DETERMINATION OF GROUND CONTROL POINT AROUND PMM

GROUP MEMBERS :

MUHAMMAD IMRAN BIN SAPARI (14DUT13F2032)

NUR AIN KHADIJAH BINTI NURUL AZAM (14DUT13F2003)

NUR ZARITH FARAHIN BINTI MOHD SAZLI (14DUT13F2034)

NUR EIZLIANA BINTI NORAZLI (14DUT13F2001)

INTRODUCTON

Control point is a basic need and use as a reference datum in each measurement field. It is a key requirement for any new measures to enable the determination of the basis of the size and value planimetri coordinate set. Each cadastral measurements should be based on the satisfactory datum contained in the Circular of the Director General of Survey and Mapping, number 5 in 2009. (Cadastral Survey Regulations, 2009, 2009, PKPU bil5 / 2009).

PROBLEM STATEMENT

- Making it hard to measure because incorrect coordinate
- Difficult to know the wide area

1. Determining a control point that is easily identifiable

OBJECTIVE

2. The distance and area using ground control

SCOPE

Measurement are be done around Politeknik Merlimau Melaka

This measurement only focused on traverse and determined ground control point referred form the coordinates of CRM 1 and CRM 2.

ADVANTAGES

Through the measurement that be proceed, students who are study the land survey program in Politeknik Merlimau Melaka can do the practical field work and follow the standard.

Student also can do the practical work in real situation even in small scale work

METHODOLOGI

GCP determination were start by traverse with the measurement refers to the bearing and distance of CRM 1 and CRM 2. Determination methodology should be implement systematically as this list :-

1. PLANNING
2. METHOD AND INSTRUMENT
3. ACQUISITION OF DETERMINATION
4. DATA PROCESS
5. RESULT AND ANALYSIS
6. CONCLUSION

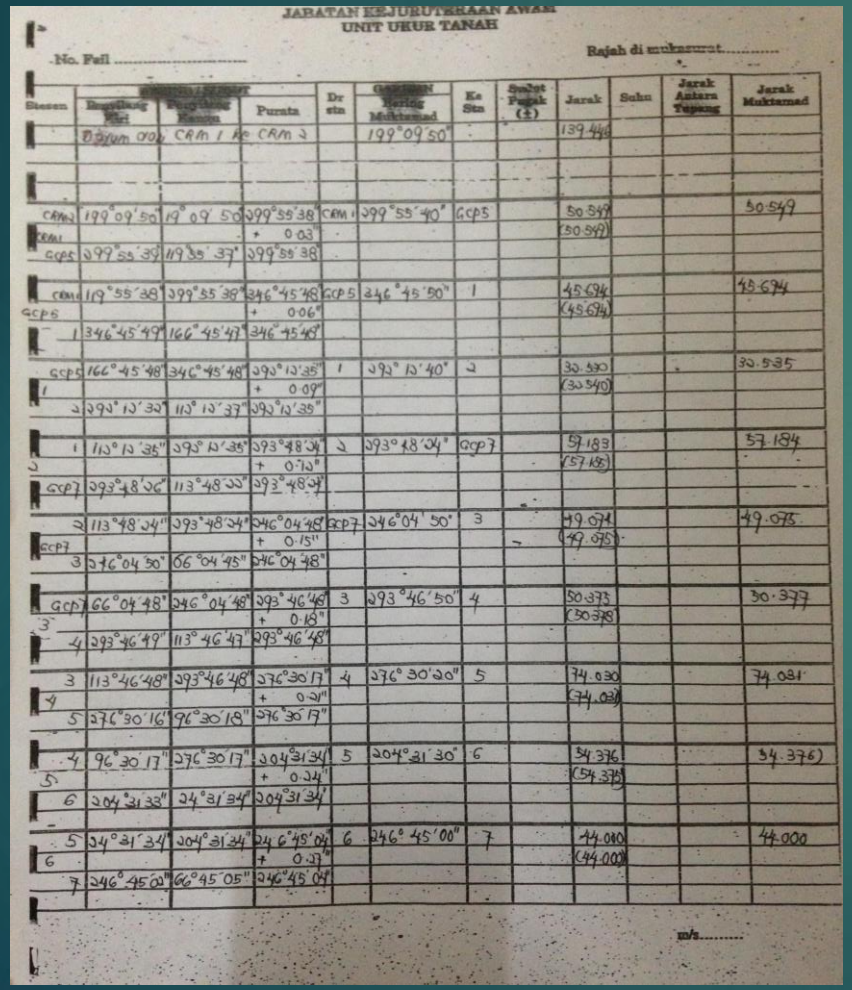
Traverse

- To be made for all GCP of PMM using the total station (Total Station 603) and using a closed traverse.
- The bearing and distance will be calculated to create the coordinates value for all GCP of PMM.
- All the observations will be recorded in the booking and coordinate will be adjusted.
- Datum or reference value used for the observed traverse this result bearing and distance of two control points that have been observed using GNSS methods.

RESULT

- Has 32 stations, include 7 GCP, 2 CRM.
- Misclosed = 1 : 18,817 (first class)

TRAVERSE BOOKING

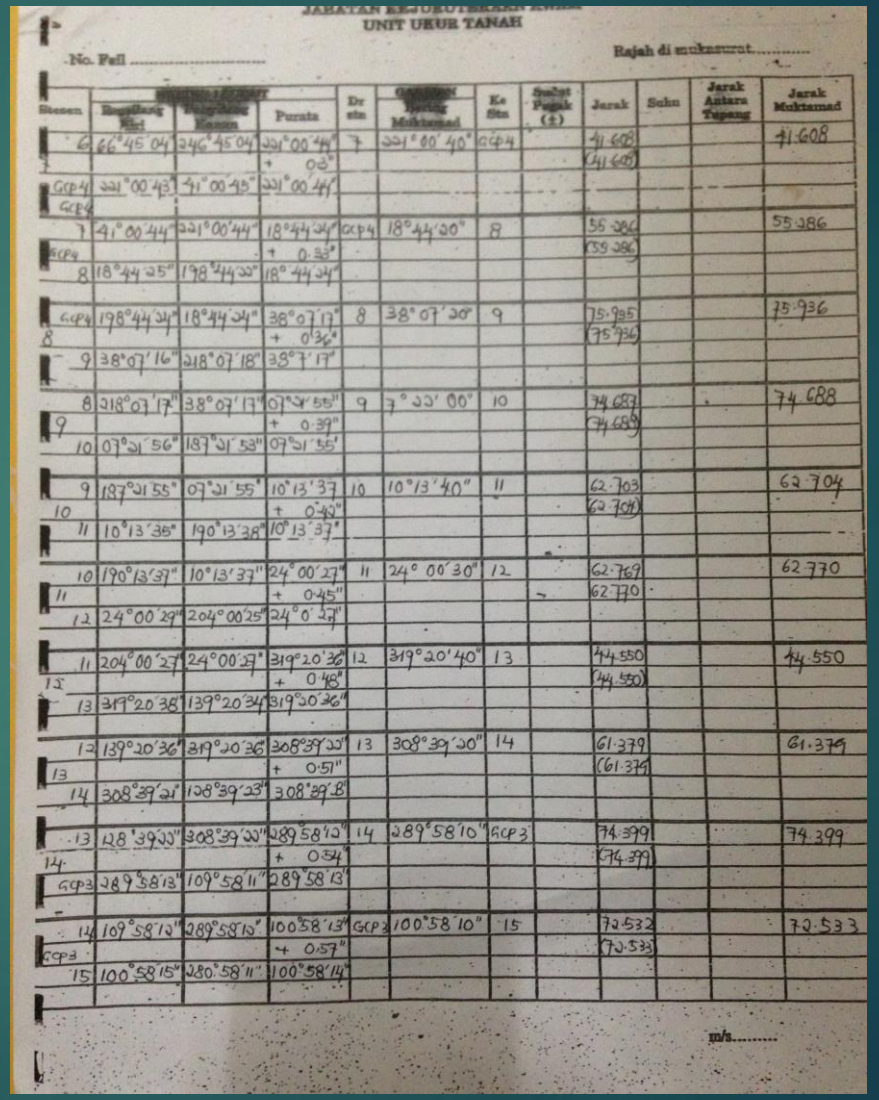


JABATAN KEJURUTERAAN AWAM
UNIT UKUR TANAH

No. Fail ..... Rajah di muknamat .....

Stesen	Bacaan Kiri	Bacaan Kanan	Purata	Dr stn	Geodesi Bering Muktamad	Ke Stn	Sudut Pugak (±)	Jarak	Sudut	Jarak Antara Tupang	Jarak Muktamad
	Datum 002 CRM 1 Ke CRM 2				199°09'50"			139.448			
CRM2	199°09'50"	19°09'50"	199°55'38"	CRM1	199°55'40"	GCP5		50.549			50.549
CRM1			+ 0.03					(50.549)			
GCP5	199°55'39"	19°55'37"	199°55'38"								
CRM1	19°55'38"	199°55'38"	346°45'48"	GCP5	346°45'50"	1		45.674			45.674
GCP5			+ 0.06"					(45.674)			
1	346°45'49"	166°45'47"	346°45'48"								
GCP5	166°45'48"	346°45'48"	193°13'35"	1	193°13'40"	2		30.540			30.535
1			+ 0.09"					(30.540)			
2	193°13'39"	13°13'37"	193°13'38"								
1	113°13'35"	193°13'35"	293°48'34"	2	293°48'34"	GCP7		57.183			57.184
2			+ 0.10"					(57.183)			
GCP7	293°48'36"	113°48'33"	293°48'34"								
2	113°48'34"	293°48'34"	346°04'48"	GCP7	346°04'50"	3		49.074			49.075
GCP7			+ 0.15"					(49.075)			
3	346°04'50"	66°04'45"	346°04'48"								
GCP7	166°04'48"	346°04'48"	193°46'48"	3	193°46'50"	4		30.378			30.377
3			+ 0.18"					(30.378)			
4	293°46'49"	113°46'47"	293°46'48"								
3	113°46'48"	293°46'48"	276°30'17"	4	276°30'20"	5		74.030			74.031
4			+ 0.21"					(74.031)			
5	276°30'16"	96°30'18"	276°30'17"								
4	96°30'17"	276°30'17"	204°31'34"	5	204°31'30"	6		54.376			54.376
5			+ 0.34"					(54.376)			
6	204°31'33"	24°31'34"	204°31'34"								
5	24°31'34"	204°31'34"	246°45'04"	6	246°45'00"	7		44.010			44.000
6			+ 0.21"					(44.000)			
7	246°45'02"	66°45'05"	246°45'04"								

m/s.....



JABATAN KEJURUTERAAN AWAM
UNIT UKUR TANAH

No. Fail ..... Rajah di muknamat .....

Stesen	Bacaan Kiri	Bacaan Kanan	Purata	Dr stn	Geodesi Bering Muktamad	Ke Stn	Sudut Pugak (±)	Jarak	Sudut	Jarak Antara Tupang	Jarak Muktamad
6	66°45'04"	246°45'04"	331°00'44"	7	331°00'40"	GCP4		41.608			41.608
			+ 03"					(41.608)			
GCP4	331°00'43"	41°00'45"	331°00'44"								
GCP4											
7	41°00'44"	331°00'44"	18°44'34"	GCP4	18°44'30"	8		55.386			55.386
GCP4			+ 0.33"					(55.386)			
8	18°44'35"	198°44'33"	18°44'34"								
GCP4	198°44'34"	18°44'34"	38°07'17"	8	38°07'20"	9		75.935			75.936
8			+ 0.36"					(75.936)			
9	38°07'16"	218°07'18"	38°7'17"								
8	218°07'17"	38°07'17"	07°31'55"	9	7°32'00"	10		74.687			74.688
9			+ 0.39"					(74.687)			
10	07°31'56"	187°31'53"	07°31'55"								
9	187°31'55"	07°31'55"	10°13'37"	10	10°13'40"	11		62.703			62.704
10			+ 0.40"					(62.704)			
11	10°13'36"	190°13'38"	10°13'37"								
10	190°13'37"	10°13'37"	24°00'27"	11	24°00'30"	12		62.769			62.770
11			+ 0.45"					62.770			
12	24°00'29"	204°00'25"	24°0'27"								
11	204°00'27"	24°00'27"	319°20'36"	12	319°20'40"	13		44.550			44.550
12			+ 0.48"					(44.550)			
13	319°20'38"	139°20'34"	319°20'36"								
12	139°20'36"	319°20'36"	308°39'33"	13	308°39'30"	14		61.379			61.379
13			+ 0.51"					(61.379)			
14	308°39'21"	108°39'23"	308°39'8"								
13	128°39'33"	308°39'30"	289°58'12"	14	289°58'10"	GCP3		74.399			74.399
14			+ 0.54"					(74.399)			
GCP3	289°58'13"	109°58'11"	289°58'13"								
14	109°58'12"	289°58'10"	100°58'13"	GCP3	100°58'10"	15		72.532			72.533
GCP3			+ 0.57"					(72.533)			
15	100°58'15"	280°58'11"	100°58'14"								

m/s.....

JABATAN KEJURUTERAAN AWAM
UNIT UKUR TANAH

No. Fail ..... Rajah di muksurat.....

Stesen	Bacaan / Sudut: Bearing Kiri	Bacaan / Sudut: Bearing Kanan	Purata	Dr stn	Garisan Boring Muktamad	Ke Stn	Sudut Pugak (±)	Jarak	Suhu	Jarak Antara Tupang	Jarak Muktamad
GCP3	280° 58'13"	100° 58'13"	107°08'57"	15	107° 09' 00"	16		53.255			53.256
15			+ 0·6"					(53.256)			
16	107°08'58"	287°08'56"	107°08'58"								
15	287°08'57"	107°08'57"	58°58'27"	16	58°58'30"	17		60.275			60.275
16			+ 0·63"					(60.275)			
17	58°58'24"	238°58'29"	58°58'28"								
16	238°58'27"	58°58'27"	104°36'40"	17	104°36'40"	GCP3		82.857			82.858
17			+ 0·66"					(82.858)			
GCP3	104°36'40"	284°36'39"	104°36'41"								
17	284°36'40"	104°36'40"	103°02'25"	GCP3	103° 02' 30"	18		107.081			107.081
GCP3			+ 0·69"					(107.081)			
18	103°02'27"	283°02'23"	103°02'26"								
GCP3	283°02'25"	103°02'25"	110°24'10"	18	110°24'10"	19		89.610			89.610
18			+ 0·72"					(89.610)			
19	110°24'11"	290°24'09"	110°24'11"								
18	290°24'10"	110°24'10"	120°29'24"	19	120°29'30"	GCP1		73.318			73.319
19			+ 0·75"					(73.319)			
GCP1	120°29'25"	302°29'23"	120°29'25"								
19	302°29'24"	120°29'24"	100°56'24"	GCP1	100°56'30"	20		77.847			77.847
GCP1			+ 0·78"					(77.847)			
20	100°56'23"	280°56'25"	100°56'25"								
GCP1	280°56'26"	100°56'24"	175°17'18"	20	175°17'20"	21		67.966			67.967
20			+ 0·81"					(67.967)			
21	175°17'15"	355°17'20"	175°17'19"								
20	355°17'18"	175°17'18"	193°53'02"	21	193°53'00"	22		72.897			72.897
21			+ 0·84"					(72.897)			
22	193°53'01"	13°53'02"	193°53'03"								
21	13°53'02"	193°53'02"	193°33'16"	22	193°33'20"	23		98.657			98.658
22			+ 0·87"					(98.658)			
23	193°33'12"	13°33'19"	193°33'17"								

m/s.....

JABATAN KEJURUTERAAN AWAM
UNIT UKUR TANAH

No. Fail ..... Rajah di muksurat.....

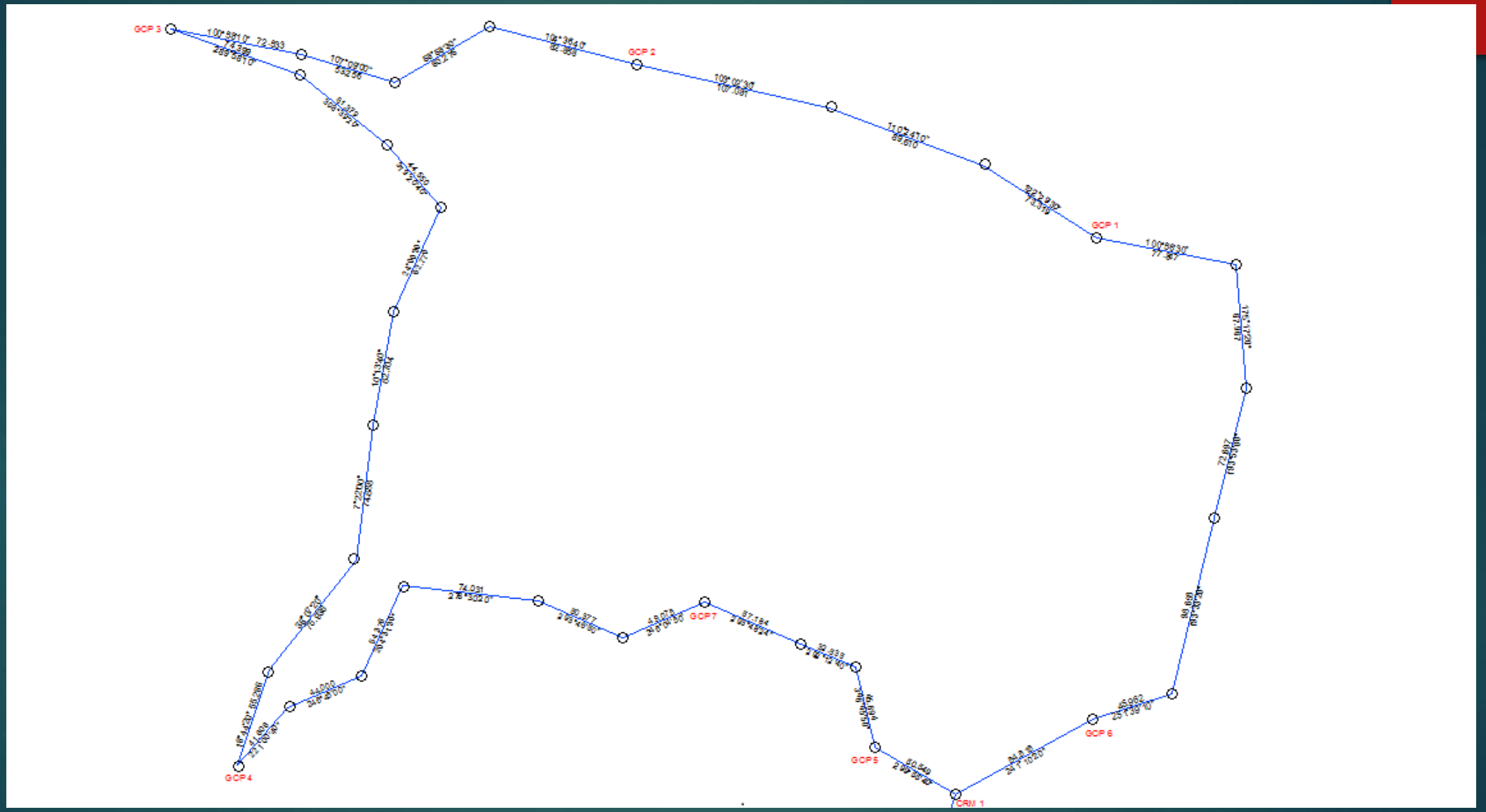
Stesen	Bacaan / Sudut: Bearing Kiri	Bacaan / Sudut: Bearing Kanan	Purata	Dr stn	Garisan Boring Muktamad	Ke Stn	Sudut Pugak (±)	Jarak	Suhu	Jarak Antara Tupang	Jarak Muktamad
22	13° 33'16"	193°33'16"	25°39'11"	23	251°39'10"	GCP6		45.961			45.962
23			+ 0·9"					(45.962)			
GCP6	251°39'08"	71°39'13"	251°39'13"								
23	71°39'11"	251°39'11"	241°10'20"	GCP6	241°10'20"	CRM1		84.87			84.818
GCP6			+ 0·93"					(84.818)			
CRM1	241°10'18"	61°10'21"	241°10'21"								
GCP6	61°10'20"	241°10'20"	299°55'31"	CRM1	299°55'40"	GCP5					
CRM1			+ 0·96"								
GCP5	299°55'38"	119°55'36"	299°55'38"								
	Bearing awalan		299°55'37"								
	Bearing akhir		299°55'38"								
	Tukaran		- 01"								
	Pembetulan		+ 0·03"								

LATITUDE & DEPARTURE FORM

Frm - To	Bearing	Distance	Latitude		Departure		2 x Latitude	2 x Departure	Coordinate	
			N	S	E	W			N/S	E/W
CRM 1										
GCP5	299° 55' 40"	50.549	25.219			-43.809				
1	346° 45' 50"	45.694	44.480			10.462				
2	290° 12' 40"	32.535	12.299			30.121				
GCP7	293° 48' 24"	57.184	23.082			52.318				
3	246° 4' 50"	49.075		19.896 50.611		48.813	44.80			
4	293 46' 50"	50.377	20.314			46.100				
5	276° 30' 20"	74.031	8.389			73.554				
6	204° 31' 30"	34.376		49.470		22.571				
7	246° 45' 00"	44.000		17.369		40.427				
GCP4	201° 00' 40"	41.608		31.397		27.303				
8	18° 44' 20"	55.286	52.355		17.761					
9	38° 07' 20"	75.936	59.739		46.878					
10	7° 20' 00"	74.688	74.072		9.576					
11	10° 13' 40"	62.704	61.708		11.134					
12	24° 00' 30"	62.770	57.340		25.539					
13	319° 30' 40"	44.550	33.797			29.025				
14	308° 39' 20"	61.379	38.340			47.932				
GCP3	289° 58' 10"	74.399	25.409			69.926				
15	100° 58' 10"	72.533		13.802	71.208					
16	107° 09' 00"	53.096		15.704	50.888					

LATITUDE & DEPARTURE FORM

Frm - To	Bearing	Distance	Latitude		Departure		2 x Latitude	2 x Departure	Coordinate	
			N	S	E	W			N/S	E/W
17	58° 58' 30"	60.275	31.066		51.652					
GCP2	104° 36' 40"	82.858		20.902	80.178					
18	103° 00' 30"	107.081		24.164	104.319					
19	110° 24' 10"	89.610		31.240	83.988					
GCP1	122° 29' 30"	73.319		39.385	61.842					
20	100° 56' 30"	77.847		14.776	76.432					
21	175° 17' 30"	69.967		67.737	5.582	17.443				
22	193° 53' 00"	72.897		70.767		17.491				
23	193° 33' 20"	98.658		95.909		23.124				
GCP6	251° 39' 10"	45.960		14.468		43.626				
CRM 1	241° 10' 20"	84.818		40.857		74.307				
							158.5			
		1998.022	567.609	567.689	696.977	696.908				
			Δ = 0.08		Δ = 0.069					


GCP 3
GCP 2
GCP 1
GCP 7
GCP 6
GCP 5
GCP 4
CRM 1

CONCLUSION

Overall, we not success in fulfill the mision and objective of the project.