



CARL T.C. GUTIERREZ
GOVERNOR OF GUAM

OFFICE OF THE LEGISLATIVE SECRETARY
ACKNOWLEDGMENT RECEIPT

Received By: D

Time: 12:10

Date: 6/29/95

JUN 27 1995

The Honorable Ted S. Nelson
Acting Speaker
Twenty-Third Guam Legislature
424 West O'Brien Drive
Julale Center - Suite 222
Agana, Guam 96910

OFFICE OF THE SPEAKER

Date: June 28, 1995

Time: 3:45pm

Received by: Philbert

Print Name: Phil Roberto

Via: Office of Speaker Don Parkinson

Dear Speaker Nelson:

Cathy...

Enclosed please find a copy of Bill No. 179 (LS), "AN ACT TO ADD NEW §§60515 THROUGH 60519 TO TITLE 21, GUAM CODE ANNOTATED, TO ALLOW FOR THE INTRODUCTION OF THE 1993 GEODETIC NETWORK", which I have signed into law today as **Public Law No. 23-31**.

This bill provides for a new and modern system for surveying land on Guam. There are, however, two errors in its passage which cannot be corrected by the Compiler of Laws, and I am requesting that these errors be corrected in future sessions of the Legislature. A draft bill is attached for this purpose which specifies the corrections.

Very truly yours,

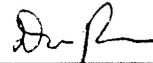
Carl T. C. Gutierrez
Carl T. C. Gutierrez

Attachment
230528

TWENTY-THIRD GUAM LEGISLATURE
1995 (FIRST) Regular Session

CERTIFICATION OF PASSAGE OF AN ACT TO THE GOVERNOR

This is to certify that Bill No. 179 (LS), "AN ACT TO ADD NEW §§60515 THROUGH 60519 TO TITLE 21, GUAM CODE ANNOTATED, TO ALLOW FOR THE INTRODUCTION OF THE 1993 GUAM GEODETIC NETWORK," was on the 6th day of June, 1995, duly and regularly passed. The Bill received twenty votes to pass, with one member off-island.



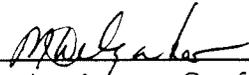
DON PARKINSON
Speaker

Attested:



JUDITH WON PAT-BORJA
Senator and Legislative Secretary

This Act was received by the Governor this 16 day of June,
1995, at 10:30 o'clock A.M.



Assistant Staff Officer
Governor's Office

APPROVED:



CARL T. C. GUTIERREZ
Governor of Guam

Date: 6-27-95

Public Law No. 23-31

TWENTY-THIRD GUAM LEGISLATURE
1995 (FIRST) Regular Session

Bill No. 179 (LS)

Introduced by

V. C. Pangelinan
A. L. G. Santos
T. S. Nelson
T. C. Ada
J. P. Aguon
E. Barrett-Anderson
A. C. Blaz
J. M. S. Brown
F. P. Camacho
M. C. Charfauros
H. A. Cristobal
M. Forbes
A. C. Lamorena V
C. Leon Guerrero
L. Leon Guerrero
S. L. Orsini
D. Parkinson
J. T. San Agustin
F. E. Santos
A. R. Unpingco
J. Won Pat-Borja

AN ACT TO ADD NEW §§60515 THROUGH 60519
TO TITLE 21, GUAM CODE ANNOTATED, TO
ALLOW FOR THE INTRODUCTION OF THE 1993
GUAM GEODETIC NETWORK.

1 **BE IT ENACTED BY THE PEOPLE OF THE TERRITORY OF GUAM:**

2 **Section 1. Legislative intent.** Since 1963, surveys have been done
3 according to the 1963 Guam Geodetic Triangulation Network system. The
4 Department of Land Management has contracted with the South Australian

1 Government for satellite surveying of new primary, secondary, and
2 tertiary control stations. Upon completion of the surveying, a new geodetic
3 system will be in place to replace the 1963 network.

4 It is the intent of the Guam Legislature that this new system must
5 have legislation to protect the marked primary, secondary, and tertiary
6 control points that will be established.

7 **Section 2.** A new 21 GCA §60515 is added to read:

8 “§60515. Establishment of the 1993 Guam Geodetic Network.

9 (a) The Director shall progressively replace the 1963 Guam
10 Geodetic Network with the 1993 Guam Geodetic Network.

11 (b) For this purpose, appropriate monumentation that is
12 intended for the establishment of the 1993 Guam Geodetic Network
13 shall be erected by the Director, or may be designated by him, as
14 primary, secondary and tertiary network marks and shall be referred
15 to as the 1993 Guam Geodetic Network for use in locating and
16 describing land within the territory.

17 (c) The 1993 Guam Geodetic Network shall be established to
18 control the standards prescribed in the Federal Geodetic Control
19 Committee’s (FGCC) publication Geometric Geodetic Accuracy
20 Standards and Specifications for Using GPS Relative Positioning
21 Techniques, Version 5.0 (Reprinted 1 August 1989) and as updated as
22 necessary.”

23 **Section 3.** A new 21 GCA §60516 is added to read:

24 “§60516. 1993 Guam Geodetic Datum and Map Grid.

25 (a) The 1993 Guam Geodetic Network shall adopt the North
26 American Datum of 1983 (NAD83 Geodetic Datum) as the
27 Coordinate Reference System.

1 (b) The Guam Map Grid, with the following parameters, shall
2 be adopted for surveying application in Guam:

3 Central Meridian and

4 Longitude of Origin 144°45' East Longitude

5 Latitude of Origin 13°30' North Latitude

6 Easting of Origin 100,000 Meters

7 Northing of Origin 200,000 Meters

8 Central Scale Factor 1.000000.

9 **Section 4.** A new 21 GCA §60517 is added to read:

10 "§60517. Proclaimed Survey Areas.

11 (a) The Director shall declare areas of Guam where the 1993
12 Guam Geodetic Network has been established as Proclaimed Survey
13 Areas.

14 (b) The Director shall make notification of the declaration of
15 Proclaimed Survey Areas by advertising in the local newspaper and
16 advising the Guam Board of Registration for Professional Engineers,
17 Architects and Land Surveyors.

18 (c) When carrying out a survey of land boundaries in a
19 Proclaimed Survey Area, surveyors shall connect to a minimum of
20 three 1993 Guam Geodetic Network marks.

21 (d) If the Territorial Surveyor, based upon reasonable grounds,
22 questions a survey plan as to form and accuracy, which includes
23 definition of boundaries, as shown on a survey plan in a Proclaimed
24 Survey Area, by reason of the survey not being carried out in
25 accordance with this law or regulations issued under this law, the
26 Territorial Surveyor may require the surveyor responsible to
27 undertake additional work, or to provide additional information in

1 relation to the survey in order for the Territorial Surveyor to verify
2 the survey plan as to form and accuracy, including definition of the
3 boundaries. The Territorial Surveyor shall not approve the plan until
4 satisfied that the requirements of this law are met.

5 (e) The surveyor must comply with any such requirement
6 within fourteen (14) days or such longer period as allowed by the
7 Territorial Surveyor.

8 (f) The Territorial Surveyor shall approve or disapprove, in
9 writing, all survey plans within forty-five (45) days of submission.
10 Failure of the Territorial Surveyor to disapprove in writing a survey
11 plan submitted shall deem such plan approved. Such approval shall
12 not waive the rights of the property owners or the surveyor to
13 challenge such approval in any manner prescribed by law."

14 **Section 5.** A new 21 GCA §60518 is added to read:

15 "§60518. Extension of the 1993 Guam Geodetic Network.

16 (a) Subdivisions of land in Proclaimed Survey Areas carried out
17 pursuant to Chapter 62, Title 21, Guam Code Annotated (Subdivision
18 Law) shall comply with these requirements.

19 (b) The Territorial Planner shall forward a copy of all tentative
20 plans of subdivisions to the Territorial Surveyor.

21 (c) The Territorial Surveyor shall indicate, on the tentative plans
22 of subdivisions in Proclaimed Survey Areas, the locations of new
23 marks to be included in the 1993 Guam Geodetic Network and return
24 a copy of the tentative plan to the surveyor.

25 (d) The marks shall be placed by the surveyor carrying out the
26 subdivision at the completion of all major site works to the
27 specifications set by the Territorial Surveyor. The Territorial Surveyor

1 shall be advised when the marks have been placed. The subdivision
2 map shall not be approved until the marks are placed by the surveyor
3 and certified to by the Territorial Surveyor or his designee.

4 (e) The surveyor shall relate all marks placed pursuant to this
5 section, and all 1993 Guam Geodetic Network marks located on a
6 survey, in both distance and direction to the closest boundary corner.

7 (f) The Territorial Surveyor shall connect the marks to the 1993
8 Guam Geodetic Network and recover any cost from the surveyor or
9 the developer carrying out the subdivision."

10 **Section 6.** A new 21 GCA §60519 is added to read:

11 "§60519. Protection of 1993 Guam Geodetic Network Marks.

12 (a) A person must not, without the approval of the Territorial
13 Surveyor, destroy or damage a 1993 Guam Geodetic Network mark.
14 A penalty of \$5,000 will be incurred if a person destroys or damages a
15 1993 Guam Geodetic Network mark.

16 (b) Where a person proposes to carry out any work in a
17 Proclaimed Survey Area likely to destroy or damage a 1993 Guam
18 Geodetic Network mark, that person shall give notice to the
19 Territorial Surveyor, who shall take all necessary steps to safeguard
20 the mark, and the proposed work shall not commence until such
21 steps have been taken.

22 (c) The cost of any work carried out by the Territorial Surveyor
23 pursuant to subsection (b) above shall be recovered from the person
24 carrying out the work.

25 (d) When the Court finds a person guilty of willfully destroying
26 or damaging a 1993 Guam Geodetic Network mark, in addition to the
27 punishment imposed by the Court, the person shall pay the

1 Territorial Surveyor the full cost of replacing and re-coordinating the
2 mark, in addition to the penalty stated above.”

TWENTY-THIRD GUAM LEGISLATURE
1995 (FIRST) Regular Session

Bill No. _____

Introduced by:

_____ by request of the Governor in accordance with the Organic Act of Guam.

AN ACT TO CORRECT ERRORS IN §60515 OF TITLE 21, GUAM CODE ANNOTATED, ENACTED IN PUBLIC LAW 23-31.

1 BE IT ENACTED BY THE PEOPLE OF THE TERRITORY OF GUAM:

2 Section 1. **Addition of the word "Triangulation" in reference to 1963 Guam**
3 **Geodetic Triangulation Network.** Subsection (a) of §60515 of Title 21, Guam Code
4 Annotated, enacted in Public Law 23-31, is amended to read:

5 "(a) The Director shall progressively replace the 1963 Guam Geodetic Triangulation
6 Network with the 1993 Guam Geodetic Network."

7 Section 2. **Reversal of phrase in Subsection (c) of §60515 of Title 21, Guam**
8 **Code Annotated.** Subsection (c) of §60515 of Title 21, Guam Code Annotated,
9 enacted in Public Law 23-31, is amended to read:

10 "(c) The 1993 Guam Geodetic Network shall be established to ~~{control the}~~ the
11 control standards prescribed in the Federal Geodetic Control Committee's (FGCC)
12 publication Geometric Geodetic Accuracy Standards and Specifications for Using
13 GPS Relative Positioning Techniques, Version 5.0 (Reprinted 1 August 1989) and as
14 updated as necessary."

TWENTY-THIRD GUAM LEGISLATURE

1995 (FIRST) Regular Session

Date: 6/6/95

VOTING SHEET

Bill No. 179

Resolution No. _____

Question: _____

NAME	AYE	NO	NOT VOTING/ ABSTAINED	ABSENT/ OUT DURING ROLL CALL
ADA, Thomas C.	✓			
AGUON, John P.				✓
BARRETT-ANDERSON, Elizabeth	✓			
BLAZ, Anthony C.	✓			
BROWN, Joanne S.	✓			
CAMACHO, Felix P.	✓			
CHARFAUROS, Mark C	✓			
CRISTOBAL, Hope A.	✓			
FORBES, MARK	✓			
LAMORENA, Alberto C., V	✓			
LEON GUERRERO, Carlotta	✓			
LEON GUERRERO, Lou	✓			
NELSON, Ted S.	✓			
ORSINI, Sonny L.	✓			
PANGELINAN, Vicente C	✓			
PARKINSON, Don	✓			
SAN AGUSTIN, Joe T.	✓			
SANTOS, Angel L. G.	✓			
SANTOS, Francis E.	✓			
UNPINGCO, Antonio R.	✓			
WONPAT-BORJA, Judith	✓			

TOTAL

20 _____ _____ 1



Ufisinan I TaoTao Tano'
Senator Angel L.G. Santos

Chairperson, Committee on Community,
Housing & Cultural Affairs



June 6, 1995

Speaker Don Parkinson
Twenty-Third Guam Legislature
#155 Hesler Street
Agana, Guam 96910

Dear Speaker Parkinson:

The Committee on Community, Housing and Cultural Affairs, to which was referred Bill No. 179, an ACT TO AMEND 21 GUAM CODE ANNOTATED CHAPTER 60 AND TO ALLOW FOR THE INTRODUCTION OF THE 1993 GUAM GEODETIC NETWORK hereby reports back to the Legislature with its recommendation **TO DO PASS Bill No. 179.**

The voting record is as follows:

TO PASS	8
NOT TO PASS	0
ABSTAIN	0
INACTIVE FILE	0

The Committee Report and supporting documents are attached.

Si Yu'os Ma'ase'!

ANGEL L.G. SANTOS

Commonwealth Pa'go!

#324 W. Soledad Ave., Suite 202 Agana, Guam 96910 Tel: (671) 472-3586/3411 • FAX: (671) 477-4482



Ufisinan I TaoTao Tano'
Senator Angel L.G. Santos
Chairman, Committee on Community,
Housing, and Cultural Affairs
23rd Guam Legislature

June 2, 1995

MEMORANDUM

TO: Members

FROM: Chairman

SUBJECT: Committee Report on **Bill No. 179, as amended by the Committee** - An Act to Amend 21 GCA Chapter 60 and to Allow for the Introduction of the 1993 Guam Geodetic Network.

Transmitted herewith for your consideration and action is our Committee Report on the subject matter.

Please indicate your choice on the attached VOTING RECORD and return the documents to my office for transmittal to the other members.

Should you have any questions on the narrative report or the accompanying documents, I would be most happy to answer any of them.

Your attention and cooperation in this matter are greatly appreciated.

ANGEL L.G. SANTOS

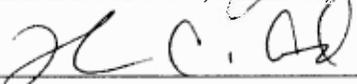
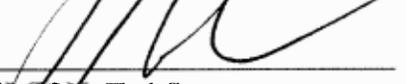
attachments



Commonwealth Pa'go!

COMMITTEE ON COMMUNITY, HOUSING, AND CULTURAL AFFAIRS
23rd Guam Legislature
VOTING RECORD

Bill No. 179, as amended by the Committee - An Act to Amend 21 GCA Chapter 60 and to Allow for the Introduction of the 1993 Guam Geodetic Network.

	<u>TO</u> <u>PASS</u>	<u>NOT TO</u> <u>PASS</u>	<u>ABSTAIN</u>	<u>INACTIVE</u> <u>FILE</u>
 SANTOS, Angel L.G., Chairman	✓			
 CHARFAUROS, Mark C., Vice Chairman	✓			
 ADA, Thomas C.	✓			
 CRISTOBAL, Hope A.	✓			
 LEON GUERRERO, Lou	✓			
 NELSON, Ted S.	✓			
 PANGELINAN, Vicente C.	✓			
 WON-PAT BORJA, Judith	✓			
BLAZ, Anthony C.				
FORBES, Mark				
LAMORENA V, Alberto				
LEON GUERRERO, Carlotta				



Commonwealth Pa'go!



COMMITTEE ON COMMUNITY, HOUSING,
AND CULTURAL AFFAIRS
Twenty-Third Guam Legislature



REPORT

on

Bill No. 179, as amended by the Committee
“An Act to Amend 21 GCA Chapter 60 and to Allow for the
Introduction of the 1993 Guam Geodetic Network.”

June 2, 1995

I. OVERVIEW

The Committee on Community, Housing, and Cultural Affairs conducted a public hearing on May 23, 1995 at 1:00 PM at the Legislative Public Hearing Room, Agana to receive public input on Bill No. 179. Public notice was printed in the Pacific Daily News on May 20, 1995.

Committee members present were:

Senator Angel Santos, Chairman

Senator Mark Charfauros, Vice Chairman

Senator Tom Ada

Senator Lou Leon Guerrero

Senator Ted Nelson

Senator Ben Pangelinan

Appearing to testify in support of the Bill were:

Frank L.G. Castro, private land surveyor and former director of Land Management

J.A. Martinez, director of Land Management

Andrew Dyson, consultant, Guam Geodetic Network

N.B. Carino, Territorial Surveyor

Paul L. Santos, private land surveyor

Opposing the Bill were:

Fermin A. Paz, private land surveyor

Ron Perry, private land surveyor

II. SUMMARY OF THE HEARING

Testimony focused on the need to upgrade Guam's system of marking land boundaries. The current set of markers date back to 1963 and, over the decades, accuracy of land surveys has been eroded to the point where "gaps and overlaps" in survey maps are a major problems for private surveyors, the Department of Land Management, the property owners and anyone else who handles land matters.

The new system uses the U.S. Department of Defense global positioning satellites to identify known fixed locations and then associating them with unknown sites. For surveying purposes, this system is accurate to within centimeters. Detailed explanation of the system's nature and implementation is contained in Mr. Dyson's written testimony.

Opposition to the Bill centered on the perception that it would create more bureaucracy within the Department of Land Management, causing further delays in map approvals and placing undue financial burden on the private land surveyors. Additional concern was raised about taking away the private surveyor's privilege to determine property boundaries, a responsibility given him when he is issued a license to practice by the Professional Engineers and Land Surveyors (PEALS) Board.

III. FINDINGS AND RECOMMENDATION

The 1993 Guam Geodetic Network (1993 GGN) project will provide a modern, accurate and readily-accessible geodetic network as the basic spatial framework for Guam's cadastre (land boundary system) and land information systems. At completion, the 1993 GGN will comprise 28 primary stations and 2,200 new secondary and tertiary stations, all recovered 1963 Guam Geodetic Triangulation Network (1963 GGTN) marks (about 290) and various other existing survey marks (about 210). In addition to providing a network of survey marks that will be readily accessible to all survey practitioners, the project has developed the necessary supporting infrastructure to ensure long term sustainability of the project.

Implementation of the project commenced in April 1994 and the anticipated completion date is September 1995. Good progress has been achieved to date; effectively, the project is on schedule. Cost of the project initially was \$1.2 Million; hands-on experience by the work team comprised of technical experts from the South Australian government and local government employees is expected to cut the cost to about \$900,000.

Accordingly, the Committee on Community, Housing, and Cultural Affairs, to which was referred Bill No. 179, submits its findings and recommendation to the Twenty-Third Guam Legislature "TO DO PASS" Bill No. 179, as amended by the Committee on Community, Housing and Cultural Affairs - An Act to Amend 21 GCA Chapter 60 and to Allow for the Introduction of the 1993 Guam Geodetic Network.

TWENTY-THIRD GUAM LEGISLATURE
1995 (FIRST) Regular Session

Bill No. 179 (LS)
as amended by the Committee on
Community, Housing and Cultural Affairs

Introduced by

V.C. Pangelinan

A.L.G. Santos



AN ACT TO AMEND 21 GCA CHAPTER 60 AND TO ALLOW
FOR THE INTRODUCTION OF THE 1993 GUAM GEODETIC
NETWORK.

1 BE IT ENACTED BY THE PEOPLE OF THE TERRITORY OF GUAM:

2 **Section 1. Legislative intent.** Since 1963, surveys have been done according to
3 the 1963 Guam Geodetic Triangulation Network system. The Department of Land
4 Management has contracted with the South Australian Government for satellite
5 surveying of new primary, secondary and tertiary control stations. Upon
6 completion of the surveying, a new geodetic system will be in place to replace the
7 1963 network.

8 It is the intent of the Guam Legislature that this new system must have
9 legislation to protect the marked primary, secondary and tertiary control points
10 that will be established.

11 **Section 2. A new 21 GCA §60515 is added to read:**

12 **“§60515. Establishment of the 1993 Guam Geodetic Network.**

13 (a) The Director shall progressively replace the 1963 Guam Geodetic Network
14 with the 1993 Guam Geodetic Network.

15 (b) For this purpose, appropriate monumentation that is intended for the
16 establishment of the 1993 Guam Geodetic Network shall be erected by the
17 Director, or may be designated by him, as primary, secondary and tertiary

1 network marks and shall be referred to as the 1993 Guam Geodetic Network for
2 use in locating and describing land within the territory.

3 (c) The 1993 Guam Geodetic Network shall be established to control the
4 standards prescribed in the Federal Geodetic Control Committee's (FGCC)
5 publication Geometric Geodetic Accuracy Standards and Specifications for Using
6 GPS Relative Positioning Techniques, Version 5.0 (Reprinted 1 August 1989) and
7 as updated as necessary."

8 **Section 3. A new 21 GCA §60516 is added to read:**

9 **"§60516. 1993 Guam Geodetic Datum and Map Grid.**

10 (a) The 1993 Guam Geodetic Network shall adopt the North American Datum
11 of 1983 (NAD83 Geodetic Datum) as the Coordinate Reference System.

12 (b) The Guam Map Grid, with the following parameters, shall be adopted for
13 surveying application in Guam:

14	Central Meridian and	
15	Longitude of Origin	144°45' East Longitude
16	Latitude of Origin	13°30' North Latitude
17	Easting of Origin	100,000 Meters
18	Northing of Origin	200,000 Meters
19	Central Scale Factor	1.000000."

20 **Section 4. A new 21 GCA §60517 is added to read:**

21 **"§60517. Proclaimed Survey Areas.**

22 (a) The Director shall declare areas of Guam where the 1993 Guam Geodetic
23 Network has been established as Proclaimed Survey Areas.

24 (b) The Director shall make notification of the declaration of Proclaimed
25 Survey Areas by advertising in the local newspaper and advising the Guam Board
26 of Registration for Professional Engineers, Architects and Land Surveyors.

1 (c) When carrying out a survey of land boundaries in a Proclaimed Survey
2 Area, surveyors shall connect to a minimum of three 1993 Guam Geodetic
3 Network marks.

4 (d) If the Territorial Surveyor, based upon reasonable grounds, questions a
5 survey plan as to form and accuracy, which includes definition of boundaries, as
6 shown on a survey plan in a Proclaimed Survey Area by reason of the survey not
7 being carried out in accordance with this law or regulations issued under this law,
8 the Territorial Surveyor may require the surveyor responsible to undertake
9 additional work, or to provide additional information in relation to the survey in
10 order for the Territorial Surveyor to verify the survey plan as to form and
11 accuracy, including definition of the boundaries. The Territorial Surveyor shall
12 not approve the plan until satisfied that the requirements of this law are met.

13 (e) The surveyor must comply with any such requirement within fourteen (14)
14 days or such longer period as allowed by the Territorial Surveyor.

15 (f) The Territorial Surveyor shall approve or disapprove, in writing, all survey
16 plans within forty-five (45) days of submission. Failure of the Territorial Surveyor
17 to disapprove in writing a survey plan submitted shall deem such plan approved.
18 Such approval shall not waive the rights of the property owners or the surveyor to
19 challenge such approval in any manner prescribed by law."

20 **Section 5. A new 21 GCA §60518 is added to read:**

21 **"§60518. Extension of the 1993 Guam Geodetic Network.**

22 (a) Subdivisions of land in Proclaimed Survey Areas carried out pursuant to
23 Chapter 62, Title 21, Guam Code Annotated (Subdivision Law) shall comply with
24 these requirements.

25 (b) The Territorial Planner shall forward a copy of all tentative plans of
26 subdivision to the Territorial Surveyor.

1 (c) The Territorial Surveyor shall indicate, on the tentative plans of
2 subdivisions in Proclaimed Survey Areas, the locations of new marks to be
3 included in the 1993 Guam Geodetic Network and return a copy of the tentative
4 plan to the surveyor.

5 (d) The marks shall be placed by the surveyor carrying out the subdivision at
6 the completion of all major site works to the specifications set by the Territorial
7 Surveyor. The Territorial Surveyor shall be advised when the marks have been
8 placed. The subdivision map shall not be approved until the marks are placed by
9 the surveyor and certified to by the Territorial Surveyor or his designee.

10 (e) The surveyor shall relate all marks placed pursuant to this section and all
11 1993 Guam Geodetic Network marks located on a survey in both distance and
12 direction to the closest boundary corner.

13 (f) The Territorial Surveyor shall connect the marks to the 1993 Guam
14 Geodetic Network and recover any cost from the surveyor carrying out the
15 subdivision." *or the developer*

16 **Section 6. A new 21 GCA §60519 is added to read:**

17 **"§60519. Protection of 1993 Guam Geodetic Network Marks.**

18 (a) A person must not, without the approval of the Territorial Surveyor,
19 destroy or damage a 1993 Guam Geodetic Network mark. A penalty of \$5,000 will
20 be incurred if a person destroys or damages a 1993 Guam Geodetic Network
21 mark.

22 (b) Where a person proposes to carry out any work in a Proclaimed Survey
23 Area likely to destroy or damage a 1993 Guam Geodetic Network mark, that
24 person shall give notice to the Territorial Surveyor, who shall take all necessary
25 steps to safeguard the mark, and the proposed work shall not commence until
26 such steps have been taken.

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2 (b) above shall be recovered from the person carrying out the work.

3 (d) When the Court finds a person guilty of willfully destroying or damaging
4 a 1993 Guam Geodetic Network mark, in addition to the punishment imposed by
5 the Court, the person shall pay the Territorial Surveyor the full cost of replacing
6 and re-coordinating the mark, in addition to the penalty stated above.”

received
MAR 24 1995



COMMITTEE ON RULES

Twenty-Third Guam Legislature
155 Hesler St., Agana, Guam 96910

March 22, 1995

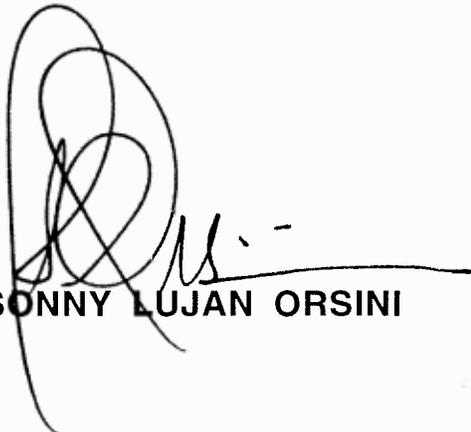
MEMORANDUM

TO: Chairperson, Committee on Community, Housing and
Cultural Affairs

FROM: Chairman, Committee on Rules

SUBJECT: Referral - Bill No. 179

The above Bill is referred to your Committee as the principal committee. Please note that the referral is subject to ratification by the Committee on Rules at its next meeting. It is recommended you schedule a public hearing at your earliest convenience.


SONNY LUJAN ORSINI

Attachment

MAR 14 1995

TWENTY-THIRD GUAM LEGISLATURE
(FIRST) Regular Session 1995

Bill No. 179 (LS)
Introduced by:

V.C. Pangelinan
A.L.G. Santos

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18 adopted for surveying application in Guam:

Central Meridian and

19 Longitude of Origin 144 - 45' East Longitude

20 Latitude of Origin 13 - 30' North Latitude

21 Easting of Origin 100,000 Metres

22 Northing of Origin 200,000 Metres

23 Central Scale Factor 1.000000"

24 **Section 4.** A new 21 GCA §60517 is added to read:

25 "Section 60517. Proclaimed Survey Areas.

1 (a) The Director shall declare areas of Guam where the 1993
2 Guam Geodetic Network has been established as Proclaimed
3 Survey areas.

4 (b) The Director shall make notification of the declaration of
5 Proclaimed Survey Areas by advertising in the local newspaper
6 and advising the Guam Board of Registration for Professional
7 engineers, Architects and Land Surveyors.

8 (c) When carrying out a survey of land boundaries in a
9 Proclaimed Survey Area, surveyors shall connect to a minimum
10 of three 1993 Guam Geodetic Network marks.

11 (d) If the Territorial Surveyor believes on reasonable grounds
12 that the definition of boundaries as shown on a survey plan in
13 a Proclaimed Survey Area may not be accurate by reason of
14 the survey not being carried out in accordance with this law or
15 regulations issued under this law, the Territorial Surveyor may
16 require the surveyor responsible to undertake additional work,
17 or to provide additional information in relation to the survey
18 in order for the Territorial Surveyor to verify the definition of
19 the boundaries. The Territorial Surveyor shall not approve the
20 plan until satisfied that the definition is correct.

21 (e) The Surveyor must comply with any such requirement
22 within 14 days or such longer period as allowed by the
23 Territorial Surveyor.

24 (f) Failure to comply with written request from the Territorial
25 Surveyor is an offense punishable by a fine not exceeding
26 \$2,000."

27 **Section 5.** A new 21 GCA §60518 is added to read:

1 "(a) Subdivisions of land in Proclaimed Survey Areas carried out
2 pursuant to GCA Chapter 62, Subdivision Law shall comply with
3 these requirements.

4 (b) The Territorial Planner shall forward a copy of all tentative plans
5 of subdivisions to the Territorial Surveyor.

6 (c) The Territorial Surveyor shall indicate on the tentative plans of
7 subdivisions in Proclaimed Survey Areas, the locations of new marks
8 to be included in the 1993 Guam Geodetic Network and return a copy
9 of the tentative plan to the surveyor.

10 (d) The marks shall be placed by the surveyor carrying out the
11 subdivision at the completion of all major site works to the
12 specifications set by the Territorial Surveyor. The Territorial
13 Surveyor shall be advised when the marks have been placed. The
14 subdivision map shall not be approved until the marks are placed by
15 the surveyor and certified to by the Territorial Surveyor or his
16 designee.

17 (e) The Surveyor shall relate all marks placed pursuant to this
18 section and all 1993 Guam Geodetic Network marks located on a
19 survey in both distance and direction to the closest boundary corner.

20 (f) The Territorial Surveyor shall connect the marks to the 1993
21 Guam Geodetic Network and recover any cost from the surveyor
22 carrying out the subdivision."

23 **Section 6.** A new 21 GCA §60519 is added to read:

24 "Section 60519. Protection of 1993 Guam Geodetic Network Marks.

25 (a) A person must not, without the approval of the Territorial
26 Surveyor destroy or damage a 1993 Guam Geodetic Network

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mark. A penalty of \$5,000 will be incurred if a person destroys or damages a 1993 Guam Geodetic Network mark.

(b) Where a person proposes to carry out any work in a Proclaimed Survey Area likely to destroy or damage a 1993 Guam Geodetic Network mark, that person shall give notice to the Territorial Surveyor, who shall take all necessary steps to safeguard the mark, and the proposed work shall not commence until such steps have been taken.

(c) The cost of any work carried out by the Territorial Surveyor pursuant to (b) above may be recovered from the person carrying out the work.

(d) Where the Court finds a person guilty of wilfully destroying or damaging a 1993 Guam Geodetic Network mark, in addition to the punishment imposed by the Court, the person shall pay the Territorial Surveyor the full costs of replacing and re-coordinating the mark, in addition to the penalty stated above."





DEPARTMENT OF LAND MANAGEMENT

(DIPATTAMENTON TANO')



CARL T.C. GUTIERREZ
Governor

1993 GUAM GEODETIC NETWORK PROJECT

J.A. MARTINEZ
Director

MADELEINE Z. BORDALLO
Lieutenant Governor

JAMES P. CRUZ
Deputy Director

SUBMISSION TO TWENTY-THIRD GUAM LEGISLATURE

PUBLIC HEARING

to receive testimony on the merits of

Bill No 179

**“An Act to amend 21 GCA Chapter 60
and to allow for the introduction of the
1993 Guam Geodetic Network”**

**FROM: Nicanor Carino, Territorial Surveyor & Project Administrator, &
Andrew Dyson, Australian Team Leader,
1993 Guam Geodetic Network Project**

DATE: 23rd May 1995

INTRODUCTION

The 1993 Guam Geodetic Network (1993 GGN) Project will provide a modern, accurate and readily accessible geodetic network as the basic spatial framework for Guam's cadastre (land boundary system) and land information systems. At completion, the 1993 GGN will comprise 28 primary stations and 2200 new secondary and tertiary stations, all recovered 1963 Guam Geodetic Triangulation Network (1963 GGTN) marks (about 290) and various other existing survey marks (about 210). In addition to providing a network of survey marks that will be readily accessible to all survey practitioners, the project has developed the necessary supporting infrastructure to ensure long term sustainability of the project.

Implementation of the project commenced in April 1994. It is anticipated that the project will be completed in September 1995. Good progress has been achieved to date on the project which is effectively on schedule.



One aspect of the supporting infrastructure was the preparation of draft legislation to provide the legal authority for introducing the 1993 Guam Geodetic Network, protection for the new survey marks established on the project and revised procedures for surveys to enable the full benefits of the network to be realised. This submission is presented in support of Bill No. 179 prepared from the draft legislation contained in the project's Legislation Study.

It is imperative that the legislative amendments are adopted as soon as possible to ensure adequate provisions are in place to protect the marks and that the full benefits of the project are realised. Unless they are, the quality of the cadastre will not be improved and the sustainability of the project cannot be guaranteed. This project is not simply replacing the 1963 GGTN with a more accurate 1993 GGN, it is providing the basis for the resolution of Guam's boundary problems and introducing new practices to surveying to prevent the proliferation of gaps and overlaps in the future. Only by the adoption of the proposed legislation and new survey techniques will these problems be resolved.

PROJECT BACKGROUND

Ordered social and economic development relies upon a sound land administration system. Without the security of tenure and boundaries that result from a sound land administration system, citizens and developers are reluctant to invest in appropriate development. The Government of Guam and in particular the Department of Land Management has recognised the need for such a system and embarked on a number of programs to achieve this goal.

In 1991 the Territorial Planning Council engaged the South Australian Government to assist with the preparation of a strategic plan for the management of Guam's land information. This study produced a comprehensive document entitled the *Land Information Management Strategy* which identified a number of areas in which improvements were recommended. Some particular areas of concern relate to the quality of the basic cadastre, which is the record of legal rights relating to land parcels and the record of the spatial extent of those parcels.

A sound geodetic network provides the ability to spatially locate the cadastre and all land information and is required to support a modern land information system. A geodetic network is a system of survey marks with precisely determined positions (ie. Latitude, Longitude and Height). The study drew attention to the serious shortcomings of the existing 1963 Guam Geodetic Triangulation Network (1963 GGTN) of which it was estimated perhaps 75% was missing and the absence of any network in areas of development subsequent to 1963. The state of the network has had a serious effect on the quality of cadastral surveys with resultant gaps and overlaps. Accordingly it was recommended that a modern, accurate and complete geodetic network should be established as a matter of urgency. The report supported the desire of the then Director, DLM, to upgrade the existing geodetic network to provide the spatial framework for the Territory's cadastre and land information needs.

As already indicated the *Land Information Management Strategy* raised concerns about the quality of the cadastre. Some of these are a result of the state of the 1963 GGTN but others are a result of problems with the way in which cadastral surveys are carried out and subsequently reviewed. It made some recommendations for improving the system and for the establishment of a new network. The

study specifically recommended a more adequate connection of surveys to the geodetic network and more substantial checking and investigation of survey plans.

Aware of the limited resources of the Survey Division, the lack of expertise in geodetic surveying both within DLM and the private sector, and recent developments in satellite surveying, the then Director sought government to government assistance from agencies with the necessary expertise to undertake the establishment of a modern geodetic network. He communicated with two US Federal agencies, the National Geodetic Survey (NGS) and Bureau of Land Management (BLM), and the South Australian Department of Environment and Natural Resources (DENR). After numerous communications and meetings both in Guam and on the mainland and the preparation of proposal documents, the Director decided to accept the DENR proposal. The decision was based on a comparison of the financial aspects, project management proposals, proposed training and technology transfer and other considerations.

Accordingly the Government of South Australia was appointed as the Administrative and Technical Consultant for the 1993 Guam Geodetic Network Project. The project is under the administration of the Territorial Surveyor. DENR is providing consultants throughout the project who will ensure an effective technology transfer to DLM.

OBJECTIVES

The objectives of the project are to assist DLM to:

- Upgrade the Guam Geodetic Triangulation Network to a modern, accurate, and readily accessible geodetic network;
- Provide technology transfer to DLM staff regarding the application of GPS technology to surveying.
- Develop a Mark Maintenance Program to ensure that the new marks are not allowed to be destroyed over time and the network deteriorate;
- Develop and implement a Survey Mark System into which data generated by the project will be incorporated;
- Develop amendments to legislation and provide the surveying industry with a guide as to how new legislative requirements will affect it.

The requirements of an effective network are:

- appropriate accuracy of coordinates
- well maintained survey marks
- sufficient density of marks to enable all surveys to be adequately connected
- an increase in density of marks as development occurs

- an adequate record system holding information related to marks

The 1993 Guam Geodetic Network Project will meet all the above requirements. It will provide a Primary Network of very high accuracy comprising twenty eight (28) survey marks evenly distributed over the island. More importantly it will establish Secondary and Tertiary Networks of some 2700 survey marks that will be readily accessible to all survey practitioners using conventional survey techniques.

METHOD OF SURVEY

The 1993 Guam Geodetic Network (1993 GGN) is being established using Global Positioning System (GPS) satellite technology.

PROJECT BENEFITS

Completion of the project will provide a number of long term benefits to the people of Guam:

- It will provide the fundamental support to land surveying, mapping, engineering and related applications and is the basis for integration of all such activities. It will be of sufficient quality to ensure that all surveys are based on a homogeneous coordinate system preventing surveys and development from being disjointed and unrelated which ultimately leads to unnecessary expense when neighbouring areas meet.
- The existence of about 2700 survey marks, island wide, will ensure that survey control is readily accessible to all surveyors whether using conventional or GPS survey equipment. This will reduce substantially the cost of providing control on surveys. All landowners, whether individuals, companies or government, will benefit as survey costs will be restricted to the cost of surveying the land or project in question and not the additional cost of providing control from some distant 1963 GGN station. Integrity of coordinates and hence boundaries can only be guaranteed by having an established and well maintained network of control points. If GPS control was provided individually for each survey from a distant control point there would be no quality control on the coordinates, and hence the boundary positions. In addition the majority of surveyors without GPS equipment and expertise would be reliant upon those with such expertise and equipment.
- It will provide a homogeneous coordinate system, essential to any Land Information System that will enable the efficient spatial integration of data from many different sources (eg. planning, utility data, survey, mapping, remote sensing, soils and climate to name a few). The coordinate system will be a world wide system, compatible with the GPS system that has become the global standard for surveying, mapping, navigation and land information systems.
- An adequate network allows surveyors to work from the whole to the part, a standard survey practice, not from the part to the whole and enables uniform scale and orientation to be maintained. Thereby the accuracy of surveys is controlled and maintained and the propagation of

errors is reduced. It will control the position of surveys, thus significantly lessening the creation of boundary gaps and overlaps and will also provide the framework necessary to resolve such existing problems. Eventually this should significantly reduce the volume of boundary dispute litigation, a saving for the people and government of Guam.

- It will lay the framework for the possible introduction of a coordinate based cadastre and surveying system, the ultimate of which is a legal coordinated cadastre where coordinates of boundary coordinates are given precedence over other boundary evidence. Studies show significant financial benefits in such a system.
- It will assist in the accurate monitoring of earth movements in seismic and plate tectonic studies. Such monitoring is important in an area where there are frequent seismic disturbances.

GPS LIMITATIONS

While GPS is recognised as a very powerful surveying tool, it must be understood that the system should not be relied upon as the sole means of providing survey control in the future. There will be a place for conventional survey techniques for some considerable time for the following reasons:

- GPS was established and is controlled by the US Defence Forces and as such no guarantee has been provided, that the system will be maintained and be available to non military users, in fact they advise that users of the system do so at their own risk. In the event of a military conflict non military users could be denied access to the system.
- The system is susceptible to an Electro-Magnetic Pulse, (a pulse of such power that it could wipe out GPS and other electronic systems).
- A report has warned that GPS jammers can be built for \$50, confirming fears of the possible vulnerability of the system.
- GPS technology is expensive and extensive training is required for surveyors to be able to properly utilise the system. It is not a simple matter of purchasing the equipment and accepting the first answers that emerge from the computerised reduction process. Without a thorough understanding of the system and a proper analysis of the data, the results cannot be relied upon.

PROJECT IMPLEMENTATION

Survey teams from DLM have established the Primary Network of twenty eight survey marks and carried out high precision GPS observations to determine the position of these points. These observations were made in May and June 1994.

Establishment of the Secondary and Tertiary Networks has been divided into three parts, covering the northern, central and southern portions of the island. GPS observations have been completed on 950 stations in the northern portion of the island and 805 stations in the central portion. Reconnaissance is

underway on the southern portion and construction of the 670 new marks, which will consist of a distinctive brass disk set in a concrete block, commenced in April. Observations to about 920 stations on this final stage will commence towards the end of May.

To ensure long term sustainability of the technology transfer from DENR to DLM, the project includes a comprehensive training program. There is continuing on-the-job training for DLM staff involved in the project and after completion of the on-island components of the project there will be a further three months of training for two DLM personnel in South Australia.

Three critical components of this project provide the supporting infrastructure necessary to ensure long term sustainability of the project. These are the development of a Mark Maintenance Program, development and implementation of the Guam Survey Mark System Survey to store information about the survey marks and the Survey Legislation Study.

Survey monuments will be protected by the placement of posts and/or steel covers and the development of an effective Mark Maintenance Program to ensure the preservation of the network. A program has been developed and links established with the various utility agencies to avoid destruction of the new survey marks. To be effective the program needs legislative backing.

A computerised data base (Guam Survey Mark System) has been developed into which the coordinates of the survey marks and information about these marks will be stored. All data generated on the project will be accessible to the surveying community (both government and private) through this system.

The Survey Legislation Study has been completed and has proposed amendments to Guam's surveying legislation to provide the legal authority for introducing the 1993 Guam Geodetic Network, to provide for protection of the new survey marks and require surveyors to connect to the new network. The study also provided a guide for surveyors working within the new system and suggested various opportunities for improving the cadastre.

LEGISLATION STUDY

The Legislation Study was carried out between 11th April 1994 and 5th May 1994 by Survey Legislation Expert, Mr Peter Kentish, Surveyor-General, DENR with assistance from staff of DLM.

The legal implications of establishing a new geodetic datum and a new map projection, and the authority for the new network were investigated. Existing legislation controlling penalties for disturbing or destroying survey marks and the policing of the legislation were examined. To avoid a repetition of the destruction of the 1963 GGTN monuments, it was recommended that the penalties for damaging or destroying 1993 GGN marks should be increased from \$500 to \$5000 and persons found guilty should be responsible for paying the full costs of replacing and coordinating the marks.

The existing surveying legislation provides the authority for the establishment and protection of the 1963 Guam Geodetic Triangulation Network. This legislation places a number of obligations on surveyors that will also relate to surveys carried out in the 1993 GGN. To avoid duplicating these requirements and at

the same time ensuring the 1993 GGN has legal status the *Legislation Study Report* recommended draft legislation that will:

- provide legal authority for the 1993 GGN;
- establish the new datum and map projection;
- require surveyors to connect surveys to the 1993 GGN;
- allow for the extension of the 1993 GGN in subdivisions;
- set penalties for disturbing or destroying 1993 GGN marks;
- assist in maintaining the 1993 GGN.

It is important that the legislative authority for the 1993 GGN is introduced at the earliest possible time to ensure adequate provisions are in place to protect the marks. The eventual success of the project is dependent upon adoption of the legislation, not only to provide protection for the survey marks themselves but to ensure that the network is utilised by surveyors. Only in this way will the quality of the cadastre be improved and the full benefits of the project be realised.

As part of the study, a guide was prepared to assist surveyors working in the new system. This guide is in the form of an eleven page addition to the existing Survey Manual. It provides the specifications for 1993 GGN marks and explains how surveys should be connected to the network. The computation process is explained and accuracy criteria provided. There is a section on the requirements for surveys of new subdivisions and guidelines for the location of new 1993 GGN marks.

During the course of the Legislation Study, a number of opportunities for improving the cadastre were identified. The following recommendations were made:

- The current legislation covering cadastral surveying in Guam be reviewed with a view to revising and modernising the Survey Law, Survey Regulations and the Manual of Instruction for the Survey of Lands and Preparation of Plans in the Territory of Guam;
- The feasibility of creating a coordinated cadastre for Guam be investigated;
- A Confused Boundary Area Pilot Study be carried out and appropriate legislation prepared;
- Fees be introduced for examining survey plans;
- Review the role and resources of the Survey Branch and employ additional staff if required.

CONSULTATION WITH SURVEYORS

During the course of the Legislation Study and Development of the Mark Maintenance Program there was consultation with local surveyors. At a well attended meeting on 25th April 1994, surveyors were briefed on the overall project and discussions were held on the proposed legislative changes to implement the 1993 GGN and the proposed mark maintenance program. The Survey Legislation Expert explained the objectives of his study and outlined his proposals for amendments to the existing survey

legislation and the Survey Manual. There was a lengthy discussion on the project and the overall impression was that the surveyors were very supportive of the project and its aims.

Since completion of the Legislation Study and preparation of the draft legislation the Territorial Surveyor and project consultants have attended five meetings of the Guam Society of Professional Land Surveyors to explain and discuss the proposed legislation.

EXPLANATION OF PROPOSED LEGISLATION

The following paragraphs address each section of the proposed legislation:

Section 1.

This section explains the overall intent of the legislation to replace the existing geodetic network with the new network and provide protection for the new survey marks.

Section 2.

This section provides for establishment of the new network and specifies the appropriate standards. It mandates the Director, DLM, to progressively replace the 1963 Guam Geodetic Triangulation Network with the 1993 Guam Geodetic Network and stipulates that appropriate monumentation may be erected or designated as primary, secondary and tertiary network marks to be used in locating and describing land on Guam. It also specifies that the 1993 GGN shall be established to standards prescribed by the Federal Geodetic Control Committee.

Section 3.

This section provides for adoption of a new geodetic datum and map grid for Guam. The 1993 Guam Geodetic Network will adopt the North American Datum of 1983 (NAD83 Geodetic Datum) as the coordinate reference system. The adoption of NAD83 means that Guam's coordinate system will be the same as that for North America and will also be compatible with much of the rest of the world. There has been a steadily increasing adoption of globally compatible systems and this trend is accelerating with the widespread adoption of GPS for surveying, mapping, and navigation. The US National Geodetic Survey (NGS) have provided very precise NAD83 coordinates for a point on Guam as a result of a very high precision GPS survey throughout the Pacific in 1993. The coordinates of this point are the basis for the 1993 GGN.

To avoid the deficiencies inherent in the existing Guam map grid and to avoid the possibility of any confusion between 1993 and 1963 grid values a new Guam Map Grid is proposed. NGS have accepted DLM's adoption of the Guam Map Grid and have indicated that they will publish coordinates in the new system and include it in their computer software. The parameters necessary to define the new grid are specified in this section.

Section 4.

This section is critical to the eventual success or failure of the project in improving the state of the Guam cadastre. The primary objective of the 1993 GGN project is to provide a sound basis for the cadastre and to fulfil this function it is essential that surveys are adequately connected to the network. In this way surveys will be properly controlled, preventing the proliferation of gaps and overlaps, and a system of accurate and well maintained reference marks will be established that will enable the speedier, simpler and cheaper retracement of boundaries in the future. Unless this section is adopted the establishment of the new geodetic network will have not achieve this objective.

It was intended that Proclaimed Survey areas should be declared by the Director in areas where the new marks have been established and preliminary coordinates are available. To ensure that the benefits of the new system are realised as soon as possible, boundary surveys should be connected to the 1993 GGN as soon as possible after the marks have been placed and the legislation adopted.

To ensure that surveys are unambiguously connected to the network, they are to be connected to a minimum of three 1993 GGN marks. Under the current regulations a minimum of one corner of the subject land is connected to the 1963 GGTN. Such a single connection does not provide an unambiguous connection to the network or the certainty required for a modern cadastral system. Although it could be argued that a connection to two marks is sufficient, the additional tie provides a redundant observation which is essential to assure the surveyor of the integrity of his work. The most basic principle of surveying is that sufficient redundant observations should be made to be confident that no mistake has been made. The density of the 1993 GGN is such that it will not be onerous to provide three connections, especially considering the present situation where it might be necessary to survey for several days to provide a connection to the 1963 GGTN. The new network will provide about 2700 control points compared to less than 300 surviving points from the existing network. The maximum spacing of marks in rural areas is 700 meters and is usually no more than 500 meters. In urban areas spacing between marks is about 300 meters. Not only will it be much easier to connect to the new network, it will also be substantially cheaper.

It might also be argued that it is not necessary to connect to the closest three marks and that control could be provided from a distant control mark using a technique such as GPS. While there is no attempt to dictate the measurement method or equipment by which surveyors must connect to the network, provided that the required tolerances are met, and the use of GPS could very well be appropriate, it is however intended that the nearest 1993 GGN marks will become reference marks to the boundaries. Only in this way will the network become a system of well maintained reference points that will enable the simple retracement of boundaries. Straightforward and unambiguous retracement of boundaries is the primary intent of establishing the 1993 GGN. The importance of consistency with the local network rather than distant control points is emphasised.

The draft amendments to the Survey Manual provide surveyors with a guide as how they should connect to the network and adjust their surveys to the network.

The remaining parts of this section are intended to define the powers of the Territorial Surveyor in relation to the checking of survey plans and to improve the checking procedures. It should be borne in mind that some of the problems with the Guam cadastre could have been prevented if greater emphasis had been placed on the checking process. It is important that the checking process provides adequate protection for the rights of adjacent property owners and prevents the proliferation of gaps and overlaps. If tighter checking procedures are employed together with adequate connections to the 1993 GGN then this will be the case.

Under the existing 21 GCA §62305 the Territorial Surveyor has the authority to approve survey plans for accuracy and conformity to standard surveying practice. To ensure surveyors meet the obligations imposed by this amended legislation, Section 4 sets out more clearly the authority of the Territorial Surveyor to withhold approval of survey plans until satisfied that the plan is correct. Adequate penalties need to be available to ensure surveyors comply with the directions of the Territorial Surveyor.

With the establishment of the new network, there must be changes to survey practices on Guam. It is important to appreciate the need for the adoption of new philosophies and techniques if the problems of the past are not to be repeated and if these problems are eventually to be resolved.

Section 5.

One of the failures of the existing 1963 GGTN is that it has never been extended as development occurred. This section provides for extension of the 1993 GGN into areas of new development. It is intended that the surveyor responsible for the subdivision will place the new marks and connect them to his survey. The brass disk and witnessing materials will be provided by DLM. The Territorial Surveyor will be responsible for the connection of the marks to the 1993 GGN and provision of coordinates. This approach will minimise the cost to the Government and most importantly ensure not only that the marks are physically connected to the survey but also that the connections will be recorded on the surveyors' plans. In this way the marks will immediately become unambiguous reference marks that can be used in future retracements of the boundaries. For this reason it is critical that new marks are placed and connected by the surveyor before the subdivision map is approved.

Section 6.

One of the reasons for the establishment of the new geodetic network is the destruction of a large proportion of the marks from the 1963 GGTN. The ongoing protection and maintenance of the 1993 GGN is of fundamental importance to the future of the Guam cadastral system and every effort must be made to protect marks from damage and destruction. Existing legislation provides that it is a petty misdemeanour to damage or destroy survey monuments. It is

considered that there needs to be greater responsibility placed on authorities and the public to ensure they do not destroy the 1993 GGN marks. The current penalty of \$500 is considered inadequate and accordingly this section proposes that it be increased to a maximum fine of \$5000. It is further proposed that the new legislation require that a person (or government agency) found guilty of destroying or disturbing a 1993 GGN mark be responsible for paying the full costs of replacing and re-coordinating the mark.

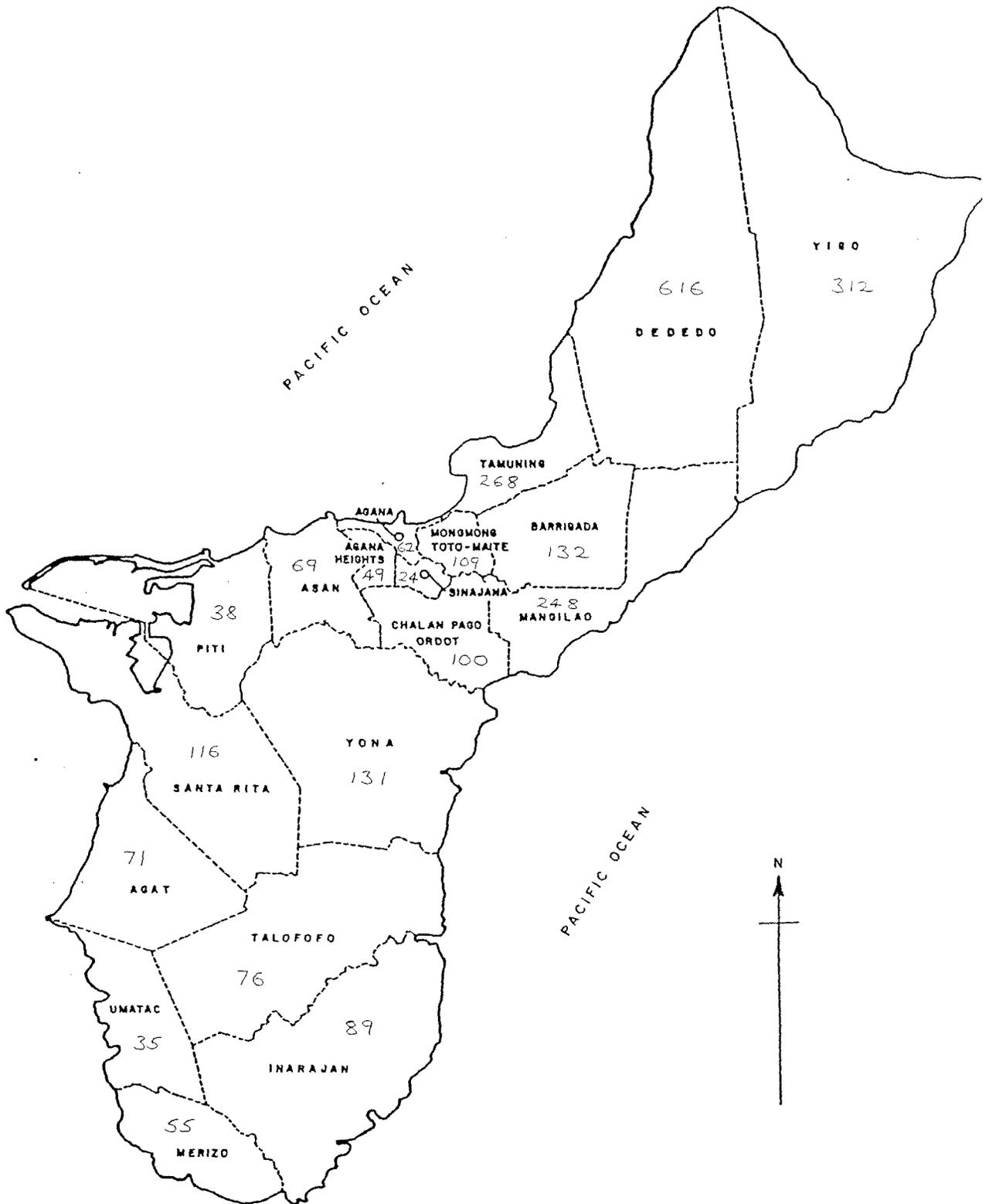
To assist in maintaining the marks it is also recommended that the legislation requires agencies who carry out works likely to destroy 1993 GGN marks to notify the Territorial Surveyor of intending works so that marks can be protected before such work commences.

MONUMENTATION & WITNESSING MATERIALS

Ongoing maintenance and extension of the network, which are to be mandated by the proposed legislation, will require the acquisition of both monumentation and witnessing materials by DLM. Proposed amendments to the Survey Manual provide the specifications for the monumentation and witnessing of new marks by surveyors and stipulates that the materials other than the concrete will be provided by the Territorial Surveyor. This will ensure that all marks and witnessing are uniform and comply with the specifications. Accordingly DLM will require funding for purchase of these materials.

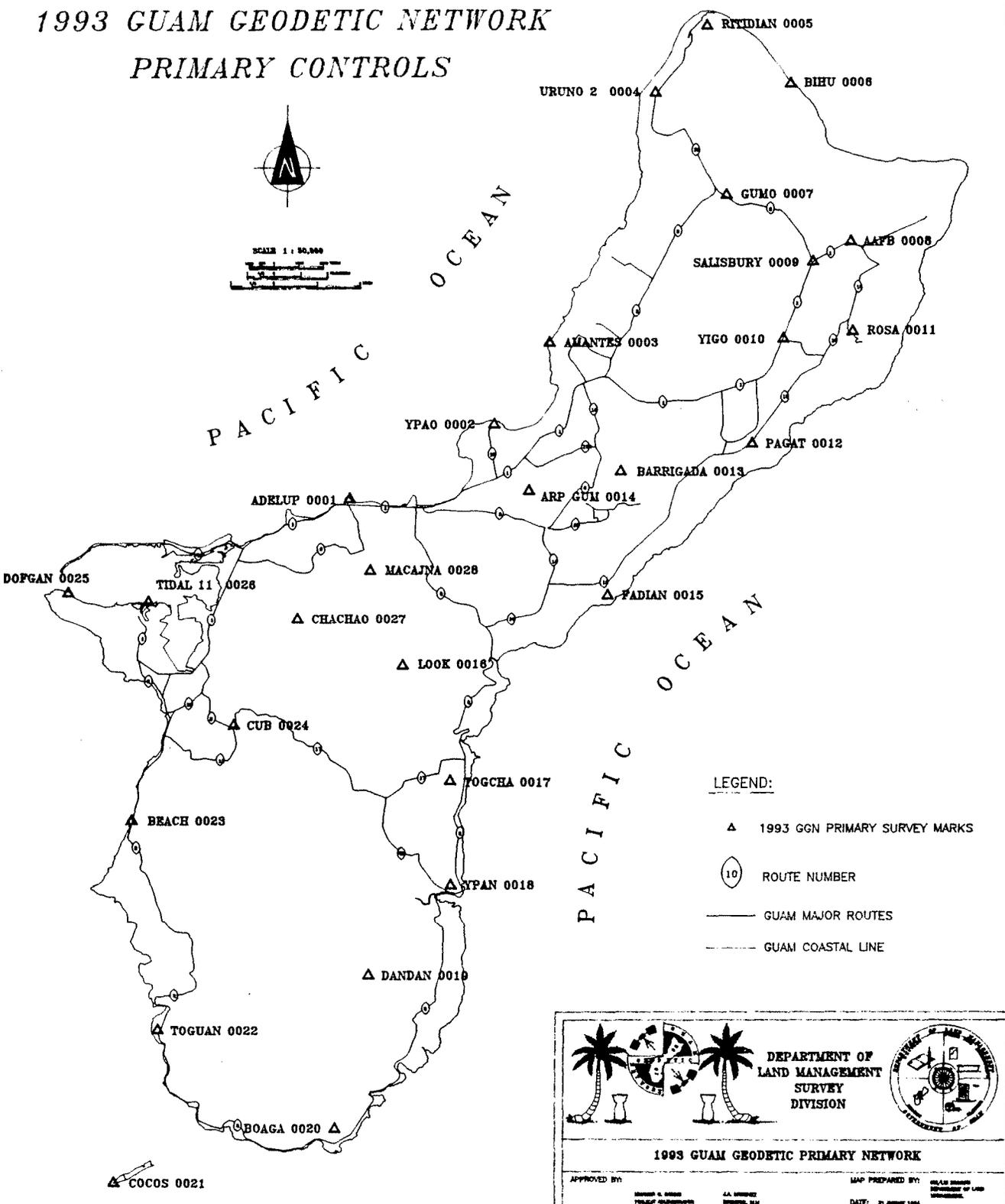
CONCLUSION

In conclusion your support is sought for the adoption of the proposed legislation to ensure that Guam gains the maximum benefit from this \$1.2m project and that there will be an ongoing improvement to Guam's cadastral system and hence its land administration system. Without the security of tenure and boundaries that result from a sound land administration system both citizens and developers will be reluctant to invest in appropriate development badly needed by Guam in the current economic situation.



ISLAND MAP OF GUAM

1993 GUAM GEODETIC NETWORK PRIMARY CONTROLS



LEGEND:

- △ 1993 GGN PRIMARY SURVEY MARKS
- ⑩ ROUTE NUMBER
- GUAM MAJOR ROUTES
- - - GUAM COASTAL LINE



**DEPARTMENT OF
LAND MANAGEMENT
SURVEY
DIVISION**



1993 GUAM GEODETIC PRIMARY NETWORK

APPROVED BY:

JOSEPH G. BRAGA
 CHIEF OF BUREAU

MAP PREPARED BY:

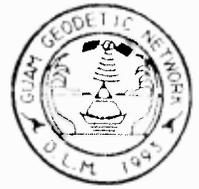
JOSEPH G. BRAGA
 CHIEF OF BUREAU

DATE:

21 JANUARY 1993



DEPARTMENT OF LAND MANAGEMENT
(DIPATTAMENTON TANO')



CARL T.C. GUTIERREZ
Governor

1993 GUAM GEODETIC NETWORK PROJECT

J.A. MARTINEZ
Director

MADELEINE Z. BORDALLO
Lieutenant Governor

JAMES P. CRUZ
Deputy Director

**SUBMISSION TO TWENTY-THIRD GUAM LEGISLATURE
PUBLIC HEARING**

to receive testimony on the merits of

Bill No 179

**“An Act to amend 21 GCA Chapter 60
and to allow for the introduction of the
1993 Guam Geodetic Network”**

FROM: J. A. Martinez, Director,

DATE: 23rd May 1995

INTRODUCTION

I seek your support in enacting the proposed legislation in Bill No. 179 to provide the legal authority for introduction of the 1993 Guam Geodetic Network. The 1993 Guam Geodetic Network (1993 GGN) Project will provide a modern, accurate and readily accessible geodetic network to meet the needs of Guam well into the next century.

The 1993 GGN will replace the 1963 Guam Geodetic Triangulation Network (1963 GGTN) which has been destroyed over time and can no longer meet the surveying, mapping and land information requirements of Guam. The state of the 1963 GGTN has contributed to the state of disarray of Guam's cadastre which has numerous gaps and overlaps. The cadastre can be described in simple terms as the land title records, the related survey records and the associated parcel maps of Guam.

The inadequacy of the 1963 GGTN and problems with the cadastre were recognised and highlighted as major concerns in the *Land Information Management Strategy* prepared for the Territorial Planning Council in 1991. This study recommended that the geodetic network should be upgraded as a matter of urgency. Accordingly DLM embarked on a program to establish a new geodetic network with the assistance of the South Australian Government.



The project commenced in April 1994 and is scheduled for completion in September 1995. It will provide a new geodetic network of 28 Primary Stations, 200 Secondary Stations and about 2500 Tertiary Stations.

The following are some of the benefits expected from the 1993 Guam Geodetic Network:

- It will provide the fundamental support to land surveying, mapping, engineering and related applications and is the basis for integration of all such activities.
- The existence of about 2700 survey marks, island wide, will ensure that survey control is readily accessible to all surveyors whether using conventional or GPS survey equipment. This will reduce substantially the cost of providing control on surveys. All landowners, whether individuals, companies or government, will benefit as survey costs will be restricted to the cost of surveying the land or project in question and not the additional cost of providing control from some distant 1963 GGTN station.
- It will provide a homogeneous coordinate system, essential to any Land Information System that will enable the efficient spatial integration of data from many different sources (eg. planning, utility data, survey, mapping, remote sensing, soils and climate to name a few).
- It will control the position of surveys, thus significantly lessening the creation of boundary gaps and overlaps and will also provide the framework necessary to resolve such existing problems. Eventually this should significantly reduce the amount of boundary dispute litigation, a saving for the people and government of Guam.
- It will assist in the accurate monitoring of earth movements in seismic and plate tectonic studies.

Guam is not alone in establishing a tertiary geodetic network to provide control for cadastral surveys. Many survey organisations throughout the world are involved in long term projects to establish such networks, including those in mainland USA, Canada and Australia. Advantages for Guam are its relatively small size that allows the network to be established over a relatively short time and that the entire network is being established with GPS.

The project is not only providing a network of survey marks that will be readily accessible to all surveyors, it has also developed the necessary supporting infrastructure to ensure long term sustainability of the project. The proposed legislative amendments are a part of this infrastructure, another part is the Mark Maintenance Program which is dependent upon adoption of this legislation.

Accordingly I seek your support for the adoption of the proposed legislation to ensure that Guam gains the maximum benefit from this \$1.2m project and that there will be an ongoing improvement to Guam's cadastral system and hence its land administration system. If the legislation is not adopted, then this substantial investment that has the potential to be repaid many times over in cost saving to the whole community may be wasted.

My Territorial Surveyor, Nick Carino, and the project's Australian Team Leader, Andrew Dyson, will explain the project and the legislation in more detail and be able to answer any technical questions you may have.

PERRY ASSOCIATES, Inc.

Surveying & Mapping Sciences - Photogrammetry - Consulting



May 26, 1995

Senator Angel L.G. Santos,
Chairman of Housing, Community
and Cultural Affairs
22nd Guam Legislature
153 Hesler Street
Agana, Guam 96910

Dear Senator:

Perry Associates, Inc. is the largest surveying firm, on Guam and in Micronesia, employing a staff of 30, or more, at times.

I Ronald G. Perry, a Registered Land Surveyor am President of P.A.I. In addition to myself, we employ 2 other Registered Surveyors, as well as some Surveyors -in- Training.

I was, in the late sixties; Territorial Surveyor of Guam', the first Land Surveyor member of the Guam Board of Engineering and Land Surveying Examiners; and a recipient of the Ancient Order of Chamkori from the, then, Governor Carlos Camacho, for my work in the profession and service to the public.

I went on to higher levels of responsibility within the Federal Government, before establishing, Perry Associates in 1982. Although many reference for my tenure have passed on, people like Paul Souder, Frank San Nicolas, Jim Brooks, and a former chairman of the Resources and Development Committee, Senator Richard Taitano, are available and would probably attest most favorably as to my capability and ethics.

I was responsible for the establishment of our current surveying rules, and regulations as well as the implementation of the 1963 Guam Geodetic Triangulation Network.

My testimony of May 24, 1995, was something I did not plan on doing, rather leaving the matters under consideration to representatives of the Land Surveyors Association, represented by, President Santos and Fermin Pas, Secretary of the Association.

The hearing was conducted most of the time that day on one individual matter, and I made several trips to the Hearing Hall. On my eventing visit, I caught the tail end of the hearing. I had some disagreement as to what I heard, but was determined to leave the matter to the Land Surveyors Association, until Senator Pangelinan asked the Director of Land Management if he felt that the Territorial Surveyor should be the final authority for the correct placement of property markers. When the Director, after hesitating, agreed to that proposition, I could not hesitate to express an opinion. The answer was contrary to law and, but of course, the Director was relying on his survey expert. In this case he had bad

advise. A Surveyor has no judicial authority. He is an expert at measurement and can give opinions to the Court who in turn, determines legal boundaries, when in question.

My testimony, as best as I can recollect, addressed these issues:

The 1993 Geodetic Network is a highly funded, political, and badly conceived project awarded to a non-licensed foreign group and I contend it was done out of complete ignorance on the part of the government. I believe that this project should be put on hold and also be independently investigated. I was and remain opposed to this project.

Now, before the Committee on Housing and Community Cultural Affairs there is a proposed Bill to allow for the "Introduction of the 1993 Geodetic Network". Another step in this project, I understand that a number of new regulations that evidently are going to be implemented by Land Management, should this bill be passed, each of which should be scrutinized and amended before implementation. I'm afraid that Land Management will try to implement the new rules and regulations without any hearing, however, if this Bill is passed.

Most importantly, let me state that there is no need for a new Bill to "rename" the 1963 GGTN system. All the government is doing, at great expense, is adding a few hundred more control monuments. They claim they are taking advantage of the new G.P.S. technology, while in fact they are using it simply to position new monumentation, which could just as easily, certainly cheaper, be positioned using conventional surveying methods by local personnel. Rather than replace the 1963 Guam Geodetic Network, which is an accurate system established already, the new monuments should just be supplemental. There is no justification for another "new system". The current relative laws simply should probably be amended to allow the supplemental use of the 1983 (NAD 83) coordinate system and to allow the direct tie to the GPS Satellite system, or the GGTN monuments, as the Surveyor chooses.

Under the proposed law it requires a Surveyor to tie into three (3) of the new-monuments. The current laws requires tying into the two (2) GGTN's which is adequate, providing the ties are physically made and not fudged in, or the ties "directed" by the Survey Division. The new law would require a Surveyor doing a subdivision to submit his plan to Land Management, where they would dictate how many, and where, additional control monuments should be set. Why set more monuments when all the lots of the subdivision are already tied in? This is expensive work that will be borne by the land owner, and is of absolutely no value to the land owners. Also there would be an undeterminate number of monuments to be set until specified by the government. How can a client be advised of this unknown additional cost he will have to bear? In my case, a technician might require me to set 20, or 30, or 40 monuments while a favored competitor may be only required to set 2 or 4 monuments.

In addition the proposed law specifies that the new monumentation must be done within 14 days, or subject to "a fine not exceeding \$2,000". Why should Land Management

be able to dictate that certain work between a client and the Surveyor be done in a certain period of time. They should be more concerned about getting their work done in a more timely manner than its presently being accomplished. I contend that no new law is appropriate, or needed, and that Land Management should review its operation, priorities, objectives, programs etc. with the help of some expertise other than its present in-house capability.

I have great concerns for the direction that Land Management has the Survey Division attuned to. There is a lack of expertise within the Division and much oversight of important functions. Funds and effort are being misdirected at great taxpayer expense and landowners inconvenience. Land Surveyors are being directed as to how to perform their surveys, in almost all cases, by rather unqualified, and, in, at least in one case unethical technicians. If the Surveyors or firms requesting approval of maps do not conform exactly as the government technicians direct, the only recourse is to attempt, (not a small effort), to get the Territorial Surveyor to override his technician, or bite the bullet and do as the technician directs, that is if you want to get a map approval anywhere in the near future. The Land Surveyor is then delegated to a technician on the lowest level.

A major complaint from most practicing Land Surveyors, is the amount of time government survey personnel take to review survey maps required prior to recordation. What is supposed to be a 30 day, or less, task takes several months, and sometimes over a year. The defense used by Land Management is that the Surveyors "did not meet their requirements" or "weren't doing a good survey". Yet one or two Surveyors consistently get their maps approved in a few days time, and almost anyone can note that their survey maps seldom meet the bare requirements of Land Management. Therefore, there is suspicion of collusion between one or more practicing Surveyors and government survey personnel, and the matter should be considered for investigation.

I feel that besides the 1993 Geodetic Network Bill consideration, other related matters should be reviewed.

A handwritten signature in black ink, appearing to read "D. M. Perry". The signature is written in a cursive, flowing style with a large initial 'D' and 'P'.

what kind of monuments must be set on resurveys and how survey plats must be made and delivered, but it is not proper for them to legislate how the court is to interpret conveyances, what evidence the court must use, or how accurate a resurvey must be.

PRINCIPLE: Original surveys to divide land are or may be regulated by legislative action; after a conveyance is made, where the land described is located is interpreted by the courts.

When subdividing or platting new parcels of land, the surveyor obeys the statutory laws, but when the surveyor is locating the land described in a conveyance, he looks to court rules and past decisions to tell him how to interpret the writings and where he should locate the boundaries.

10-7. Property Surveyor's Authority.

PRINCIPLE: The property surveyor has no judicial authority; when resurveying for clients, the force of his authority is derived from reputation and respect.

In a resurvey no one is forced to accept the surveyor's findings. The surveyor's monuments are given force only by the consent of landowners or the court.

After a surveyor has monumented land boundaries, the proprietor will view the results and accept or reject them. Upon occasion possession will vary from marked lines, and the owner will refuse to accept the results. Sometimes the adjoiner objects and withholds his consent. If a court trial ensues, the court will declare whether the survey results are final or not. But in no instance can the property surveyor enforce his opinion on others; he must convince the owners or the court that he is right.

Without trust in a property surveyor there is no reason for his existence; he is hired by people because they believe him to be capable of being correct and just. If the people believe that surveyors are dishonest, their findings will not be approved and their efforts will be for naught. Property surveyors depend upon the public, or the courts, to approve their monuments; they are arbitrators and they serve the public.

Contact with Clients

10-8. Initial Contact with Client. Professional people do not actively solicit clients in the manner of businessmen; they do not advertise nor seek recognition in a self-laudatory fashion. Standing in a community, knowledge, prestige, and personal integrity are the foundations for

*Brown & Eldridge
Evidence re Procedures
for Boundary Location
1962*

1993 GUAM GEODETIC NETWORK

I stated in my testimony on May 24th that I was opposed to this project.

My objection to the establishment of this system is based on a number of factors.

1. There is no need for such a system. Expansion and corrections to the established 1963 system offered more benefits at a fraction of the cost of the new system.
2. Though the Australian salesmen "sold" their proposal based on using "New Technology" that they were experts with, Perry Associates Inc. had, in fact, obtained and used the "new technology" before the Australians ever used it.

However my argument is that they only used the GPS as a tool to extend our present system. For all the cost there are few benefits beyond using our existing system, or using conventional survey methods instead of GPS.

3. The government awarded the contract to the Australian firm, though not registered to perform such work on Guam, and even though Guam surveyors were capable and qualified to do such work. In addition the Australians were exempted from our Registration Law, all taxes, Immigration laws, use of Government equipment, etc. I question why such a contract was conceived and implemented.
4. Government officials involved with the contract have had some nice trips set up by the contractor, I wonder if such had any influence on selection of the contractor .
5. Following this 1st phase of work, establishing hundreds of control monuments in the ground, a complicated and expensive maintenance procedure is proposed to be implemented to continue the system. The contractor has established a real gold mine.

1993 Geodetic Network
Cont. (Page 2 of 2)
May 24, 1995

I proposed to establish a system where the new technology would be used to its best advantage and at minimal, or no cost, to the Government, and without a life time of maintenance costs. My proposal was to simply have the Survey Division of Land Management procure the new GPS equipment, and that their crews tie at least one corner of all new surveys to the GPS system, as well as the old surveys when time permitted, and at the same time to inspect the surveyed property to see if it appeared to be consistent with the mapping.

I estimated the cost to the government to be, at today's costs, about \$100 for each survey checked. This cost could be, and every surveyors would probably agree, charged to and paid for by the surveyor (client), resulting in; a good tie to the Geodetic system; an on-site inspection of the property, to insure that the surveyor set monuments; and physical encumbrances on the property being noted. This procedure would eventually reduce the need for the 1963 geodetic system, and leave Guam with a modern map indexing system. Since so much of Government of Guam land is tied to the 1963 system, its need will be here for a long time.

Personnel from the US Bureau of Land Management and U.S. Geodetic Survey agreed with my proposal prior to the award of the present contract to the Australians.

I oppose further funding and continuation of the work being done on the system, until a complete review of the project is reviewed by an impartial review committee. I've asked many times for a good reason for the project, and no one yet has given me any valid justification.

Richard H. Perry RLS 33

Committee on Community, Housing and Cultural Affairs
Department of Land Management Oversight Hearing
May 31, 1995

Computerization of Land Records:

Land Management should make arrangements for land record information users, such as Title companies, Surveyors, etc., to be able to directly access the information stored in the system. Read-only access would enable high volume users to expedite their research work and reduce the time tying up Land Management personnel utilizing them for their title searches during work days. This would enable Land Management to perform other services, and the process would benefit the public at less cost.

Training classes might be conducted in order to train users how to access the system. A fee may be established for any cost incurred in setting up the users access system and the necessary training.

Richard A. Perry RLS #33



Ufisinan I TaoTao Tano'
Senator Angel L.G. Santos

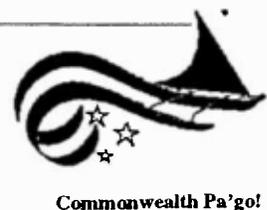
Chairman, Committee on Community,
 Housing, and Cultural Affairs
 23rd Guam Legislature

WITNESS SIGN-IN SHEET

Tuesday, May 23, 1995, 1:00 PM
 Legislative Public Hearing Room
 155 Hesler Street, Agana, GUAM

Bill No. 179- An act to amend 21 GCA Chapter 60 and to allow for the introduction of the 1993 Guam Geodetic Network.

NAME (please print)	ORGANIZATION	<input checked="" type="radio"/> ORAL <input type="radio"/> WRITTEN	FOR/AGAINST
Senator L.G. Santos	PRIVATE	ORAL	FOR
Fermin A. Pay	Private Land Surveyor	Oral	Against
J.A. MARTINEZ (Tony)	D.L.M.	WRITTEN	FOR
Fernando Lopez	DEPARTMENT OF...	WRITTEN	FOR
M.B. CARILLO	DLU	*	FOR
PAUL L. SANTOS	Private Land Surveyor	oral	for



Nomo would rather h

LOS ANGELES (AP) — Hideo Nomo isn't just a pitcher, he's an event.

After Nomo struck out 14 in seven shutout innings against Pittsburgh on Wednesday night, Dodgers manager Tommy Lasorda said it reminded him of Fernandomania '81.

"It's worse. It's really worse, believe me," Lasorda said.

Pittsburgh rallied for a 3-2 victory after Nomo left the game. He doesn't have a decision in four starts and has a 3.48 ERA.

"I'm not frustrated," Nomo said through interpreter Michael Okumura. "But I'm a little disappointed because I want to pick

up wins for the team."

Dodger Stadium is different when the 26-year-old rookie starts.

"I came to the ballpark at 1:30 today and there were 15 guys out there with cameras waiting on him," Lasorda said.

About 85 Japanese reporters chronicle his every move.

Nomo's strikeouts were the most in the majors this year. The only hits he allowed were a third-inning single by Mark Parent and a sixth-inning double by pinch-hitter Steve Segues. He left after 106 pitches with a 2-0 lead, but Rudy Seanez, Omar Daal and Todd Williams allowed the Pirates to rally.

"He didn't have any pitch limit," Lasorda said. "We just felt he hasn't pitched very long, and he



NOTICE OF PUBLIC HEARING

23rd Guam Legislature
 Committee on Community, Housing & Cultural Affairs
 Senator Angel L.G. Santos, Chairman



OVERSIGHT AND PUBLIC HEARING
 Tuesday, May 23, 1995, 1:00 PM
 Legislative Public Hearing Room
 155 Hesler Street, Agana

AGENDA

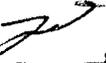
1. Department of Land Management's Program Policies and Implementation:
 - Fiscal year 1996 goals, objectives and budget
 - Commercial lease of government lands for radio stations and others
 - Computerization of land records
 - Naval government land records
 - Fast-track rezoning
 - Land-for-the-landless
 - Government land surveying
 - Assistance to the Chamorro Land Trust Commission
 - One-stop permitting process
 - Territorial Land Use Commission staff workload
2. Bill No. 179 - "An act to amend 21 GCA Chapter 60 and to allow for the introduction of the 1993 Guam Geodetic Network"

Introduced

TWENTY-THIRD GUAM LEGISLATURE
(FIRST) Regular Session 1995

MAR 14 1995

Bill No. 179(LS)
Introduced by:

V.C. Pangelinan 
A.L.G. Santos 

AN ACT TO AMEND 21 GCA CHAPTER 60 AND TO ALLOW
FOR THE INTRODUCTION OF THE 1993 GUAM GEODETIC
NETWORK.

1 BE IT ENACTED BY THE PEOPLE OF THE TERRITORY OF GUAM:

2 **Section 1.** Legislative Intent. Since 1963, surveys have been done
3 accordingly to the 1963 Guam Geodetic Triangulation Network system. The
4 Department of Land Management has contracted with the South Australian
5 Government for satellite surveying of a new primary, secondary and
6 tertiary control stations. Upon completion of the surveying, a new geodetic
7 system will be in place to replace the 1963 network.

8 It is the intent of the Guam Legislature that this new system must
9 have legislation to protect the marked primary, secondary and tertiary
10 control points that will be established.

11 **Section 2.** A new 21 GCA §60515 is added to read:

12 "Section 60515. Establishment of the 1993 Guam Geodetic Network.

13 (a) The Director shall progressively replace the 1963 Guam
14 Geodetic Network.

15 (b) For this purpose, appropriate monumentation that is
16 intended for the establishment of the 1993 Guam Geodetic

1 Network shall be erected by the Director, or may be designated
2 by him, at locations determined by him, as primary, secondary
3 and tertiary network marks be referred to as the 1993 Guam
4 Geodetic Network for use in locating and describing land within
5 the territory.

6 (c) The 1993 Guam Geodetic Network shall be established to
7 control the standards prescribed in the Federal Geodetic Control
8 Committee's (FGCC) publication Geometric Geodetic Accuracy
9 Standards and Specifications for Using GPS Relative Positioning
10 Techniques, Version 5.0 (Reprinted 1 August 1989) and as
11 updated as necessary."

12 **Section 3.** A new 21 GCA §60516 is added to read:

13 "Section 60516. 1993 Guam Geodetic Datum and Map Grid.

14 (a) The 1993 Guam Geodetic Network shall adopt the North
15 American Datum of 1983 (NAD83 Geodetic Datum) as the
16 Coordinate reference system.

17 (b) The Guam Map Grid, with the following parameters shall be
18 adopted for surveying application in Guam:

Central Meridian and

19 Longitude of Origin 144 - 45' East Longitude

20 Latitude of Origin 13 - 30' North Latitude

21 Easting of Origin 100,000 Metres

22 Northing of Origin 200,000 Metres

23 Central Scale Factor 1.000000"

24 **Section 4.** A new 21 GCA §60517 is added to read:

25 "Section 60517. Proclaimed Survey Areas.

1 (a) The Director shall declare areas of Guam where the 1993
2 Guam Geodetic Network has been established as Proclaimed
3 Survey areas.

4 (b) The Director shall make notification of the declaration of
5 Proclaimed Survey Areas by advertising in the local newspaper
6 and advising the Guam Board of Registration for Professional
7 engineers, Architects and Land Surveyors.

8 (c) When carrying out a survey of land boundaries in a
9 Proclaimed Survey Area, surveyors shall connect to a minimum
10 of three 1993 Guam Geodetic Network marks.

11 (d) If the Territorial Surveyor believes on reasonable grounds
12 that the definition of boundaries as shown on a survey plan in
13 a Proclaimed Survey Area may not be accurate by reason of
14 the survey not being carried out in accordance with this law or
15 regulations issued under this law, the Territorial Surveyor may
16 require the surveyor responsible to undertake additional work,
17 or to provide additional information in relation to the survey
18 in order for the Territorial Surveyor to verify the definition of
19 the boundaries. The Territorial Surveyor shall not approve the
20 plan until satisfied that the definition is correct.

21 (e) The Surveyor must comply with any such requirement
22 within 14 days or such longer period as allowed by the
23 Territorial Surveyor.

24 (f) Failure to comply with written request from the Territorial
25 Surveyor is an offense punishable by a fine not exceeding
26 \$2,000."

27 **Section 5.** A new 21 GCA §60518 is added to read:

1 "(a) Subdivisions of land in Proclaimed Survey Areas carried out
2 pursuant to GCA Chapter 62, Subdivision Law shall comply with
3 these requirements.

4 (b) The Territorial Planner shall forward a copy of all tentative plans
5 of subdivisions to the Territorial Surveyor.

6 (c) The Territorial Surveyor shall indicate on the tentative plans of
7 subdivisions in Proclaimed Survey Areas, the locations of new marks
8 to be included in the 1993 Guam Geodetic Network and return a copy
9 of the tentative plan to the surveyor.

10 (d) The marks shall be placed by the surveyor carrying out the
11 subdivision at the completion of all major site works to the
12 specifications set by the Territorial Surveyor. The Territorial
13 Surveyor shall be advised when the marks have been placed. The
14 subdivision map shall not be approved until the marks are placed by
15 the surveyor and certified to by the Territorial Surveyor or his
16 designee.

17 (e) The Surveyor shall relate all marks placed pursuant to this
18 section and all 1993 Guam Geodetic Network marks located on a
19 survey in both distance and direction to the closest boundary corner.

20 (f) The Territorial Surveyor shall connect the marks to the 1993
21 Guam Geodetic Network and recover any cost from the surveyor
22 carrying out the subdivision."

23 **Section 6.** A new 21 GCA §60519 is added to read:

24 "Section 60519. Protection of 1993 Guam Geodetic Network Marks.

25 (a) A person must not, without the approval of the Territorial
26 Surveyor destroy or damage a 1993 Guam Geodetic Network

1 mark. A penalty of \$5,000 will be incurred if a person
2 destroys or damages a 1993 Guam Geodetic Network mark.

3 (b) Where a person proposes to carry out any work in a
4 Proclaimed Survey Area likely to destroy or damage a 1993
5 Guam Geodetic Network mark, that person shall give notice to
6 the Territorial Surveyor, who shall take all necessary steps to
7 safeguard the mark, and the proposed work shall not
8 commence until such steps have been taken.

9 (c) The cost of any work carried out by the Territorial
10 Surveyor pursuant to (b) above may be recovered from the
11 person carrying out the work.

12 (d) Where the Court finds a person guilty of wilfully
13 destroying or damaging a 1993 Guam Geodetic Network mark,
14 in addition to the punishment imposed by the Court, the person
15 shall pay the Territorial Surveyor the full costs of replacing and
16 re-coordinating the mark, in addition to the penalty stated
17 above."