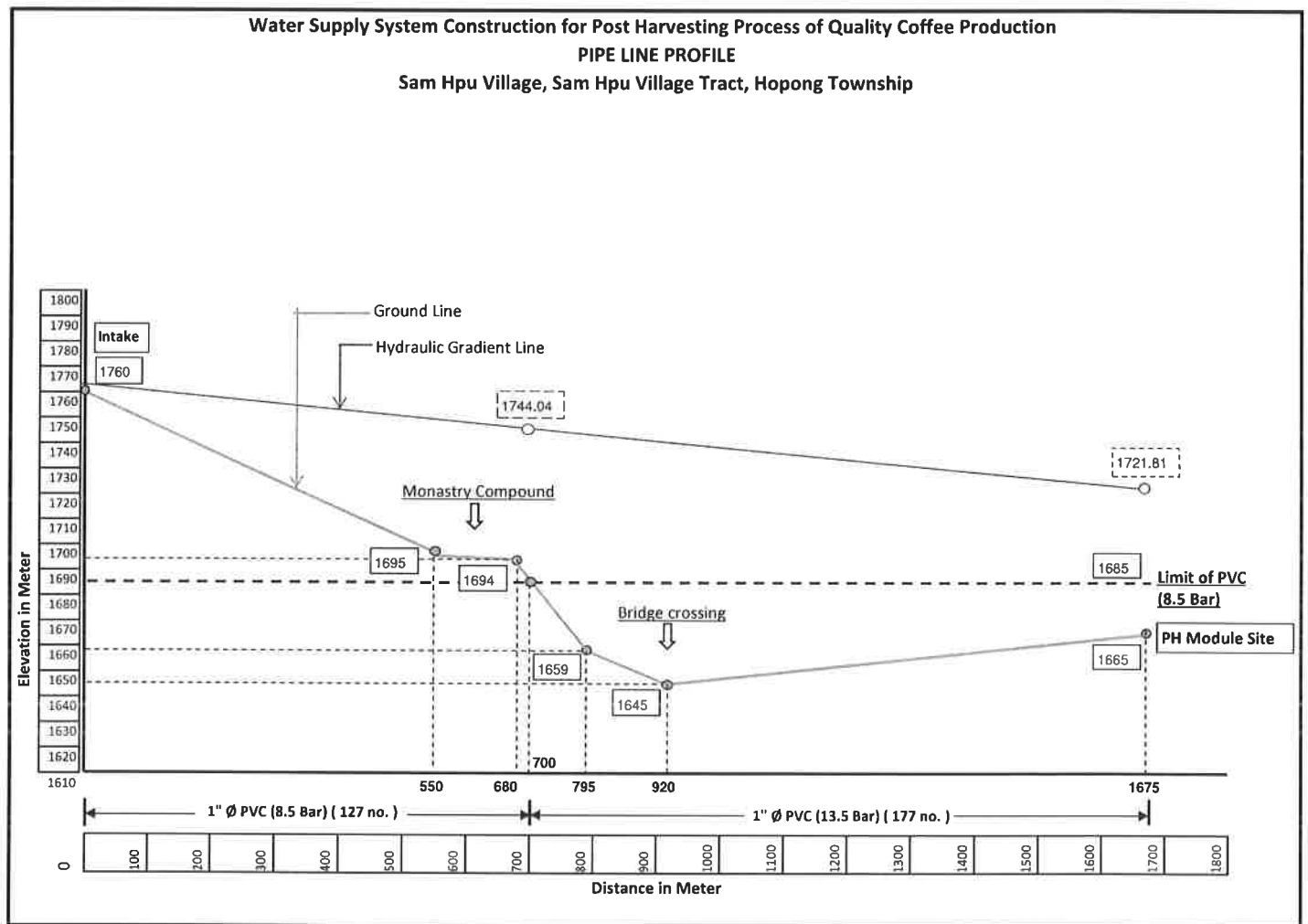
Say ~ 177

Say ~ 304

Annex - 4

Lot - 3

Sam Hpu, Hopong



Annex - 4

lot 3

Tha Hlya Noe - Hopong

**Water Supply System Construction for Post Harvesting Process of Quality Coffee Production
PIPELINE DESIGN TABLE**

Village: Tha Hlya Noe

Village Tract : Sam Hpu

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.400	1275	1275	32	1.30	16.58	1770.00	1740.00	1753.43	13.43	PVC 8.5 bar	Intake to PH site
2	3												
3	4												

SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)			
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2" Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	1275	0	1275	4182	4391	231.1
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0.0
25	1" Ø PVC (8.5)	0	0	0	0	0	0.00
	1" Ø PVC (13.5)	0	0	0	0	0	0.00
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
	Total length	1275	0	1275	4182	4391	231.1

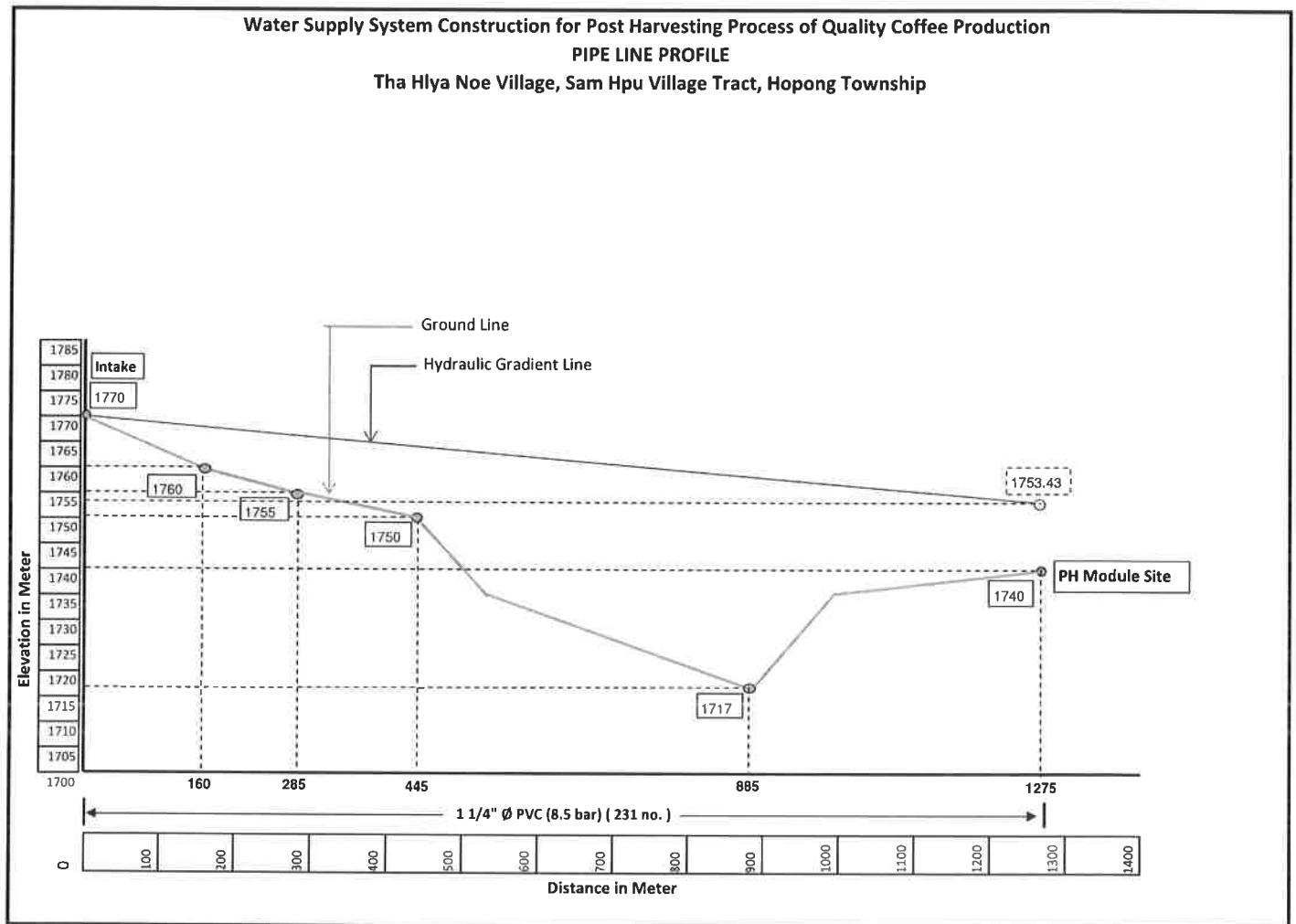
Say ~ 231

Say ~ 231

Annex - 4

lot 3

Tha Hlya Noe - Hopong



Annex - 4

Lot 3

Kyauk ka charr - Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Kyauk Ka Charr

Village Tract : Sam Hpu

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D.) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta: I	Sta: II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	2	0.400	400	400	32	1.30	5.20	1817.00	1805.00	1811.80	6.80	PVC 8.5 bar	Intake site
2	3	0.400	1030	1430	25	2.28	23.48	1811.80	1767.00	1788.32	21.32	PVC 8.5 bar	PH Module Site
3	4												

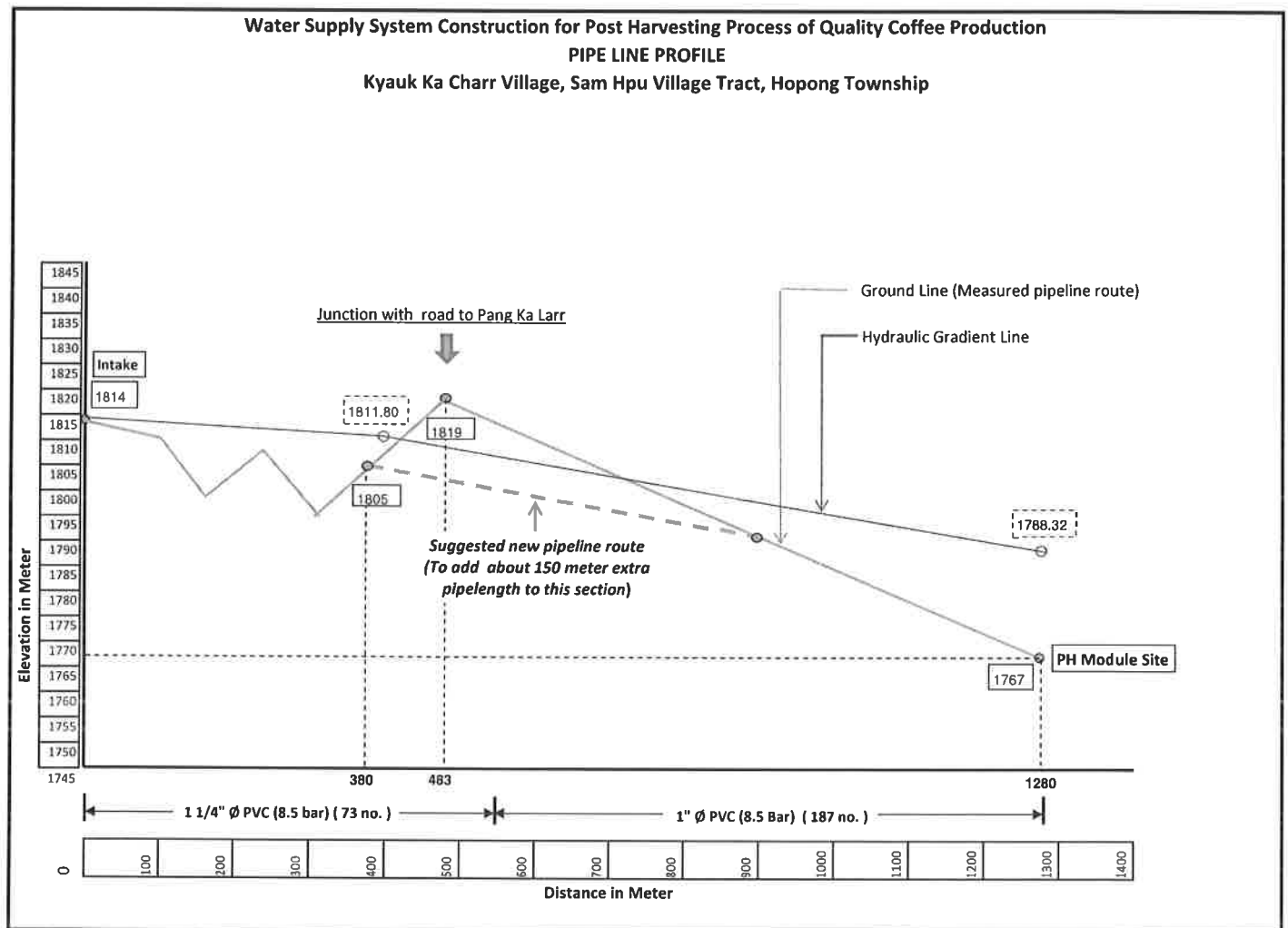
SUMMARY OF PIPE REQUIREMENT

Pipe size (mm)	Pipe size (inch); Inside Ø	Main Line	Dist: Line	Total	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)	
		Pipe length (meter)	Pipe length (meter)	Pipe length (meter)				
50	2" Ø PVC (8.5)	0	0	0	0	0	0	
	2" Ø PVC (13.5)	0	0	0	0	0	0	
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0	
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0	
32	1 1/4" Ø PVC (8.5)	400	0	400	1312	1378	72.51	Say ~ 73
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0	
25	1" Ø PVC (8.5)	1030	0	1030	3378	3547	186.70	Say ~ 187
	1" Ø PVC (13.5)	0	0	0	0	0	0	
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0	
	Total length	1430	0	1430	4690	4925	259.2	Say ~ 260

Annex - 1

Lot - 3

Kyauk Ka Charr - Hopong



Annex - 4

Lot 3

~~Kyaukse ka che~~
Done le Tan - Hopong

Water Supply System Construction for Post Harvesting Process of Quality Coffee Production

PIPELINE DESIGN TABLE

Village: Don Le Tan

Village Tract : Don Le Tan

Township: Hopong

Reach		Flow (LPS)	Pipe Length (M)	Total Pipe Length (M)	Pipe Size (I.D) (mm)	Frictional Factor (100M)	Head Loss (M)	HGL@ Station I (M)	Elevation @ Station II (M)	HGL@ Station II (M)	Residual Head @ Station II (M)	Pipe Quality	Remark
Sta. I	Sta. II												
a	b	c	d		e	f	g	h	i	j	k		
Main line (Source to PH Site)							=d*f/100			=h-g	=j-i		
1	BPT	0.400	900	900	25	2.28	20.52	1738.00	1575.00	1717.48	142.48	PVC 8.5 bar	Water Source/Intake
BPT	2	0.400	700	1600	25	2.28	15.96	1575.00	1515.00	1559.04	44.04	PVC 8.5 bar	PH Module Site
2	3												

SUMMARY OF PIPE REQUIREMENT

		Main Line	Dist: Line	Total			
Pipe size (mm)	Pipe size (Inch); Inside Ø	Pipe length (meter)	Pipe length (meter)	Pipe length (meter)	Pipe length (ft)	Added 5% to length (ft)	No. of PVC pipe (19'/No.)
50	2" Ø PVC (8.5)	0	0	0	0	0	0
	2" Ø PVC (13.5)	0	0	0	0	0	0
40	1 1/2" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/2" Ø PVC (13.5)	0	0	0	0	0	0
32	1 1/4" Ø PVC (8.5)	0	0	0	0	0	0
	1 1/4" Ø PVC (13.5)	0	0	0	0	0	0
25	1" Ø PVC (8.5)	1600	0	1600	5248	5510	290.0
	1" Ø PVC (13.5)	0	0	0	0	0	0
20	3/4" Ø PVC (8.5)	0	0	0	0	0	0
Total length		1600	0	1600	5248	5510	290.0

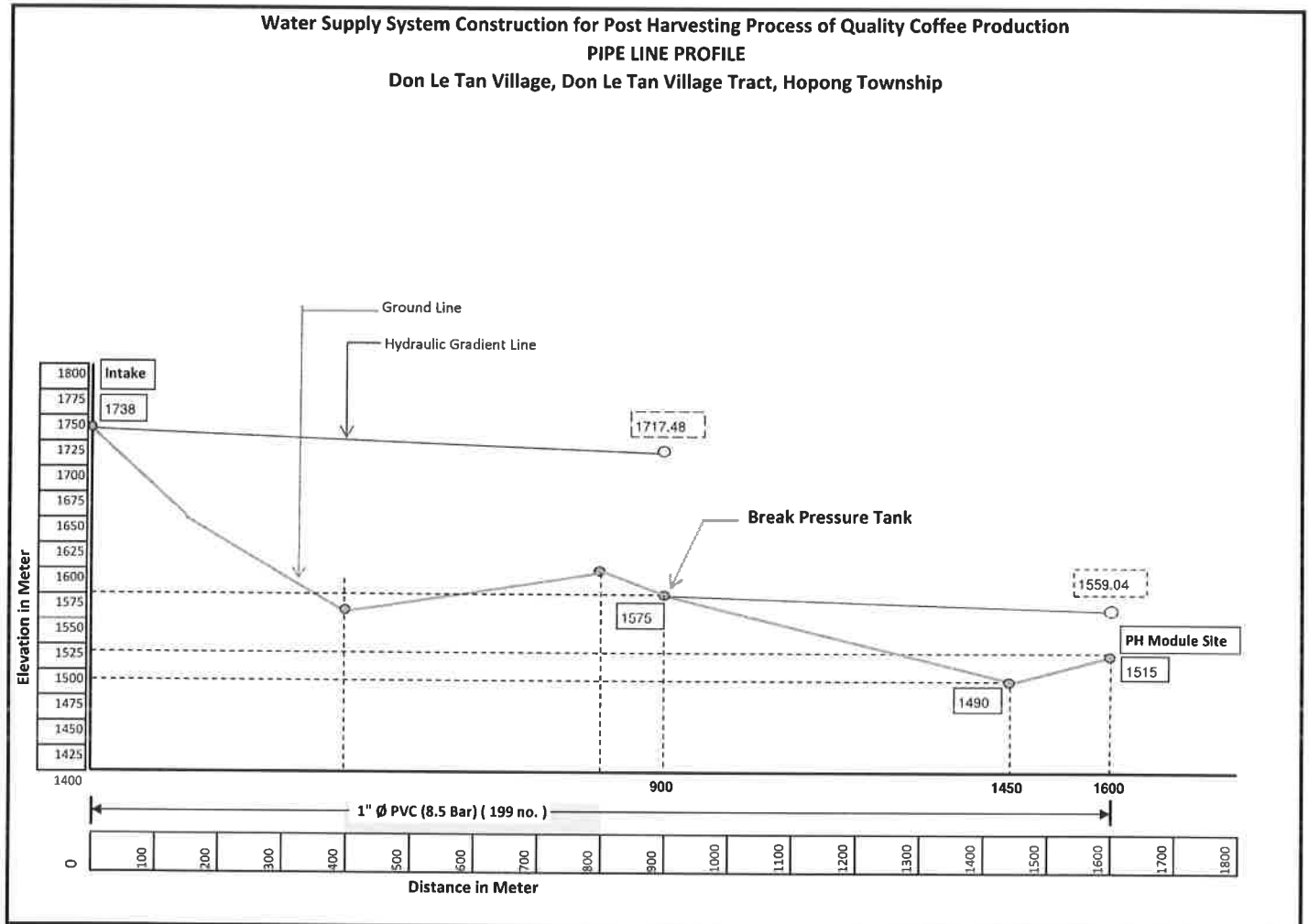
Say ~ 290

Say ~ 290

Annex - 4

Lot 3

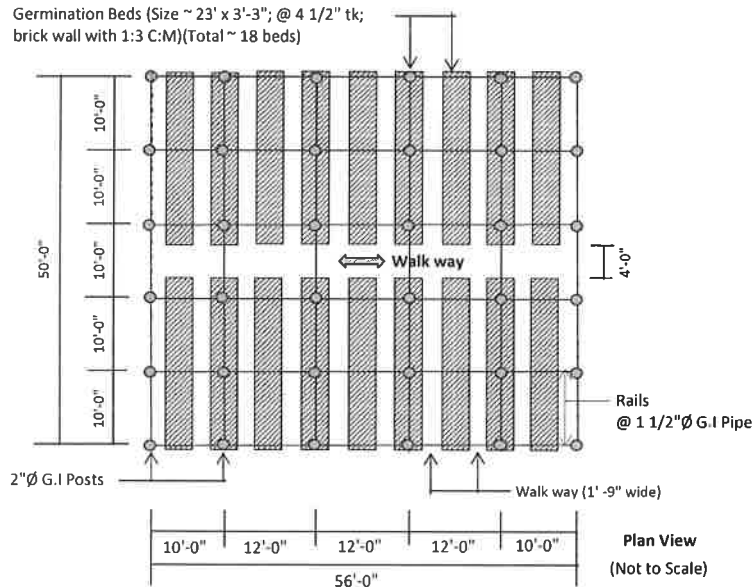
Don Le Tan - Hopong



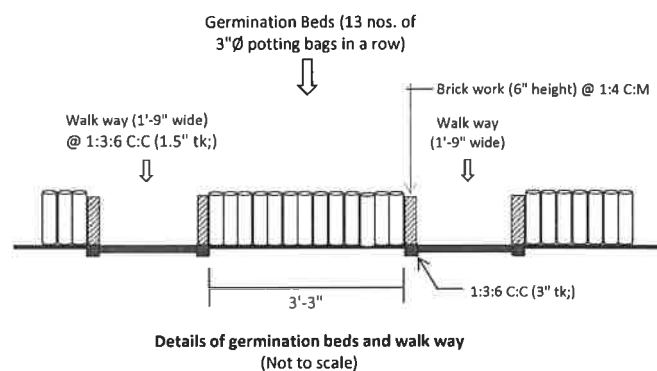
Typical Design of Construction of Forest Nursery in Hopong and Loilen Townships (2019)

(Dimension ~ Length 56' x Width 50' x Height 7'; 1Unit @ 21,000 Seedlings)

Germination Beds (Size ~ 23' x 3'-3"; @ 4 1/2" tk; brick wall with 1:3 C:M)(Total ~ 18 beds)



Total # of germination beds at one nursery	Size of beds	No. of potting bags in each germination bed	Total no. of potting bags
18	23'-0" x 39"	13 x 92 = 1196	21528



Specification :

- : Nursery's frame with good quality G.I pipes (posts & rails)
- : Posts ~ 2"Ø G.I Pipe (@ Sockets as per necessary)
- : Rails ~ 1 1/2"Ø G.I Pipe (@ Sockets as per necessary)
- : G.I Cross at Center posts ~ 2"Ø G.I Tee & welded 2 1/2"Ø G.I Pipe
- : G.I Joint at Corner posts ~ 2"Ø G.I Elbow & welded 2 1/2"Ø G.I Pipe
- : G.I Joint at Side posts ~ 2"Ø G.I Tee & welded 2 1/2"Ø G.I Pipe
- : 4 1/2" thick block brick & plastering work @ 1:4 Cement mortar to be provided for germination beds' wall.
- : G.I Post footings (9" x 9" x 1'-3") @ 1:2:4 Cement concrete.
- : 1:3:6 Cement concrete to be provided for 3" tk; for foundation of brick wall & 1.5" tk; for walk way.
- : Hortinet for roofing (length 100 yd x width 2 yd, shade 50%)
- : Provision of 3/4"Ø PVC Pipe (8.5bar) for supply of irrigation water & drain pipes at germination beds