GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUAHAN
P.O. BOX 2977 HAGÅTÑA, GUAM U.S.A. 96932-2977

March 15, 2019

AMENDMENT NO.: XIII

TO

INVITATION FOR MULTI-STEP BID NO.: GPA-034-18

FOR

BUILD, OPERATE & TRANSFER CONTRACT FOR 180MW OF NEW GENERATION CAPACITY
STEP 2 – TECHNICAL SPECIFICATIONS

Step 1 Qualified Bidders are hereby notified of the following changes and responses to inquiries received from the following:

Qualified Bidder #1 dated 10/23/2018:

QUESTION:

20. GPA grid standard
    Page 242 of 595
    3.160 Network Integration Transmission Service - Service that allows an electric transmission customer to integrate, plan, economically dispatch and regulate its network reserves in a manner comparable to that in which the Transmission Owner serves Native Load customers.

    Network Integration Transmission Service describes the service to be provided; Integration of any hardware or software within Dispatch Company to integrate this power plant into the Dispatch Company is not within the scope of Project Company. Please confirm.

ANSWER:

Integration into dispatch is limited to the capabilities necessary for AGC described in Amendment No.: XI dated February 05, 2019, kindly refer to Bidder #5 question 14 response.

Qualified Bidder #1 dated 11/28/2018:

QUESTION:

21. Assumptions for Evaluation – Supplemental Charges
    - MS GPA-034-18 Step 2 Section C, 15.7.1 Assumptions for Evaluation

    8 Supplemental Charges: For purposes of evaluation, it will be assumed that there will be 360 starts per Unit per Contract Year in addition to the annual startup allowance specified in Section B, Article 4.5.

    Considering the Facility will be a primary power source for Guam, and will be operated at full load at least 90% EAF, assuming 360 starts per Unit in addition to the annual startup allowance specified in Section B, Article 4.5 is unrealistic. A practical number of startup should be given for a fair evaluation and to reflect reality.

ANSWER:

Number of starts will be lowered to 180 in pending amendment.

QUESTION:

25. Site Level
    - MS GPA-034-18 Step 2 Section A 5.3 Site

    The Site is located approximately 80 meters above the mean sea level.

    Topographic survey map shall be required for the assessment of site preparation work.
    Please provide the topographic survey map (Autocad file).

ANSWER:

GPA doesn't have topographic survey map available in Autocad file.

QUESTION:

26. OBL
    - MS GPA-034-18 Step 2 Section C, 3.3.2 General Design Requirement

    A. Water supply: The plant potable water supply will originate from the GWA public water supply. Cooling water will be drawn from the effluent of the GWA Northern District Wastewater Treatment Plant. Project Company shall treat the water as necessary for service water, fire water, and boiler makeup.

    Topographic survey map shall be required for the assessment of civil work for portable water line and cooling water line.
    Please provide the topographic survey map (Autocad file) including existing structures and geotechnical investigation report for portable water line and cooling water line.

ANSWER:

GPA doesn't have topographic survey map available in Autocad file.

QUESTION:

29. New pipeline
    - MS GPA-034-18 Step 2 Appendix B, 3.4 Pipeline Routing and Construction Consideration

    New pipeline routing shall follow existing pipeline corridors and access roads where possible. Existing roads shall not be used for construction and maintenance of new pipelines.

    Please provide related drawing for new pipeline (including Autocad file).
    1. Topographic survey map
    2. Existing pipeline corridor drawings
    3. Underground obstacle drawings such as utilities line, service waterline, sewer line, stormwater line, electrical cable line, etc. along ULSD new pipelines routes.

ANSWER:

See pipeline information in Amendment V dated November 06, 2018. GPA doesn't have New pipeline related drawings available in Autocad file.

QUESTION:

35. J. Step-up and Auxiliary Transformers
    - MS GPA-034-18 Step 2 Section C, 3.2.2 General Design Requirements

    8. Provide tap voltages of +/- 2.5% and +/- 5% on the primary winding. Each tap position shall be fully rated and shall not limit kVA rating of transformer.

    The type of tap changer are not mentioned in this IFB. So, No load tap changer will be considered and voltage tap position will be followed IFB i.e +/- 2.5% and +/- 5% on the primary winding.
    Please clarify it.

ANSWER:

A no load tap changer ahead of the transformer primary is acceptable. However, the above section refers to the transformer internal taps that can only be changed when the transformer is deenergized. Transformers conforming to IEEE C57.12.10 must have these internal taps on the high voltage side. See IEEE C57.12.00, IEEE C57.12.01 and IEEE C57.12.10.
Please also refer to the attachment - Spec E-050 Revision 0 - 115 KV 13.8 KV Generation Power Transformer Outdoor Type.pdf.

QUESTION:

37. CEMS
    - MS GPA-034-18 Step 2 Section D, 8.10.1 Air Emissions
    Table 8.2 Natural Gas Emission Levels
    Provide total emissions for all air toxics on an aggregate basis, not on an individual basis. Air toxic pollutants are described on the US EPA Web page:

    Bidder clarifies that Continuous Emission Monitoring System(CEMS) for the detection of NOX, CO, SO2, Particles, shall be provided ,referring to the US EPA.

ANSWER:

Confirmed that bidder is required to provide CEMs as described above.

<u>Qualified Bidder #3 dated 10/15/2018:</u>

QUESTION:

1. Regarding the synchronous condenser(s) described in Section C, Functional Technical Specifications, section 1.2.5 Detailed Project Scope (pdf page 95) and in Section D, Forms, section 15.7.1 Assumptions for Evaluation (pdf page 518):
    a. What is the total required reactive power capability of a synchronous condenser provided as a separate unit, i.e., not connected to a turbine or an engine?
    b. What are the estimated annual operating hours and annual production (VARh) of a synchronous condenser provided as a separate unit?

ANSWER:

a. There is no separate requirement for the synchronous condensers. Synchronous condensers, if specified as part of a bid proposal, shall be sized appropriately to provide the required short circuit current levels, and any other ancillary services. There is no reactive power requirement that must be provided solely by the synchronous condensers. The overall power factor requirements are on a plant basis as a whole, and can be meet with generating units, synchronous condensers, or other equipment as deemed appropriate by the bidders. Refer to section 3.2.2 D in the technical specifications for reactive power and power factor requirements for the plant as a whole.

b. See response above. There is no requirement that synchronous condensers (SC's) must be provided separately from the generating units. There is an expectation that SC's might be a part of a bid proposal. Regarding VAR-h production, GPA does not have any estimate for reactive power production for the plant. Note however that the plant is expected to regulate voltage on a continuous basis, when online, as is typical of any conventional generation plant. This cannot be determined without knowing the size of the proposed generators and performing production cost simulations of the plant.

QUESTION:

2. Regarding the Short Circuit energy requirement in Section C, Functional Technical Specifications, section 2.2 Performance Requirements for Fossil Fired Plants (pdf page 106):
    a. For what duration (time period) shall the 700 MVA Short Circuit energy be available? Page 148 mentions fault clearing of transmission lines must be accomplished within 5 cycles, inclusive of far end faults.
    b. What is the minimum and maximum short circuit power contribution [SCMVA] and X/R ratio from grid at POI?

ANSWER:

    a. The transmission line faults are designed to clear in 5 cycles by the primary protection systems. Secondary and backup protection systems require a significantly longer clearing time through which the fault energy must be available. In addition, immediately after fault clearing, the system must have 700 MVA of short circuit energy available to the system. Note that the 700 MVA requirement is measured at the 115 kV POI. This essentially specifies the equivalent impedance seen at the POI looking into the plant, from a short circuit point of view. For faults remote to the POI, the fault current contribution from the new plant will change and will most likely be lower. The SC requirement has been determined in order to obtain an overall grid strength sufficient to maintain proper operation of all generating equipment, especially inverter based resources.

    b. The specification is for the new generating plant. During the life of the plant, there will be times when no other synchronous units are operating on the GPA system. As such, the contribution of SC MVA from the system to the plant will be negligible for the minimum conditions. The maximum external system short-circuit energy available to the plant would not exceed 750 MVA. At the transmission level, the X/R ratio is typically around 5 or greater.

QUESTION:

3. Regarding the generator sizing requirement in Section C, Functional Technical Specifications, section 2.2 Performance Requirements for Fossil Fired Plants (pdf page 106): Please confirm that the 140% requirement only applies if the project supplies generators that have the capability to operate in synchronous condenser mode and does not apply if the project includes a separate synchronous condenser.

ANSWER:

The response requirement of all generators is as specified. Generators operating as synchronous condensers or separate synchronous condensers are not required to meet the performance specifications for generators. All generators operating to meet the real power requirements of the plant must meet the performance requirements.

Qualified Bidder #3 dated 11/15/2018:

QUESTION:

6. Regarding the power plant site: Communications from GPA have indicated that the lots that comprise the designated power generating plant site have been rezoned to M-1 and that power generation is an approved use for the site. Those communications have not indicated exactly what specific building restrictions (e.g., FAR, percent impervious cover, property line setback requirements, building height limits, stack height limits, etc.) will apply to the project, if any. Please provide a summary of such restrictions, if there are any, with a reference to their source.

ANSWER:

Building/Stack Height: 21 GCA CH 61 § 61401. Height Limit Established.
In the A, R1, LC, R2, C, M1 and M2 Zones, no building or structure shall be erected or maintained, nor shall any existing building or structure be altered, enlarged, moved, or maintained, to exceed a height limit of three stories (the three stories shall not exceed a height of thirty (30) feet), except that in the C Zone within the New Agana lot and block system the building height limit shall be six (6) stories (the six stories shall not exceed a height of seventy-five (75) feet).
Any variances shall be properly coordinated through the Territorial Land Use Commission.
Setback requirements: 21GCA CH61 § 61502. General Yard and Area Requirements.
(c) Lots Over the Aquifer. Lot sizes and set-back on properties above the aquifer (Northern Aquifer) shall be established by the Guam Environmental Protection Agency.
(d) In the C and M1 zones, every building hereafter erected on a lot which abuts a primary or secondary highway, as shown on a highway plan adopted by the Commission or Legislature, shall provide and maintain a front or side yard having a depth or width, as the case may be, of not less than that required to conform to the line of such highway.
SEE ATTACHED 21GC061.PDF

Qualified Bidder #3 dated 11/01/2018:

QUESTION:

3. Is there any UXO/MEC on GPA's 59-acre parcel?

ANSWER:

The UXO/MEC requirements are not applicable to the GPA's 59-acre parcel. No unexploded ordnance or munition has been discovered in several recent site surveys.

Qualified Bidder #3 dated 12/05/2018:

QUESTION:

6. GPA's answer, on page 3 of Amendment VII, to a bidder's response time question is unclear to us:
    a. Our interpretation of the IFB led us to believe that the response time requirement applied to a "unit" as defined on page 22 of the IFB (an individual engine or turbine), not the entire facility. Have we misunderstood the IFB or has GPA changed the requirement?
    b. GPA's response includes guidance values for ESS performance, including 15 MW for 30 minutes if the ESS will be used to provide spinning reserve. Does GPA plan to modify the spinning reserve assumption in the Evaluation Model in cases where a bidder proposes an ESS for spinning reserve?

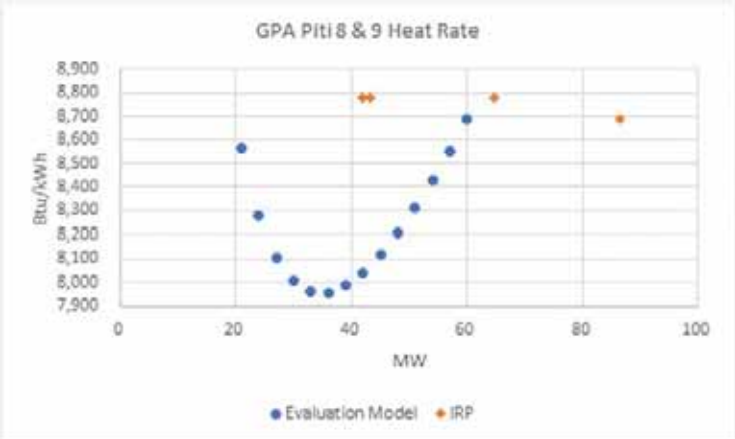
ANSWER:

a. It is for an individual unit or engine.

b. Yes, the spinning reserve required for the generating capacity will be adjusted downward on a kW per kW of 30 minute storage basis for spinning reserve provided by ESS, provided that such ESS-based spinning reserve has frequency response characteristics equal to or exceeding the frequency response characteristics of spinning reserve based on a generating unit.

QUESTION:

7. Regarding the Evaluation Model's characterization of GPA's Piti 8 & 9:
    a. The combined output of the two units expressed in the Evaluation Model's characterization of GPA's Piti 8 & 9 appears to be very different than the outputs shown in GPA's 2013 IRP. Please clarify.
    b. The heat input coefficients in the model appear to yield a heat rate curve (blue circles in the chart below) that is very different than the heat rates provided in the IRP (red diamonds in chart below). Please clarify.
    c. The model seems to show that the units are burning 82 MMBtu/h of fuel when they are offline. Is that correct?



ANSWER:

a. The Evaluation Model used a lower output (60MW) for the combined output of the two MEC units because the rest is spinning reserves.

b. The 2013 IRP used a single point data in complex software to determine the heat input coefficients compare to the model.
GPA had revised the model based on the data from the 2012 Annual Performance Test for MEC 8 and 9. Kindly refer to revised model - Sample Bid Evaluation Model Final rev2.1 Protected.xsls that was provided in Amendment No.: XII dated March 05, 2019.

c. No. GPA had revised the model based on the data from the 2012 Annual Performance Test for MEC 8 and 9. Kindly refer to revised model - Sample Bid Evaluation Model Final rev2.1 Protected.xsls that was provided in Amendment No.: XII dated March 05, 2019.

<u>Qualified Bidder #5 dated 10/12/2018:</u>

QUESTION:

6. Section C, 1.1; Page Number 93
The size of the Facility's individual units shall be such that a trip of a single Unit will not result in a loss of 45MW.

The RFP states that the size of the Facility's individual units shall be such that a trip of a single Unit will not result in loss of 45 MW. Bidder understands this limitation is to maintain grid reliability. Bidder understands that in the case of one unit tripping, total power loss should not be over 45 MW for a certain duration (a few seconds). Please clarify the duration of the requirement for 45 MW loss limitation during a unit trip.

ANSWER:

Loss of a single unit causing loss of capacity in excess of 45 MW may cause system instability and result in system blackout. Thus, the 45 MW capacity limit requirement is related to instantaneous sudden trip rather than a planned shutdown. In other words, the system can withstand planned shutdown of capacity over 45 MW, and GPA's generating system will be able to generate sufficient capacity using other power plants designated as reserve margin. However, the system cannot withstand an instantaneous loss of capacity in excess of 45 MW that occurs due to unit trip.

<u>Qualified Bidder #5 dated 10/19/2018:</u>

4. Section C, 1.2.5; Page Number 97
B. Scope of Supply for Fossil Fuel Fired Component
Security provisions compliant with NERC CIPS and US Navy

Does this requirement is stated for CCTV, access control, etc.? If it is correct, please inform which standard number should be referred to for security provisions.

ANSWER:

GPA has established Reliability Operating Standards (ROS) based on North American Electric Reliability Corporation (NERC), Hawaii, and Alaska standards refined by GPA Engineering analysis. These standards were recommended by GPA's Renewable Integration Study for use in GPA's New Power Plant specifications and Phase III Renewable Energy Acquisition specifications as well as for GPA internal use.

- (BAL) Resource and Demand Balancing
- (CIP) Critical Infrastructure Protection
- (COM) Communications
- (EOP) Emergency Preparedness and Operations
- (FAC) Facilities Design, Connections, and Maintenance
- (INT) Interchange Scheduling and Coordination
- (IRO) Interconnection Reliability Operations and Coordination
- (MOD) Modeling, Data, and Analysis
- (PER) Personnel Performance, Training, and Qualifications
- (PRC) Protection and Control
- (TOP) Transmission Operations
- (TPL) Transmission Planning (VAR) Voltage and Reactive Power.

Guam Power Authority (GPA) has based its set of Critical Infrastructure Protection (CIP) Standards for GPWA use on the NERC CIP, Federal Energy Regulatory Commission (FERC) guidance and promulgations, GPA research of the power utility operations and compliance with NERC and FERC, and GPA's own engineering analysis.

GPA's CIP Standards numbering mirror the NERC CIP standards. GPA CIP Standards include:

- CIP-001 Sabotage Reporting
- CIP-002 Critical Cyber Asset Identification
- CIP-003 Security Management Controls
- CIP-004 Personnel & Training
- CIP-005 Electronic Security Perimeter(s)
- CIP-006 Security of Critical Cyber Assets
- CIP-007 Systems Security Management
- CIP-008 Incident Reporting and Response Planning
- CIP-009 Recovery Plans for Critical Cyber Assets
- CIP-010 Configuration Change Management and Vulnerability Assessments
- CIP-011 Information Protection
- CIP-012 Communications between Control Centers
- CIP-013 Supply Chain Risk Management
- CIP-014 Physical Security

GPA will negotiate the details of these NERC standards with the winning bidder.

QUESTION:

26. Section C, Clause 1.3.1; Page Number 102
    1.3 Terminal Points
    1.3.1 Fuel A. ULSD
    If ULSD is selected by Project Company as a fuel source, the Project Company is responsible for the design and construction of ULSD supply infrastructure including any modifications at the GPA Bulk Fuel Storage Facility Bulk Fuel Storage Facility and the new pipeline that will be built to transport ULSD from the GPA Bulk Fuel Storage Facility to the plant site.

    1.2 ULSD Scope of Supply
    The ULSD pipeline is to be constructed, as much as is reasonably possible, in the existing 8" RFO pipeline easement. The existing 8" pipeline is no longer active and the Project Company is to remove and replace with the new ULSD pipeline. Additional easement will need to be acquired to route the pipeline to the new power generation plant site. New pipeline routing shall follow existing pipeline corridors and access roads where possible.

    Section C, Appendix B 1.2, Page Number 194
    The natural gas pipeline is to be constructed, as much as is reasonably possible, in the existing 8" RFO pipeline easement. As with the ULSD pipeline, the existing easement shall be utilized to the extent physically possible. Additional easement will need to be acquired to route the pipeline to the new power generation plant site. New pipeline routing shall follow existing pipeline corridors and access roads where possible. GPA will assist the Project Company with acquisition of all new easements for the pipeline. Project Company will have ultimate responsibility and assumes associated risks.

    The condition and design data of existing ULSD pipeline is essential information for new ULSD & Natural Gas pipeline design. Please provide detail information for it additionally. (ex. pipe route, section, encasement design, underground utilities layout, etc.)

ANSWER:

Kindly refer to pipeline information in Amendment No.: V dated November 06, 2018.

QUESTION:

41. Section C, 3.2 subsection 4; Page Number 116
    Automatic Generation Control will be performed by GPA AGC system

    Please provide additional details on GPA's AGC system.

ANSWER:

Kindly refer to *ANSWER* of Bidder #5, Question 14 in Amendment No.: XI dated February 05, 2019.

QUESTION:

52. Section D, 8.9.8, 8; Page Number 465
Provide a description of the overall control system used for the Project equipment, including all local, centralized and remote controlling including the proposed means to communicate with the GPA control center to follow its instructions

Please provide communication protocol and details of GPA control center.

ANSWER:

Kindly refer to Amendment No.: X dated January 22, 2019.

QUESTION:

54. Section D, 8.14.2, Table 8.12; Page Number 474
Reference is made to “minutes to Achieve Action After Shutdown:” in the table for Synchronizing and Load Pick Up Times (Table 8.12)

The reference point for determining synchronization and load pick up times is listed as "minutes to achieve action after shutdown". Should the reference point be “after command for startup is initiated”?

ANSWER:

Confirmed to be changed to minutes after startup command is initiated.

Qualified Bidder #5 dated 11/20/2018:

QUESTION:

8. RFO Pipeline demolition and ULSD Pipeline Installation
Section C, Appendix B, 1.2; Page Number 194
The ULSD pipeline is to be constructed, as much as is reasonably possible, in the existing 8" RFO pipeline easement. The existing 8" pipeline is no longer active and the Project Company is to remove and replace with the new ULSD pipeline.

On page 96 of the RFP, it states that the bidder must "construct ULSD underground pipeline". Due to the fact that a large portion of the land is on military land, the bidder will need to follow MEC/UXO regulations which can drastically increase the construction cost if underground. Does GPA require that the pipeline be underground the entire route or will GPA allow aboveground pipeline for military land area? At minimum can the pipeline on military land be above ground while non-military land be placed above ground.

ANSWER:

Both the new ULSD pipeline and the new natural gas pipeline must be installed underground. MEC/UXO is unknown.

Qualified Bidder #6 dated 10/29/2018:

QUESTION:

14. Section C / 1.2.6 Detailed Project ScopeB.
    Based on existing pipeline route, we noted that approximately half are above ground pipelines and are in military properties.
    Can GPA please clarify if both ULSD and Gas pipelines are needed to be constructed 100% underground?

    If both ULSD and Gas pipelines are be constructed 100% underground, are there any agreements or approval already from the military to allow underground construction into their properties? Are there any requirements to observe MEC at military properties and also other Environmental concerns?

ANSWER:

Both the new ULSD pipeline and the new natural gas pipeline must be installed underground. MEC/UXO is unknown.

Qualified Bidder #5 dated 12/19/2018:

QUESTION:

8. ULSD Pipeline
    Amendment VII; Page Number 22
    The current condition of the existing 8" HFO pipeline is unknown since it is no longer active for over 5 years. It has been drained except for the approximately 2 miles underground section from Barrigada to Micronesia Mall. It has not been drained.

    Please confirm that GPA will drain the RFO pipeline (in it's entirety) before the Bidder will undertake the demolishment of this pipeline and that GPA will be responsible for any costs for environmental remediation required if HFO (RFO?) pipeline is not drained during the demolition process.

ANSWER:

GPA had drained the fuel oil from sections of the 8" HFO pipeline mostly above ground that it can access however, there still fuel oil remained in sections of the pipeline that are in accessible mostly underground. GPA estimated approximately over 27,000 gallons of remaining fuel oil which will be the responsibility of the Project Company to drain before removing it during demolition. Furthermore, it will be the Project Company's responsibility to perform environmental remediation for any fuel oil leak during demolition.

The drain access points are shown in these pictures - Set 1.jpg, Set 2.jpg, Set 3.jpg, Set 4.jpg, Set 5.jpg, Set 6.jpg, Set 7.jpg, Set 8.jpg,

Mitigation of any existing contaminated soil from oil leaked discovered during construction will be covered under the pre-existing condition clause under section 6.6 of the ECA. Project Company must report any discovery to GPA immediately. GPA will conduct its own investigation to verify that it was a pre-existing condition not due to the demolition.

Table below shows the underground sections.

No.	Location	Type	Approximate Length (in feet)	Latitude	Longitude
1	IPE Tank Farm	Rectifier	NA	13.4433	144.7546
2	IPE Tank Farm	Above ground pipeline 1	550		
3	IPE Tank Farm to Sasa Valley	Underground pipeline 1	12,900		
4	Near Rte 18	Rectifier 2	NA	13.457324	144.68859
5	Sasa Valley	Navy Pump Station	NA	13.446787	144.698005
6	Sasa Valley	Rectifier 3 (Near Navy Pump Station)	NA	13.4459	144.701400°
7	Sasa Valley	Above ground pipeline 2	1,200		
8	Nimitz Hill	Underground pipeline 2	300		
9	Nimitz Hill to Mongmong-Toto-Maite (MTM)	Aboveground pipeline 3	31,900		
10	Nimitz Hill	Driveway 1 (underground)	45	13.449896	144.719883
11	Nimitz Hill	Driveway 2 (underground)	25	13.5104	144.722575
12	Nimitz Hill	Driveway 3 (underground)	30	13.453334	144.727712
13	Nimitz Hill	Driveway 4 (underground)	30	13.453618	144.73587
14	Sinajana	Driveway 5 (underground)	25	13.456475	144.754002
15	Sinajana	Driveway 6 (Residential) (Underground)	25	13.456511	144.755755

16	Sinajana	Driveway 7 (Residential) (Underground)	25	13.456491	144.756293
17	Chalan Pago	Chaot Bridge (Under the bridge) (Aboveground)	80	13.454274	144.760125
18	JQ San Miguel (MTM)	Driveway 8 (Underground)	45	13.460349	144.772565
19	MTM	Driveway 9 (Residential) (Underground)	45	13.463403	144.773863
20	MTM	Driveway 10 (Residential) (Underground)	165	13.468552	144.777893
21	MTM	Driveway 11 (Residential) (Underground)	150	13.469895	144.779584
22	MTM	Driveway 12 (Underground)	40	13.471803	144.782327
23	MTM to Post Office Barrigada	Underground pipeline 3	9,900		
24	Post Office Barrigada to Department of Motor Vehicle (DMV) – Airport Area	Aboveground pipeline 4	8,400		
25	Tanguisson	Rectifier 4		13.522783	144.815043
26	DMV Barrigada to Tanguisson	Underground pipeline 4	18,200		
27	Tanguisson	Aboveground pipeline 5	800		
		Approximate Total Length	84,880	Appr. 16 miles	

QUESTION:

15. Section C, 1.1; Page Number 93
    The size of the Facility's individual units shall be such that a trip of a single Unit will not result in a loss of 45MW.

    RFP states that the size of the Facility's individual units shall be such that a trip of a single Unit will not result in loss of 45 MW. To comply with the requirements, in certain configurations with bigger unit size, ESS is required. However, ESS requires certain response time to produce power output into the grid, which might result in a bigger loss than 45MW impact the entire grid due to the dynamic instability. Please advise how bidders can guarantee that a bigger loss than 45MW before ESS is responded would not result in grid failure. In order for bidders to guarantee grid reliability regarding this issue, grid impact study should be done. Could GPA provide the data that is required to conduct grid impact study at bidding stage as attached?

ANSWER:

GPA can't convert the GE PSLF files to PSSE as request however it is providing the copy (in Excel files) of the following data:

A. Power System Stability :
   - Dyd data:
     - Base models (existing plants)- Base dyd Data.xls
     - Flexible Generation models (FG) - Feeder dyd Data.xls
     - FIDVR models (fidvr-feeders) – fidvr-feeders dyd Data.xls
     - Inverter Based Device models (Inverters) - Inverters dyd Data.xls

A2. GPA doesn't have any Synchronous Generator or Synchronous condensor data.

B. Load Flow Study Data
   - Morning case (.sav) data:
     - PSLF bus data morning case.xls
     - PSLF Generator Data Morning Case.xls
     - PSLF Load Data Morning Case.xls
     - PSLF Shunt Data Morning Case.xls
     - PSLF Tab Data Morning Case.xls
     - PSLF Transformer Data Morning Case.xls
     - PSLF Transmission Line Data Morning Case.xls
     - PSLF Zone Data Morning Case.xls
   - Afternoon case (.sav) data:
     - PSLF bus data Afternoon case.xls
     - PSLF Generator Data Afternoon Case.xls
     - PSLF Load Data Afternoon Case.xls
     - PSLF Shunt Data Afternoon Case.xls
     - PSLF Tab Data Afternoon Case.xls
     - PSLF Transformer Data Afternoon Case.xls
     - PSLF Transmission Line Data Afternoon Case.xls

- PSLF Zone Data Afternoon Case.xls
- Evening case (.sav) data:
  - PSLF bus data Evening case.xls
  - PSLF Generator Data Evening Case.xls
  - PSLF Load Data Evening Case.xls
  - PSLF Shunt Data Evening Case.xls
  - PSLF Tab Data Evening Case.xls
  - PSLF Transformer Data Evening Case.xls
  - PSLF Transmission Line Data Evening Case.xls
  - PSLF Zone Data Evening Case.xls

C. System Operation Data:

C1. Load shedding scheme applied per each existing substation is provided in attachment Underfrequency Load Shedding Scheme 8-1-18.pdf

C2. GPA System Daily load curve, MW versus hours is provided in attachment - System Load January 2018 to December 2018.xlsx

C3. Power consumption (kWH) per customer category:

Fiscal Year	2018	2017	2016	2015	Average	Percentage
Residential	495,346,749	506,335,601	487,022,560	461,568,899	487,568,452	31%
Commercial	573,913,022	589,527,625	580,473,950	571,569,295	578,870,973	37%
Government (Local)	181,923,229	185,678,816	176,786,363	176,890,499	180,319,727	11%
Navy	306,460,172	318,585,901	318,082,773	317,393,055	315,130,475	20%
Street Lighting	9,408,972	9,965,068	11,974,425	12,165,406	10,878,468	1%
Total	1,567,052,144	1,610,093,011	1,574,340,071	1,539,587,154	1,572,768,095	

Note: GPA doesn't have any industry customer. The local Government and Navy are our other customers.

QUESTION:

27. Maximum (Minimum) emergency level
    Table 8.11: Net Generation Levels; Page Number 473
    a) Maximum emergency level: capacity that may be available during system declared emergencies
    b) Minimum emergency level: used during system declared emergencies

    Please clarify the meaning of "Maximum emergency level" and " Minimum emergency level"?
    Please clarify the meaning of "system declared emergencies", what are the emergencies here?

ANSWER:

a. A maximum emergency level is a system condition in which GPA requires the maximum output that the plant can provide. Bidder should indicate the maximum output in MW and the hours duration that the maximum output can be maintained.

   A minimum emergency level is a system condition in which GPA requires the minimum output that the plant can provide and still stay on line. Bidder should indicate the minimum output in MW and the hours duration that the minimum output can be maintained.

b. GPA dispatch center may declare a system emergency under the following possible scenarios: loss of a generating unit(s), loss of PV output, loss of a substation, loss of distribution load, large customer issue, fuel supply problems, weather related load demand or supply issues, etc.

<u>Qualified Bidder #3 dated 12/17/2018:</u>

QUESTION:

2. Please provide a copy of the GPA Cyber Security Standards and Guidelines referenced on page eight of Amendment VI.

ANSWER:

The GPA Cyber Security Standards and Guidelines is still under development therefore we can't provide it.

QUESTION:

3. GWA has provided two information packets for bidders to the GPA IFB. The information packets include general information regarding gray and potable water and GWA's rates for potable water and sewer services. However, GWA does not appear to be able to a) provide bidders with project-specific information regarding potential GWA system upgrade costs, b) confirm points of interconnection for potable water and sewer services, or c) evaluate their ability to accept project waste streams, e.g., reject or steam cycle blowdown. We understand that it may be not be possible for GWA to provide project-specific information to multiple bidders in the time available before the bid deadline. Given this situation, what guidance does GPA have for bidders when developing their proposals to GPA?

ANSWER:

GPA is providing the bidders these documents received from GWA.

- GWA Information Packet for Power Plant Bid - Supplement 2a 022119.pdf
- GWA Information Packet for Power Plant Bid – Supplement.pdf
- GWA Information Packet for Power Plant Bid.pdf

Qualified Bidder #6 dated 12/18/2019:

QUESTION:

8. Section B / P59 3.2.3 Additional General Instructions b) xv)

   The IFSMB states design and construction of the ULSD supply pipeline are coordinated with appropriate Guam entities and authorities and are in compliance with applicable environmental regulations.
   Is the existing pipeline supported by stakes? And when the bidder have to dig to remove them, should the bidder comply with MEC(munitions of explosive concern)?

ANSWER:

No, the existing pipeline is not supported by stakes. The underground sections can be located by tracing the manholes.

Response to MEC compliance is forthcoming.

QUESTION:

13. Section C / P102 1.3.1 Fuel, 1.2 ULSD Scope of Supply, Appendix B 1.2

    Construction space and accessibility to the ULSD & NG pipeline route is vital for new pipeline design. Please provide the detailed data (ex. space, width) of existing pipeline easement, and condition of access road to the entire existing pipeline.

ANSWER:

Detailed data of the existing pipeline easement is provided in the following drawings:

- 1_NF7943933.pdf
- 2_MA11004 POL Y&D 597-648.pdf
- 3_MA11005 POL Y&D 594-649.pdf
- 4_Y&D597-650,Real Estate Requirements P.O.L. Line.tif
- 5_Tiyan fuel line easement.pdf
- 6_NF-7305210 USPS.pdf
- 7_DOC#845793.pdf
- 8_Doc 835952.pdf
- 9_Y&D683-339,Real Estate Requirements of Route 16.tif
- 10_Andersen AJKV RE95 06 Harmon Cliffline Doc 664866.pdf
- 11_Andersen AJKZ RE95 07 Harmon Cliffline Doc 664868.pdf
- 12_Andersen AJKP RE95 04 Harmon Cliffline Doc 664867.pdf

In most areas the access roads to the existing pipeline are in good condition (accessible by vehicle) except for these 4 areas – Mongmong- Toto- Maite, Nimitz Hill to Sinajana, Sasa Valley to Nimitz Hill and Sinajana. The areas in Nimitz Hill to Sinajana and Sasa Valley to Nimitz Hill and Sinajana are steep and only accessible by foot. The areas in Mongmong- Toto- Maite and Sinajana are not currently accessible because of downed trees and overgrown vegetation. Please refer to jpeg documents.

- Unaccessible area MTM.jpg
- Unaccessible area Nimitz Hill-Sinajana.jpg
- Unaccessible area Sasa Valley-Nimitz Hill.jpg
- Unaccessible area Sinajana.jpg

QUESTION:

16. Section C / P194 1.2 ULSD Scope of Supply

Current condition of the existing pipeline is essential for appropriate removal and demolishment. Can we understand that existing pipeline Doesn't need to be cleaned and neutralized to cut and remove onsite?

ANSWER:

GPA had drained the fuel oil from sections of the 8" HFO pipeline mostly above ground that it can access however, there still fuel oil remained in sections of the pipeline that are in accessible mostly underground. GPA estimated approximately over 27,000 gallons of remaining fuel oil which will be the responsibility of the Project Company to drain before removing it during demolition. Furthermore, it will be the Project Company's responsibility to perform environmental remediation for any fuel oil leak during demolition.

QUESTION:

43. Pre-bid Meeting PPT / P.28 NG pipeline

We understand that "Interstate Pipeline" is under the jurisdiction of FERC and "Intrastate Pipeline" is not. So this time, is it necessary that NG pipeline complies with FERC requirements?

ANSWER:

FERC requirements must be complied with.

Qualified Bidder #1 clarification dated 02/22/2019:

1. Land Lease Rent
   - IFMSB page 66 – 4.3.2.1
     FOMC shall include fixed charges related to Facility operation and maintenance as well as the Project Company management. Such costs include, but are not limited to:
     - Land Lease rent
   - IFMSB page 518 – 15.7.1 Assumptions for Evaluation
     4. Land Lease Rent: GPA does not intend to assess a lease fee.

   According to IFMSB, FOMC shall include Land Lease Rent.
   Even though we could estimate the costs, it is difficult to figure out the Rent. We are expecting to submit the best bid price for this project with the Rent information.

   Please confirm how much GPA will charge for the Rent approximately.

ANSWER:

Already provided in *Amendment No.: XII* dated March 05, 2019.

Qualified Bidder #1 clarification dated 03/07/2019:

1. The Test boring location provided in IFMSB Amendment #12 GPA Power Plant – Geotech Report (2-7-19), coordinates of Table 1. is different from the Test boring location provided in IFMSB Amendment #10, appendix A (test boring location plan, test boring logs and soil classification system). The test boring location plan (Test Boring and Resistivity Test location plan) is also included in IFMSB Amendment #12 GPA Power Plant – Geotech Report (2-7-19)
   please clarify which information is correct.

   In addition, please refer to attached google map that indicate the difference of boring location according to coordinates of Table 1.

   IFMSB Amendment #10, appendix A (test boring location plan, test boring logs and soil classification system) IFMSB Amendment #12, Test Boring and Resistivity test location Plan on Geo-Technical Report

ANSWER:

The boring locations are essentially the same. GPA's contractor who did the test boring work had informed GPA that they had gotten the coordinates mixed up. They had verified the locations and submitted the corrections – updated Boring coordinates.pdf.

Qualified Bidder #5 clarification dated 02/21/2019:

QUESTION:

1. Survey Report
   Amendment 10; Amendment 11
   Amendment 11,
   The archeological survey and preliminary geotechnical survey are forthcoming.

   Amendment 10,
   GPA is commissioning a background noise survey that will be provided to bidders by the end of January. The noise requirement will be adjusted to the World Bank Group International Finance Corporation EHS Guidelines – 1.7 Noise.pdf – see attached.
   Bidders must apply appropriate noise control methods to assure compliance

   When will the bidder be able to receive the following survey report?
   1. Geotechnical Survey Report
   2. Archeological Survey Report
   3. Back Ground Noise Survey Report

ANSWER:

These were provided in *Amendment No.: XII* dated March 05, 2019.

Qualified Bidder #5 clarification dated 03/08/2019:

QUESTION:

1. Hanwha/K.DHC consortium has been working diligently on the 180 MW power plant bid proposal. We received Amendment XII and on page 18 it states that the "Number of starts will be lowered to 180 in pending amendment". We understand that the previous specification of 360 starts a year is a bit on the high side. However, in the evaluation model the number of starts is a major factor and some bidders may feel that a change in a major requirement is unreasonable at such a late stage of the bidding process. Although we agree that the number of starts will not be as high as 360 in the first few years, we feel that this may become more of a reality further down the line. Therefore, we would like to request that although GPA's technical requirement may only require 180 starts per year, we feel that the evaluation model should stick with the 360 starts per year.

ANSWER:

The number of starts in the evaluation model will be 180 to match the number of starts stated in the Amendment No.: XII dated March 05, 2019.

Qualified Bidder #5 clarification dated 03/04/2019:

QUESTION:

3. Permit
   Please clarify if any federal funds will be used for the project.

ANSWER:

No federal funds are used.

Qualified Bidder #3 clarification dated 03/08/2019:

QUESTION:

1. We're trying to figure out our travel plans for submitting the bid on the 21st. Could you tell me if that date is still firm? I know there are some open questions and Amendment XII mentioned a pending amendment.

ANSWER:

GPA is still committed to the March 21 deadline.

All other Terms and Conditions in the bid package shall remain unchanged and in full force.

JOHN M. BENAVENTE, P.E.
General Manager

TRANSMISSION & DISTRIBUTION SPECIFICATION

Specification No. E-050

For

GENERATION POWER TRANSFORMER

OUTDOOR TYPE

115 KV/13.8 KV

60/80 MVA

115 KV/13.8 KV
60/80 MVA
POWER TRANSFORMER
OUTDOOR TYPE

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1.0 SCOPE

This specification covers GPA's requirements for three-phase power transformer (Cabras T1, Cabras T2, MEC T8, or MEC T9) and accessories.

2.0 SERVICE CONDITIONS AND OPERATION

2.1 The power transformer is intended for use in an average ambient temperature of 32 degrees C with corrosive, salt air environment, sustained wind strengths of 170 MPH, and subject to seismic zone 4 condition.

2.2 Transformer will be used for distribution step-down operation.

3.0 CONFORMANCE TO SPECIFICATION REQUIREMENTS

Transformer shall meet the requirements of the following standards and specifications, including latest revisions with respect to material, design and tests.

3.1 Applicable Standards

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

C57.12.00	General Requirements for Liquid-Immersed Distribution, Power and Regulating Transformers
C57.12.90	Test Code for Liquid-Immersed Distribution Power and Regulating Transformers and Guide for Short-Circuit Testing of Distribution and Power Transformers
C76.1 and C76.2	Requirements for Outdoor Bushing

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

TR 1-80	Transformers, Regulators and Reactors

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D92-78	Flash and Fire Points by Cleveland Open Cup
D877-84	Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrode

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

70	National Electrical Code
70B-83	Electrical Equipment Maintenance

UNDERWRITER'S LABORATORIES, INC. (UL)

467-72	Grounding and Bonding Equipment

3.2 Deviation and Non-Conformance Requirements

3.2.1. Deviations from this specification or changes in materials or design after the Purchase Order has been placed must be approved by the GPA Engineering Department and acknowledged by a Purchase Order Amendment.

3.2.2. Units received with deviations or non-conformance which is not acknowledged as specified in Sub-Paragraph 3.2.1 are subject to rejection. The Supplier is responsible for any corrective action including but not limited to materials, labor, and transportation necessary to dispose of, or make the units conform to the specification.

3.2.3. Notification of defects discovered before or after installation that are believed to be inherent to manufacturing problems or workmanship shall be made and forwarded to the Supplier. The description of the item, documentation of the problem and the described information, disposition and/or follow-up (as appropriate) that GPA expects from the Supplier will be specified. The Supplier's response shall be made within thirty (30) days

unless an extension is acknowledged and approved in writing by the GPA Manager of Engineering.

3.3 Warranty

The Supplier shall warrant for 1-year the satisfactory and successful operation of the apparatus furnished under this specification at the rating, under the conditions, and for the service specified. The Supplier shall further warrant the apparatus against defects of design, material and workmanship.

4.0 DATA TO BE FURNISHED

4.1 The Bidder shall provide with his bid the following data:

1. Transformer
   a. Manufacturer _____
   b. Type, Core _____
   c. Windings, Two-winding _____
   d. Service Area, Outdoor _____
   e. Factory Technician Representative on Site _____
   f. Warranty, 1-Year _____
   g. Quantity _____

2. Delivery Date
   a. 8 months ARO or the earliest date _____

3. Rating
   a. Rated Output Capacity, 60/80 MVA _____
   b. Number of Phase, 3 _____
   c. Rated Frequency, 60 Hz _____
   d. HV rating and connections, 115 kV/Grounded Wye _____
   e. LV rating and connections, 13.8 kV/Delta _____
   f. Vector Group, Ynd1 _____
   g. HV Tap Steps, 5 _____
      HV Tap Voltage, 115 kV +/- 2 x 2.5% _____
   h. Cooling Class _____

4. High Voltage (HV) Bushings
   a. Manufacturer/ Country _____
   b. Model/ Part No. _____

c. Voltage Class, 115 kV _____
d. Minimum BIL, 550 kV _____
e. Minimum Voltage Creepage, 115 Inches _____

5. High Voltage Neutral (HVN) Bushings
   a. Manufacturer/ Country _____
   b. Model/ Part No. _____
   c. Voltage Class, 15 kV _____
   d. Minimum BIL, 110 kV _____
   e. Minimum Voltage Creepage, 15 Inches _____

6. Low Voltage Neutral (LV) Bushing
   a. Manufacturer/ Country _____
   b. Model/ Part No. _____
   c. Voltage Class, 15 kV _____
   d. Minimum BIL, 110 kV _____
   e. Minimum Voltage Creepage, 15 Inches _____

7. High Voltage (HV) Bushing Current Transformers
   a. Manufacturer/ Country _____
   b. Model/ Part No. _____
   c. MRCT, 600/5 _____
   d. Class, C800 _____
   e. Burden, 100 VA _____

8. High Voltage (HVN) Bushing Current Transformers
   a. Manufacturer/ Country _____
   b. Model/ Part No. _____
   c. MRCT, 1200/5 _____
   d. Class, C800 _____
   e. Burden, 100 VA _____

9. Low Voltage (LV) Bushing Current Transformers
   a. Manufacturer/ Country _____
   b. Model/ Part No. _____
   c. MRCT, 4000/5 _____
   d. Class, C800 _____
   e. Burden, 100 VA _____

10. Spare Bushings
    a. HV Bushings, 2 each _____
    b. HVN Bushing, 1 each _____
    c. LV Bushings, 2 each _____

11. Guaranteed Efficiency at 100% Power Factor
    a. At 1-1/4 load (125%) _____
    b. At full load (100%) _____
    c. At 3/4 load (75%) _____
    d. At 1 /2 load (50%) _____
    e. At 1/4 load (25%) _____

12. Guaranteed Regulation at 100% Load
    a. At 100% power factor _____
    b. At 80% power factor _____

13. Guaranteed Loss
    a. Total loss at 100% voltage, kW _____
    b. Load loss (P_k) at rated voltage, kW _____
    c. No-load loss (P_o) at rated voltage, kW _____
    d. No-load loss at 110 % voltage, kW _____
    e. Maximum auxiliary power loss, kW _____

14. Guaranteed Exciting Current
    a. At 100% voltage, Amps _____
    b. At 110 % voltage, Amps _____

15. Guaranteed percent impedance, 10% _____

16. Calculated zero-sequence percent impedance, % _____

17. Guaranteed maximum average audible sound level for each stage of cooling
    a. Self-Cooled, dB _____
    b. 1st Stage, dB _____

18. Forced Cooling
    a. Cooling power requirements, kW _____
    b. Auxiliary power, Volts _____

19. Total Auxiliary Load with cooling, LTC, and cabinet space heaters
    a. Power Requirements (P_{co}) at No-Load Operation, kW _____
    b. Power Requirements (P_{cs}) at Rated Power Operation, kW _____
    c. Auxiliary power, Volts _____

20. Type of Oil Preservation System _____

21. Method of mounting radiators
    a. Removable or Integral with the tank _____

22. Shipping data
    a. Shipping weight, Lbs. _____
    b. Shipping dimension (LxWxH), Inches _____
    c. Oil or gas filled _____

23. Transformer Overall Dimension (LxWxH), Inches _____

24. Type of transformer winding material used for all windings
    a. HV windings, COPPER _____
    b. LV windings, COPPER _____

25. No Voltage Tap Changer
    a. Manufacturer/ Country _____
    b. Model/ Part No. _____
    c. Current rating, Amps _____

26. Dissolve Gas Analysis (DGA) or Fault Gas and Moisture Monitor
    a. Manufacturer/ Country, GE USA _____
    b. Model/ Part No., Hydran M2 _____

27. Spare Hydran M2 Sensor 0-2000 ppm
    a. Part No.16270, 2 each _____

28. HV Surge Arresters
    a. Manufacturer/ Country _____
    b. Voltage rating (duty cycle), rms kV _____
    c. Max. continuous operating voltage, rms kV _____
    d. One second TOV capability, rms kV _____

e. Creepage distance, inches _____
f. Total weight of each unit, lbs. _____

29. LV Surge Arresters
a. Manufacturer/ Country _____
b. Voltage rating (duty cycle), rms kV _____
c. Max. continuous operating voltage, rms kV _____
d. One second TOV capability, rms kV _____
e. Creepage distance, inches _____
f. Total weight of each unit, lbs. _____

30. Oil
a. Manufacturer/ Country _____
b. Product, INHIBITED _____
c. Type, ASTM D3487 Type II _____
d. Amount required, Main tank, gals _____
Conservator tank, gal. _____
e. Total weight, Main tank, lbs. _____
Conservator tank, lbs. _____
f. Method of delivery _____

31. Target Type Fault Indicator
a. Manufacturer/ Country, Fuji Electric/ Japan _____
b. Model/Part No., TK Series/ TKL 200-DC12-B _____

32. Anchor Bolts, 1" dia. x 16" L _____

33. Attach list of recommended spare parts with quantities.
34. Attach list of special tools.
35. Bidder shall include in his bid the costs for factory witness testing by two (2) GPA representatives.

4.2 An outline drawing shall be provided with each bid quotation. This drawing shall include the following information:

a. Projected floor space of the transformer, including radiators and expansion tanks.
b. Height of transformer from floor level to top of high-voltage bushing.

c. Height of transformer from floor level to top of low-voltage bushing.
d. Height of transformer from floor level to top of tank, and to the highest non-removable part.
e. Weight of core and windings.
f. Weight of tank and radiators.
g. Number of gallons of oil and total weight of the oil.
h. Total weight of the assembled transformer including oil.
i. Power requirements for all control and auxiliary equipment.

4.3 Within ten (10) weeks after award of contract, the successful bidder shall provide the following drawings for GPA approval.

4.3.1 Nameplate drawing including all current transformer ratios.

4.3.2 Outline drawing including the following:

a. Accessories and location
b. Weights with and without oil
c. Shipping center of gravity-shown on two views.
d. Installed center of gravity-shown on two views.
e. Anchoring requirements.

4.3.3 Base drawing including anchor bolt locations, completely detailed and dimension from equipment center lines:

a. Bushing outlines including size of stud, thread size and thread length.
b. Surge arrester outlines.
c. Location of radiators.
d. Location of conservator.
e. Control elementary and wiring diagrams.
f. LTC control elementary and wiring diagrams.
g. Current transformer elementary and wiring diagrams.
h. Current transformer ratio correction factor and secondary excitation curves.

The Supplier shall supply three sets of prints of the above requirements. In addition, a list indicating the drawing number and title of each drawing shall be provided.

4.4 Drawings Approval

4.4.1 GPA shall be allowed three (3) weeks to review and approve drawings provided in Section 4.3 without affecting the shipping date.

4.4.2 Drawings returned to the Supplier as approved shall be considered authorization to proceed with the work. The approval of GPA shall in no way abrogate the requirements of this specification.

4.5 Certified Reproducible

4.5.1 At least three (3) weeks prior to shipment of the equipment the Supplier shall furnish GPA an AutoCAD file and a complete set of final certified reproducible vellum for each transformer purchased. Under no circumstances will "Typical Drawings" be accepted. This includes both schematic and wiring diagrams.

4.5.2 Final certified reproducible shall be submitted on full size, right reading, photographic Mylar. The following information shall be shown on each drawing submitted:

a. GPA Purchase Order
b. Supplier's Name
c. Description of Drawing

4.6 Instruction Books

4.6.1 At least three (3) weeks prior to delivery the Supplier shall furnish GPA five sets of complete operating and instruction books for each transformer.

4.6.2 One additional instruction book shall be attached to each transformer.

4.6.3 Each manual or instruction book shall include the following:

a. Both schematic and wiring drawings. No typical drawings are acceptable.

b. List of parts that were shipped loose from the transformer and to be installed in the field.

c. A replacement parts list that includes part number identification.

d. A list of recommended spare parts and complete packing lists of accessory items.

e. Instruction manuals covering step-by-step installation and assembly with illustrative drawings. Each separate part shall be marked with or identification system to aid in erection.

f. Manual recommending proper storage procedures.

g. Operating and "troubleshooting" manual for the transformer.

h. List of all special tools needed for installation and maintenance.

5.0 RATINGS

5.1 Description

Transformer shall be a 3-phase, oil-immersed, outdoor type unit for use on a 60 hertz effectively grounded system. Transformer windings (primary and secondary) shall be made of COPPER.

5.2 Operations and Environment

The transformer is to be used for step-down operation, in a salt air environment near sea level with ambient temperatures ranging between 75 and 100 degrees F.

5.3 KVA Rating/Temperature Rise

The transformer shall have the following ratings:

Self-Cooled OA	60 MVA
1st stage fans FA	80 MVA

The average winding temperature use will not exceed 65 degree C (measured by resistance method) when operated at the OA/FA rating.

5.4 Voltage Ratings and Phase Displacement

5.4.1 The primary winding (High Voltage) shall be rated 115,000 Y/ 66,395 volts, Grounded Wye connected.

5.4.2 The secondary winding (Low Voltage) shall be rated 13,800 volts, Delta connected.

5.4.3 The phase displacement between the 115,000 volt and 13,800 volt winding shall be 30 electrical degrees with the low voltage lagging the high voltage in a counter-clockwise phase rotation.

The vector group of the transformer shall be Ynd1.

5.5 Basic Insulation Levels (BIL)

The BIL ratings shall be as tabulated:

High Voltage Winding	550 KV
High Voltage Neutral Winding	110 KV
Low Voltage Winding	110 KV

5.6 Impedance

The percent impedance voltage for the high to low voltage windings (H-X) shall be 10 percent on the unit's OA rating; impedance shall have tolerances as specified in ANSI Standard C5.12.00.

5.7 Sound Level

The average sound level of transformer shall be of a standard sound level or reduced sound level. Standard sound levels shall not exceed 72/74 db based on the transformer rating in accordance with NEMA TR-1-1971 Standards. Reduced sound level transformers shall be 12dB below the standard and shall not exceed the levels for 60/62 dB for OA/FA, OA/FA or OA/FOA ratings.

The transformer sound level shall be reduced by reducing the flux density of the core.

The Supplier shall state in his quotation the price difference between a standard sound level and a reduced sound level transformer.

5.8 Surge Arresters

Station class metal oxide surge arresters shall be provided.

The Maximum Continuous Operating Voltage rated 90 kV rms shall be 70 kV MCOV for the transformer HV terminals. High voltage arresters shall be mounted on the transformer, ABB type or equal.

The Maximum Continuous Operating Voltage rated 10 kV rms shall be 8.4 kV MCOV for the transformer LV terminals. Tertiary voltage arresters shall be mounted in the TV Terminal Cabinet of the transformer, ABB type or equal.

6.0 CONSTRUCTION

6.1 Bushings

6.1.1. High voltage bushings shall be of the paper and oil "capacitor" TYPE, ANSI Standard Inter-changeable, with visible oil level gauge at the top of each bushing. Each bushing shall be provided with a power factor test tap. Bushing color shall be ANSI 70 light gray. Threaded stud for connection of bushing to cable or straps shall be silver-plated.

6.1.2 Low voltage phase and all neutral bushings shall be of the dry-type, one piece porcelain body, or acceptable condenser type. Threaded stud for connection of bushing to cable or straps shall be silver-plated. The bushing color shall be ANSI 70 light gray.

6.1.3 All bushings minimum creepage distance is 1 inch/ kV. Bushings provided with the transformer shall be in accordance with the following:

BUSHING	VOLTAGE CLASS KV	MINIMUM BIL KV	MINIMUM VOLTAGE CREEPAGE IN	LOCATION
HV Phase	115	550	115	Top Mtd.
HV Neutral	15	110	15	Top Mtd.

LV Phase	15	110	15	Top Mtd.

6.1.5. Two each spare bushing shall be provided for high and low voltage bushings. One each spare bushing shall be provided for high voltage neutral bushings.

6.2 Bushing Current Transformers

6.2.1. Standard multi-ratio current transformers for Authority's use are required as follows:

Each HV Phase Bushing	Two (2) 600/5 MRCT accuracy C800.
Each HV Neutral Bushing	Two (2) 1200/5 MRCT accuracy C800.
Each LV Phase Bushing	Two (2) 4000/5 MRCT accuracy C800.

6.2.2. All secondary tap leads (total of five for each CT) shall be brought out of the top or side wall of the transformer through a gas and oil tight compartment and wired to identified circuit shorting terminal blocks in the transformer control cabinet. All connections between CT's and GPA connection points shall be bolted or crimped. No soldered, split or disconnecting lugs shall be used.

6.2.3. All CT circuits shall be terminated into an eight-pole test switch.

6.2.4. The manufacturer shall provide accuracy curves for the current transformers furnished.

6.2.5. Bushing CT Nameplates shall be provided showing connection and ratio for each tap of each current transformer. These nameplates shall be mechanically fastened and located adjacent to GPA's connection terminals.

6.3 Tap Changers

6.3.1 High Voltage De-energized Manual Taps

Externally operated, full KVA capacity, fixed taps shall be provided to regulate the high voltage + 2 1/2 % and + 5 % from the nominal voltage. The high voltage de-energized tap changer shall be operable by a wheel,

crank, or lever accessible by an operator standing at ground level. The operating device shall have provisions for padlocking. Each tap position and associated voltage for that tap shall be clearly identified on a tap position nameplate mounted on the transformer wall directly adjacent to the operating device. The nameplate shall state "For De-energized Operation Only".

6.4 Drain, Isolating, Vacuum and Filter Valves

A two inch, globe type, combination drain and lower filter valve shall be provided. This valve shall have a built-in 3/8 inch sampling device. A one inch upper filter valve shall also be provided.

If transformer is designed for vacuum filling, provision shall be made on the top of the tank for a vacuum connection.

Isolating valves and other necessary devices shall be provided to allow ready installation and removal of radiators and drainage of oil from radiators without draining oil from the main tank. Drain, filter, vacuum valves and their hand wheel shall be made of bronze.

6.5 Lifting Facilities

Lifting facilities shall be provided for lifting the cover separately and for lifting the core and coil assembly from the tank using four lifting cables.

Lifting facilities shall also be provided for lifting the complete transformer using four slings. The bearing surface shall be free from sharp edges.

6.6 Jacking Facilities

Jacking facilities shall be located near the extreme ends of the junctions of the transformer segments. Minimum dimensions and clearances for jacking provisions shall be specified on the outline drawing.

6.7 Pulling Facilities

Pulling eyes shall be provided for pulling the transformer along center line.

6.8 Transformer Base

6.8.1 The transformer base shall be designed to permit rolling or skidding of the transformer in any direction. The base shall be designed so that the transformer center of gravity, as normally prepared for shipment, shall not fall outside the base support for a tilt of the base of 15 degrees from the horizontal, with or without oil in the transformer.

6.8.2 The base shall be fabricated with an adequate number of anchor bolt holes designed to put the transformer base in direct contact, shear and tension, with the transformer concrete foundation at all anchor bolt locations.

Anchorage shall be ASTM A-307 anchor bolts 1" dia. x 16" L with heads embedded in concrete with an ultimate compressive strength of 3000 pounds per square inch. Anchor bolts shall be supplied by manufacturer.

6.9 Nameplate

A diagram nameplate shall be furnished and shall be located near eye level above the base of the transformer. The information furnished shall be in accordance with nameplate 1980 American National Standard 057.12.00, Section 5.12. The Supplier shall also stamp on the nameplate the GPA P.O. Number.

6.10 Liquid Thermometer

The transformer shall have top oil gauges with alarm contacts and a 0-1 mA output shall be provided for top oil temperature.

6.11 Liquid Level Indicator

A magnetic liquid level indicator shall indicate the level of the insulating liquid. Two electrically separate, normally open alarm contacts shall be provided to indicate both high and low liquid levels.

A third contact shall be provided to trip for low liquid level. This contact shall be electrically isolated from the alarm contacts and shall be set so that the trip operation is at a lower liquid level than the low level alarm.

6.12 Hot Spot Thermometer

A three-stage hottest spot winding temperature indicator relay shall be provided in each winding. The second stage contacts shall be wired in parallel to an auxiliary relay to obtain two (2) normally open contacts in addition to fan control contacts. A 0-1 mA output shall be provided for winding temperature.

The loss of cooling and over temperature trip and alarm scheme shall contain the items listed below.

a. Auxiliary contacts from second stage of winding temperature relay.

b. Loss of voltage relay (Device 27-1)

c. Timing relay to allow enough time for a source transfer before operation (Device 95)

d. Timing relay with instant transfer auxiliary switch self-resetting, 6-60 minutes, time delay pickup (Device 2-2). The equipment will be used to give an alarm with loss of voltage and high temperature and de-energize the transformer after a set period of time.

e. Auxiliary time delay relay to give alarm upon loss of voltage to pumps and or fans (Device 27-2).

6.13 Sudden Pressure Relay

A sudden pressure relay shall be provided. This relay shall be factory calibrated for the transformer on which the relay is to be used. The relay shall be provided with two electrically separated contacts for alarm and control. The sudden pressure relay shall be provided with an auxiliary lockout relay with hand reset. The auxiliary relay shall have a normally closed contact from the sudden pressure relay shunting the operating coil of the auxiliary lockout relay. The relay shall be suitable for 125 VDC operations. Relay assembly and location shall allow removal with the transformer energized.

6.14 Mechanical Pressure Relief Device

A self-sealing, mechanical pressure relief device shall be located on the cover. The relief device shall be furnished with alarm contacts and a visual operation

indicator. The indicator shall be resettable with hot-sticks from ground level without the necessity of de-energizing the transformer.

6.15 Fault Gas and Moisture Monitor

Fault gas and moisture monitor shall be GE Power Systems' HYDRAN M2 or newer version. The dissolved gas monitor (DGA) shall be used for continuous and on-line monitoring of moisture and gas-in-oil for the transformer. The DGA shall have the following features:

a. Monitoring capability for H2, CO, C2H2, C2H4, and H2O.
b. Hourly and daily trend with alarm features
c. History logging of Data and Events
d. Dry Contacts for alarms
e. RS232 and Ethernet Connections
f. DNP 3.0 Protocol
g. NEMA 4X Enclosure
h. Analog and Digital Input/Output Card

Two each Hydran M2 sensor, Part No. 16270, shall be provided as spare.

6.16 LTC Transformer Oil Filtration System

The load tap changer filtration system shall be OIL FILTRATION SYSTEMS' LTCFS-6-S514D/2-120-N4-B or newer version. The LTC filtration system shall be used for continuous online filtration of dielectric oil of a load tap changer transformer featuring:

a. High Efficiency Particulate/ Carbon Removal Filter Element, which can remove particles as small as ½ micron in single pass.
b. Water Removal Element, capable of removing up to 0.25 gals of water.
c. Element Plugged Indication.
d. Variable Operation, system can be run continuously or at 1-4 intervals per day via solid state timer.
e. Automatic Safety Shut-Down and Isolation, if a leak is detected.
f. Cabinet Oil Leak Detection device.
g. Stainless Steel Cabinet.
h. Hour meter.
i. Inlet Make-Oil Adder Valve.
j. Flow Sight.
k. Acid Removal Filter.

6.17 Target Type Fault Indicator

The electromagnetic target type fault indicator shall be TK Series, Fuji Electric Ind. Co. Ltd., TKL 200-DC12-B or approved equal. The fault indicator shall have combinations of contacts that are utilized for output, a plug-in type indicating element with visible indication plate, and manual resetting. The indicators shall be installed inside the transformer control cabinet visible through window glass.

6.18 Core Ground

It is preferred that the core ground connection be above the oil and accessible from a manhole to facilitate testing of the core to tank insulation without lowering the oil. The connector shall be the slotted type with a captive nut connection. The location of core ground should be indicated on the transformer outline drawing.

6.19 Auxiliary Power Source

The auxiliary power will be single-phase 120/240 volt, 60 HZ A/C. The Supplier shall design the transformer cooling system including fans and pumps, LTC motor, controls and accessories to operate on both voltages. The Supplier shall inform GPA of the power requirements needed at the transformer. The terminals provided by the Supplier shall be adequate to receive GPA furnished A/C service conductors.

A 120 VAC, 15 ampere convenience outlet with ground fault protection shall be provided.

Provisions shall be made for an ungrounded 125 VDC incoming supply. All tripping, alarm, and associated devices shall be rated 125 VDC operations.

6.20 Centralized Termination and Control Devices Requirement

All equipment alarms, controls, protection and current transformers shall be brought to individual identified terminals centralized in a weather-proof control cabinet mounted on the equipment tank at a center of cabinet to base height of 5 feet 6 inches. Oil thermometer gauge, high voltage winding temperature gauge, and low voltage winding gauge shall also be located inside the weather proof cabinet. Adequate hinged doors shall be provided with weatherproof latching facilities. The latching assemblies shall be operated by handles that can be reached by an operator standing at ground level. Each handle shall have provisions for

padlocking and be acceptable for weather-proofing the doors in the closed position.

All meters and instruments which require resetting shall be mounted less than six (6) feet above the base of the transformer.

Alarm contacts shall be electrically separate, open during normal conditions, self-resetting, suitable for closing 5 amperes, carrying 3 amperes continuously, and opening 3 amperes at 125 volts DC.

Control contacts shall be electrically separate, open during normal conditions, self-resetting, suitable for closing 30 amperes, carrying 10 amperes continuously, and opening 3 amperes at 125 volts DC.

All alarm and control contacts shall be individually wired to the Target Type Fault Indicators TK Series. Another new set of alarm and control contacts shall be individually wired to the GPA Customer (RTU and Relay Panels).

6.21 Instrument and Control Wiring

6.22.1 THW or THWN wires used by the Supplier shall be of the machine-tool type with 3/64" polyvinyl chloride insulation rated 600 volts, 90 degree C. Other wires with insulation having characteristics which equal or exceed the above requirements for machine-tool type wire are acceptable. Control wire used by the Supplier shall be suitable for wet and dry location, flame retardant, moisture and heat resistant.

6.22.2 All secondary wire, regardless of type, shall be stranded. Wire shall have adequate current-carrying capacity. No. 12 AWG shall be used for control circuits, #10 for CT circuits and #18 for SCADA indication.

6.22.3 Those portions of any secondary wiring in the control box, or those portions of any secondary or control wiring or cable which pass through conduit, shall not be spliced. However, junction boxes with terminal blocks as specified above may be used to extend secondary wiring passing through conduits.

6.22.4 Ring-tongue terminals shall be used for secondary wiring. Spade, slotted spade, flanged spade, and hook terminals are not acceptable. Ring-tongue terminals shall be sufficiently strong to prevent their breakage under conditions of vibration inherent in the equipment in which they are installed.

6.22.5 Terminals shall have insulated ferrules whenever the spacing between the terminals, or their projection above or below the terminal board, or both, is such that they can make contact with one another.

6.22.6 All wires for external connection shall be properly identified and terminated at conveniently located, easily accessible terminal blocks. All terminal blocks furnished by the Supplier shall have No. 10 screws. The screws shall be secured directly into the contact strips and not into nuts embedded in the terminals blocks. The contact strips shall have sufficient thickness to assure that torque applied to the No. 10 screws to hold the terminal to the contact strips will not damage the threads in the tapped holes. The screws shall be firmly secured to the blocks and shall be separated by insulated barriers. Terminal blocks with clamp type fittings are not acceptable.

6.22.7 Ring-tongue terminals shall be fastened to the contact strips of terminal blocks with machine screws. Barriers shall separate the contact strips.

All circuits shall be protected by molded case circuit breakers. Breakers are to be ambient compensated. The breaker size, supplier's name and catalog number are to be shown on the drawings.

6.22.8 All control, power, alarm, and auxiliary equipment shall be completely wired at the factory.

6.22.9 Hinge wiring and wiring that will be subjected to bending during maintenance or other operations shall be arranged such that the bending or twisting will be around the longitudinal axis of the wire.

6.22.10 Wiring shall not be spliced or tapped. All connections shall be made at the device terminals or on terminal blocks.

6.22.11 All future, spare, and unused contacts and devices shall be wired to terminal blocks.

6.22.12 A minimum of ten percent (10%) spare terminal points shall be provided.

6.22.13 All wirings external to enclosure or cabinet shall be in rigid steel conduits.

6.22.14 All wirings from the transformer components to the cabinets, which may require removal for shipment, shall be installed in place and in such a manner that it is only necessary to connect the wires to the cabinets after they are installed on the transformer.

6.22.15 Wiring Format

a. All terminals shall be numbered, and the numbers shall correspond to the numbers on the wiring diagram.

b. All wires shall be identified at their termination points with the opposite end designation identification by labeled plastic sleeves or equal. Identification shall correspond to the lettered device, numbered terminal format of the wiring diagrams.

6.22.16 **System Phase Rotation**

The system phase rotation for the island-wide system is GPA C-B-A or NEMA 1-2-3 and all equipment purchased under this contract shall be wired and connected NEMA 1-2-3. All phase markings shall be NEMA 1-2-3. Instrument and relay arrangement shall be 1-2-3 left to right with neutral relays underneath phase grouping. GPA will make the external connections of the incoming and outgoing lines such that GPA C-B-A is connected to NEMA 1-2-3. Phase markings C-B-A shall be reserved for GPA's use.

7.0 TANK

7.1 The main transformer tank shall be designed to withstand, without permanent deformation, pressures 25 % greater than the maximum operating pressures resulting from the system of oil preservation used. The maximum operating pressures (positive and negative) which the transformer tank is designed to withstand shall be indicated on the nameplate.

7.2 Vacuum Filling

If tank is designed for vacuum filling (essentially full vacuum) radiators and auxiliary compartments such as expansion tanks, when not designed for full vacuum filling, shall be so designated and isolating valves shall be provided.

7.3 Manholes

Provide one or more circular handholes and at least two circular manholes in the transformer top with neoprene or better gasket material and bolted covers. This facility must be of sufficient size to allow removal of bushing CTs and allow entrance of a person into the transformer tank (24-inch minimum manhole).

7.4 Ground Pads

In addition to the surge arrester grounds pads, two ground pads, drilled and tapped for NEMA four-hole (1/2 inch bolts on 1-3/4 inch centers) connectors, shall be installed on diagonally opposite corners of the base. If the base is removable, the two pads shall be installed on the transformer tank wall near the base. Ground pads shall be copper-faced steel, stainless steel, or nonferrous pads brazed or welded to the transformer.

8.0 TRANSFORMER OIL

The Supplier shall furnish an adequate quantity of mineral oil for the first fill of each transformer. Mineral oil shall be ASTM D3487 Type II. All furnished oil shall be INHIBITED with DBPC (Ditertiary Butyl Para-Cresol). The oil shall have the following minimum characteristics:

a. Flash Point: Cleveland Open Cup 132 Degrees C.
b. Fire Point: Cleveland Open Cup 145 Degrees C.
c. Specific Gravity at 60 Degree F: 0.865 to 0.910.
d. Viscosity: Saybolt Universal at 100 Degree F - 55 - 63 sec.

e. Acidity: 0.02 Mg KOH/gm 0.1 max.
f. Pour Point: -40 Degree F.
g. Corrosive Sulfur: None
h. Dielectric Strength (ASTM D877): 26 kV Min.
i. Power Factor at 68 Degree F: 0.0% Max.
j. Interfacial Tension: 40 Dynes/CM.
k. Non-PCB (Polychlorinated Biphenyl) Contaminated:
Manufacturer is to mark in a permanent manner that the dielectric fluid is "Non-PCB". Certified test report on residual oil remaining in the transformer after factory testing that indicates that the oil is free of PCB.

9.0 TRANSFORMER COOLING

9.1 Cooling Control

9.1.1 A hot-spot dial type thermometer shall be supplied to indicate the maximum hot-spot temperature of the windings. The instrument shall have adjustable alarm contacts and shall be placed at a convenient location, easily readable from ground level. The two stages of cooling shall be activated by the contacts on the dial type hot-spot thermometer. The contacts for cooling control within the hot-spot temperature device shall be readily accessible. This can be accomplished by providing all temperature device windings, oil, etc., with split removable bezel rings.

9.1.2 A manual-off-automatic selector switch shall be provided for the control of each stage of cooling equipment. In the "Automatic" position, the cooling equipment shall be activated by the temperature control. In the "manual" position the cooling circuit shall be energized. A contact shall be provided to indicate loss of power to cooling circuits for remote alarm purposes. The contact shall be wired to a terminal strip in the control cabinet for GPA's connection. A selector switch shall be provided to allow either cooling stage to be used as the first or preferred system.

9.1.3 Operation of the cooling system shall not be made by motor starting switches. If a capacitor is needed for starting, then the motor shall be capacitor start and run.

9.2 Heat Exchangers

Heat exchangers must have sufficient capacity to prevent a temperature rise in excess of that specified for each rating of the transformer. Due to severe corrosion problems, GPA prefers heat exchangers made of copper tube and copper fin construction. ALUMINUM heat exchangers are NOT ACCEPTABLE. Heat exchangers shall be removable from the main tank without the need to drain oil from the main tank.

9.3 Radiators

No accessories or pipes shall be installed above the radiators for easy installation and removal during maintenance.

Material of radiator:	Cold rolled Steel, SS41, and 1.0mm thickness	
Internal painting:	Coating with Celerol reaction primer	
Surface preparation:	Grit blasting to Sa 2.5 (SVENSK STANDARD SIS 0559081967) ASTM 2200 D IS 1477 PART 1	
Exterior paint:	Hot-Dip Galvanizing as per ISO-1461	60 Microns
	Epoxy Primer	20 Microns
	Epoxy Intermediate Coat	40 Microns
	Polyurethane Top Coat	40 Microns
	Total Thickness	160 Microns

9.4 Cooling Fans

All cooling fans shall be of the low speed type to reduce wind noise levels. Each fan shall be multi-bladed or multi-lobed with one common hub. Fans with more than one hub are not acceptable. Control of the cooling fans shall contain no motor starting switches and shall be plug-in type with an identified separate conductor case ground. Metal to metal ground for fans is not acceptable.

10.0 TESTS

10.1 The Supplier shall make his plant available to GPA representatives to inspect the transformer during construction, testing and/or packaging for shipment. Bidder shall include in his bid the factory acceptance test costs witness by GPA, which covers airfare, meals, hotel accommodation, and car rental during the entire testing period.

A factory test plan complete with acceptable reading values shall be submitted to GPA for approval. The factory test equipment and test methods used shall conform to the applicable requirements of ANSI, NEMA, ASTM, NFPA, and UL standards. Factory tests will be witnessed by two (2) GPA representatives.

Manufacturer's technical representative shall be on island to verify transformer connections and acceptance tests.

10.2 Five (5) copies of certified test reports shall be supplied for the following tests:

1. Standard Routine Tests shall be performed as listed in the latest revision of ANSI C57.12.00, including Supplement C57.12.00a-1978.
   a. Ratio Tests or TTR on the rated voltage connection and on all tap connections.
   b. Polarity and Phase Relation Tests on the rated voltage connection.
   c. Winding Resistance Measurement shall be performed for each winding. The resistance shall be measured and recorded with hot and cold windings.
   d. Winding Insulation Resistance and Polarization Index (PI) Tests shall be performed for each winding.
   e. Core Insulation Resistance Test shall be measured between the core and ground for duration of 1 minute.
   f. Insulation Power Factor Tests and Winding Capacitance Test shall be performed in accordance with ANSI/IEEE C57.12.90.
2. Dielectric Tests
   a. Lightning Impulse test shall be performed in accordance with ANSI/IEEE C57.12.90. Oscillographic records of the test shall be included in the test reports. The minimum height of each individual tract (at maximum deflection) shall be 30 millimeters. Front of Wave Impulse shall be performed. Test sequence shall consist of reduced full wave, full chopped wave, and full wave.

b. Low Frequency test shall be performed in accordance with ANSI/IEEE C57.12.90. Test shall be performed on auxiliary devices, control, and current transformer circuits.

c. Partial Discharge (Corona) test at full induced-test voltage level. The measurement shall be less than 500pC at one hour voltage level for 60 minutes. Equipment and general method used shall be in accordance with ANSI/IEEE C57.12.14, C57.12.90, and C57.113.

3. Audible Sound Level test in accordance with NEMA TR-I shall be performed for each stage of cooling.

4. Regulation, Efficiency, and Losses. The regulation of each transformer shall be determined for unity (1.0) and eight-tenths (0.8) power factor lagging.

The efficiency and losses of each transformer shall be determined as indicated in the bid data. The guaranteed efficiency and tested total losses shall include losses in all windings.

Measurement of Impedance Voltage, Excitation Current, and Zero-Phase Sequence Impedance shall also be determined.

5. Bushing Tests
   a. Design Tests. Certification that each type, style, and model bushing furnished has passed the test requirements of ANSI C76.1 shall be furnished.

6. Other Tests
   a. Applied Voltage Test shall be performed to confirm insulation status between windings and between windings and earth. Transformer shall withstand specified voltage during 1 minute.

   b. Induced Voltage Test shall be performed to check the insulation status between turns of windings.

   c. Temperature Rise Tests. Temperature tests will be required to check the temperature rise of windings.

   d. Leak Test shall be performed to check leakage or reduction of pressure

from welding points. Transformer is filled with oil and applies N2 gas to tank.

e. Dissolved Gas in Oil Analysis Test shall be performed to check the condition of oil and inside of the transformer using DGA equipment.

f. Oil Breakdown Voltage Test shall be performed by gathering oil samples from the main tank, main conservator, and OLTC tank.

g. Dew Point of the air (or gas) in the tank shall be determined just prior to shipment and at the final shipping destination.

10.3 The Supplier shall include the following information in the test report.

a. Winding hot spot temperature rise in degree C over the average winding temperature rise at the 80 MVA, 65 degree C rating.

b. Winding Thermal Time Constant.

c. Type of material used in the primary and secondary winding.

11.0 LOSS EVALUATION

11.1 Each bidder shall submit with his bid the guaranteed average load and no-load losses on each transformer submitted on this bid. Guaranteed load losses shall be provided at the transformer's self-cooled (OA) rating and a reference temperature of 85 degree C (65 degree rise + 20 degree C ambient). The requirements and definitions of ANSI Standard C57.12.00, Sections 5.9 and 9.3, shall apply.

11.2 Guaranteed losses will be evaluated by GPA to determine the equivalent cost for owning and operating each transformer. The value of the transformer no-load and load losses will be determined by GPA at the time of purchase to arrive at the projected Total Cost of Ownership (TCO) as follows:

$TCO = IC + [A \times (P_o + P_{co})] + [B \times (P_k + P_{cs} - P_{co})]$ Where:

P_o = No Load Losses (NLL) in kW

P_{co} = Power Consumption of Cooling Equipment at No Load Operation

P_k = Load Losses (LL) in kW

P_{cs} = Power Consumption of Cooling Equipment at Rated Power Operation

IC = Initial Transformer Cost

$A = t \times C_{n/2} \times (1-(1/(1+i))^n)/i$

$B = u \times t \times C_{n/2} \times (1-(1/(1+i))^n)/i$

$u = k^2$

t = Operating Hours per Year **(24 Hours/Day X 365 Days/Year = 8760 Hours)**

i = Discount Rate **(5% Used By GPA for Money Certificates Issued)**

n = Expected Lifetime of the Transformer in Years **(GPA Uses 25 Years)**

$C_{n/2}$ = Is the Cost of energy at the Mid-Life of the Transformer

Note: If Annual increase of energy price is assumed to be constant, $c_{n/2}$ can be calculated using C, j & n

$C_{n/2} = (c+(c \times (1+j)^n))/2$

c = Is the Initial Cost of Energy ($0.1007) **(Calculated From the weighted average energy rate from the Revenue Report with Fuel-Non Fuel Data Dec 2017)**

j = Is the Annual Increase of Energy Price (1.0985%) **(Calculated from the Base Rate Increases from 1998 to 2018)**

k = Is the Average Loading of the Transformer During its Lifetime (66%) **(Calculated using data From the GPA Substation Analysis 2018)**

Note: Load Losses = Total Losses – No Load Losses

11.3 The Manufacturer shall test each transformer for load and no-load losses. This test data shall be certified as correct and submitted to the Authority prior to or at the time of shipment.

11.4 The Authority will review and consider actual load and no-load losses for each transformer. In the event that the average evaluated losses for like units exceed the average guaranteed losses, the Manufacturer will be penalized at the above rates for the differences. Load and no-load loss penalties will be assessed independently. Bonuses will not be awarded for actual average losses which are less than guaranteed. In addition, any transformer with no-load losses or total

losses greater than the tolerances indicated in ANSI Standard C57.12.00 shall be rejected by the Authority.

12.0 OIL PRESERVATION SYSTEM

12.1 The transformer shall have a conservator (expansion tank) type oil preservation system.

12.2 There shall be no contact between oil in the expansion tank and air. This shall be accomplished by use of a nitrile air cell (diaphragm not allowed) vented to the outside air. The expansion tank shall be of sufficient volume to operate through an ambient temperature range of minus 35 degree C to plus 50 degree C without causing the low oil level alarm contacts to close at the lower limit and without exceeding the recommended full oil level at the upper limit. A shut-off valve, capable of holding the full head of oil in the expansion tank, shall be provided in the oil line between the expansion tank and the main transformer tank.

13.0 FINISH REQUIREMENTS

All metal surfaces shall be thoroughly cleaned of rust, welding scale, and grease, and shall be treated to effect a bond between the metal and paint which will prevent the formation of rust under the paint. A priming coat shall be applied immediately after the bonding treatment. A final finish shall consist of two coats of paint. The exterior final coat shall be ANSI 70 Gray.

14.0 SHIPPING REQUIREMENTS

14.1 Because of severe transportation conditions, the Supplier shall pay particular attention to the proper packaging and bracing of the apparatus to assure its safe arrival. Manufacturer shall install a tilt monitor prior to shipping and results should be within safe recommendations.

14.2 The Supplier shall prepare all materials and equipment for shipment in such a manner as to protect from damage in transit. All small parts and unit components shall be separately boxed or bundled to prevent galling due to rubbing of one part against another. Each item, box or bundle shall be plainly and individually identifiable for content according to item number, GPA P.O. Number, and Supplier's Identifying Number.

14.3 A complete itemized Bill of Lading, which clearly identifies and inventories each assembly, sub-assembly, carton, package, envelope, etc., shall be furnished and enclosed with each item or items at the time of shipment.

14.4 Openings in the transformer tank or radiators resulting from the removal of parts for shipment shall be identified and securely sealed against the entrance of moisture and foreign materials. Covers shall be of sufficient strength to resist puncture.

14.5 Delivery of transformer shall be to actual jobsite as identified by the Manager of Engineering.

(C) The lot area per dwelling unit in the Rural Zone (A) shall not be less than nine thousand six hundred (9,600) square feet with sewer connection, if located on top of the Northern Aquifer.

(b) Table.

	Front Yard Depth	Rear Yard Depth	Side Yard Depth	Lot Width	Lot Area	Lot Area Per* Dwelling Unit
Single Family	15 ft.	10 ft.	8 ft.	50 ft.	5,000 sq. ft.	5,000 sq. ft.
Multi-family	15 ft.	10 ft.	8 ft.	50 ft.	5,000 sq. ft.	1,250 sq. ft.
Commercial	-----	20 ft.	-----	20 ft.	2,000 sq. ft.	400 sq. ft.
Light Industrial	-----	20 ft.	8 ft.	50 ft.	5,000 sq. ft.	1,250 sq. ft.
Heavy Industrial	25 ft.	25 ft	15 ft.	120 ft	40,000 sq. ft	----------

Unless facilities are otherwise provided for loading, the rear yard must be no less than twenty (20) feet in depth.

* For properties not located on top of the Northern Aquifer.

(c) Lots Over the Aquifer. Lot sizes and set-back on properties above the aquifer shall be established by the Guam Environmental Protection Agency.

SOURCE: Repealed and reenacted by P.L. 21-072:20(b) (Nov. 27, 1991). Amended by P.L. 22-161:5(c) (Dec. 30, 1994). Amended by P.L. 23-059:4 (Dec. 5, 1995). Amended by P.L. 24-051;2 (June 25, 1997).

NOTE: Prior to this latest repeal and reenactment, 21 GCA § 61501 contained a table of Yard and Lot Areas, which were a part of § 17200 of the Govt. Code (the source of this Section) as amended by P.L. 15-057:7 (Aug. 24, 1979). This section, as repealed and reenacted, contains no such table. Because this table still has potential use, the Compiler has included the Table as adopted by P.L. 15-057 below.

2017 NOTE: Subitem designation added pursuant to authority granted by 1 GCA § 1606.

§ 61502. General Yard and Area Requirements.

(a) No required yard or other open space provided about any building or structure for the purpose of complying with the provisions of this Title, shall be considered as providing a yard or open space for any other building or structure.

Untitled Map
Write a description for your map.
7. Peterra Pump Station
6. Vital Pipe
GPA PITI SUBSTATION
Piti
Rte 1
Rte 6
Rte 5
5. IP & E Valve Box
Legend
Feature 1
GPA PITI SUBSTATION
Hoover Park
Piti
S2 CLUB GUAM ?????
Tanguisson Pipelines
Google Earth
©2018 Google
Image © 2018 CNES / Airbus
Image © 2018 DigitalGlobe
1000 ft

Untitled Map
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Feature 1
GPA PITI SUBSTATION
Hoover Park
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Rte-16
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Xterra Run
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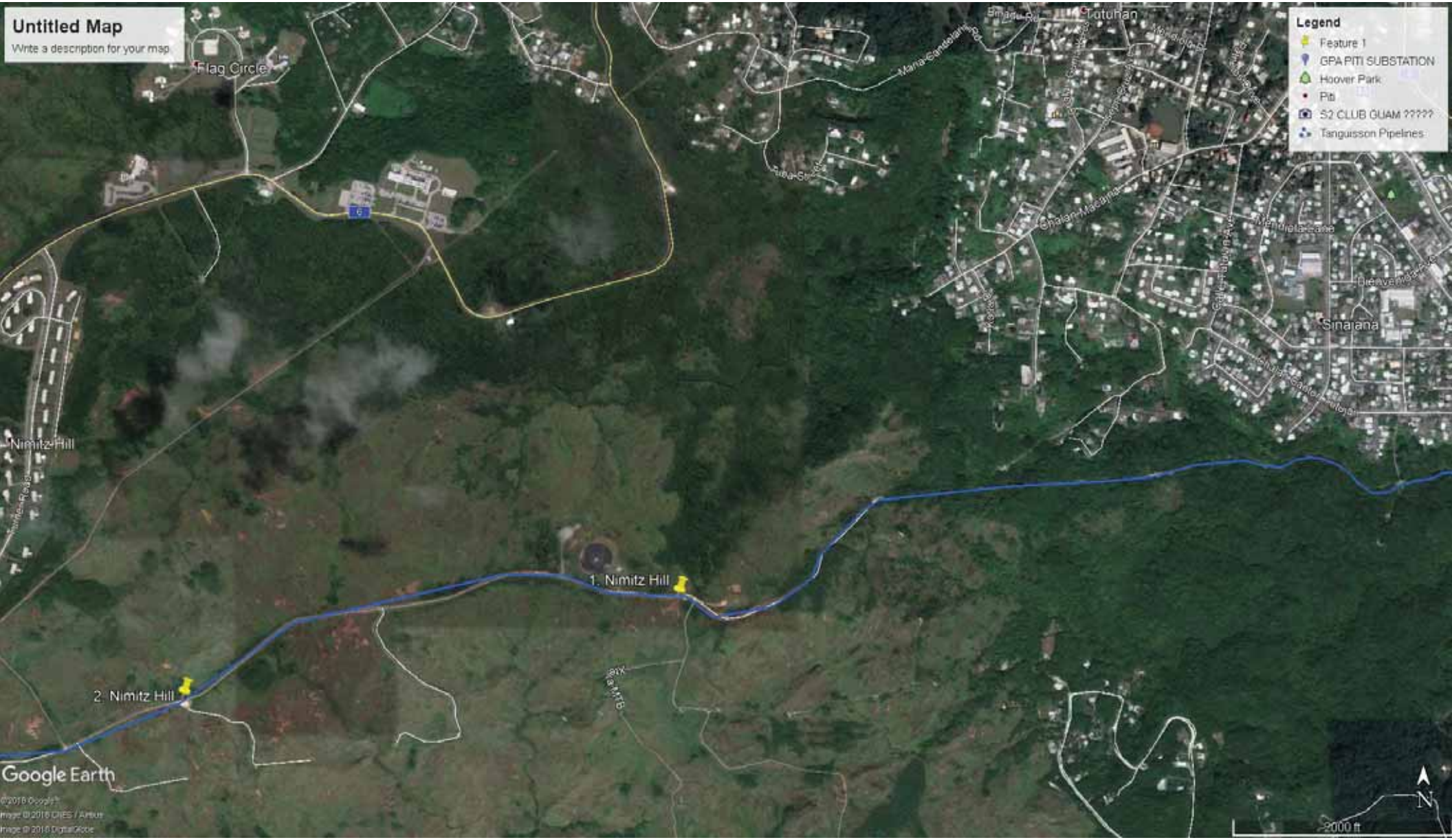
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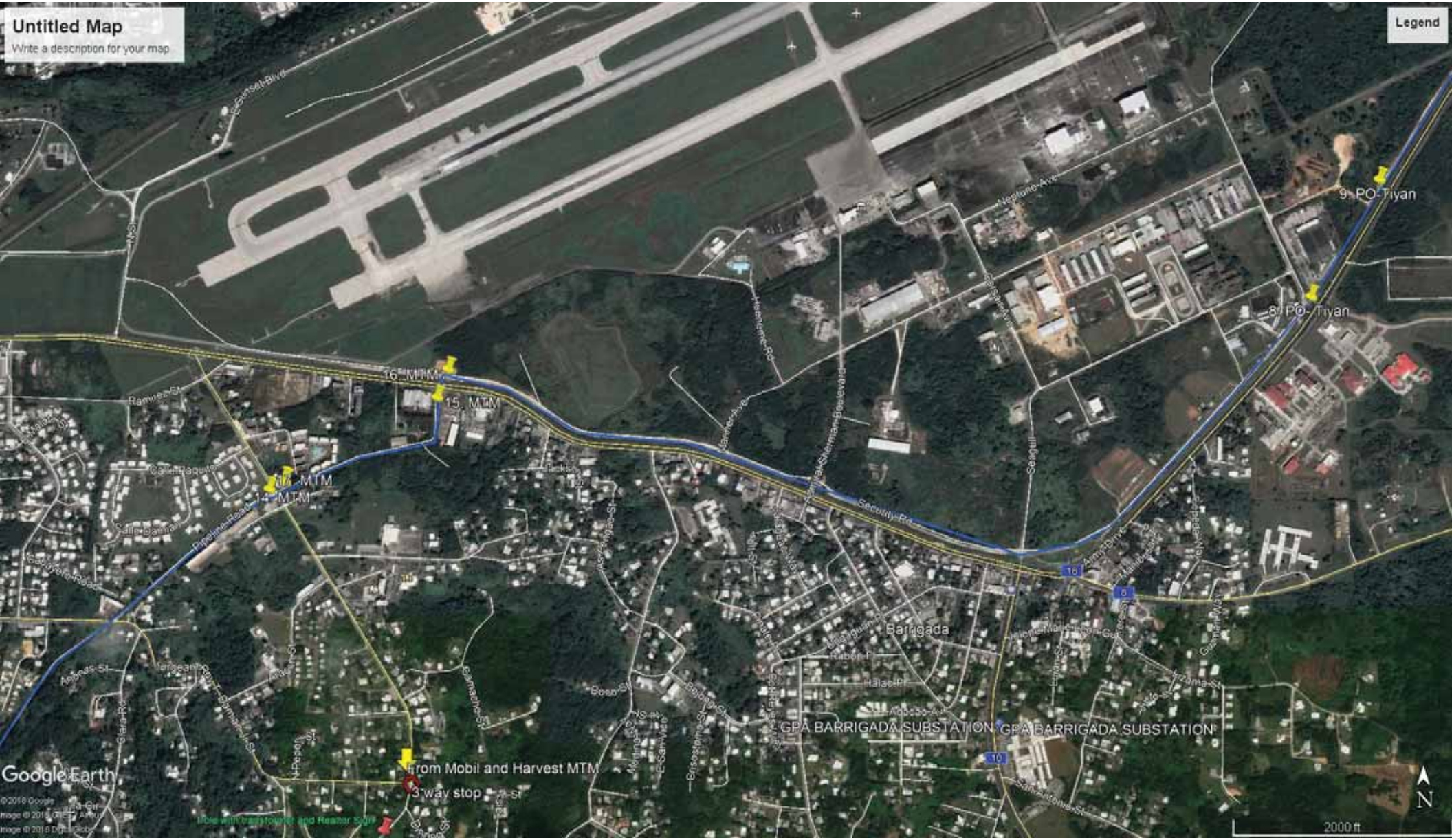
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9. PO- Tiyan
8. PO- Tiyan
16. MTM
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GPA GAA SUBSTATION
11. Airport R.A.
10. Airport Area
9. PO-Tiyan
Barrigada Heights
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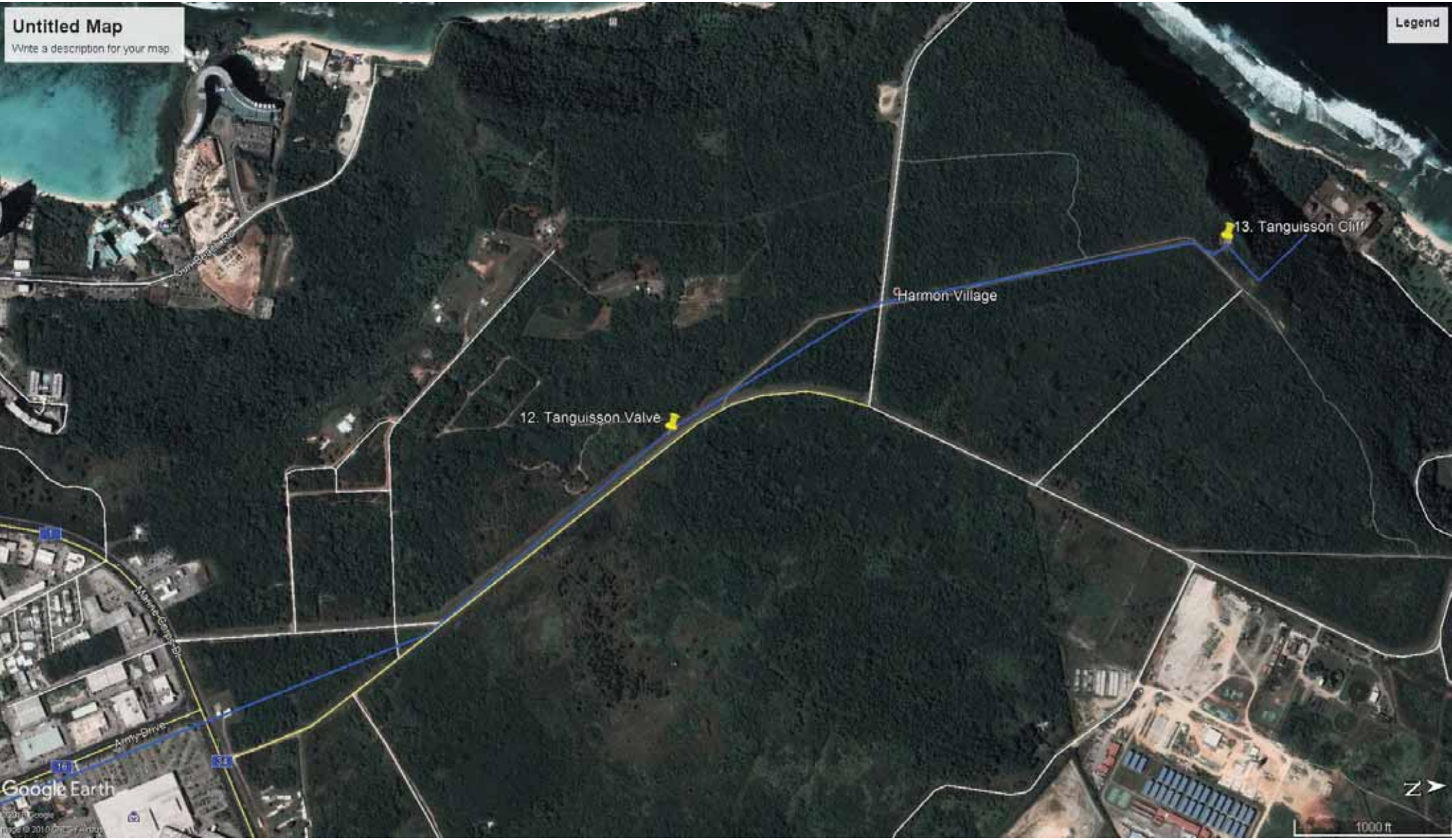
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Legend
13. Tanguisson Cliff
Harmon Village
12. Tanguisson Valve
Marine Corps Dr
Army Drive
Google Earth
1000 ft

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	MODEL	T	ST	AREA	ZONE	RLEVEL	MFROM	MFNAME	MFKV	MTO	MTNAME	MTKV	MCK	MSE	SEL	MODEL_LID
1	Cabras_1		13.8	0		0	1	1	1 wlwscc	l		1	1	1	9	0		0	0		0	1	1	0
1	Cabras_1		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
1	Cabras_1		13.8	0		0	1	1	1 exst2	x		1	1	1	9	0		0	0		0	1	1	0
1	Cabras_1		13.8	0		0	1	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
1	Cabras_1		13.8	0		0	1	1	1 monit	m		1	1	1	9	0		0	0		0	1	1	0
2	Cabras_2		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
2	Cabras_2		13.8	0		0	1	1	1 exst2	x		1	1	1	9	0		0	0		0	1	1	0
2	Cabras_2		13.8	0		0	1	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
9	ManenDsl		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
9	ManenDsl		13.8	0		0	2	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
9	ManenDsl		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
9	ManenDsl		13.8	0		0	1	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
10	TalofDsl		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
10	TalofDsl		13.8	0		0	2	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
10	TalofDsl		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
10	TalofDsl		13.8	0		0	2	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
10	TalofDsl		13.8	0		0	1	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
10	TalofDsl		13.8	0		0	2	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	2	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	3	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	4	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	5	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	6	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	2	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	3	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	4	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	5	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	6	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	1	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	2	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	3	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	4	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	5	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
11	TenjoDsl		13.8	0		0	6	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
12	Cabras_3		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
12	Cabras_3		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
12	Cabras_3		13.8	0		0	1	1	1 gpwscc	t		1	1	1	9	0		0	0		0	1	1	0
13	Cabras_4		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
13	Cabras_4		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
13	Cabras_4		13.8	0		0	1	1	1 gpwscc	t		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	2	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	3	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	2	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	3	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	1	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	2	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
14	OrteUnts		13.8	0		0	3	1	1 ieeeg1	t		1	1	1	9	0		0	0		0	1	1	0
15	TEMES		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
15	TEMES		13.8	0		0	1	1	1 esst4b	x		1	1	1	9	0		0	0		0	1	1	0
15	TEMES		13.8	0		0	1	1	1 gast	t		1	1	1	9	0		0	0		0	1	1	0
16	MEC 8		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
16	MEC 8		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
16	MEC 8		13.8	0		0	1	1	1 gpwscc	t		1	1	1	9	0		0	0		0	1	1	0
17	MEC 9		13.8	0		0	1	1	1 gensal	g		1	1	1	9	0		0	0		0	1	1	0
17	MEC 9		13.8	0		0	1	1	1 exac1	x		1	1	1	9	0		0	0		0	1	1	0
17	MEC 9		13.8	0		0	1	1	1 gpwscc	t		1	1	1	9	0		0	0		0	1	1	0
201	Tangui_1		14.4	0		0	1	1	1 genrou	g		1	1	3	9	0		0	0		0	1	1	0
201	Tangui_1		14.4	0		0	1	1	1 esac5a	x		1	1	3	9	0		0	0		0	1	1	0
201	Tangui_1		14.4	0		0	1	1	1 ieeeg1	t		1	1	3	9	0		0	0		0	1	1	0
202	Tangui_2		14.4	0		0	1	1	1 genrou	g		1	1	3	9	0		0	0		0	1	1	0
202	Tangui_2		14.4	0		0	1	1	1 esac5a	x		1	1	3	9	0		0	0		0	1	1	0
202	Tangui_2		14.4	0		0	1	1	1 ieeeg1	t		1	1	3	9	0		0	0		0	1	1	0

208	Ded CT#1	13.8	0	0	1	1	1 genrou	g	1	1	3	9	0	0	0	0	1	1	0
208	Ded CT#1	13.8	0	0	1	1	1 exac1	x	1	1	3	9	0	0	0	0	1	1	0
208	Ded CT#1	13.8	0	0	1	1	1 gast	t	1	1	3	9	0	0	0	0	1	1	0
209	Ded CT#2	13.8	0	0	1	1	1 genrou	g	1	1	3	9	0	0	0	0	1	1	0
209	Ded CT#2	13.8	0	0	1	1	1 exac1	x	1	1	3	9	0	0	0	0	1	1	0
209	Ded CT#2	13.8	0	0	1	1	1 gast	t	1	1	3	9	0	0	0	0	1	1	0
210	Mache_CT	13.8	0	0	1	1	1 genrou	g	1	1	3	9	0	0	0	0	1	1	0
210	Mache_CT	13.8	0	0	1	1	1 exac1	x	1	1	3	9	0	0	0	0	1	1	0
210	Mache_CT	13.8	0	0	1	1	1 gast	t	1	1	3	9	0	0	0	0	1	1	0
211	Yigo__CT	13.8	0	0	1	1	1 genrou	g	1	1	3	9	0	0	0	0	1	1	0
211	Yigo__CT	13.8	0	0	1	1	1 exac1	x	1	1	3	9	0	0	0	0	1	1	0
211	Yigo__CT	13.8	0	0	1	1	1 gast	t	1	1	3	9	0	0	0	0	1	1	0
1001	Cab115EB	115	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
1001	Cab115EB	115	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
1005	Pit115B1	115	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
1005	Pit115B1	115	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
1101	Aga115	115	0	0	1	1	1 fmetr	m	1	1	2	9	0	0	0	0	1	1	0
1101	Aga115	115	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
1103	Tam115B1	115	0	0	1	1	1 fmetr	m	1	1	2	9	0	0	0	0	1	1	0
1103	Tam115B1	115	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
1201	Har115B1	115	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0
1201	Har115B1	115	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2001	Cab345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2001	Cab345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2002	Pit345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2002	Pit345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2003	Tal345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2003	Tal345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2401	Hanwha_A	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2401	Hanwha_A	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2501	Mangilao_	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2501	Mangilao_	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2502	Mangilao_I	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2502	Mangilao_I	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2402	Hanwha_B	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2402	Hanwha_B	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2004	Apr345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2004	Apr345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2005	Oro345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2005	Oro345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2007	CSTapX20	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2007	CSTapX20	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2008	CldSt345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2008	CldSt345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2009	SRF345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2009	SRF345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2010	CSTapX21	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2010	CSTapX21	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2011	Pul345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2011	Pul345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2014	Ten345	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2014	Ten345	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2018	Dandan	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2018	Dandan	34.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2018	Dandan	34.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2101	Aga345	34.5	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
2101	Aga345	34.5	0	0	1	1	1 fmetr	m	1	1	2	9	0	0	0	0	1	1	0
2101	Aga345	34.5	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
2101	Aga345	34.5	0	0	1	1	1 fmetr	m	1	1	2	9	0	0	0	0	1	1	0
2102	Bar345	34.5	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
2102	Bar345	34.5	0	0	1	1	1 fmetr	m	1	1	2	9	0	0	0	0	1	1	0
2104	Tam345B1	34.5	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
2105	Tum345B1	34.5	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
2106	Ani345B1	34.5	0	0	1	1	1 vmetr	m	1	1	2	9	0	0	0	0	1	1	0
2201	Tan345B1	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2202	Har345B3	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2202	Har345B3	34.5	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0

2203	Ded345B1	34.5	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0
2203	Ded345B1	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2204	Mar345B1	34.5	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0
2204	Mar345B1	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2210	And345B1	34.5	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0
2210	And345B1	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2211	Mac345B1	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
2211	Mac345B1	34.5	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0
2212	Pag345B1	34.5	0	0	1	1	1 fmetr	m	1	1	3	9	0	0	0	0	1	1	0
2212	Pag345B1	34.5	0	0	1	1	1 vmetr	m	1	1	3	9	0	0	0	0	1	1	0
3001	Piti T7	13.8	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2019	Dandan_P\	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2019	Dandan_P\	0.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2403	Hanwha_P	0.6	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2403	Hanwha_P	0.6	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2403	Hanwha_P	0.6	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2404	Hanwha_P	0.6	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2405	Hanwha_E	0.6	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2405	Hanwha_E	0.6	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2503	KEPCO_PV	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2503	KEPCO_PV	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2503	KEPCO_PV	0.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2504	KEPCO_PV	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2505	KEPCO_ESS	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2505	KEPCO_ESS	0.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
4202	SF ESS	0.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
4202	SF ESS	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
4005	Orote ESS	0.5	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
4005	Orote ESS	0.5	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2701	Apra_115	115	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2701	Apra_115	115	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2407	HanwhaA_	115	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2407	HanwhaA_	115	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
2408	HanwhaB_	115	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
2408	HanwhaB_	115	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
3111	AgESS440	0.4	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
3111	AgESS440	0.4	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
3203	TaESS440	0.4	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0
3203	TaESS440	0.4	0	0	1	1	1 vmetr	m	1	1	1	9	0	0	0	0	1	1	0
3203	TaESS440	0.4	0	0	1	1	1 fmetr	m	1	1	1	9	0	0	0	0	1	1	0

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	MODEL	T	ST	AREA	ZONE	RLEVEL	MFROM	MFNAME	MFKV	MTO	MTNAME	MTKV	MCK	MSE	SEL	MODEL_LID
19	HAR_CT1		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
19	HAR_CT1		13.8	0		0	1	1	1 esac7b	x		1	1	1	9	0		0	0		0	1	1	0
19	HAR_CT1		13.8	0		0	1	1	1 ggov1	t		1	1	1	9	0		0	0		0	1	1	0
20	HAR_CT2		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
20	HAR_CT2		13.8	0		0	1	1	1 esac7b	x		1	1	1	9	0		0	0		0	1	1	0
20	HAR_CT2		13.8	0		0	1	1	1 ggov1	t		1	1	1	9	0		0	0		0	1	1	0
22	HAR_CT3		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
22	HAR_CT3		13.8	0		0	1	1	1 esac7b	x		1	1	1	9	0		0	0		0	1	1	0
22	HAR_CT3		13.8	0		0	1	1	1 ggov1	t		1	1	1	9	0		0	0		0	1	1	0
21	HAR_ST		13.8	0		0	1	1	1 genrou	g		1	1	1	9	0		0	0		0	1	1	0
21	HAR_ST		13.8	0		0	1	1	1 esac8b	x		1	1	1	9	0		0	0		0	1	1	0

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	MODEL	T	ST	AREA	ZONE	RLEVEL	MFROM	MFNAME	MFKV	MTO	MTNAME	MTKV	MCK	MSE	SEL	MODEL_LID
3001	Piti T7		13.8	0		0	3	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3001	Piti T7		13.8	0		0	5	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3001	Piti T7		13.8	0		0	7	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3002	Piti T8		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3002	Piti T8		13.8	0		0	2	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3002	Piti T8		13.8	0		0	6	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3003	TalofT80		13.8	0		0	60	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3003	TalofT80		13.8	0		0	61	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3003	TalofT80		13.8	0		0	62	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3004	Apra T70		13.8	0		0	20	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3004	Apra T70		13.8	0		0	21	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3004	Apra T70		13.8	0		0	22	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3004	Apra T70		13.8	0		0	23	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3005	OroteT11		13.8	0		0	13	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3005	OroteT11		13.8	0		0	14	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3005	OroteT11		13.8	0		0	15	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3006	OroteT12		13.8	0		0	29	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3006	OroteT12		13.8	0		0	30	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3007	CldST25		13.8	0		0	33	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3007	CldST25		13.8	0		0	34	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3007	CldST25		13.8	0		0	35	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3009	PulanT95		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3009	PulanT95		13.8	0		0	90	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3009	PulanT95		13.8	0		0	92	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3009	PulanT95		13.8	0		0	94	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3009	PulanT95		13.8	0		0	95	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3009	PulanT95		13.8	0		0	98	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3011	UmatT120		13.8	0		0	40	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3011	UmatT120		13.8	0		0	41	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0
3012	OroteT13		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0	1
3013	OroteT10		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0	1
3014	SRFT17		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0	1
3015	SRFT18		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0	1
3016	OroteT28		13.8	0		0	1	1	1 ld1pac	I		1	1	1	1	0		0	0		0	1	1	0	1
3101	Agana T9		13.8	0		0	26	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3102	AganaT65		13.8	0		0	50	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3102	AganaT65		13.8	0		0	51	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3102	AganaT65		13.8	0		0	52	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3102	AganaT65		13.8	0		0	53	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3103	BarriT75		13.8	0		0	10	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3103	BarriT75		13.8	0		0	12	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3103	BarriT75		13.8	0		0	13	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3104	RadBaT23		13.8	0		0	41	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3104	RadBaT23		13.8	0		0	43	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3104	RadBaT23		13.8	0		0	44	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3104	RadBaT23		13.8	0		0	49	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3105	RadBaT24		13.8	0		0	46	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3105	RadBaT24		13.8	0		0	47	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3105	RadBaT24		13.8	0		0	48	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3106	TamunT50		13.8	0		0	1	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3106	TamunT50		13.8	0		0	5	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3106	TamunT50		13.8	0		0	6	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3107	TumonT60		13.8	0		0	40	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3107	TumonT60		13.8	0		0	41	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3107	TumonT60		13.8	0		0	42	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3108	TamunT51		13.8	0		0	2	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3108	TamunT51		13.8	0		0	3	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3108	TamunT51		13.8	0		0	4	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3109	TumonT61		13.8	0		0	43	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3109	TumonT61		13.8	0		0	44	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3109	TumonT61		13.8	0		0	45	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3109	TumonT61		13.8	0		0	46	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3110	AnigT100		13.8	0		0	80	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3110	AnigT100		13.8	0		0	81	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3110	AnigT100		13.8	0		0	82	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0
3110	AnigT100		13.8	0		0	83	1	1 ld1pac	I		1	1	2	1	0		0	0		0	1	1	0

3113 SanVT122	13.8	0	0	1	1	1	ld1pac	I	1	1	2	1	0	0	0	0	1	1	0		
3113 SanVT122	13.8	0	0	2	1	1	ld1pac	I	1	1	2	1	0	0	0	0	1	1	0		
3113 SanVT122	13.8	0	0	3	1	1	ld1pac	I	1	1	2	1	0	0	0	0	1	1	0		
3113 SanVT122	13.8	0	0	4	1	1	ld1pac	I	1	1	2	1	0	0	0	0	1	1	0		
3201 HarmnT21	13.8	0	0	11	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3201 HarmnT21	13.8	0	0	12	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3201 HarmnT21	13.8	0	0	46	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3201 HarmnT21	13.8	0	0	47	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3202 HarmnT22	13.8	0	0	14	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3202 HarmnT22	13.8	0	0	45	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3204 DededT55	13.8	0	0	87	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3204 DededT55	13.8	0	0	88	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3204 DededT55	13.8	0	0	89	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3205 MarboT14	13.8	0	0	51	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3205 MarboT14	13.8	0	0	52	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3205 MarboT14	13.8	0	0	53	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3205 MarboT14	13.8	0	0	54	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3207 PotsT110	13.8	0	0	1	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0	1	
3208 AnderT15	13.8	0	0	62	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3208 AnderT15	13.8	0	0	63	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3208 AnderT15	13.8	0	0	65	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3208 AnderT15	13.8	0	0	66	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3208 AnderT15	13.8	0	0	67	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3208 AnderT15	13.8	0	0	68	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3209 AnderT16	13.8	0	0	91	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3209 AnderT16	13.8	0	0	93	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3209 AnderT16	13.8	0	0	94	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3210 MacheT90	13.8	0	0	70	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3210 MacheT90	13.8	0	0	71	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3210 MacheT90	13.8	0	0	72	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3211 PagaT115	13.8	0	0	21	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3211 PagaT115	13.8	0	0	22	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3211 PagaT115	13.8	0	0	23	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3212 Yigo T30	13.8	0	0	30	1	1	ld1pac	I	1	1	3	9	0	0	0	0	1	1	0		
3212 Yigo T30	13.8	0	0	31	1	1	ld1pac	I	1	1	3	9	0	0	0	0	1	1	0		
3212 Yigo T30	13.8	0	0	32	1	1	ld1pac	I	1	1	3	9	0	0	0	0	1	1	0		
3213 GAA T105	13.8	0	0	10	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3213 GAA T105	13.8	0	0	11	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
3213 GAA T105	13.8	0	0	12	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
4201 NCS T47	4.2	0	0	1	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
4201 NCS T47	4.2	0	0	2	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
4201 NCS T47	4.2	0	0	3	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
4201 NCS T47	4.2	0	0	4	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0		
4213 GIAT Trm	4.2	0	0	1	1	1	ld1pac	I	1	1	3	1	0	0	0	0	1	1	0	1	

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	MODEL	T	ST	AREA	ZONE	RLEVEL	MFROM	MFNAME	MFKV	MTO	MTNAME	MTKV	MCK	MSE	SEL	MODEL_LID
2019	Dandan_PV	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2019	Dandan_PV	0.5	0		0	1	1	1	reec_b	x		1	1	1	9	0		0	0		0	1	1	0
2403	Hanwha_P	0.6	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2403	Hanwha_P	0.6	0		0	1	1	1	reec_b	x		1	1	1	9	0		0	0		0	1	1	0
2404	Hanwha_P	0.6	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2404	Hanwha_P	0.6	0		0	1	1	1	reec_b	x		1	1	1	9	0		0	0		0	1	1	0
2405	Hanwha_ES	0.6	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2405	Hanwha_ES	0.6	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
2405	Hanwha_ES	0.6	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
2406	Hanwha_ES	0.6	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2406	Hanwha_ES	0.6	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
2406	Hanwha_ES	0.6	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
2503	KEPCO_PV3	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2503	KEPCO_PV3	0.5	0		0	1	1	1	reec_b	x		1	1	1	9	0		0	0		0	1	1	0
2504	KEPCO_PV4	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2504	KEPCO_PV4	0.5	0		0	1	1	1	reec_b	x		1	1	1	9	0		0	0		0	1	1	0
2505	KEPCO_ESS	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2505	KEPCO_ESS	0.5	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
2505	KEPCO_ESS	0.5	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
4202	SF ESS	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
4202	SF ESS	0.5	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
4202	SF ESS	0.5	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
4005	Orote ESS	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
4005	Orote ESS	0.5	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
4005	Orote ESS	0.5	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
2506	KEPCO_ESS	0.5	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
2506	KEPCO_ESS	0.5	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
2506	KEPCO_ESS	0.5	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
3111	AgESS440	0.4	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
3111	AgESS440	0.4	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
3111	AgESS440	0.4	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0
3203	TaESS440	0.4	0		0	1	1	1	regc_a	g		1	1	1	9	0		0	0		0	1	1	0
3203	TaESS440	0.4	0		0	1	1	1	reec_c	x		1	1	1	9	0		0	0		0	1	1	0
3203	TaESS440	0.4	0		0	1	1	1	repc_a	w		1	1	1	2	0		0	0		0	1	1	0

BUS-NO	NAME	KV	TP	VSCHED	V-PU	DEG	ISLAND	AREA	ZONE	BA	SUBST	ISOL_ST	VMAX	VMIN	OWN	B/N	LID	LATITUDE	LONGITUDE
1	Cabras_1	13.8	2	1.0145	0.9671	38.29	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2	Cabras_2	13.8	2	1.007	0.9671	38.29	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
9	ManenDsl	13.8	2	1.02	1.0277	36.78	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
10	TalofDsl	13.8	2	1.02	1.0268	38.31	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
11	TenjoDsl	13.8	2	1.02	0.9828	37.53	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
12	Cabras_3	13.8	2	1.007	0.9629	38.29	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
13	Cabras_4	13.8	2	1.007	0.9629	38.29	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
14	OrteUnts	13.8	2	1.02	1.0243	35.45	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
15	TEMES	13.8	2	0.9927	0.9927	37.57	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
16	MEC 8	13.8	2	1	0.951	38.35	1	1	1	0	0	0	1.05	0.95	1	0	0	0	0
17	MEC 9	13.8	2	1	0.951	38.35	1	1	1	0	0	0	1.05	0.95	1	0	0	0	0
201	Tangui_1	14.4	0	0.976	0.976	0	2	1	3	0	0	1	1.05	0.95	0	0	0	0	0
202	Tangui_2	14.4	0	0.976	0.976	0	3	1	3	0	0	1	1.05	0.95	0	0	0	0	0
205	Marbo CT	13.8	2	1.02	0.9991	37.76	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
208	Ded CT#1	13.8	2	1.02	0.9512	36.82	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
209	Ded CT#2	13.8	2	1.02	0.9512	36.82	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
210	Mache_CT	13.8	2	1.02	1.003	34.52	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
211	Yigo__CT	13.8	2	1.02	0.965	32.94	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
1001	Cab115EB	115	1	1.02	1.0111	38.29	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
1005	Pit115B1	115	1	1.02	1.0111	38.35	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
1101	Aga115	115	1	1	1.0106	37.99	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
1103	Tam115B1	115	1	1	1.0099	37.91	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
1201	Har115B1	115	1	1	1.0086	37.93	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
2001	Cab345	34.5	1	1	0.9819	37.66	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2002	Pit345	34.5	1	1	0.9819	37.61	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2003	Tal345	34.5	1	1	0.9997	39.88	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2401	Hanwha_A	34.5	2	1.02	1.02	47.05	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2501	Mangilao_	34.5	2	0.98	0.98	40.32	1	1	1	0	0	0	1.05	0.95	1	0	0	0	0
2502	Mangilao_I	34.5	2	0.98	0.98	40.32	1	1	1	0	0	0	1.05	0.95	1	0	0	0	0
2402	Hanwha_B	34.5	2	1.02	1.02	47.05	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2004	Apr345	34.5	1	1	0.9832	37.49	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2005	Oro345	34.5	1	1	0.9823	36.8	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2007	CSTapX20	34.5	1	1	0.9822	37.02	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2008	CldSt345	34.5	1	1	0.9801	36.95	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2009	SRF345	34.5	1	1	0.982	36.79	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2010	CSTapX21	34.5	1	1	0.9805	36.97	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2011	Pul345	34.5	1	1	0.9868	37.97	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2012	Uma345	34.5	1	1	0.9852	36.98	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2014	Ten345	34.5	1	1	0.9828	37.53	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2017	Tenjotap	34.5	1	1	0.9828	37.53	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2018	Dandan	34.5	1	1.02	1.02	42.04	1	1	1	0	0	0	1.05	0.95	0	0	0	0	0
2101	Aga345	34.5	1	1	0.9771	37.25	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2102	Bar345	34.5	1	1	0.9779	36.98	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2103	RBa345B1	34.5	1	1	0.9746	38.55	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2104	Tam345B1	34.5	1	1	0.9742	36.87	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2105	Tum345B1	34.5	1	1	0.9733	36.67	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2106	Ani345B1	34.5	1	1	0.9781	37.13	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2108	SV345B1	34.5	1	1	0.9758	36.92	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2110	HafaTap	34.5	1	1	0.9743	36.87	1	1	2	0	0	0	1.05	0.95	0	0	0	0	0
2219	Har345B1	34.5	1	1	0.9896	36.9	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
2201	Tan345B1	34.5	0	1	1	0	4	1	3	0	0	1	1.05	0.95	0	0	0	0	0
2202	Har345B3	34.5	1	1	0.9794	36.97	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0
2203	Ded345B1	34.5	1	1	0.9763	36.82	1	1	3	0	0	0	1.05	0.95	0	0	0	0	0

2204	Mar345B1	34.5	1	1	0.9741	37.76	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2208	NCS345	34.5	1	1	0.9821	36.59	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2209	Pott345	34.5	1	1	0.9797	36.49	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2210	And345B1	34.5	1	1	0.9733	36.21	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2211	Mac345B1	34.5	1	1	0.98	37.02	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2212	Pag345B1	34.5	1	1	0.9785	39.66	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2214	Yig345B1	34.5	1	1	0.9742	35.78	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2216	GAA345B1	34.5	1	1	0.9796	36.95	1	1	2	0	0	0	1.05	0.95	0	0	0	0
2217	GIA345B1	34.5	1	1	0.9798	36.93	1	1	2	0	0	0	1.05	0.95	0	0	0	0
2218	GiatTap	34.5	1	1	0.9803	36.92	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3001	Piti T7	13.8	1	1.02	1.0275	36.4	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3002	Piti T8	13.8	1	1.02	1.0249	37.61	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3003	TalofT80	13.8	1	1.02	1.0268	38.31	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3004	Apra T70	13.8	1	1.02	1.025	35.99	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3005	OroteT11	13.8	1	1.02	1.0243	35.45	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3006	OroteT12	13.8	1	1.02	1.0293	36.48	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3007	CldST25	13.8	1	1.02	1.0257	35.35	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3009	PulanT95	13.8	1	1.02	1.0277	36.78	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3011	UmatT120	13.8	1	1.02	1.0241	36.66	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3012	OroteT13	13.8	1	1.02	1.025	35.27	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3013	OroteT10	13.8	1	1.02	1.0239	36.43	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3014	SRFT17	13.8	1	1.02	1.0267	36.38	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3015	SRFT18	13.8	1	1.02	1.0248	35.92	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3016	OroteT28	13.8	1	1.02	1.0253	36.77	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3101	Agana T9	13.8	1	1.02	1.0284	36.73	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3102	AganaT65	13.8	1	1.02	1.0283	34.09	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3103	BarriT75	13.8	1	1.02	1.0255	34.94	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3104	RadBaT23	13.8	1	1.02	1.025	38.52	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3105	RadBaT24	13.8	1	1.02	1.0285	38.41	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3106	TamunT50	13.8	1	1.02	1.0277	34.88	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3107	TumonT60	13.8	1	1.02	1.0242	34.52	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3108	TamunT51	13.8	1	1.02	1.0284	34.42	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3109	TumonT61	13.8	1	1.02	1.0257	34.09	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3110	AnigT100	13.8	1	1.02	1.0256	35.55	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3113	SanVT122	13.8	1	1.02	1.0269	34.86	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3201	HarmnT21	13.8	1	1.02	1.0291	35.03	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3202	HarmnT22	13.8	1	1.02	1.0286	36.88	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3204	DededT55	13.8	1	1.02	1.0294	34.33	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3205	MarboT14	13.8	1	1.02	1.0277	37.65	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3207	PotsT110	13.8	1	1.02	1.0252	35.64	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3208	AnderT15	13.8	1	1.02	1.0265	35.76	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3209	AnderT16	13.8	1	1.02	1.0269	35.61	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3210	MacheT90	13.8	1	1.02	1.003	34.52	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3211	PagaT115	13.8	1	1.02	1.0271	37.34	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3212	Yigo T30	13.8	1	1.02	0.965	32.94	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3213	GAA T105	13.8	1	1.02	1.0277	35.48	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3300	Agrko13	12.02	1	1	0.9742	35.77	1	1	3	0	0	0	1.05	0.95	0	0	0	0
4001	CbrsStUp	4.16	1	1	0.9819	37.66	1	1	1	0	0	0	1.05	0.95	0	0	0	0
4201	NCS T47	4.16	1	1.02	1.0291	36.36	1	1	3	0	0	0	1.05	0.95	0	0	0	0
4213	GIAT Trm	4.16	1	1.02	1.0253	35.62	1	1	3	0	0	0	1.05	0.95	0	0	0	0
5201	TangoStr	2.4	0	1	1	0	5	1	3	0	0	1	1.05	0.95	0	0	0	0
6005	Aggreko	0.46	1	1.0435	0.98	35.77	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2019	Dandan_P\	0.48	2	1.02	1.0087	46.11	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2020	Dandan_W	0.68	2	1.02	0.9951	42.04	1	1	1	0	0	0	1.05	0.95	1	0	0	0

2403	Hanwha_P	0.55	2	1.02	1.0202	50.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2404	Hanwha_P	0.55	2	1.02	1.0202	50.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2405	Hanwha_E	0.55	2	1.02	1.0224	47.05	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2406	Hanwha_E	0.55	2	1.02	1.0224	47.05	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2503	KEPCO_PV	0.48	2	1.02	0.9817	43.97	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2504	KEPCO_PV	0.48	2	1.02	0.9817	43.97	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2505	KEPCO_ESS	0.48	2	1.02	0.9753	40.35	1	1	1	0	0	0	1.05	0.95	1	0	0	0
4202	SF ESS	0.48	2	1	1.0248	36.7	1	1	1	0	0	0	1.05	0.95	1	0	0	0
4005	Orote ESS	0.48	2	1	1.0188	36.59	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2506	KEPCO_ESS	0.48	2	1.02	0.9753	40.35	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2701	Apra_115	115	2	1	1.0127	39.3	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2407	HanwhaA_	115	2	1	1.0144	40.39	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2408	HanwhaB_	115	2	1	1.0144	40.39	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2111	AgESS345	34.5	2	1	0.9771	37.25	1	1	1	0	0	0	1.05	0.95	1	0	0	0
3111	AgESS440	0.44	2	1	1	37.25	1	1	1	0	0	0	1.05	0.95	1	0	0	0
3203	TaESS440	0.44	2	1	1	39.88	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2507	Mangilao	34.5	2	1	0.98	40.32	1	1	1	0	0	0	1.05	0.95	1	0	0	0
19	HAR_CT1	13.8	2	1.02	1.02	39.22	1	1	1	0	0	0	1.05	0.95	1	0	0	0
20	HAR_CT2	13.8	0	1.02	1.02	39.21	1	1	1	0	0	0	1.05	0.95	1	0	0	0
22	HAR_CT3	13.8	2	1.02	1.0086	37.93	1	1	1	0	0	0	1.05	0.95	1	0	0	0
21	HAR_ST	13.8	2	1.02	1.0086	37.93	1	1	1	0	0	0	1.05	0.95	1	0	0	0

BUS-NO	NAME1	KV1	ID	ST	BL	CM	QTAB	PGEN	QGEN	QMAX	QMIN	PF	QMX	QMN	IREG	NAME2	KV2	QRF	VSCHED	V-ACT	AR	ZON	PRF	MBASE	PMAX	PMAX2	PMIN	YI	MI	DI	YO	MO	DO	OWN	LID
1	Cabras_1	13.8	1	0	0	0	0	45	34.8	41	-28	0	41	-28	1	Cabras_1	13.8	1	1.0145	0.9671	1	1	1	78	66	0	25	90	1	1	89	12	31	0
2	Cabras_2	13.8	1	0	0	0	0	57.9	16.5	41	-28	0	41	-28	2	Cabras_2	13.8	1	1.007	0.9671	1	1	1	78	66	0	25	90	1	1	89	12	31	0
9	ManenDsl	13.8	1	0	0	0	0	3.5	-1.3	3	-4.7	0	3	-4.7	9	ManenDsl	13.8	1	1.02	1.0277	1	1	1	7.3	5	0	0	90	1	1	89	12	31	0
9	ManenDsl	13.8	2	0	0	0	0	2.8	2.2	3	-4.7	0	3	-4.7	9	ManenDsl	13.8	1	1.02	1.0277	1	1	1	7.3	5	0	0	90	1	1	89	12	31	0
10	TalofDsl	13.8	1	0	0	0	0	2.4	-0.9	2	-4.7	0	2	-4.7	10	TalofDsl	13.8	1	1.02	1.0268	1	1	1	5	4.4	0	0	90	1	1	89	12	31	0
10	TalofDsl	13.8	2	0	0	0	0	2.5	-0.9	2	-4.7	0	2	-4.7	10	TalofDsl	13.8	1	1.02	1.0268	1	1	1	5	4.4	0	0	90	1	1	89	12	31	0
11	TenjoDsl	13.8	1	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9828	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0
11	TenjoDsl	13.8	2	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9828	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0
11	TenjoDsl	13.8	3	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9828	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0
11	TenjoDsl	13.8	4	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9828	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0
11	TenjoDsl	13.8	5	0	0	0	0	3.4	1.4	1.5	-1.5	0	1.5	-1.5	11	TenjoDsl	13.8	1	1.02	0.9828	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0
11	TenjoDsl	13.8	6	0	0	0	0	3.4	1.4	1.5	-1.5	0	1.5	-1.5	11	TenjoDsl	13.8	1	1.02	0.9828	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0
12	Cabras_3	13.8	1	0	0	0	0	0	10.4	22	-15	0	22	-15	12	Cabras_3	13.8	1	1.007	0.9629	1	1	1	49	38.4	0	22	90	1	1	89	12	31	0
13	Cabras_4	13.8	1	0	0	0	0	0	10.4	20	-15	0	20	-15	13	Cabras_4	13.8	1	1.007	0.9629	1	1	1	49	38.4	0	22	90	1	1	89	12	31	0
14	OrteUnts	13.8	1	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0243	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0
14	OrteUnts	13.8	2	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0243	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0
14	OrteUnts	13.8	3	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0243	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0
15	TEMES	13.8	1	1	0	0	0	0	4.6	27	-10	0	27	-10	15	TEMES	13.8	1	0.9927	0.9927	1	1	1	50.3	40	0	0	95	11	1	89	12	31	0
16	MEC 8	13.8	1	0	0	0	0	0	15.4	21	-10	0	21	-10	16	MEC 8	13.8	1	1	0.951	1	1	1	30	44.2	0	22	99	1	1	89	12	31	0
17	MEC 9	13.8	1	0	0	0	0	43.8	20	35	-10	0	35	-10	17	MEC 9	13.8	1	1	0.951	1	1	1	51.9	44.2	0	22	95	11	1	89	12	31	0
201	Tangui_1	14.4	1	0	0	0	0	0	0.3	15	-12	0	15	-12	201	Tangui_1	14.4	1	0.976	0.976	1	3	1	29	25	0	0	90	1	1	89	12	31	0
202	Tangui_2	14.4	1	0	0	0	0	0	3.2	16	-12.6	0	16	-12.6	202	Tangui_2	14.4	1	0.976	0.976	1	3	1	29	25	0	0	90	1	1	89	12	31	0
208	Ded CT#1	13.8	1	0	0	0	0	20	12.5	12.5	-10	0	12.5	-10	208	Ded CT#1	13.8	1	1.02	0.9512	1	3	1	26	20	0	19	90	1	1	89	12	31	0
209	Ded CT#2	13.8	1	0	0	0	0	20	3.9	12.5	-10	0	12.5	-10	209	Ded CT#2	13.8	1	1.02	0.9512	1	3	1	26	20	0	0	90	1	1	89	12	31	0
210	Mache_CT	13.8	1	0	0	0	0	20	-1.8	13.4	-10.5	0	13.4	-10.5	210	Mache_CT	13.8	1	1.02	1.003	1	3	1	26	20	0	0	90	1	1	89	12	31	0
211	Yigo__CT	13.8	1	0	0	0	0	-72.2	38.3	13.6	-9.7	0	13.6	-9.7	211	Yigo__CT	13.8	1	1.02	0.965	1	3	1	26	21	0	0	90	1	1	89	12	31	0
6005	Aggreko	0.46	1	0	0	0	0	39.8	6.2	7	0	0	7	0	6005	Aggreko	0.46	1	1.0435	0.98	1	3	1	50	40	0	0	90	1	1	89	12	31	0
2019	Dandan_PV	0.48	1	1	0	0	0	25	4.5	6.6	-6.6	0	6.6	-6.6	2018	Dandan	34.5	1	1.02	1.02	1	1	1	26	20	0	0	40	1	1	39	12	31	0
2403	Hanwha_PV	0.55	1	1	0	0	0	30	0.9	21	-21	0	21	-21	2401	Hanwha_A	34.5	1	1.02	1.02	1	1	1	31.5	30	0	0	40	1	1	89	12	31	0
2404	Hanwha_PV	0.55	1	1	0	0	0	30	0.9	21	-21	0	21	-21	2402	Hanwha_B	34.5	1	1.02	1.02	1	1	1	31.5	30	0	0	40	1	1	89	12	31	0
2405	Hanwha_ES	0.55	1	1	0	0	0	0	0.9	13.5	-13.5	0	13.5	-13.5	2401	Hanwha_A	34.5	1	1.02	1.02	1	1	1	20.3	20	0	-20	40	1	1	89	12	31	0
2406	Hanwha_ES	0.55	1	1	0	0	0	0	0.9	13.5	-13.5	0	13.5	-13.5	2402	Hanwha_B	34.5	1	1.02	1.02	1	1	1	20.3	20	0	-20	40	1	1	89	12	31	0
2503	KEPCO_PV2	0.48	1	1	0	0	0	30	-1.2	10	-10	0	10	-10	2501	Mangilao_A	34.5	1	0.98	0.98	1	1	1	30.8	30	0	0	40	1	1	89	12	31	0
2504	KEPCO_PV2	0.48	1	1	0	0	0	30	-1.2	10	-10	0	10	-10	2502	Mangilao_I	34.5	1	0.98	0.98	1	1	1	30.8	30	0	0	40	1	1	89	12	31	0
2505	KEPCO_ESS	0.48	1	1	0	0	0	0	-1.2	5.8	-5.8	0	5.8	-5.8	2501	Mangilao_A	34.5	1	0.98	0.98	1	1	1	17.6	16	0	-16	40	1	1	89	12	31	0
4202	SF ESS	0.48	1	1	0	0	0	0	9.8	9.8	-9.8	0	9.8	-9.8	2219	Har345B1	34.5	1	1	0.9896	1	1	1	18	16.2	0	0	0	0	0	0	0	0	0	0
4005	Orote ESS	0.48	1	1	0	0	0	0	14.3	14.3	-14.3	0	14.3	-14.3	2219	Har345B1	34.5	1	1	0.9896	1	1	1	26.4	23.8	0	0	0	0	0	0	0	0	0	0
2506	KEPCO_ESS	0.48	1	1	0	0	0	0	-1.2	5.8	-5.8	0	5.8	-5.8	2502	Mangilao_I	34.5	1	0.98	0.98	1	1	1	17.6	16	0	-16	40	1	1	89	12	31	0
3111	AgESS440	0.44	1	1	0	0	0	0	9.8	10	-10	0	10	-10	3111	AgESS440	0.44	1	1	1	1	1	1	24	24	0	0	40	1	1	89	12	31	0
3203	TaESS440	0.44	1	1	0	0	0	0	0.1	4	-4	0	4	-4	3203	TaESS440	0.44	1	1	1	1	1	1	16	16	0	0	40	1	1	89	12	31	0
19	HAR_CT1	13.8	1	1	0	0	0	12.9	6.6	31.6	-31.6	0	31.6	-31.6	19	HAR_CT1	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0
20	HAR_CT2	13.8	1	1	0	0	0	12.8	6.6	31.6	-31.6	0	31.6	-31.6	20	HAR_CT2	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0
22	HAR_CT3	13.8	1	0	0	0	0	0	5.2	31.6	-31.6	0	31.6	-31.6	22	HAR_CT3	13.8	1	1.02	1.0086	1	1	1	71	50	0	0	40	1	1	89	12	31	0
21	HAR_ST	13.8	1	0	0	0	0	3.6	11.6	19	-16.8	0	19	-16.8	21	HAR_ST	13.8	1	1.02	1.0086	1	1	1	54	30	0	0	40	1	1	89	12	31	0

BUS-NO	NAME	KV	ID	ST	PLOAD	QLOAD	IPLOD	IQLOD	GLOAD	BLOAD	Stdg	Pdgen	Qdgen	NON-CONF	AREA	ZONE	PMOTR	QMOTR	YI	MI	DI	YO	MO	DO	OWN	Long_ID
1	Cabras_1	13.8	1	0	1.83	1.63	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
2	Cabras_2	13.8	1	0	2.8	1.86	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
9	ManenDsl	13.8	1	0	0.08	0.08	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
10	TalofDsl	13.8	1	0	0.09	0.08	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
11	TenjoDsl	13.8	1	0	0.27	0.25	0	0	0	0	0	0	0	0	1	1	0	0	98	6	6	89	6	6	0	1
11	TenjoDsl	13.8	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	98	6	6	89	6	6	0	1
12	Cabras_3	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
13	Cabras_4	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
15	TEMES	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
16	MEC 8	13.8	1	0	1.17	0.83	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
17	MEC 9	13.8	1	0	0.76	0.66	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
19	HAR_CT1	13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
20	HAR_CT2	13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
21	HAR_ST	13.8	1	0	1.05	0.52	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
22	HAR_CT3	13.8	1	0	1.75	0.88	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
201	Tangui_1	14.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
202	Tangui_2	14.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
208	Ded CT#1	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
209	Ded CT#2	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
210	Mache_CT	13.8	1	0	0.1	-0.05	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
211	Yigo__CT	13.8	1	0	0.08	0.04	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3300	Agrko13	12.02	1	1	0.07	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3012	OroteT13	13.8	1	1	4.17	3.3	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3013	OroteT10	13.8	1	1	0.92	0.2	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3014	SRFT17	13.8	1	1	1.03	0.61	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3015	SRFT18	13.8	1	1	2.14	1.69	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3016	OroteT28	13.8	1	1	0.07	0.01	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3207	PotsT110	13.8	1	1	0.71	0.4	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
4001	CbrsStUp	4.16	1	0	0.23	0.21	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
4213	GIAT Trm	4.16	1	1	2.42	1.41	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
2005	Oro345	34.5	1	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
5201	TangoStr	2.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3001	Piti T7	13.8	5	1	1.07	-0.17	0	0	0	0	1	0.26	0	0	1	1	0	0	40	1	1	39	12	31	0	
3001	Piti T7	13.8	7	1	0.45	-0.07	0	0	0	0	1	0.04	0	0	1	1	0	0	40	1	1	39	12	31	0	
3001	Piti T7	13.8	3	1	0.77	-0.12	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8	13.8	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8	13.8	2	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8	13.8	6	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80	13.8	61	1	2.01	0.13	0	0	0	0	1	0.23	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80	13.8	62	1	2.76	0.18	0	0	0	0	1	0.74	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80	13.8	60	1	0.5	0.03	0	0	0	0	1	0.03	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	21	1	2.89	-0.04	0	0	0	0	1	0.39	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	23	1	1.57	-0.02	0	0	0	0	1	0.41	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	20	1	0.4	-0.01	0	0	0	0	1	0.1	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	22	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11	13.8	15	1	1.22	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11	13.8	13	1	1.22	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11	13.8	14	1	1.22	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3006	OroteT12	13.8	30	1	0.42	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3006	OroteT12	13.8	29	1	0.42	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25	13.8	35	1	1.37	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25	13.8	33	1	1.37	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25	13.8	34	1	1.37	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	94	1	1.61	0.06	0	0	0	0	1	0.8	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	1	1	0.52	0.02	0	0	0	0	1	0.16	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	90	1	0.27	0.01	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	98	1	0.71	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	92	1	0.02	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	95	1	2.57	0.09	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3011	UmatT120	13.8	40	1	0.98	-0.31	0	0	0	0	1	0.38	0	0	1	1	0	0	40	1	1	39	12	31	0	
3011	UmatT120	13.8	41	1	0.63	-0.2	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3101	Agana T9	13.8	26	1	1.74	0.52	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	50	1	5.31	0.73	0	0	0	0	1	0.74	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	51	1	2.03	0.28	0	0	0	0	1	0.13	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	52	1	3.44	0.48	0	0	0	0	1	0.36	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	53	1	3.67	0.51	0	0	0	0	1	0.4	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75	13.8	12	1	2.97	0.3	0	0	0	0	1	0.68	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75	13.8	10	1	3.66	0.37	0	0	0	0	1	0.37	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75	13.8	13	1	1.88	0.19	0	0	0	0	1	0.14	0	0	1	1	0	0	40	1	1	39	12	31	0	
3104	RadBaT23	13.8	41	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3104	RadBaT23	13.8	44	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	

3104	RadBaT23	13.8	49	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3104	RadBaT23	13.8	43	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105	RadBaT24	13.8	47	1	0.11	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105	RadBaT24	13.8	46	1	0.11	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105	RadBaT24	13.8	48	1	0.11	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3106	TamunT50	13.8	1	1	2.69	0.32	0	0	0	0	1	0.04	0	0	1	1	0	0	40	1	1	39	12	31	0
3106	TamunT50	13.8	5	1	3.64	0.44	0	0	0	0	1	0.03	0	0	1	1	0	0	40	1	1	39	12	31	0
3106	TamunT50	13.8	6	1	0.74	0.09	0	0	0	0	1	0.01	0	0	1	1	0	0	40	1	1	39	12	31	0
3107	TumonT60	13.8	40	1	3.58	1.03	0	0	0	0	1	0.05	0	0	1	1	0	0	40	1	1	39	12	31	0
3107	TumonT60	13.8	41	1	2.34	0.67	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3107	TumonT60	13.8	42	1	2.92	0.84	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3108	TamunT51	13.8	2	1	1.65	0.33	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3108	TamunT51	13.8	4	1	2.36	0.47	0	0	0	0	1	0.1	0	0	1	1	0	0	40	1	1	39	12	31	0
3108	TamunT51	13.8	3	1	3.8	0.76	0	0	0	0	1	0.36	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	44	1	1.37	0.31	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	45	1	3.89	0.88	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	46	1	1.69	0.38	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	43	1	1.37	0.31	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	80	1	1.05	-0.02	0	0	0	0	1	0.25	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	82	1	2.19	-0.03	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	83	1	2.12	-0.03	0	0	0	0	1	0.42	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	81	1	1.63	-0.02	0	0	0	0	1	0.12	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	2	1	1.3	0.68	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	4	1	0.75	0.39	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	3	1	5.27	2.74	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	1	1	0.89	0.46	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	11	1	4.42	1.71	0	0	0	0	1	0.05	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	46	1	3.48	1.34	0	0	0	0	1	0.16	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	47	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	12	1	0.08	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3202	HarmnT22	13.8	14	1	0.03	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3202	HarmnT22	13.8	45	1	0.03	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3204	DededT55	13.8	89	1	3.17	-0.01	0	0	0	0	1	0.35	0	0	1	1	0	0	40	1	1	39	12	31	0
3204	DededT55	13.8	88	1	4.26	-0.02	0	0	0	0	1	0.51	0	0	1	1	0	0	40	1	1	39	12	31	0
3204	DededT55	13.8	87	1	2.78	-0.01	0	0	0	0	1	0.8	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	51	1	0.07	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	52	1	0.07	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	53	1	0.07	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	54	1	0.07	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	63	1	0.76	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	66	1	0.76	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	65	1	0.76	0.29	0	0	0	0	1	0.87	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	68	1	0.75	0.29	0	0	0	0	1	0.59	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	67	1	0.76	0.29	0	0	0	0	1	0.06	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	62	1	0.75	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209	AnderT16	13.8	93	1	1.44	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209	AnderT16	13.8	91	1	1.44	0.24	0	0	0	0	1	0.22	0	0	1	1	0	0	40	1	1	39	12	31	0
3209	AnderT16	13.8	94	1	1.44	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3210	MacheT90	13.8	72	1	1.73	-0.06	0	0	0	0	1	0.19	0	0	1	1	0	0	40	1	1	39	12	31	0
3210	MacheT90	13.8	71	1	3.95	-0.14	0	0	0	0	1	0.06	0	0	1	1	0	0	40	1	1	39	12	31	0
3210	MacheT90	13.8	70	1	3.44	-0.12	0	0	0	0	1	0.25	0	0	1	1	0	0	40	1	1	39	12	31	0
3211	PagaT115	13.8	23	1	2.71	0.53	0	0	0	0	1	0.25	0	0	1	1	0	0	40	1	1	39	12	31	0
3211	PagaT115	13.8	22	1	4.35	0.86	0	0	0	0	1	0.64	0	0	1	1	0	0	40	1	1	39	12	31	0
3211	PagaT115	13.8	21	1	3.2	0.63	0	0	0	0	1	0.21	0	0	1	1	0	0	40	1	1	39	12	31	0
3212	Yigo T30	13.8	31	1	4.54	1.47	0	0	0	0	1	0.61	0	0	1	1	0	0	40	1	1	39	12	31	0
3212	Yigo T30	13.8	32	1	4.05	1.31	0	0	0	0	1	0.26	0	0	1	1	0	0	40	1	1	39	12	31	0
3212	Yigo T30	13.8	30	1	3.92	1.27	0	0	0	0	1	0.43	0	0	1	1	0	0	40	1	1	39	12	31	0
3213	GAA T105	13.8	10	1	2.13	-0.07	0	0	0	0	1	0.16	0	0	1	1	0	0	40	1	1	39	12	31	0
3213	GAA T105	13.8	11	1	3.08	-0.09	0	0	0	0	1	0.44	0	0	1	1	0	0	40	1	1	39	12	31	0
3213	GAA T105	13.8	12	1	1.3	-0.04	0	0	0	0	1	0.06	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	1	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	2	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	3	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	4	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	ST	G-PU	B-PU	SVD	SNAME	SKV	SID	STSW	AREA	ZONE	YI	MI	DI	YO	MO	DO	OWN	LID
3003	TalofT80	13.8	0			0 b			1	0	0	0.03	0		0		0	1	1	90	1	1	89	12	31	0
3109	TumonT61	13.8	0			0 b			1	1	0	0.03	0		0		0	1	2	90	1	1	89	12	31	0
3208	AnderT15	13.8	0			0 b			1	1	0	0.03	0		0		0	1	3	90	1	1	89	12	31	0
3209	AnderT16	13.8	0			0 b			1	1	0	0	0		0		0	1	3	90	1	1	89	12	31	0
3212	Yigo T30	13.8	0			0 b			1	1	0	0.03	0		0		0	1	3	40	1	1	39	12	31	0
3113	SanVT122	13.8	0			0 b			1	0	0	0.03	0		0		0	1	2	90	1	1	89	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	CK	ST	T	TCULTAP	ANGLP	REG	RNAME	RKV	VACT	VMAX	VMIN	STEPP	TMAX	TMIN	TAPFP	TAPFS	AREA	ZONE
1001	Cab115EB	115	1	Cabras_1	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1001	Cab115EB	115	2	Cabras_2	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
2004	Apr345	34.5	2701	Apra_115	115	1	0	0	1	0	0		0	0	0	0	0	1.1	0.9	1	1	1	2
2014	Ten345	34.5	11	TenjoDsl	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1001	Cab115EB	115	12	Cabras_3	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.05	1	1	1
1001	Cab115EB	115	13	Cabras_4	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.05	1	1	1
2002	Pit345	34.5	15	TEMES	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1005	Pit115B1	115	16	MEC 8	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.0632	1	1	1
1005	Pit115B1	115	17	MEC 9	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.0632	1	1	1
2201	Tan345B1	34.5	201	Tangui_1	14.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	0.9524	1	1	3
2201	Tan345B1	34.5	202	Tangui_2	14.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	0.9524	1	1	3
2203	Ded345B1	34.5	209	Ded CT#2	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	0.95	1	3
2203	Ded345B1	34.5	208	Ded CT#1	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	0.95	1	3
2204	Mar345B1	34.5	205	Marbo CT	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	3
2001	Cab345	34.5	1001	Cab115EB	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96869	1	1	1
2002	Pit345	34.5	1005	Pit115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96869	1	1	1
2101	Aga345	34.5	1101	Aga115	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	1	1	2
2104	Tam345B1	34.5	1103	Tam115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	1	1	3
2202	Har345B3	34.5	1201	Har115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96246	0.975	1	3
2219	Har345B1	34.5	1201	Har115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	0.975	1	3
2001	Cab345	34.5	4001	CbrsStUp	4.16	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
3001	Piti T7	13.8	2002	Pit345	34.5	1	1	2	1.04375	0	3001	Piti T7	13.8	1.0275	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3002	Piti T8	13.8	2002	Pit345	34.5	1	1	2	1.04375	0	3002	Piti T8	13.8	1.0249	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3003	TalofT80	13.8	2003	Tal345	34.5	1	1	2	1.03125	0	3003	TalofT80	13.8	1.0268	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3004	Apra T70	13.8	2004	Apr345	34.5	1	1	2	1.04375	0	3004	Apra T70	13.8	1.025	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3005	OroteT11	13.8	2005	Oro345	34.5	1	1	2	1.05625	0	3005	OroteT11	13.8	1.0243	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3006	OroteT12	13.8	2005	Oro345	34.5	1	1	2	1.05	0	3006	OroteT12	13.8	1.0293	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3012	OroteT13	13.8	2005	Oro345	34.5	1	1	2	1.06875	0	3012	OroteT13	13.8	1.025	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3013	OroteT10	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3013	OroteT10	13.8	1.0239	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3014	SRFT17	13.8	2009	SRF345	34.5	1	1	2	1.05	0	3014	SRFT17	13.8	1.0267	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3015	SRFT18	13.8	2009	SRF345	34.5	1	1	2	1.05625	0	3015	SRFT18	13.8	1.0248	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3007	CldST25	13.8	2008	CldSt345	34.5	1	1	2	1.0375	0	3007	CldST25	13.8	1.0257	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	1
3009	PulanT95	13.8	2011	Pul345	34.5	1	1	2	1.04375	0	3009	PulanT95	13.8	1.0277	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3011	UmatT120	13.8	2012	Uma345	34.5	1	1	2	1.0375	0	3011	UmatT120	13.8	1.0241	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3101	Agana T9	13.8	2101	Aga345	34.5	1	1	2	1.05625	0	3101	Agana T9	13.8	1.0284	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3102	AganaT65	13.8	2101	Aga345	34.5	1	1	2	1.06875	0	3102	AganaT65	13.8	1.0283	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3103	BarriT75	13.8	2102	Bar345	34.5	1	1	2	1.05625	0	3103	BarriT75	13.8	1.0255	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3104	RadBaT23	13.8	2103	RBa345B1	34.5	1	1	2	1	0	3104	RadBaT23	13.8	1.025	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	2
3105	RadBaT24	13.8	2103	RBa345B1	34.5	1	1	2	1.00625	0	3105	RadBaT24	13.8	1.0285	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	2
3106	TamunT50	13.8	2104	Tam345B1	34.5	1	1	2	1.0625	0	3106	TamunT50	13.8	1.0277	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3108	TamunT51	13.8	2104	Tam345B1	34.5	1	1	2	1.06875	0	3108	TamunT51	13.8	1.0284	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3107	TumonT60	13.8	2105	Tum345B1	34.5	1	1	2	1.06875	0	3107	TumonT60	13.8	1.0242	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3109	TumonT61	13.8	2105	Tum345B1	34.5	1	1	2	1.05	0	3109	TumonT61	13.8	1.0257	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3110	AnigT100	13.8	2106	Ani345B1	34.5	1	1	2	1.05	0	3110	AnigT100	13.8	1.0256	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3113	SanVT122	13.8	2108	SV345B1	34.5	1	1	2	1.075	0	3113	SanVT122	13.8	1.0269	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
2201	Tan345B1	34.5	5201	TangoStr	2.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	3
3201	HarmnT21	13.8	2219	Har345B1	34.5	1	1	2	1.05625	0	3201	HarmnT21	13.8	1.0291	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3202	HarmnT22	13.8	2219	Har345B1	34.5	1	1	2	0.9875	0	3202	HarmnT22	13.8	1.0286	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	3
3016	OroteT28	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3016	OroteT28	13.8	1.0253	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3204	DededT55	13.8	2203	Ded345B1	34.5	1	1	2	1.03125	0	3204	DededT55	13.8	1.0294	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3205	MarboT14	13.8	2204	Mar345B1	34.5	1	1	2	1.05625	0	3205	MarboT14	13.8	1.0277	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
4201	NCS T47	4.16	2208	NCS345	34.5	1	1	2	1	0	4201	NCS T47	4.16	1.0291	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	3
3207	PotsT110	13.8	2209	Pott345	34.5	1	1	2	1.05625	0	3207	PotsT110	13.8	1.0252	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3208	AnderT15	13.8	2210	And345B1	34.5	1	1	2	1.025	0	3208	AnderT15	13.8	1.0265	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3209	AnderT16	13.8	2210	And345B1	34.5	1	1	2	1.03125	0	3209	AnderT16	13.8	1.0269	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3210	MacheT90	13.8	2211	Mac345B1	34.5	1	1	1	1	0	3210	MacheT90	13.8	1.003	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3211	PagaT115	13.8	2212	Pag345B1	34.5	1	1	2	1.0625	0	3211	PagaT115	13.8	1.0271	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3212	Yigo T30	13.8	2214	Yig345B1	34.5	1	1	1	1	0	3212	Yigo T30	13.8	0.965	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3213	GAA T105	13.8	2216	GAA345B1	34.5	1	1	2	1.05	0	3213	GAA T105	13.8	1.0277	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
4213	GIAT Trm	4.16	2217	GIA345B1	34.5	1	1	2	1.0625	0	4213	GIAT Trm	4.16	1.0253	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3300	Agrko13	12.02	2214	Yig345B1	34.5	1	1	1	1	0	0		0	0	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
6005	Aggreko	0.46	3300	Agrko13	12.02	1	1	1	1	0	0		0	0	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
2018	Dandan	34.5	2019	Dandan_P\	0.48	1	1	1	1.025	0	0		0	0	1.1	0.9	0.00625	1.1	0.9	1	1	1	1

2018	Dandan	34.5	2020	Dandan_W	0.68	1	1	1	1.025	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2401	Hanwha_A	34.5	2403	Hanwha_P	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2402	Hanwha_B	34.5	2404	Hanwha_P	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2401	Hanwha_A	34.5	2405	Hanwha_E	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2402	Hanwha_B	34.5	2406	Hanwha_E	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2501	Mangilao_	34.5	2503	KEPCO_PV	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2502	Mangilao_	34.5	2504	KEPCO_PV	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2501	Mangilao_	34.5	2505	KEPCO_ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2502	Mangilao_	34.5	2506	KEPCO_ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2219	Har345B1	34.5	4202	SF ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2005	Oro345	34.5	4005	Orote ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2407	HanwhaA_	115	2401	Hanwha_A	34.5	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2408	HanwhaB_	115	2402	Hanwha_B	34.5	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2111	AgESS345	34.5	3111	AgESS440	0.44	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2003	Tal345	34.5	3203	TaESS440	0.44	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
1201	Har115B1	115	19	HAR_CT1	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	20	HAR_CT2	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	22	HAR_CT3	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	21	HAR_ST	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1

FROM	FNAME	FKV	TO	TNAME	TKV	CK	S	MVA	VNOMF	VNOMT	(--R	X--)	BMAG	TZ	MVA1	MVA2	MVA3	MVA4	ALOSS	TERT	TERNAME	TERKV	WCANGL	AREA	AF	AT	ZONE	ZF	ZT	YI	MI	DI	YO	MO	DO	OWN	LID
1001	Cab115EB	115	1	Cabras_1	13.8	1	1	80	115	13.2	0.0044	0.1	0	0	80	80	80	80	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
1001	Cab115EB	115	2	Cabras_2	13.8	1	1	80	115	13.2	0.0044	0.0986	0	0	80	80	80	80	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
2004	Apr345	34.5	2701	Apra_115	115	1	0	50	34.5	115	0.003	0.0606	0	0	50	50	50	50	0	0			0	0	1	1	1	2	1	1	0	0	0	0	0	0	0	
2014	Ten345	34.5	11	TenjoDsl	13.8	1	1	18	34.5	13.8	0.0038	0.0764	0	0	18	18	24	30	1	0			0	0	1	1	1	1	1	1	97	9	1	89	12	31	0	
1001	Cab115EB	115	12	Cabras_3	13.8	1	1	37.5	115	13.8	0.0043	0.0861	0	0	37.5	37.5	50	50	1	0			0	0	1	1	1	1	1	1	95	9	30	89	12	31	0	
1001	Cab115EB	115	13	Cabras_4	13.8	1	1	37.5	115	13.8	0.0043	0.0866	0	0	37.5	37.5	50	50	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0	
2002	Pit345	34.5	15	TEMES	13.8	1	1	44	34.5	13.8	0.0051	0.1017	0	0	44	44	59	59	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0	
1005	Pit115B1	115	16	MEC 8	13.8	1	1	30	115	13.8	0.006	0.121	0	0	56	56	56	56	1	0			0	0	1	1	1	1	1	1	99	1	1	89	12	31	0	
1005	Pit115B1	115	17	MEC 9	13.8	1	1	56	115	13.8	0.0061	0.1212	0	0	56	56	56	56	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0	
2201	Tan345B1	34.5	201	Tangui_1	14.4	1	0	18	36.1	13.8	0.0034	0.0687	0	0	18	24	30	33.6	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2201	Tan345B1	34.5	202	Tangui_2	14.4	1	0	18	36.1	13.8	0.0028	0.0563	0	0	18	24	30	33.6	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2203	Ded345B1	34.5	209	Ded CT#2	13.8	1	1	18	34.5	13.8	0.0039	0.0782	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2203	Ded345B1	34.5	208	Ded CT#1	13.8	1	1	18	34.5	13.8	0.0039	0.0775	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2204	Mar345B1	34.5	205	Marbo CT	13.8	1	1	12	34.5	13.8	0.0038	0.0769	0	0	12	12	16	20	1	0			0	0	1	1	1	3	3	3	40	1	1	39	12	31	0	
2001	Cab345	34.5	1001	Cab115EB	115	1	1	60	34.5	115	0.0031	0.0617	0	0	60	80	100	112	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
2002	Pit345	34.5	1005	Pit115B1	115	1	1	60	34.5	115	0.0021	0.0802	0	0	60	60	80	100	1	0			0	0	1	1	1	1	1	1	2	9	1	89	12	31	0	
2101	Aga345	34.5	1101	Aga115	115	1	1	60	34.5	115	0.003	0.0606	0	0	60	80	100	112	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
2104	Tam345B1	34.5	1103	Tam115B1	115	1	1	60	34.5	115	0.0025	0.0789	0	0	60	80	100	112	1	0			0	0	1	1	1	3	2	2	90	1	1	89	12	31	0	
2202	Har345B3	34.5	1201	Har115B1	115	1	1	112	34.5	115	0.003	0.1413	0	0	80	80	100	112	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2219	Har345B1	34.5	1201	Har115B1	115	1	1	60	34.5	115	0.0029	0.0607	0	0	60	80	100	112	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2001	Cab345	34.5	4001	CbrStUp	4.16	1	1	5	34.5	4.2	0.0059	0.0592	0	0	5	5	7	7	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3001	Piti T7	13.8	2002	Pit345	34.5	1	1	7.5	13.8	34.5	0.0038	0.0756	0	0	7.5	8.4	9.7	10.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3002	Piti T8	13.8	2002	Pit345	34.5	1	1	7.5	13.8	34.5	0.0038	0.0762	0	0	7.5	8.4	9.7	10.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3003	TaloffT80	13.8	2003	Tal345	34.5	1	1	10	13.8	34.5	0.0032	0.0639	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3004	Apra T70	13.8	2004	Apr345	34.5	1	1	10	13.8	34.5	0.0032	0.0639	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3005	OroteT11	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0031	0.0628	0	0	10	10	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3006	OroteT12	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0032	0.0638	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3012	OroteT13	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0031	0.0629	0	0	10	10	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3013	OroteT10	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0	0.0667	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3014	SRFT17	13.8	2009	SRF345	34.5	1	1	10	13.8	34.5	0	0.0665	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3015	SRFT18	13.8	2009	SRF345	34.5	1	1	10	13.8	34.5	0	0.0671	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3007	CldST25	13.8	2008	CldSt345	34.5	1	1	10	13.8	34.5	0	0.068	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3009	PulanT95	13.8	2011	Pul345	34.5	1	1	18	13.8	34.5	0.0041	0.0765	0	0	18	18	24	20	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0	
3011	UmatT120	13.8	2012	Uma345	34.5	1	1	18	13.8	34.5	0.0039	0.0776	0	0	18	18	24	30	1	0			0	0	1	1	1	1	1	1	97	9	1	89	12	31	0	
3101	Agana T9	13.8	2101	Aga345	34.5	1	1	12	13.8	34.5	0.0054	0.0601	0	0	12	12	16	20	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3102	AganaT65	13.8	2101	Aga345	34.5	1	1	18	13.8	34.5	0.0068	0.0737	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3103	BarriT75	13.8	2102	Bar345	34.5	1	1	15	13.8	34.5	0.0047	0.0698	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3104	RadBaT23	13.8	2103	RBa345B1	34.5	1	1	7.5	13.8	34.5	0.0033	0.0651	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3105	RadBaT24	13.8	2103	RBa345B1	34.5	1	1	7.5	13.8	34.5	0.0033	0.0655	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3106	TamunT50	13.8	2104	Tam345B1	34.5	1	1	15	13.8	34.5	0.0046	0.0709	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3108	TamunT51	13.8	2104	Tam345B1	34.5	1	1	15	13.8	34.5	0.0041	0.0829	0	0	15	20	25	28	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3107	TumonT60	13.8	2105	Tum345B1	34.5	1	1	18	13.8	34.5	0.0068	0.0737	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3109	TumonT61	13.8	2105	Tum345B1	34.5	1	1	15	13.8	34.5	0.0038	0.0769	0	0	15	20	25	28	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0	
3110	AniqT100	13.8	2106	Ani345B1	34.5	1	1	18	13.8	34.5	0.0041	0.0765	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	94	1	1	89	12	31	0	
3113	SanVT122	13.8	2108	SV345B1	34.5	1	1	18	13.8	34.5	0.0028	0.0749	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	94	1	1	89	12	31	0	
2201	Tan345B1	34.5	5201	TangoStr	2.4	1	0	2.5	34.5	2.4	0.0033	0.0651	0	0	2.5	2.5	2.5	2.5	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3201	HarmnT21	13.8	2219	Har345B1	34.5	1	1	18	13.8	34.5	0.0039	0.0743	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3202	HarmnT22	13.8	2219	Har345B1	34.5	1	1	10	13.8	34.5	0.0031	0.0629	0	0	10	10	12.5	14	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3016	OroteT28	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0	0.0639	0	0	10	11	13	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0	
3204	DededT55	13.8	2203	Ded345B1	34.5	1	1	15	13.8	34.5	0.0041	0.0762	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3205	MarboT14	13.8	2204	Mar345B1	34.5	1	1	10	13.8	34.5	0.0031	0.0628	0	0	10	10	12.5	14	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
4201	NCS T47	4.16	2208	NCS345	34.5	1	1	3.8	4.2	34.5	0.0042	0.0841	0	0	3.8	4.2	4.7	5.3	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3207	PotsT110	13.8	2209	Pott345	34.5	1	1	3.8	13.8	34.5	0.0038	0.0758	0	0	3.8	4.2	4.7	5.2	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3208	AnderT15	13.8	2210	And345B1	34.5	1	1	30	13.8	34.5	0.0038	0.0765	0	0	30	30	40	40	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3209	AnderT16	13.8	2210	And345B1	34.5	1	1	30	13.8	34.5	0.0038	0.0768	0	0	30	30	40	40	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3210	MacheT90	13.8	2211	Mac345B1	34.5	1	1	15	13.8	34.5	0.0048	0.0765	0	0	15	20	25	28	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3211	PagaT115	13.8	2212	Pag345B1	34.5	1	1	18	13.8	34.5	0.0041	0.0761	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	97	9	1	89	12	31	0	
3212	Yigo T30	13.8	2214	Yig345B1	34.5	1	1	18	13.8	34.5	0.004	0.0752	0	0	18	18	24	27	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
3213	GAA T105	13.8	2216	GAA345B1	34.5	1	1	18	13.8	34.5	0.004	0.0756	0	0	18	18	24	25	1	0			0	0	1	1	1	3	3	2	90	1	1	89	12	31	0	
4213	GIAT Trm	4.16	2217	GIA345B1	34.5	1	1	7.5	4.2	34.5	0.0035	0.0691	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	3	3	2	90	1	1	89	12	31	0	
3300	Agrko13	12.02	2214	Yig345B1	34.5	1	1	50	13.8	39.6	0	0.083	0	0	50	50	50	50	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
6005	Aggreko	0.46	3300	Agrko13	12.02	1	1	44.1	0.5	12.5	0.0102	0.054	0	0	44.1	44.1	44.1	44.1	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0	
2018	Dandan	34.5	2019	Dandan_PV	0.48	1	1	20	34.5	0.5	0.0026	0.0574	0	0	33.2	33.2	33.2	33.2	1	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	1	
2018	Dandan	34.5	2020	Dandan_W	0.68	1	1	5.6	34.5	0.7	0.006	0.06	0	0	5.6	5.6	5.6	5.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2401	Hanwha_A	34.5	2403	Hanwha_PV	0.55	1	1	31.5	34.5	0.6	0	0.0575	0	0	31.5	31.5	31.5	31.5	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2402	Hanwha_B	34.5	2404	Hanwha_PV	0.55	1	1	31.5	34.5	0.6	0	0.0575	0	0	31.5	31.5	31.5	31.5	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2401	Hanwha_A	34.5	2405	Hanwha_ES	0.55	1	1	20.3	34.5	0.6	0	0.0575	0	0	20.3	20.3	20.3	20.3	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2402	Hanwha_B	34.5	2406	Hanwha_ES	0.55	1	1	20.3	34.5	0.6	0	0.0575	0	0	20.3	20.3	20.3	20.3	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2501	Mangilao_A	34.5	2503	KEPCO_PV1	0.48	1	1	32	34.5	0.5	0.0065	0.065	0	0	32	32	32	32	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2502	Mangilao_B	34.5	2504	KEPCO_PV2	0.48	1	1	32	34.5	0.5	0.0065	0.065	0	0	32	32	32	32	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2501	Mangilao_A	34.5	2505	KEPCO_ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2502	Mangilao_B	34.5	2506	KEPCO_ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2219	Har345B1	34.5	4202	SF ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0	
2005	Oro345	34.5	4005	Orote ESS	0.48	1	1	25	34.5	0.5	0.0065	0.065	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2407	HanwhaA_	115	2401	Hanwha_A	34.5	1	1	25	115	34.5	0.01	0.1	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2408	HanwhaB_	115	2402	Hanwha_B	34.5	1	1	25	115	34.5	0.01	0.1	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2111	AgESS345	34.5	3111	AgESS440	0.44	1	1	30	34.5	0.4	0	0.07	0	0	30	30	30	30	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
2003	Tal345	34.5	3203	TaESS440	0.44	1	1	20	34.5	0.4	0	0.07	0	0	20	20	20	20	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0	
1201	Har115B1	115	19	HAR_CT1	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0	
1201	Har115B1	115	20	HAR_CT2	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0	
1201	Har115B1	115	22	HAR_CT3	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0	
1201	Har115B1	115	21	HAR_ST	13.8	1	1	45	115	13.8	0	0.081	0	0	50	50	50	50	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0	

FROM	FNAME	FKV	TO	TNAME	TKV	CK	SE	ST	(R--PU	X-PU)	B-PU	MVA1	MVA2	MVA3	MVA4	ALOSS	LENGTH	TP	AREA	ZONE	AF	AT	YI	MI	DI	YO	MO	DO	OWN	LID	
9	ManenDsl	13.8	3009	PulanT95	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
10	TalofDsl	13.8	3003	TalofT80	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
14	OrteUnts	13.8	3005	OroteT11	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	95	11	1	89	12	31	0	1	
210	Mache_CT	13.8	3210	MacheT90	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
211	Yigo__CT	13.8	3212	Yigo T30	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2401	Hanwha_A	34.5	2402	Hanwha_B	34.5	1	1	0	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	40	1	1	39	12	31	0	1	
2501	Mangilao_	34.5	2502	Mangilao_	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2101	Aga345	34.5	2111	AgESS345	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	2	1	1	40	1	1	39	12	31	0	1	
1001	Cab115EB	115	1005	Pit115B1	115	1	1	1	0.0005	0.0026	0.0004	136	181	136	181	1	0.48	0	1	2	1	1	90	1	1	89	12	31	0	2	
1001	Cab115EB	115	1101	Aga115	115	1	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	1	
1001	Cab115EB	115	1101	Aga115	115	2	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	2	
1005	Pit115B1	115	1201	Har115B1	115	1	1	1	0.0115	0.0662	0.011	136	181	136	181	1	12.96	0	1	2	1	1	90	1	1	89	12	31	0	2	
1101	Aga115	115	1103	Tam115B1	115	1	1	1	0.002	0.0104	0.0018	136	181	136	181	1	2.08	0	1	3	1	1	90	1	1	89	12	31	0	1	
1103	Tam115B1	115	1201	Har115B1	115	1	1	1	0.0043	0.023	0.0039	136	181	136	181	1	4.54	0	1	3	1	1	90	1	1	89	12	31	0	1	
2001	Cab345	34.5	2002	Pit345	34.5	1	1	1	0.0016	0.0076	0	81	108	81	108	1	0.3	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2017	Tenjotap	34.5	1	1	1	0.0413	0.2136	0.0003	41	54	41	54	1	3.65	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2010	CSTapX21	34.5	1	1	1	0.0286	0.1458	0.0003	41	54	41	54	1	3.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2101	Aga345	34.5	1	1	1	0.0556	0.3013	0.0005	41	54	41	54	1	5.66	0	1	2	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2106	Ani345B1	34.5	1	1	1	0.0375	0.1762	0.0003	41	54	41	54	1	3.5	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2004	Apr345	34.5	1	1	1	0.1773	0.3705	0.0005	23	31	23	31	1	6.9	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2401	Hanwha_A	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2003	Tal345	34.5	2402	Hanwha_B	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2501	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_	34.5	2204	Mar345B1	34.5	1	1	0	0.0567	0.255	0	41	54	41	54	1	5.62	0	1	3	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2401	Hanwha_A	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2402	Hanwha_B	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2004	Apr345	34.5	2005	Oro345	34.5	1	1	1	0.0405	0.1902	0.0003	41	54	41	54	1	3.8	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2012	Uma345	34.5	1	1	1	0.1284	0.6507	0.0011	41	54	41	54	1	13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2017	Tenjotap	34.5	1	1	1	0.0174	0.0958	0.0001	41	54	41	54	1	1.64	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2007	CSTapX20	34.5	1	1	1	0.0338	0.0796	0	22	29	22	29	1	1.27	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2010	CSTapX21	34.5	1	1	1	0.0156	0.0764	0.0001	41	54	41	54	1	1.03	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	1	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	2	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2007	CSTapX20	34.5	1	1	1	0.0898	0.2131	0.0003	22	29	22	29	1	3.08	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2007	CSTapX20	34.5	1	1	0	0.0071	0.0162	0	22	29	22	29	1	0.13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2010	CSTapX21	34.5	1	1	1	0.0048	0.0093	0	25.5	34	25.5	34	1	0.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2003	Tal345	34.5	1	1	1	0.0704	0.3619	0.0007	41	54	41	54	1	7.44	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2102	Bar345	34.5	1	1	1	0.0838	0.3837	0.0007	41	54	41	54	1	7.85	0	1	1	1	1	90	1	1	89	12	31	0	1	
2014	Ten345	34.5	2017	Tenjotap	34.5	1	1	1	0.0074	0.0377	0	41	54	41	54	1	0.69	0	1	1	1	1	97	9	1	89	12	31	0	1	
2003	Tal345	34.5	2018	Dandan	34.5	1	1	1	0.0686	0.1621	0	21.4	28.3	21.4	28.3	1	5.62	0	1	1	1	1	97	9	1	89	12	31	0	1	
2101	Aga345	34.5	2102	Bar345	34.5	1	1	1	0.0318	0.139	0.0003	41	54	41	54	1	3.1	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2103	RBa345B1	34.5	1	1	1	0.0419	0.2119	0.0004	22	29	22	29	1	4.6	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2104	Tam345B1	34.5	1	1	1	0.0249	0.1122	0.0002	41	54	41	54	1	2.33	0	1	2	1	1	90	1	1	89	12	31	0	1	
2102	Bar345	34.5	2216	GAA345B1	34.5	1	1	1	0.0361	0.1554	0.0003	41	54	41	54	1	4.6	0	1	2	1	1	40	1	1	39	12	31	0		
2103	RBa345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0773	0.1637	0.0013	22	29	22	29	1	4.36	0	1	3	1	1	90	1	1	89	12	31	0	1	
2204	Mar345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0796	0.1689	0.0013	22	29	22	29	1	4.46	0	1	3	1	1	90	1	1	89	12	31	0		
2104	Tam345B1	34.5	2105	Tum345B1	34.5	1	1	1	0.0218	0.0401	0.0022	41	54	41	54	1	1.68	0	1	2	1	1	90	1	1	89	12	31	0	1	
2104	Tam345B1	34.5	2110	HafaTap	34.5	1	1	1	0.0025	0.0018	0	31	42	31	42	1	0.19	0	1	2	1	1	96	1	1	89	12	31	0		
2110	HafaTap	34.5	2108	SV345B1	34.5	1	1	1	0.014	0.0589	0.0001	41	54	41	54	1	1.46	0	1	2	1	1	96	1	1	89	12	31	0	1	
2105	Tum345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0359	0.0662	0.0038	41	54	41	54	1	2.77	0	1	3	1	1	90	1	1	89	12	31	0	1	
2106	Ani345B1	34.5	2101	Aga345	34.5	1	1	1	0.0244	0.1237	0.0002	41	54	41	54	1	2.47	0	1	2	1	1	90	1	1	89	12	31	0	1	
2108	SV345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0211	0.0213	0.0027	41	54	41	54	1	3.4	0	1	3	1	1	96	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2219	Har345B1	34.5	1	1	0	0.0108	0.0409	0.0022	41	54	41	54	1	1.87	0	1	3	1	1	90	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2202	Har345B3	34.5	2	1	0	0.0108	0.0409	0.0021	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	2	
2202	Har345B3	34.5	2203	Ded345B1	34.5	1	1	1	0.0293	0.149	0.0002	41	54	41	54	1	2.53	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2210	And345B1	34.5	1	1	1	0.0666	0.0819	0.0106	31	42	31	42	1	7.82	0	1	3	1	1	90	1	1	89	12	31	0		
2219	Har345B1	34.5	2208	NCS345	34.5	1	1	1	0.0997	0.226	0.0003	22	29	22	29	1	4.03	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2211	Mac345B1	34.5	1	1	1	0.0094	0.0097	0.0026	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	1	
2219	Har345B1	34.5	2214	Yig345B1	34.5	1	1	1	0.0658	0.3018	0.0005	41	54	41	54	1	6.48	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2219	Har345B1	34.5	1	1	0	0	0.001	0	90	120	90	120	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2204	Mar345B1	34.5	1	1	1	0.0187	0.0909	0.0002	41	54	41	54	1	1.85	0	1	3	1	1	90	1	1	89	12	31	0	1	
2208	NCS345	34.5	2209	Pott345	34.5	1	1	1	0.0347	0.0788	0.0001	22	29	22	29	1	1.41	0	1	3	1	1	90	1	1	89	12	31	0	1	
2209	Pott345	34.5	2210	And345B1	34.5	1	1	1	0.1241	0.2814	0.0002	22	29	22	29	1	5.02	0	1	3	1	1	90	1	1	89	12	31	0	1	
2211	Mac345B1	34.5	2212	Pag345B1	34.5	1	1	0	0.0762	0.1712	0.0003	41	54	41	54	1	3.96	0	1	3	1	1	40	1	1	39	12	31	0		
2211	Mac345B1	34.5	2216	GAA345B1	34.5	1	1	1	0.011	0.0114	0.003	41	54	41	54	1	2.12	0	1	3	1	1	40	1	1	39	12	31	0		
2214	Yig345B1	34.5	2210	And345B1	34.5	1	1	1	0.0329	0.1511	0.0003	41	54	41	54	1	3.04	0	1	3	1	1	90	1	1	89	12	31	0	1	
2216	GAA345B1	34.5	2217	GIA345B1	34.5	1	1	1	0.0052	0.0064	0.0008	31	42	31	42	1	0.61	0	1	2	1	1	40	1	1	39	12	31	0		
2218	GiatTap	34.5	2217	GIA345B1	34.5	1	1	1	0.0053	0.0066	0.0008	31	42	31	42	1	0.63	0	1	2	1	1	40	1	1	39	12	31	0	1	
2218	GiatTap	34.5	2219	Har345B1	34.5	1	1	1	0.0316	0.1487	0.0003	41	54	41	54	1	2.97	0	1	2	1	1	40	1	1	39	12	31	0	1	
1005	Pit115B1	115	2701	Apra_115	115	1	1	1	0.0055	0.0284	0.0043	136	180	136	180	1	5.4	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2407	HanwhaA_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2408	HanwhaB_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2501	Mangilao_	34.5	2507	Mangilao	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0.02	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	1	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2211	Mac345B1	34.5	1	1	1	0.047	0.2243	0	41	54	41	54	1	4.48	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	2	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		

FROM	FNAME	FKV	TO	TNAME	TKV	CK	SE	ST	(R--PU	X-PU)	B-PU	MVA1	MVA2	MVA3	MVA4	ALOSS	LENGTH	TP	AREA	ZONE	AF	AT	YI	MI	DI	YO	MO	DO	OWN	LID	
9	ManenDsl	13.8	3009	PulanT95	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	90	1	1	89	12	31	0	1
10	TalofDsl	13.8	3003	TalofT80	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	90	1	1	89	12	31	0	1
14	OrteUnts	13.8	3005	OroteT11	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	95	11	1	89	12	31	0	1
210	Mache_CT	13.8	3210	MacheT90	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	1	90	1	1	89	12	31	0	1
211	Yigo__CT	13.8	3212	Yigo T30	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	1	40	1	1	39	12	31	0	1
2401	Hanwha_A	34.5	2402	Hanwha_B	34.5	1	1	0	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	40	1	1	39	12	31	0	1
2501	Mangilao_A	34.5	2502	Mangilao_	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	1	40	1	1	39	12	31	0	1
2101	Aga345	34.5	2111	AgESS345	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	2	1	1	1	40	1	1	39	12	31	0	1
1001	Cab115EB	115	1005	Pit115B1	115	1	1	1	0.0005	0.0026	0.0004	136	181	136	181	1	0.48	0	1	2	1	1	1	90	1	1	89	12	31	0	2
1001	Cab115EB	115	1101	Aga115	115	1	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	1	90	1	1	89	12	31	0	1
1001	Cab115EB	115	1101	Aga115	115	2	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	1	90	1	1	89	12	31	0	2
1005	Pit115B1	115	1201	Har115B1	115	1	1	1	0.0115	0.0662	0.011	136	181	136	181	1	12.96	0	1	2	1	1	1	90	1	1	89	12	31	0	2
1101	Aga115	115	1103	Tam115B1	115	1	1	1	0.002	0.0104	0.0018	136	181	136	181	1	2.08	0	1	3	1	1	1	90	1	1	89	12	31	0	1
1103	Tam115B1	115	1201	Har115B1	115	1	1	1	0.0043	0.023	0.0039	136	181	136	181	1	4.54	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2001	Cab345	34.5	2002	Pit345	34.5	1	1	1	0.0016	0.0076	0	81	108	81	108	1	0.3	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2017	Tenjotap	34.5	1	1	1	0.0413	0.2136	0.0003	41	54	41	54	1	3.65	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2010	CSTapX21	34.5	1	1	1	0.0286	0.1458	0.0003	41	54	41	54	1	3.53	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2101	Aga345	34.5	1	1	1	0.0556	0.3013	0.0005	41	54	41	54	1	5.66	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2106	Ani345B1	34.5	1	1	1	0.0375	0.1762	0.0003	41	54	41	54	1	3.5	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2003	Tal345	34.5	2004	Apr345	34.5	1	1	1	0.1773	0.3705	0.0005	23	31	23	31	1	6.9	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2003	Tal345	34.5	2401	Hanwha_A	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	1	40	1	1	0	0	0	0	
2003	Tal345	34.5	2402	Hanwha_B	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	1	40	1	1	0	0	0	0	
2501	Mangilao_A	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	0	0	0	0	
2502	Mangilao_B	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	0	0	0	0	
2502	Mangilao_B	34.5	2204	Mar345B1	34.5	1	1	0	0.0567	0.255	0	41	54	41	54	1	5.62	0	1	3	1	1	1	40	1	1	0	0	0	0	
2012	Uma345	34.5	2401	Hanwha_A	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	1	40	1	1	0	0	0	0	
2012	Uma345	34.5	2402	Hanwha_B	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	1	40	1	1	0	0	0	0	
2004	Apr345	34.5	2005	Oro345	34.5	1	1	1	0.0405	0.1902	0.0003	41	54	41	54	1	3.8	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2004	Apr345	34.5	2012	Uma345	34.5	1	1	1	0.1284	0.6507	0.0011	41	54	41	54	1	13	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2004	Apr345	34.5	2017	Tenjotap	34.5	1	1	1	0.0174	0.0958	0.0001	41	54	41	54	1	1.64	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2007	CSTapX20	34.5	1	1	1	0.0338	0.0796	0	22	29	22	29	1	1.27	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2010	CSTapX21	34.5	1	1	1	0.0156	0.0764	0.0001	41	54	41	54	1	1.03	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2009	SRF345	34.5	1	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2009	SRF345	34.5	2	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2007	CSTapX20	34.5	1	1	1	0.0898	0.2131	0.0003	22	29	22	29	1	3.08	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2008	CldSt345	34.5	2007	CSTapX20	34.5	1	1	0	0.0071	0.0162	0	22	29	22	29	1	0.13	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2008	CldSt345	34.5	2010	CSTapX21	34.5	1	1	1	0.0048	0.0093	0	25.5	34	25.5	34	1	0.53	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2011	Pul345	34.5	2003	Tal345	34.5	1	1	1	0.0704	0.3619	0.0007	41	54	41	54	1	7.44	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2011	Pul345	34.5	2102	Bar345	34.5	1	1	1	0.0838	0.3837	0.0007	41	54	41	54	1	7.85	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2014	Ten345	34.5	2017	Tenjotap	34.5	1	1	1	0.0074	0.0377	0	41	54	41	54	1	0.69	0	1	1	1	1	1	97	9	1	89	12	31	0	1
2003	Tal345	34.5	2018	Dandan	34.5	1	1	1	0.0686	0.1621	0	21.4	28.3	21.4	28.3	1	5.62	0	1	1	1	1	1	97	9	1	89	12	31	0	1
2101	Aga345	34.5	2102	Bar345	34.5	1	1	1	0.0318	0.139	0.0003	41	54	41	54	1	3.1	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2101	Aga345	34.5	2103	RBa345B1	34.5	1	1	1	0.0419	0.2119	0.0004	22	29	22	29	1	4.6	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2101	Aga345	34.5	2104	Tam345B1	34.5	1	1	1	0.0249	0.1122	0.0002	41	54	41	54	1	2.33	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2102	Bar345	34.5	2216	GAA345B1	34.5	1	1	1	0.0361	0.1554	0.0003	41	54	41	54	1	4.6	0	1	2	1	1	1	40	1	1	39	12	31	0	
2103	RBa345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0773	0.1637	0.0013	22	29	22	29	1	4.36	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2204	Mar345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0796	0.1689	0.0013	22	29	22	29	1	4.46	0	1	3	1	1	1	90	1	1	89	12	31	0	
2104	Tam345B1	34.5	2105	Tum345B1	34.5	1	1	1	0.0218	0.0401	0.0022	41	54	41	54	1	1.68	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2104	Tam345B1	34.5	2110	HafaTap	34.5	1	1	1	0.0025	0.0018	0	31	42	31	42	1	0.19	0	1	2	1	1	1	96	1	1	89	12	31	0	
2110	HafaTap	34.5	2108	SV345B1	34.5	1	1	1	0.014	0.0589	0.0001	41	54	41	54	1	1.46	0	1	2	1	1	1	96	1	1	89	12	31	0	1
2105	Tum345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0359	0.0662	0.0038	41	54	41	54	1	2.77	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2106	Ani345B1	34.5	2101	Aga345	34.5	1	1	1	0.0244	0.1237	0.0002	41	54	41	54	1	2.47	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2108	SV345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0211	0.0213	0.0027	41	54	41	54	1	3.4	0	1	3	1	1	1	96	1	1	89	12	31	0	1
2201	Tan345B1	34.5	2219	Har345B1	34.5	1	1	0	0.0108	0.0409	0.0022	41	54	41	54	1	1.87	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2201	Tan345B1	34.5	2202	Har345B3	34.5	2	1	0	0.0108	0.0409	0.0021	41	54	41	54	1	1.81	0	1	3	1	1	1	90	1	1	89	12	31	0	2
2202	Har345B3	34.5	2203	Ded345B1	34.5	1	1	1	0.0293	0.149	0.0002	41	54	41	54	1	2.53	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2203	Ded345B1	34.5	2210	And345B1	34.5	1	1	1	0.0666	0.0819	0.0106	31	42	31	42	1	7.82	0	1	3	1	1	1	90	1	1	89	12	31	0	
2219	Har345B1	34.5	2208	NCS345	34.5	1	1	1	0.0997	0.226	0.0003	22	29	22	29	1	4.03	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2202	Har345B3	34.5	2211	Mac345B1	34.5	1	1	1	0.0094	0.0097	0.0026	41	54	41	54	1	1.81	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2219	Har345B1	34.5	2214	Yig345B1	34.5	1	1	1	0.0658	0.3018	0.0005	41	54	41	54	1	6.48	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2202	Har345B3	34.5	2219	Har345B1	34.5	1	1	0	0	0.001	0	90	120	90	120	1	0	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2203	Ded345B1	34.5	2204	Mar345B1	34.5	1	1	1	0.0187	0.0909	0.0002	41	54	41	54	1	1.85	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2208	NCS345	34.5	2209	Pott345	34.5	1	1	1	0.0347	0.0788	0.0001	22	29	22	29	1	1.41	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2209	Pott345	34.5	2210	And345B1	34.5	1	1	1	0.1241	0.2814	0.0002	22	29	22	29	1	5.02	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2211	Mac345B1	34.5	2212	Pag345B1	34.5	1	1	0	0.0762	0.1712	0.0003	41	54	41	54	1	3.96	0	1	3	1	1	1	40	1	1	39	12	31	0	
2211	Mac345B1	34.5	2216	GAA345B1	34.5	1	1	1	0.011	0.0114	0.003	41	54	41	54	1	2.12	0	1	3	1	1	1	40	1	1	39	12	31	0	
2214	Yig345B1	34.5	2210	And345B1	34.5	1	1	1	0.0329	0.1511	0.0003	41	54	41	54	1	3.04	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2216	GAA345B1	34.5	2217	GIA345B1	34.5	1	1	1	0.0052	0.0064	0.0008	31	42	31	42	1	0.61	0	1	2	1	1	1	40	1	1	39	12	31	0	
2218	GiatTap	34.5	2217	GIA345B1	34.5	1	1	1	0.0053	0.0066	0.0008	31	42	31	42	1	0.63	0	1	2	1	1	1	40	1	1	39	12	31	0	1
2218	GiatTap	34.5	2219	Har345B1	34.5	1	1	1	0.0316	0.1487	0.0003	41	54	41	54	1	2.97	0	1	2	1	1	1	40	1	1	39	12	31	0	1
1005	Pit115B1	115	2701	Apra_115	115	1	1	1	0.0055	0.0284	0.0043	136	180	136	180	1	5.4	0	1	1	1	1	1	40	1	1	39	12	31	0	
2701	Apra_115	115	2407	HanwhaA_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	1	40	1	1	39	12	31	0	
2701	Apra_115	115	2408	HanwhaB_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	1	40	1	1	39	12	31	0	
2501	Mangilao_A	34.5	2507	Mangilao	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0.02	0	1	3	1	1	1	40	1	1	39	12	31	0	
2507	Mangilao	34.5	2212	Pag345B1	34.5	1	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	39	12	31	0	
2507	Mangilao	34.5	2211	Mac345B1	34.5	1	1	1	0.047	0.2243	0	41	54	41	54	1	4.48	0	1	3	1	1	1	40	1	1	39	12	31	0	
2507	Mangilao	34.5	2212	Pag345B1	34.5	2	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	39	12	31	0	

ZONE	NAME	PNET	QNET
1	Southern		
		131.1	23.8
2	Central		
		-68.5	-14
3	Northern		
		-62.6	-9.8

BUS-NO	NAME	KV	TP	VSCHED	V-PU	DEG	ISLAND	AREA	ZONE	BA	SUBST	ISOL_ST	VMAX	VMIN	OWN	B/N	LID	LATITUDE	LONGITUDE
1	Cabras_1	13.8	2	1.0145	0.9599	37.81	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2	Cabras_2	13.8	2	1.007	0.9599	37.81	1	1	1	0	0	0	1.05	0.95	0	0		0	0
9	ManenDsl	13.8	2	1.02	1.0242	36.56	1	1	1	0	0	0	1.05	0.95	0	0		0	0
10	TalofDsl	13.8	2	1.02	1.0273	38.39	1	1	1	0	0	0	1.05	0.95	0	0		0	0
11	TenjoDsl	13.8	2	1.02	0.9867	37.73	1	1	1	0	0	0	1.05	0.95	0	0		0	0
12	Cabras_3	13.8	2	1.007	0.9558	37.81	1	1	1	0	0	0	1.05	0.95	0	0		0	0
13	Cabras_4	13.8	2	1.007	0.9558	37.81	1	1	1	0	0	0	1.05	0.95	0	0		0	0
14	OrteUnts	13.8	2	1.02	1.0239	35.36	1	1	1	0	0	0	1.05	0.95	0	0		0	0
15	TEMES	13.8	2	0.9927	0.9755	37.33	1	1	1	0	0	0	1.05	0.95	0	0		0	0
16	MEC 8	13.8	2	1	0.9439	37.86	1	1	1	0	0	0	1.05	0.95	1	0		0	0
17	MEC 9	13.8	2	1	0.9439	37.86	1	1	1	0	0	0	1.05	0.95	1	0		0	0
201	Tangui_1	14.4	0	0.976	0.976	0	2	1	3	0	0	1	1.05	0.95	0	0		0	0
202	Tangui_2	14.4	0	0.976	0.976	0	3	1	3	0	0	1	1.05	0.95	0	0		0	0
205	Marbo CT	13.8	2	1.02	0.9955	37.17	1	1	3	0	0	0	1.05	0.95	0	0		0	0
208	Ded CT#1	13.8	2	1.02	0.9466	36.23	1	1	3	0	0	0	1.05	0.95	0	0		0	0
209	Ded CT#2	13.8	2	1.02	0.9466	36.23	1	1	3	0	0	0	1.05	0.95	0	0		0	0
210	Mache_CT	13.8	2	1.02	0.997	33.85	1	1	3	0	0	0	1.05	0.95	0	0		0	0
211	Yigo__CT	13.8	2	1.02	0.9589	32.18	1	1	3	0	0	0	1.05	0.95	0	0		0	0
1001	Cab115EB	115	1	1.02	1.0035	37.81	1	1	1	0	0	0	1.05	0.95	0	0		0	0
1005	Pit115B1	115	1	1.02	1.0035	37.86	1	1	1	0	0	0	1.05	0.95	0	0		0	0
1101	Aga115	115	1	1	1.0033	37.53	1	1	2	0	0	0	1.05	0.95	0	0		0	0
1103	Tam115B1	115	1	1	1.0031	37.46	1	1	2	0	0	0	1.05	0.95	0	0		0	0
1201	Har115B1	115	1	1	1.0027	37.5	1	1	3	0	0	0	1.05	0.95	0	0		0	0
2001	Cab345	34.5	1	1	0.9754	37.37	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2002	Pit345	34.5	1	1	0.9755	37.33	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2003	Tal345	34.5	1	1	1.0002	40.02	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2401	Hanwha_A	34.5	2	1.02	1.02	46.42	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2501	Mangilao_	34.5	2	0.98	0.98	39.69	1	1	1	0	0	0	1.05	0.95	1	0		0	0
2502	Mangilao_I	34.5	2	0.98	0.98	39.69	1	1	1	0	0	0	1.05	0.95	1	0		0	0
2402	Hanwha_B	34.5	2	1.02	1.02	46.42	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2004	Apr345	34.5	1	1	0.9916	37.91	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2005	Oro345	34.5	1	1	0.982	36.77	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2007	CSTapX20	34.5	1	1	0.9802	36.92	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2008	CldSt345	34.5	1	1	0.9776	36.83	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2009	SRF345	34.5	1	1	0.9816	36.76	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2010	CSTapX21	34.5	1	1	0.9781	36.85	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2011	Pul345	34.5	1	1	0.9835	37.81	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2012	Uma345	34.5	1	1	0.9935	37.38	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2014	Ten345	34.5	1	1	0.9867	37.73	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2017	Tenjotap	34.5	1	1	0.9867	37.73	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2018	Dandan	34.5	1	1.02	1.02	42.2	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2101	Aga345	34.5	1	1	0.9679	36.82	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2102	Bar345	34.5	1	1	0.971	36.55	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2103	RBa345B1	34.5	1	1	0.97	38.05	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2104	Tam345B1	34.5	1	1	0.9673	36.37	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2105	Tum345B1	34.5	1	1	0.9667	36.14	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2106	Ani345B1	34.5	1	1	0.97	36.75	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2108	SV345B1	34.5	1	1	0.9696	36.41	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2110	HafaTap	34.5	1	1	0.9675	36.37	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2219	Har345B1	34.5	1	1	0.984	36.4	1	1	3	0	0	0	1.05	0.95	0	0		0	0
2201	Tan345B1	34.5	0	1	1	0	4	1	3	0	0	1	1.05	0.95	0	0		0	0
2202	Har345B3	34.5	1	1	0.9736	36.45	1	1	3	0	0	0	1.05	0.95	0	0		0	0
2203	Ded345B1	34.5	1	1	0.9715	36.23	1	1	3	0	0	0	1.05	0.95	0	0		0	0

2204	Mar345B1	34.5	1	1	0.9706	37.17	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2208	NCS345	34.5	1	1	0.9766	36.05	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2209	Pott345	34.5	1	1	0.9742	35.94	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2210	And345B1	34.5	1	1	0.968	35.62	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2211	Mac345B1	34.5	1	1	0.9743	36.49	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2212	Pag345B1	34.5	1	1	0.9774	39.04	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2214	Yig345B1	34.5	1	1	0.9686	35.18	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2216	GAA345B1	34.5	1	1	0.9739	36.43	1	1	2	0	0	0	1.05	0.95	0	0	0	0
2217	GIA345B1	34.5	1	1	0.9741	36.41	1	1	2	0	0	0	1.05	0.95	0	0	0	0
2218	GiatTap	34.5	1	1	0.9746	36.4	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3001	Piti_T7	13.8	1	1.02	1.0208	36.06	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3002	Piti_T8	13.8	1	1.02	1.0243	37.33	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3003	TalofT80	13.8	1	1.02	1.0273	38.39	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3004	Apra T70	13.8	1	1.02	1.0213	36.36	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3005	OroteT11	13.8	1	1.02	1.0239	35.36	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3006	OroteT12	13.8	1	1.02	1.0228	36.44	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3007	CldST25	13.8	1	1.02	1.023	35.15	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3009	PulanT95	13.8	1	1.02	1.0242	36.56	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3011	UmatT120	13.8	1	1.02	1.0203	37.05	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3012	OroteT13	13.8	1	1.02	1.0245	35.17	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3013	OroteT10	13.8	1	1.02	1.0236	36.39	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3014	SRFT17	13.8	1	1.02	1.0202	36.33	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3015	SRFT18	13.8	1	1.02	1.0244	35.86	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3016	OroteT28	13.8	1	1.02	1.0249	36.74	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3101	Agana T9	13.8	1	1.02	1.0246	36.28	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3102	AganaT65	13.8	1	1.02	1.0238	33.45	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3103	BarriT75	13.8	1	1.02	1.0239	34.38	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3104	RadBaT23	13.8	1	1.02	1.0202	38.02	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3105	RadBaT24	13.8	1	1.02	1.0237	37.91	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3106	TamunT50	13.8	1	1.02	1.0202	34.26	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3107	TumonT60	13.8	1	1.02	1.0228	33.88	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3108	TamunT51	13.8	1	1.02	1.0207	33.78	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3109	TumonT61	13.8	1	1.02	1.0247	33.42	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3110	AnigT100	13.8	1	1.02	1.023	35.07	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3113	SanVT122	13.8	1	1.02	1.02	34.24	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3201	HarmnT21	13.8	1	1.02	1.0229	34.43	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3202	HarmnT22	13.8	1	1.02	1.0227	36.37	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3204	DededT55	13.8	1	1.02	1.0242	33.6	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3205	MarboT14	13.8	1	1.02	1.024	37.06	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3207	PotsT110	13.8	1	1.02	1.0253	35.05	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3208	AnderT15	13.8	1	1.02	1.0208	35.14	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3209	AnderT16	13.8	1	1.02	1.0213	34.98	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3210	MacheT90	13.8	1	1.02	0.997	33.85	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3211	PagaT115	13.8	1	1.02	1.0258	36.61	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3212	Yigo T30	13.8	1	1.02	0.9589	32.18	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3213	GAA T105	13.8	1	1.02	1.0216	34.87	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3300	Agrko13	12.02	1	1	0.9685	35.17	1	1	3	0	0	0	1.05	0.95	0	0	0	0
4001	CbrsStUp	4.16	1	1	0.9754	37.37	1	1	1	0	0	0	1.05	0.95	0	0	0	0
4201	NCS_T47	4.16	1	1.02	1.0232	35.81	1	1	3	0	0	0	1.05	0.95	0	0	0	0
4213	GIAT Trm	4.16	1	1.02	1.025	35.03	1	1	3	0	0	0	1.05	0.95	0	0	0	0
5201	TangoStr	2.4	0	1	1	0	5	1	3	0	0	1	1.05	0.95	0	0	0	0
6005	Aggreko	0.46	1	1.0435	0.9743	35.17	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2019	Dandan_P\	0.48	2	1.02	1.0077	46.27	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2020	Dandan_W	0.68	2	1.02	0.9951	42.2	1	1	1	0	0	0	1.05	0.95	1	0	0	0

2403	Hanwha_P	0.55	2	1.02	1.022	49.44	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2404	Hanwha_P	0.55	2	1.02	1.022	49.44	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2405	Hanwha_E	0.55	2	1.02	1.0253	46.42	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2406	Hanwha_E	0.55	2	1.02	1.0253	46.42	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2503	KEPCO_PV	0.48	2	1.02	0.9848	43.31	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2504	KEPCO_PV	0.48	2	1.02	0.9848	43.31	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2505	KEPCO_ESS	0.48	2	1.02	0.9809	39.68	1	1	1	0	0	0	1.05	0.95	1	0	0	0
4202	SF ESS	0.48	2	1	1.0193	36.19	1	1	1	0	0	0	1.05	0.95	1	0	0	0
4005	Orote ESS	0.48	2	1	1.0185	36.55	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2506	KEPCO_ESS	0.48	2	1.02	0.9809	39.68	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2701	Apra_115	115	2	1	1.0031	38.67	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2407	HanwhaA_	115	2	1	1.0061	39.76	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2408	HanwhaB_	115	2	1	1.0061	39.76	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2111	AgESS345	34.5	2	1	0.9679	36.82	1	1	1	0	0	0	1.05	0.95	1	0	0	0
3111	AgESS440	0.44	2	1	0.9679	36.82	1	1	1	0	0	0	1.05	0.95	1	0	0	0
3203	TaESS440	0.44	2	1	1	40.02	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2507	Mangilao	34.5	2	1	0.98	39.69	1	1	1	0	0	0	1.05	0.95	1	0	0	0
19	HAR_CT1	13.8	0	1.02	1.02	39.2	1	1	1	0	0	0	1.05	0.95	1	0	0	0
20	HAR_CT2	13.8	2	1.02	1.02	39.22	1	1	1	0	0	0	1.05	0.95	1	0	0	0
22	HAR_CT3	13.8	2	1.02	1.0027	37.5	1	1	1	0	0	0	1.05	0.95	1	0	0	0
21	HAR_ST	13.8	2	1.02	1.0027	37.5	1	1	1	0	0	0	1.05	0.95	1	0	0	0

BUS-NO	NAME1	KV1	ID	ST	BL	CM	QTAB	PGEN	QGEN	QMAX	QMIN	PF	QMX	QMN	IREG	NAME2	KV2	QRF	VSCHED	V-ACT	AR	ZON	PRF	MBASE	PMAX	PMAX2	PMIN	YI	MI	DI	YO	MO	DO	OWN	LID
1	Cabras_1	13.8	1	0	0	0	0	45	34.8	41	-28	0	41	-28	1	Cabras_1	13.8	1	1.0145	0.9599	1	1	1	78	66	0	25	90	1	1	89	12	31	0	
2	Cabras_2	13.8	1	0	0	0	0	57.9	16.5	41	-28	0	41	-28	2	Cabras_2	13.8	1	1.007	0.9599	1	1	1	78	66	0	25	90	1	1	89	12	31	0	
9	ManenDsl	13.8	1	0	0	0	0	3.5	-1.3	3	-4.7	0	3	-4.7	9	ManenDsl	13.8	1	1.02	1.0242	1	1	1	7.3	5	0	0	90	1	1	89	12	31	0	
9	ManenDsl	13.8	2	0	0	0	0	2.8	2.2	3	-4.7	0	3	-4.7	9	ManenDsl	13.8	1	1.02	1.0242	1	1	1	7.3	5	0	0	90	1	1	89	12	31	0	
10	TalofDsl	13.8	1	0	0	0	0	2.4	-0.9	2	-4.7	0	2	-4.7	10	TalofDsl	13.8	1	1.02	1.0273	1	1	1	5	4.4	0	0	90	1	1	89	12	31	0	
10	TalofDsl	13.8	2	0	0	0	0	2.5	-0.9	2	-4.7	0	2	-4.7	10	TalofDsl	13.8	1	1.02	1.0273	1	1	1	5	4.4	0	0	90	1	1	89	12	31	0	
11	TenjoDsl	13.8	1	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9867	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	2	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9867	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	3	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9867	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	4	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9867	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	5	0	0	0	0	3.4	1.4	1.5	-1.5	0	1.5	-1.5	11	TenjoDsl	13.8	1	1.02	0.9867	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	6	0	0	0	0	3.4	1.4	1.5	-1.5	0	1.5	-1.5	11	TenjoDsl	13.8	1	1.02	0.9867	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
12	Cabras_3	13.8	1	0	0	0	0	0	10.4	22	-15	0	22	-15	12	Cabras_3	13.8	1	1.007	0.9558	1	1	1	49	38.4	0	22	90	1	1	89	12	31	0	
13	Cabras_4	13.8	1	0	0	0	0	0	10.4	20	-15	0	20	-15	13	Cabras_4	13.8	1	1.007	0.9558	1	1	1	49	38.4	0	22	90	1	1	89	12	31	0	
14	OrteUnts	13.8	1	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0239	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0	
14	OrteUnts	13.8	2	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0239	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0	
14	OrteUnts	13.8	3	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0239	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0	
15	TEMES	13.8	1	0	0	0	0	8.3	8.7	27	-10	0	27	-10	15	TEMES	13.8	1	0.9927	0.9755	1	1	1	50.3	40	0	0	95	11	1	89	12	31	0	
16	MEC 8	13.8	1	0	0	0	0	0	15.4	21	-10	0	21	-10	16	MEC 8	13.8	1	1	0.9439	1	1	1	30	44.2	0	22	99	1	1	89	12	31	0	
17	MEC 9	13.8	1	0	0	0	0	43.8	20	35	-10	0	35	-10	17	MEC 9	13.8	1	1	0.9439	1	1	1	51.9	44.2	0	22	95	11	1	89	12	31	0	
201	Tangui_1	14.4	1	0	0	0	0	0	0.3	15	-12	0	15	-12	201	Tangui_1	14.4	1	0.976	0.976	1	3	1	29	25	0	0	90	1	1	89	12	31	0	
202	Tangui_2	14.4	1	0	0	0	0	0	3.2	16	-12.6	0	16	-12.6	202	Tangui_2	14.4	1	0.976	0.976	1	3	1	29	25	0	0	90	1	1	89	12	31	0	
208	Ded CT#1	13.8	1	0	0	0	0	20	12.5	12.5	-10	0	12.5	-10	208	Ded CT#1	13.8	1	1.02	0.9466	1	3	1	26	20	0	19	90	1	1	89	12	31	0	
209	Ded CT#2	13.8	1	0	0	0	0	20	3.9	12.5	-10	0	12.5	-10	209	Ded CT#2	13.8	1	1.02	0.9466	1	3	1	26	20	0	0	90	1	1	89	12	31	0	
210	Mache_CT	13.8	1	0	0	0	0	20	-1.8	13.4	-10.5	0	13.4	-10.5	210	Mache_CT	13.8	1	1.02	0.997	1	3	1	26	20	0	0	90	1	1	89	12	31	0	
211	Yigo__CT	13.8	1	0	0	0	0	-72.2	38.3	13.6	-9.7	0	13.6	-9.7	211	Yigo__CT	13.8	1	1.02	0.9589	1	3	1	26	21	0	0	90	1	1	89	12	31	0	
6005	Aggreko	0.46	1	0	0	0	0	39.8	6.2	7	0	0	7	0	6005	Aggreko	0.46	1	1.0435	0.9743	1	3	1	50	40	0	0	90	1	1	89	12	31	0	
2019	Dandan_PV	0.48	1	1	0	0	0	25	4.2	6.6	-6.6	0	6.6	-6.6	2018	Dandan	34.5	1	1.02	1.02	1	1	1	26	25	0	0	40	1	1	39	12	31	0	
2403	Hanwha_PV	0.55	1	1	0	0	0	30	1.9	21	-21	0	21	-21	2401	Hanwha_A	34.5	1	1.02	1.02	1	1	1	31.5	30	0	0	40	1	1	89	12	31	0	
2404	Hanwha_PV	0.55	1	1	0	0	0	30	1.9	21	-21	0	21	-21	2402	Hanwha_B	34.5	1	1.02	1.02	1	1	1	31.5	30	0	0	40	1	1	89	12	31	0	
2405	Hanwha_ES	0.55	1	1	0	0	0	0	1.9	13.5	-13.5	0	13.5	-13.5	2401	Hanwha_A	34.5	1	1.02	1.02	1	1	1	20.3	20	0	-20	40	1	1	89	12	31	0	
2406	Hanwha_ES	0.55	1	1	0	0	0	0	1.9	13.5	-13.5	0	13.5	-13.5	2402	Hanwha_B	34.5	1	1.02	1.02	1	1	1	20.3	20	0	-20	40	1	1	89	12	31	0	
2503	KEPCO_PV2	0.48	1	1	0	0	0	30	0.3	10	-10	0	10	-10	2501	Mangilao_A	34.5	1	0.98	0.98	1	1	1	30.8	30	0	0	40	1	1	89	12	31	0	
2504	KEPCO_PV2	0.48	1	1	0	0	0	30	0.3	10	-10	0	10	-10	2502	Mangilao_B	34.5	1	0.98	0.98	1	1	1	30.8	30	0	0	40	1	1	89	12	31	0	
2505	KEPCO_ESS	0.48	1	1	0	0	0	0	0.3	5.8	-5.8	0	5.8	-5.8	2501	Mangilao_A	34.5	1	0.98	0.98	1	1	1	17.6	16	0	-16	40	1	1	89	12	31	0	
4202	SF ESS	0.48	1	1	0	0	0	0	9.8	9.8	-9.8	0	9.8	-9.8	2219	Har345B1	34.5	1	1	0.984	1	1	1	18	16.2	0	0	0	0	0	0	0	0	0	
4005	Orote ESS	0.48	1	1	0	0	0	0	14.3	14.3	-14.3	0	14.3	-14.3	2219	Har345B1	34.5	1	1	0.984	1	1	1	26.4	23.8	0	0	0	0	0	0	0	0	0	
2506	KEPCO_ESS	0.48	1	1	0	0	0	0	0.3	5.8	-5.8	0	5.8	-5.8	2502	Mangilao_B	34.5	1	0.98	0.98	1	1	1	17.6	16	0	-16	40	1	1	89	12	31	0	
3111	AgESS440	0.44	1	1	0	0	0	0	0	0	0	0	0	0	3111	AgESS440	0.44	1	1	0.9679	1	1	1	24	24	0	0	40	1	1	89	12	31	0	
3203	TaESS440	0.44	1	1	0	0	0	0	-0.1	4	-4	0	4	-4	3203	TaESS440	0.44	1	1	1	1	1	1	16	16	0	0	40	1	1	89	12	31	0	
19	HAR_CT1	13.8	1	1	0	0	0	16.4	9.6	31.6	-31.6	0	31.6	-31.6	19	HAR_CT1	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0	
20	HAR_CT2	13.8	1	1	0	0	0	16.5	9.6	31.6	-31.6	0	31.6	-31.6	20	HAR_CT2	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0	
22	HAR_CT3	13.8	1	0	0	0	0	6.1	8.5	31.6	-31.6	0	31.6	-31.6	22	HAR_CT3	13.8	1	1.02	1.0027	1	1	1	71	50	0	0	40	1	1	89	12	31	0	
21	HAR_ST	13.8	1	0	0	0	0	3.6	11.6	19	-16.8	0	19	-16.8	21	HAR_ST	13.8	1	1.02	1.0027	1	1	1	54	30	0	0	40	1	1	89	12	31	0	

BUS-NO	NAME	KV	ID	ST	PLOAD	QLOAD	IPLOD	IQLOD	GLOAD	BLOAD	Stdg	Pdgen	Qdgen	NON-CONF	AREA	ZONE	PMOTR	QMOTR	YI	MI	DI	YO	MO	DO	OWN	Long_ID
1	Cabras_1	13.8	1	0	1.83	1.63	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
2	Cabras_2	13.8	1	0	2.8	1.86	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
9	ManenDsl	13.8	1	0	0.08	0.08	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
10	TalofDsl	13.8	1	0	0.09	0.08	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
11	TenjoDsl	13.8	1	0	0.27	0.25	0	0	0	0	0	0	0	0	1	1	0	0	98	6	6	89	6	6	0	1
11	TenjoDsl	13.8	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	98	6	6	89	6	6	0	1
12	Cabras_3	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
13	Cabras_4	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
15	TEMES	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
16	MEC 8	13.8	1	0	1.17	0.83	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
17	MEC 9	13.8	1	0	0.76	0.66	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
19	HAR_CT1	13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
20	HAR_CT2	13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
21	HAR_ST	13.8	1	0	1.05	0.52	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
22	HAR_CT3	13.8	1	0	1.75	0.88	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
201	Tangui_1	14.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
202	Tangui_2	14.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
208	Ded CT#1	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
209	Ded CT#2	13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
210	Mache_CT	13.8	1	0	0.1	-0.05	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
211	Yigo__CT	13.8	1	0	0.08	0.04	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3300	Agrko13	12.02	1	1	0.07	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3012	OroteT13	13.8	1	1	4.34	3.3	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3013	OroteT10	13.8	1	1	0.96	0.2	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3014	SRFT17	13.8	1	1	1.07	0.61	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3015	SRFT18	13.8	1	1	2.23	1.69	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3016	OroteT28	13.8	1	1	0.07	0.01	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3207	PotsT110	13.8	1	1	0.74	0.4	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
4001	CbrsStUp	4.16	1	0	0.23	0.21	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
4213	GIAT Trm	4.16	1	1	2.52	1.41	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
2005	Oro345	34.5	1	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
5201	TangoStr	2.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3001	Piti T7	13.8	5	1	1.12	-0.17	0	0	0	0	1	0.26	0	0	1	1	0	0	40	1	1	39	12	31	0	
3001	Piti T7	13.8	7	1	0.47	-0.07	0	0	0	0	1	0.04	0	0	1	1	0	0	40	1	1	39	12	31	0	
3001	Piti T7	13.8	3	1	0.8	-0.12	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8	13.8	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8	13.8	2	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8	13.8	6	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80	13.8	61	1	2.09	0.13	0	0	0	0	1	0.23	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80	13.8	62	1	2.87	0.18	0	0	0	0	1	0.74	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80	13.8	60	1	0.52	0.03	0	0	0	0	1	0.03	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	21	1	3.01	-0.04	0	0	0	0	1	0.39	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	23	1	1.63	-0.02	0	0	0	0	1	0.41	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	20	1	0.41	-0.01	0	0	0	0	1	0.1	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70	13.8	22	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11	13.8	15	1	1.27	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11	13.8	13	1	1.27	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11	13.8	14	1	1.27	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3006	OroteT12	13.8	30	1	0.44	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3006	OroteT12	13.8	29	1	0.44	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25	13.8	35	1	1.42	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25	13.8	33	1	1.42	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25	13.8	34	1	1.42	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	94	1	1.67	0.06	0	0	0	0	1	0.8	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	1	1	0.55	0.02	0	0	0	0	1	0.16	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	90	1	0.28	0.01	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	98	1	0.74	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	92	1	0.02	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95	13.8	95	1	2.67	0.09	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3011	UmatT120	13.8	40	1	1.02	-0.31	0	0	0	0	1	0.38	0	0	1	1	0	0	40	1	1	39	12	31	0	
3011	UmatT120	13.8	41	1	0.65	-0.2	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3101	Agana T9	13.8	26	1	1.81	0.52	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	50	1	5.52	0.73	0	0	0	0	1	0.74	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	51	1	2.11	0.28	0	0	0	0	1	0.13	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	52	1	3.58	0.48	0	0	0	0	1	0.36	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65	13.8	53	1	3.82	0.51	0	0	0	0	1	0.4	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75	13.8	12	1	3.08	0.3	0	0	0	0	1	0.68	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75	13.8	10	1	3.81	0.37	0	0	0	0	1	0.37	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75	13.8	13	1	1.95	0.19	0	0	0	0	1	0.14	0	0	1	1	0	0	40	1	1	39	12	31	0	
3104	RadBaT23	13.8	41	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3104	RadBaT23	13.8	44	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	

3104	RadBaT23	13.8	49	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3104	RadBaT23	13.8	43	1	0.02	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105	RadBaT24	13.8	47	1	0.11	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105	RadBaT24	13.8	46	1	0.11	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105	RadBaT24	13.8	48	1	0.11	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3106	TamunT50	13.8	1	1	2.79	0.32	0	0	0	0	1	0.04	0	0	1	1	0	0	40	1	1	39	12	31	0
3106	TamunT50	13.8	5	1	3.79	0.44	0	0	0	0	1	0.03	0	0	1	1	0	0	40	1	1	39	12	31	0
3106	TamunT50	13.8	6	1	0.77	0.09	0	0	0	0	1	0.01	0	0	1	1	0	0	40	1	1	39	12	31	0
3107	TumonT60	13.8	40	1	3.72	1.03	0	0	0	0	1	0.05	0	0	1	1	0	0	40	1	1	39	12	31	0
3107	TumonT60	13.8	41	1	2.43	0.67	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3107	TumonT60	13.8	42	1	3.03	0.84	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3108	TamunT51	13.8	2	1	1.71	0.33	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3108	TamunT51	13.8	4	1	2.45	0.47	0	0	0	0	1	0.1	0	0	1	1	0	0	40	1	1	39	12	31	0
3108	TamunT51	13.8	3	1	3.95	0.76	0	0	0	0	1	0.36	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	44	1	1.43	0.31	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	45	1	4.04	0.88	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	46	1	1.76	0.38	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3109	TumonT61	13.8	43	1	1.43	0.31	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	80	1	1.09	-0.02	0	0	0	0	1	0.25	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	82	1	2.27	-0.03	0	0	0	0	1	0.02	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	83	1	2.2	-0.03	0	0	0	0	1	0.42	0	0	1	1	0	0	40	1	1	39	12	31	0
3110	AnigT100	13.8	81	1	1.7	-0.02	0	0	0	0	1	0.12	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	2	1	1.36	0.68	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	4	1	0.78	0.39	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	3	1	5.48	2.74	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113	SanVT122	13.8	1	1	0.92	0.46	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	11	1	4.6	1.71	0	0	0	0	1	0.05	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	46	1	3.62	1.34	0	0	0	0	1	0.16	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	47	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201	HarmnT21	13.8	12	1	0.08	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3202	HarmnT22	13.8	14	1	0.04	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3202	HarmnT22	13.8	45	1	0.04	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3204	DededT55	13.8	89	1	3.29	-0.01	0	0	0	0	1	0.35	0	0	1	1	0	0	40	1	1	39	12	31	0
3204	DededT55	13.8	88	1	4.43	-0.02	0	0	0	0	1	0.51	0	0	1	1	0	0	40	1	1	39	12	31	0
3204	DededT55	13.8	87	1	2.89	-0.01	0	0	0	0	1	0.8	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	51	1	0.08	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	52	1	0.08	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	53	1	0.08	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205	MarboT14	13.8	54	1	0.08	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	63	1	0.79	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	66	1	0.79	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	65	1	0.79	0.29	0	0	0	0	1	0.87	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	68	1	0.78	0.29	0	0	0	0	1	0.59	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	67	1	0.79	0.29	0	0	0	0	1	0.06	0	0	1	1	0	0	40	1	1	39	12	31	0
3208	AnderT15	13.8	62	1	0.78	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209	AnderT16	13.8	93	1	1.5	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209	AnderT16	13.8	91	1	1.5	0.24	0	0	0	0	1	0.22	0	0	1	1	0	0	40	1	1	39	12	31	0
3209	AnderT16	13.8	94	1	1.5	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3210	MacheT90	13.8	72	1	1.8	-0.06	0	0	0	0	1	0.19	0	0	1	1	0	0	40	1	1	39	12	31	0
3210	MacheT90	13.8	71	1	4.11	-0.14	0	0	0	0	1	0.06	0	0	1	1	0	0	40	1	1	39	12	31	0
3210	MacheT90	13.8	70	1	3.58	-0.12	0	0	0	0	1	0.25	0	0	1	1	0	0	40	1	1	39	12	31	0
3211	PagaT115	13.8	23	1	2.82	0.53	0	0	0	0	1	0.25	0	0	1	1	0	0	40	1	1	39	12	31	0
3211	PagaT115	13.8	22	1	4.52	0.86	0	0	0	0	1	0.64	0	0	1	1	0	0	40	1	1	39	12	31	0
3211	PagaT115	13.8	21	1	3.33	0.63	0	0	0	0	1	0.21	0	0	1	1	0	0	40	1	1	39	12	31	0
3212	Yigo T30	13.8	31	1	4.72	1.47	0	0	0	0	1	0.61	0	0	1	1	0	0	40	1	1	39	12	31	0
3212	Yigo T30	13.8	32	1	4.22	1.31	0	0	0	0	1	0.26	0	0	1	1	0	0	40	1	1	39	12	31	0
3212	Yigo T30	13.8	30	1	4.07	1.27	0	0	0	0	1	0.43	0	0	1	1	0	0	40	1	1	39	12	31	0
3213	GAA T105	13.8	10	1	2.21	-0.07	0	0	0	0	1	0.16	0	0	1	1	0	0	40	1	1	39	12	31	0
3213	GAA T105	13.8	11	1	3.21	-0.09	0	0	0	0	1	0.44	0	0	1	1	0	0	40	1	1	39	12	31	0
3213	GAA T105	13.8	12	1	1.35	-0.04	0	0	0	0	1	0.06	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	1	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	2	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	3	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201	NCS T47	4.16	4	1	0.05	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	ST	G-PU	B-PU	SVD	SNAME	SKV	SID	STSW	AREA	ZONE	YI	MI	DI	YO	MO	DO	OWN	LID
3003	TalofT80	13.8	0			0 b			1	0	0	0.03	0		0		0	1	1	90	1	1	89	12	31	0
3109	TumonT61	13.8	0			0 b			1	1	0	0.03	0		0		0	1	2	90	1	1	89	12	31	0
3208	AnderT15	13.8	0			0 b			1	1	0	0.03	0		0		0	1	3	90	1	1	89	12	31	0
3209	AnderT16	13.8	0			0 b			1	1	0	0	0		0		0	1	3	90	1	1	89	12	31	0
3212	Yigo T30	13.8	0			0 b			1	1	0	0.03	0		0		0	1	3	40	1	1	39	12	31	0
3113	SanVT122	13.8	0			0 b			1	0	0	0.03	0		0		0	1	2	90	1	1	89	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	CK	ST	T	TCULTAP	ANGLP	REG	RNAME	RKV	VACT	VMAX	VMIN	STEPP	TMAX	TMIN	TAPFP	TAPFS	AREA	ZONE
1001	Cab115EB	115	1	Cabras_1	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1001	Cab115EB	115	2	Cabras_2	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
2004	Apr345	34.5	2701	Apra_115	115	1	1	0	1	0	0		0	0	0	0	0	1.1	0.9	1	1	1	2
2014	Ten345	34.5	11	TenjoDsl	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1001	Cab115EB	115	12	Cabras_3	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.05	1	1	1
1001	Cab115EB	115	13	Cabras_4	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.05	1	1	1
2002	Pit345	34.5	15	TEMES	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1005	Pit115B1	115	16	MEC 8	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.0632	1	1	1
1005	Pit115B1	115	17	MEC 9	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.0632	1	1	1
2201	Tan345B1	34.5	201	Tangui_1	14.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	0.9524	1	1	3
2201	Tan345B1	34.5	202	Tangui_2	14.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	0.9524	1	1	3
2203	Ded345B1	34.5	209	Ded CT#2	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	0.95	1	3
2203	Ded345B1	34.5	208	Ded CT#1	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	0.95	1	3
2204	Mar345B1	34.5	205	Marbo CT	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	3
2001	Cab345	34.5	1001	Cab115EB	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96869	1	1	1
2002	Pit345	34.5	1005	Pit115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96869	1	1	1
2101	Aga345	34.5	1101	Aga115	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	1	1	2
2104	Tam345B1	34.5	1103	Tam115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	1	1	3
2202	Har345B3	34.5	1201	Har115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96246	0.975	1	3
2219	Har345B1	34.5	1201	Har115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	0.975	1	3
2001	Cab345	34.5	4001	CbrsStUp	4.16	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
3001	Piti T7	13.8	2002	Pit345	34.5	1	1	2	1.04375	0	3001	Piti T7	13.8	1.0208	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3002	Piti T8	13.8	2002	Pit345	34.5	1	1	2	1.05	0	3002	Piti T8	13.8	1.0243	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3003	TalofT80	13.8	2003	Tal345	34.5	1	1	2	1.03125	0	3003	TalofT80	13.8	1.0273	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3004	Apra T70	13.8	2004	Apr345	34.5	1	1	2	1.03125	0	3004	Apra T70	13.8	1.0213	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3005	OroteT11	13.8	2005	Oro345	34.5	1	1	2	1.05625	0	3005	OroteT11	13.8	1.0239	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3006	OroteT12	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3006	OroteT12	13.8	1.0228	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3012	OroteT13	13.8	2005	Oro345	34.5	1	1	2	1.06875	0	3012	OroteT13	13.8	1.0245	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3013	OroteT10	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3013	OroteT10	13.8	1.0236	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3014	SRFT17	13.8	2009	SRF345	34.5	1	1	2	1.04375	0	3014	SRFT17	13.8	1.0202	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3015	SRFT18	13.8	2009	SRF345	34.5	1	1	2	1.05625	0	3015	SRFT18	13.8	1.0244	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3007	CldST25	13.8	2008	CldSt345	34.5	1	1	2	1.0375	0	3007	CldST25	13.8	1.023	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	1
3009	PulanT95	13.8	2011	Pul345	34.5	1	1	2	1.04375	0	3009	PulanT95	13.8	1.0242	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3011	UmatT120	13.8	2012	Uma345	34.5	1	1	2	1.025	0	3011	UmatT120	13.8	1.0203	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3101	Agana T9	13.8	2101	Aga345	34.5	1	1	2	1.0625	0	3101	Agana T9	13.8	1.0246	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3102	AganaT65	13.8	2101	Aga345	34.5	1	1	2	1.075	0	3102	AganaT65	13.8	1.0238	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3103	BarriT75	13.8	2102	Bar345	34.5	1	1	2	1.0625	0	3103	BarriT75	13.8	1.0239	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3104	RadBaT23	13.8	2103	RBa345B1	34.5	1	1	2	1	0	3104	RadBaT23	13.8	1.0202	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	2
3105	RadBaT24	13.8	2103	RBa345B1	34.5	1	1	2	1.00625	0	3105	RadBaT24	13.8	1.0237	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	2
3106	TamunT50	13.8	2104	Tam345B1	34.5	1	1	2	1.0625	0	3106	TamunT50	13.8	1.0202	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3108	TamunT51	13.8	2104	Tam345B1	34.5	1	1	2	1.06875	0	3108	TamunT51	13.8	1.0207	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3107	TumonT60	13.8	2105	Tum345B1	34.5	1	1	2	1.075	0	3107	TumonT60	13.8	1.0228	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3109	TumonT61	13.8	2105	Tum345B1	34.5	1	1	2	1.05625	0	3109	TumonT61	13.8	1.0247	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3110	AnigT100	13.8	2106	Ani345B1	34.5	1	1	2	1.05625	0	3110	AnigT100	13.8	1.023	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3113	SanVT122	13.8	2108	SV345B1	34.5	1	1	2	1.075	0	3113	SanVT122	13.8	1.02	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
2201	Tan345B1	34.5	5201	TangoStr	2.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	3
3201	HarmnT21	13.8	2219	Har345B1	34.5	1	1	2	1.05625	0	3201	HarmnT21	13.8	1.0229	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3202	HarmnT22	13.8	2219	Har345B1	34.5	1	1	2	0.9875	0	3202	HarmnT22	13.8	1.0227	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	3
3016	OroteT28	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3016	OroteT28	13.8	1.0249	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3204	DededT55	13.8	2203	Ded345B1	34.5	1	1	2	1.03125	0	3204	DededT55	13.8	1.0242	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3205	MarboT14	13.8	2204	Mar345B1	34.5	1	1	2	1.05625	0	3205	MarboT14	13.8	1.024	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
4201	NCS T47	4.16	2208	NCS345	34.5	1	1	2	1	0	4201	NCS T47	4.16	1.0232	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	3
3207	PotsT110	13.8	2209	Pott345	34.5	1	1	2	1.0625	0	3207	PotsT110	13.8	1.0253	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3208	AnderT15	13.8	2210	And345B1	34.5	1	1	2	1.025	0	3208	AnderT15	13.8	1.0208	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3209	AnderT16	13.8	2210	And345B1	34.5	1	1	2	1.03125	0	3209	AnderT16	13.8	1.0213	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3210	MacheT90	13.8	2211	Mac345B1	34.5	1	1	1	1	0	3210	MacheT90	13.8	0.997	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3211	PagaT115	13.8	2212	Pag345B1	34.5	1	1	2	1.0625	0	3211	PagaT115	13.8	1.0258	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3212	Yigo T30	13.8	2214	Yig345B1	34.5	1	1	1	1	0	3212	Yigo T30	13.8	0.9589	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3213	GAA T105	13.8	2216	GAA345B1	34.5	1	1	2	1.05	0	3213	GAA T105	13.8	1.0216	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
4213	GIAT Trm	4.16	2217	GIA345B1	34.5	1	1	2	1.06875	0	4213	GIAT Trm	4.16	1.025	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3300	Agrko13	12.02	2214	Yig345B1	34.5	1	1	1	1	0	0		0	0	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
6005	Aggreko	0.46	3300	Agrko13	12.02	1	1	1	1	0	0		0	0	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
2018	Dandan	34.5	2019	Dandan_P\	0.48	1	1	1	1.025	0	0		0	0	1.1	0.9	0.00625	1.1	0.9	1	1	1	1

2018	Dandan	34.5	2020	Dandan_W	0.68	1	1	1	1.025	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2401	Hanwha_A	34.5	2403	Hanwha_P	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2402	Hanwha_B	34.5	2404	Hanwha_P	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2401	Hanwha_A	34.5	2405	Hanwha_E	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2402	Hanwha_B	34.5	2406	Hanwha_E	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2501	Mangilao_	34.5	2503	KEPCO_PV	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2502	Mangilao_	34.5	2504	KEPCO_PV	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2501	Mangilao_	34.5	2505	KEPCO_ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2502	Mangilao_	34.5	2506	KEPCO_ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2219	Har345B1	34.5	4202	SF ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2005	Oro345	34.5	4005	Orote ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2407	HanwhaA_	115	2401	Hanwha_A	34.5	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2408	HanwhaB_	115	2402	Hanwha_B	34.5	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2111	AgESS345	34.5	3111	AgESS440	0.44	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2003	Tal345	34.5	3203	TaESS440	0.44	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
1201	Har115B1	115	19	HAR_CT1	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	20	HAR_CT2	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	22	HAR_CT3	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	21	HAR_ST	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1

FROM	FNAME	FKV	TO	TNAME	TKV	CK	S	MVA	VNOMF	VNOMT	(--R	X--)	BMAG	TZ	MVA1	MVA2	MVA3	MVA4	ALOSS	TERT	TERNAME	TERKV	WCANGL	AREA	AF	AT	ZONE	ZF	ZT	YI	MI	DI	YO	MO	DO	OWN	LID
1001	Cab115EB	115	1	Cabras_1	13.8	1	1	80	115	13.2	0.0044	0.1	0	0	80	80	80	80	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
1001	Cab115EB	115	2	Cabras_2	13.8	1	1	80	115	13.2	0.0044	0.0986	0	0	80	80	80	80	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
2004	Apr345	34.5	2701	Apra_115	115	1	1	50	34.5	115	0.003	0.0606	0	0	50	50	50	50	0	0			0	0	1	1	1	2	1	1	0	0	0	0	0	0	0
2014	Ten345	34.5	11	TenjoDsl	13.8	1	1	18	34.5	13.8	0.0038	0.0764	0	0	18	18	24	30	1	0			0	0	1	1	1	1	1	1	97	9	1	89	12	31	0
1001	Cab115EB	115	12	Cabras_3	13.8	1	1	37.5	115	13.8	0.0043	0.0861	0	0	37.5	37.5	50	50	1	0			0	0	1	1	1	1	1	1	95	9	30	89	12	31	0
1001	Cab115EB	115	13	Cabras_4	13.8	1	1	37.5	115	13.8	0.0043	0.0866	0	0	37.5	37.5	50	50	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0
2002	Pit345	34.5	15	TEMES	13.8	1	1	44	34.5	13.8	0.0051	0.1017	0	0	44	44	59	59	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0
1005	Pit115B1	115	16	MEC 8	13.8	1	1	30	115	13.8	0.006	0.121	0	0	56	56	56	56	1	0			0	0	1	1	1	1	1	1	99	1	1	89	12	31	0
1005	Pit115B1	115	17	MEC 9	13.8	1	1	56	115	13.8	0.0061	0.1212	0	0	56	56	56	56	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0
2201	Tan345B1	34.5	201	Tangui_1	14.4	1	0	18	36.1	13.8	0.0034	0.0687	0	0	18	24	30	33.6	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2201	Tan345B1	34.5	202	Tangui_2	14.4	1	0	18	36.1	13.8	0.0028	0.0563	0	0	18	24	30	33.6	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2203	Ded345B1	34.5	209	Ded CT#2	13.8	1	1	18	34.5	13.8	0.0039	0.0782	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2203	Ded345B1	34.5	208	Ded CT#1	13.8	1	1	18	34.5	13.8	0.0039	0.0775	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2204	Mar345B1	34.5	205	Marbo CT	13.8	1	1	12	34.5	13.8	0.0038	0.0769	0	0	12	12	16	20	1	0			0	0	1	1	1	3	3	3	40	1	1	39	12	31	0
2001	Cab345	34.5	1001	Cab115EB	115	1	1	60	34.5	115	0.0031	0.0617	0	0	60	80	100	112	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
2002	Pit345	34.5	1005	Pit115B1	115	1	1	60	34.5	115	0.0021	0.0802	0	0	60	60	80	100	1	0			0	0	1	1	1	1	1	1	2	9	1	89	12	31	0
2101	Aga345	34.5	1101	Aga115	115	1	1	60	34.5	115	0.003	0.0606	0	0	60	80	100	112	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
2104	Tam345B1	34.5	1103	Tam115B1	115	1	1	60	34.5	115	0.0025	0.0789	0	0	60	80	100	112	1	0			0	0	1	1	1	3	2	2	90	1	1	89	12	31	0
2202	Har345B3	34.5	1201	Har115B1	115	1	1	112	34.5	115	0.003	0.1413	0	0	80	80	100	112	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2219	Har345B1	34.5	1201	Har115B1	115	1	1	60	34.5	115	0.0029	0.0607	0	0	60	80	100	112	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2001	Cab345	34.5	4001	CbrStUp	4.16	1	1	5	34.5	4.2	0.0059	0.0592	0	0	5	5	7	7	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3001	Piti T7	13.8	2002	Pit345	34.5	1	1	7.5	13.8	34.5	0.0038	0.0756	0	0	7.5	8.4	9.7	10.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3002	Piti T8	13.8	2002	Pit345	34.5	1	1	7.5	13.8	34.5	0.0038	0.0762	0	0	7.5	8.4	9.7	10.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3003	TaloffT80	13.8	2003	Tal345	34.5	1	1	10	13.8	34.5	0.0032	0.0639	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3004	Apra T70	13.8	2004	Apr345	34.5	1	1	10	13.8	34.5	0.0032	0.0639	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3005	OroteT11	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0031	0.0628	0	0	10	10	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3006	OroteT12	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0032	0.0638	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3012	OroteT13	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0031	0.0629	0	0	10	10	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3013	OroteT10	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0	0.0667	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3014	SRFT17	13.8	2009	SRF345	34.5	1	1	10	13.8	34.5	0	0.0665	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3015	SRFT18	13.8	2009	SRF345	34.5	1	1	10	13.8	34.5	0	0.0671	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3007	CldST25	13.8	2008	CldSt345	34.5	1	1	10	13.8	34.5	0	0.068	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3009	PulanT95	13.8	2011	Pul345	34.5	1	1	18	13.8	34.5	0.0041	0.0765	0	0	18	18	24	20	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3011	UmatT120	13.8	2012	Uma345	34.5	1	1	18	13.8	34.5	0.0039	0.0776	0	0	18	18	24	30	1	0			0	0	1	1	1	1	1	1	97	9	1	89	12	31	0
3101	Agana T9	13.8	2101	Aga345	34.5	1	1	12	13.8	34.5	0.0054	0.0601	0	0	12	12	16	20	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3102	AganaT65	13.8	2101	Aga345	34.5	1	1	18	13.8	34.5	0.0068	0.0737	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3103	BarriT75	13.8	2102	Bar345	34.5	1	1	15	13.8	34.5	0.0047	0.0698	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3104	RadBaT23	13.8	2103	RBa345B1	34.5	1	1	7.5	13.8	34.5	0.0033	0.0651	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3105	RadBaT24	13.8	2103	RBa345B1	34.5	1	1	7.5	13.8	34.5	0.0033	0.0655	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3106	TamunT50	13.8	2104	Tam345B1	34.5	1	1	15	13.8	34.5	0.0046	0.0709	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3108	TamunT51	13.8	2104	Tam345B1	34.5	1	1	15	13.8	34.5	0.0041	0.0829	0	0	15	20	25	28	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3107	TumonT60	13.8	2105	Tum345B1	34.5	1	1	18	13.8	34.5	0.0068	0.0737	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3109	TumonT61	13.8	2105	Tum345B1	34.5	1	1	15	13.8	34.5	0.0038	0.0769	0	0	15	20	25	28	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3110	AniqT100	13.8	2106	Ani345B1	34.5	1	1	18	13.8	34.5	0.0041	0.0765	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	94	1	1	89	12	31	0
3113	SanVT122	13.8	2108	SV345B1	34.5	1	1	18	13.8	34.5	0.0028	0.0749	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	94	1	1	89	12	31	0
2201	Tan345B1	34.5	5201	TangoStr	2.4	1	0	2.5	34.5	2.4	0.0033	0.0651	0	0	2.5	2.5	2.5	2.5	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3201	HarmnT21	13.8	2219	Har345B1	34.5	1	1	18	13.8	34.5	0.0039	0.0743	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3202	HarmnT22	13.8	2219	Har345B1	34.5	1	1	10	13.8	34.5	0.0031	0.0629	0	0	10	10	12.5	14	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3016	OroteT28	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0	0.0639	0	0	10	11	13	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3204	DededT55	13.8	2203	Ded345B1	34.5	1	1	15	13.8	34.5	0.0041	0.0762	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3205	MarboT14	13.8	2204	Mar345B1	34.5	1	1	10	13.8	34.5	0.0031	0.0628	0	0	10	10	12.5	14	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
4201	NCS T47	4.16	2208	NCS345	34.5	1	1	3.8	4.2	34.5	0.0042	0.0841	0	0	3.8	4.2	4.7	5.3	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3207	PotsT110	13.8	2209	Pott345	34.5	1	1	3.8	13.8	34.5	0.0038	0.0758	0	0	3.8	4.2	4.7	5.2	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3208	AnderT15	13.8	2210	And345B1	34.5	1	1	30	13.8	34.5	0.0038	0.0765	0	0	30	30	40	40	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3209	AnderT16	13.8	2210	And345B1	34.5	1	1	30	13.8	34.5	0.0038	0.0768	0	0	30	30	40	40	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3210	MacheT90	13.8	2211	Mac345B1	34.5	1	1	15	13.8	34.5	0.0048	0.0765	0	0	15	20	25	28	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3211	PagaT115	13.8	2212	Pag345B1	34.5	1	1	18	13.8	34.5	0.0041	0.0761	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	97	9	1	89	12	31	0
3212	Yigo T30	13.8	2214	Yig345B1	34.5	1	1	18	13.8	34.5	0.004	0.0752	0	0	18	18	24	27	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3213	GAA T105	13.8	2216	GAA345B1	34.5	1	1	18	13.8	34.5	0.004	0.0756	0	0	18	18	24	25	1	0			0	0	1	1	1	3	3	2	90	1	1	89	12	31	0
4213	GIAT Trm	4.16	2217	GIA345B1	34.5	1	1	7.5	4.2	34.5	0.0035	0.0691	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	3	3	2	90	1	1	89	12	31	0
3300	Agrko13	12.02	2214	Yig345B1	34.5	1	1	50	13.8	39.6	0	0.083	0	0	50	50	50	50	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
6005	Aggreko	0.46	3300	Agrko13	12.02	1	1	44.1	0.5	12.5	0.0102	0.054	0	0	44.1	44.1	44.1	44.1	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2018	Dandan	34.5	2019	Dandan_PV	0.48	1	1	20	34.5	0.5	0.0026	0.0574	0	0	33.2	33.2	33.2	33.2	1	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	1
2018	Dandan	34.5	2020	Dandan_W	0.68	1	1	5.6	34.5	0.7	0.006	0.06	0	0	5.6	5.6	5.6	5.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2401	Hanwha_A	34.5	2403	Hanwha_PV	0.55	1	1	31.5	34.5	0.6	0	0.0575	0	0	31.5	31.5	31.5	31.5	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2402	Hanwha_B	34.5	2404	Hanwha_PV	0.55	1	1	31.5	34.5	0.6	0	0.0575	0	0	31.5	31.5	31.5	31.5	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2401	Hanwha_A	34.5	2405	Hanwha_ES	0.55	1	1	20.3	34.5	0.6	0	0.0575	0	0	20.3	20.3	20.3	20.3	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2402	Hanwha_B	34.5	2406	Hanwha_ES	0.55	1	1	20.3	34.5	0.6	0	0.0575	0	0	20.3	20.3	20.3	20.3	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2501	Mangilao_A	34.5	2503	KEPCO_PV1	0.48	1	1	32	34.5	0.5	0.0065	0.065	0	0	32	32	32	32	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2502	Mangilao_B	34.5	2504	KEPCO_PV2	0.48	1	1	32	34.5	0.5	0.0065	0.065	0	0	32	32	32	32	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2501	Mangilao_A	34.5	2505	KEPCO_ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2502	Mangilao_B	34.5	2506	KEPCO_ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2219	Har345B1	34.5	4202	SF ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2005	Oro345	34.5	4005	Orote ESS	0.48	1	1	25	34.5	0.5	0.0065	0.065	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2407	HanwhaA_	115	2401	Hanwha_A	34.5	1	1	25	115	34.5	0.01	0.1	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2408	HanwhaB_	115	2402	Hanwha_B	34.5	1	1	25	115	34.5	0.01	0.1	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2111	AgESS345	34.5	3111	AgESS440	0.44	1	1	30	34.5	0.4	0	0.07	0	0	30	30	30	30	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2003	Tal345	34.5	3203	TaESS440	0.44	1	1	20	34.5	0.4	0	0.07	0	0	20	20	20	20	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
1201	Har115B1	115	19	HAR_CT1	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0
1201	Har115B1	115	20	HAR_CT2	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0
1201	Har115B1	115	22	HAR_CT3	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0
1201	Har115B1	115	21	HAR_ST	13.8	1	1	45	115	13.8	0	0.081	0	0	50	50	50	50	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	CK	SE	ST	(R--PU	X-PU)	B-PU	MVA1	MVA2	MVA3	MVA4	ALOSS	LENGTH	TP	AREA	ZONE	AF	AT	YI	MI	DI	YO	MO	DO	OWN	LID	
9	ManenDsl	13.8	3009	PulanT95	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
10	TalofDsl	13.8	3003	TalofT80	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
14	OrteUnts	13.8	3005	OroteT11	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	95	11	1	89	12	31	0	1	
210	Mache_CT	13.8	3210	MacheT90	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
211	Yigo__CT	13.8	3212	Yigo T30	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2401	Hanwha_A	34.5	2402	Hanwha_B	34.5	1	1	0	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	40	1	1	39	12	31	0	1	
2501	Mangilao_	34.5	2502	Mangilao_	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2101	Aga345	34.5	2111	AgESS345	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	2	1	1	40	1	1	39	12	31	0	1	
1001	Cab115EB	115	1005	Pit115B1	115	1	1	1	0.0005	0.0026	0.0004	136	181	136	181	1	0.48	0	1	2	1	1	90	1	1	89	12	31	0	2	
1001	Cab115EB	115	1101	Aga115	115	1	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	1	
1001	Cab115EB	115	1101	Aga115	115	2	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	2	
1005	Pit115B1	115	1201	Har115B1	115	1	1	1	0.0115	0.0662	0.011	136	181	136	181	1	12.96	0	1	2	1	1	90	1	1	89	12	31	0	2	
1101	Aga115	115	1103	Tam115B1	115	1	1	1	0.002	0.0104	0.0018	136	181	136	181	1	2.08	0	1	3	1	1	90	1	1	89	12	31	0	1	
1103	Tam115B1	115	1201	Har115B1	115	1	1	1	0.0043	0.023	0.0039	136	181	136	181	1	4.54	0	1	3	1	1	90	1	1	89	12	31	0	1	
2001	Cab345	34.5	2002	Pit345	34.5	1	1	1	0.0016	0.0076	0	81	108	81	108	1	0.3	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2017	Tenjotap	34.5	1	1	1	0.0413	0.2136	0.0003	41	54	41	54	1	3.65	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2010	CSTapX21	34.5	1	1	1	0.0286	0.1458	0.0003	41	54	41	54	1	3.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2101	Aga345	34.5	1	1	1	0.0556	0.3013	0.0005	41	54	41	54	1	5.66	0	1	2	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2106	Ani345B1	34.5	1	1	1	0.0375	0.1762	0.0003	41	54	41	54	1	3.5	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2004	Apr345	34.5	1	1	1	0.1773	0.3705	0.0005	23	31	23	31	1	6.9	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2401	Hanwha_A	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2003	Tal345	34.5	2402	Hanwha_B	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2501	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_	34.5	2204	Mar345B1	34.5	1	1	0	0.0567	0.255	0	41	54	41	54	1	5.62	0	1	3	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2401	Hanwha_A	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2402	Hanwha_B	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2004	Apr345	34.5	2005	Oro345	34.5	1	1	1	0.0405	0.1902	0.0003	41	54	41	54	1	3.8	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2012	Uma345	34.5	1	1	1	0.1284	0.6507	0.0011	41	54	41	54	1	13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2017	Tenjotap	34.5	1	1	1	0.0174	0.0958	0.0001	41	54	41	54	1	1.64	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2007	CSTapX20	34.5	1	1	1	0.0338	0.0796	0	22	29	22	29	1	1.27	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2010	CSTapX21	34.5	1	1	1	0.0156	0.0764	0.0001	41	54	41	54	1	1.03	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	1	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	2	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2007	CSTapX20	34.5	1	1	1	0.0898	0.2131	0.0003	22	29	22	29	1	3.08	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2007	CSTapX20	34.5	1	1	0	0.0071	0.0162	0	22	29	22	29	1	0.13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2010	CSTapX21	34.5	1	1	1	0.0048	0.0093	0	25.5	34	25.5	34	1	0.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2003	Tal345	34.5	1	1	1	0.0704	0.3619	0.0007	41	54	41	54	1	7.44	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2102	Bar345	34.5	1	1	1	0.0838	0.3837	0.0007	41	54	41	54	1	7.85	0	1	1	1	1	90	1	1	89	12	31	0	1	
2014	Ten345	34.5	2017	Tenjotap	34.5	1	1	1	0.0074	0.0377	0	41	54	41	54	1	0.69	0	1	1	1	1	97	9	1	89	12	31	0	1	
2003	Tal345	34.5	2018	Dandan	34.5	1	1	1	0.0686	0.1621	0	21.4	28.3	21.4	28.3	1	5.62	0	1	1	1	1	97	9	1	89	12	31	0	1	
2101	Aga345	34.5	2102	Bar345	34.5	1	1	1	0.0318	0.139	0.0003	41	54	41	54	1	3.1	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2103	RBa345B1	34.5	1	1	1	0.0419	0.2119	0.0004	22	29	22	29	1	4.6	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2104	Tam345B1	34.5	1	1	1	0.0249	0.1122	0.0002	41	54	41	54	1	2.33	0	1	2	1	1	90	1	1	89	12	31	0	1	
2102	Bar345	34.5	2216	GAA345B1	34.5	1	1	1	0.0361	0.1554	0.0003	41	54	41	54	1	4.6	0	1	2	1	1	40	1	1	39	12	31	0		
2103	RBa345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0773	0.1637	0.0013	22	29	22	29	1	4.36	0	1	3	1	1	90	1	1	89	12	31	0	1	
2204	Mar345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0796	0.1689	0.0013	22	29	22	29	1	4.46	0	1	3	1	1	90	1	1	89	12	31	0		
2104	Tam345B1	34.5	2105	Tum345B1	34.5	1	1	1	0.0218	0.0401	0.0022	41	54	41	54	1	1.68	0	1	2	1	1	90	1	1	89	12	31	0	1	
2104	Tam345B1	34.5	2110	HafaTap	34.5	1	1	1	0.0025	0.0018	0	31	42	31	42	1	0.19	0	1	2	1	1	96	1	1	89	12	31	0		
2110	HafaTap	34.5	2108	SV345B1	34.5	1	1	1	0.014	0.0589	0.0001	41	54	41	54	1	1.46	0	1	2	1	1	96	1	1	89	12	31	0	1	
2105	Tum345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0359	0.0662	0.0038	41	54	41	54	1	2.77	0	1	3	1	1	90	1	1	89	12	31	0	1	
2106	Ani345B1	34.5	2101	Aga345	34.5	1	1	1	0.0244	0.1237	0.0002	41	54	41	54	1	2.47	0	1	2	1	1	90	1	1	89	12	31	0	1	
2108	SV345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0211	0.0213	0.0027	41	54	41	54	1	3.4	0	1	3	1	1	96	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2219	Har345B1	34.5	1	1	0	0.0108	0.0409	0.0022	41	54	41	54	1	1.87	0	1	3	1	1	90	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2202	Har345B3	34.5	2	1	0	0.0108	0.0409	0.0021	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	2	
2202	Har345B3	34.5	2203	Ded345B1	34.5	1	1	1	0.0293	0.149	0.0002	41	54	41	54	1	2.53	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2210	And345B1	34.5	1	1	1	0.0666	0.0819	0.0106	31	42	31	42	1	7.82	0	1	3	1	1	90	1	1	89	12	31	0		
2219	Har345B1	34.5	2208	NCS345	34.5	1	1	1	0.0997	0.226	0.0003	22	29	22	29	1	4.03	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2211	Mac345B1	34.5	1	1	1	0.0094	0.0097	0.0026	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	1	
2219	Har345B1	34.5	2214	Yig345B1	34.5	1	1	1	0.0658	0.3018	0.0005	41	54	41	54	1	6.48	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2219	Har345B1	34.5	1	1	0	0	0.001	0	90	120	90	120	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2204	Mar345B1	34.5	1	1	1	0.0187	0.0909	0.0002	41	54	41	54	1	1.85	0	1	3	1	1	90	1	1	89	12	31	0	1	
2208	NCS345	34.5	2209	Pott345	34.5	1	1	1	0.0347	0.0788	0.0001	22	29	22	29	1	1.41	0	1	3	1	1	90	1	1	89	12	31	0	1	
2209	Pott345	34.5	2210	And345B1	34.5	1	1	1	0.1241	0.2814	0.0002	22	29	22	29	1	5.02	0	1	3	1	1	90	1	1	89	12	31	0	1	
2211	Mac345B1	34.5	2212	Pag345B1	34.5	1	1	0	0.0762	0.1712	0.0003	41	54	41	54	1	3.96	0	1	3	1	1	40	1	1	39	12	31	0		
2211	Mac345B1	34.5	2216	GAA345B1	34.5	1	1	1	0.011	0.0114	0.003	41	54	41	54	1	2.12	0	1	3	1	1	40	1	1	39	12	31	0		
2214	Yig345B1	34.5	2210	And345B1	34.5	1	1	1	0.0329	0.1511	0.0003	41	54	41	54	1	3.04	0	1	3	1	1	90	1	1	89	12	31	0	1	
2216	GAA345B1	34.5	2217	GIA345B1	34.5	1	1	1	0.0052	0.0064	0.0008	31	42	31	42	1	0.61	0	1	2	1	1	40	1	1	39	12	31	0		
2218	GiatTap	34.5	2217	GIA345B1	34.5	1	1	1	0.0053	0.0066	0.0008	31	42	31	42	1	0.63	0	1	2	1	1	40	1	1	39	12	31	0	1	
2218	GiatTap	34.5	2219	Har345B1	34.5	1	1	1	0.0316	0.1487	0.0003	41	54	41	54	1	2.97	0	1	2	1	1	40	1	1	39	12	31	0	1	
1005	Pit115B1	115	2701	Apra_115	115	1	1	1	0.0055	0.0284	0.0043	136	180	136	180	1	5.4	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2407	HanwhaA_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2408	HanwhaB_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2501	Mangilao_	34.5	2507	Mangilao	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0.02	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	1	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2211	Mac345B1	34.5	1	1	1	0.047	0.2243	0	41	54	41	54	1	4.48	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	2	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		

FROM	FNAME	FKV	TO	TNAME	TKV	CK	SE	ST	(R--PU	X-PU)	B-PU	MVA1	MVA2	MVA3	MVA4	ALOSS	LENGTH	TP	AREA	ZONE	AF	AT	YI	MI	DI	YO	MO	DO	OWN	LID	
9	ManenDsl	13.8	3009	PulanT95	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	90	1	1	89	12	31	0	1
10	TalofDsl	13.8	3003	TalofT80	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	90	1	1	89	12	31	0	1
14	OrteUnts	13.8	3005	OroteT11	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	95	11	1	89	12	31	0	1
210	Mache_CT	13.8	3210	MacheT90	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	1	90	1	1	89	12	31	0	1
211	Yigo__CT	13.8	3212	Yigo T30	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	1	40	1	1	39	12	31	0	1
2401	Hanwha_A	34.5	2402	Hanwha_B	34.5	1	1	0	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	1	40	1	1	39	12	31	0	1
2501	Mangilao_	34.5	2502	Mangilao_	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	1	40	1	1	39	12	31	0	1
2101	Aga345	34.5	2111	AgESS345	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	2	1	1	1	40	1	1	39	12	31	0	1
1001	Cab115EB	115	1005	Pit115B1	115	1	1	1	0.0005	0.0026	0.0004	136	181	136	181	1	0.48	0	1	2	1	1	1	90	1	1	89	12	31	0	2
1001	Cab115EB	115	1101	Aga115	115	1	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	1	90	1	1	89	12	31	0	1
1001	Cab115EB	115	1101	Aga115	115	2	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	1	90	1	1	89	12	31	0	2
1005	Pit115B1	115	1201	Har115B1	115	1	1	1	0.0115	0.0662	0.011	136	181	136	181	1	12.96	0	1	2	1	1	1	90	1	1	89	12	31	0	2
1101	Aga115	115	1103	Tam115B1	115	1	1	1	0.002	0.0104	0.0018	136	181	136	181	1	2.08	0	1	3	1	1	1	90	1	1	89	12	31	0	1
1103	Tam115B1	115	1201	Har115B1	115	1	1	1	0.0043	0.023	0.0039	136	181	136	181	1	4.54	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2001	Cab345	34.5	2002	Pit345	34.5	1	1	1	0.0016	0.0076	0	81	108	81	108	1	0.3	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2017	Tenjotap	34.5	1	1	1	0.0413	0.2136	0.0003	41	54	41	54	1	3.65	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2010	CSTapX21	34.5	1	1	1	0.0286	0.1458	0.0003	41	54	41	54	1	3.53	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2101	Aga345	34.5	1	1	1	0.0556	0.3013	0.0005	41	54	41	54	1	5.66	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2106	Ani345B1	34.5	1	1	1	0.0375	0.1762	0.0003	41	54	41	54	1	3.5	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2003	Tal345	34.5	2004	Apr345	34.5	1	1	1	0.1773	0.3705	0.0005	23	31	23	31	1	6.9	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2003	Tal345	34.5	2401	Hanwha_A	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	1	40	1	1	0	0	0	0	
2003	Tal345	34.5	2402	Hanwha_B	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	1	40	1	1	0	0	0	0	
2501	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	0	0	0	0	
2502	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	0	0	0	0	
2502	Mangilao_	34.5	2204	Mar345B1	34.5	1	1	0	0.0567	0.255	0	41	54	41	54	1	5.62	0	1	3	1	1	1	40	1	1	0	0	0	0	
2012	Uma345	34.5	2401	Hanwha_A	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	1	40	1	1	0	0	0	0	
2012	Uma345	34.5	2402	Hanwha_B	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	1	40	1	1	0	0	0	0	
2004	Apr345	34.5	2005	Oro345	34.5	1	1	1	0.0405	0.1902	0.0003	41	54	41	54	1	3.8	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2004	Apr345	34.5	2012	Uma345	34.5	1	1	1	0.1284	0.6507	0.0011	41	54	41	54	1	13	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2004	Apr345	34.5	2017	Tenjotap	34.5	1	1	1	0.0174	0.0958	0.0001	41	54	41	54	1	1.64	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2007	CSTapX20	34.5	1	1	1	0.0338	0.0796	0	22	29	22	29	1	1.27	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2010	CSTapX21	34.5	1	1	1	0.0156	0.0764	0.0001	41	54	41	54	1	1.03	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2009	SRF345	34.5	1	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2005	Oro345	34.5	2009	SRF345	34.5	2	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2002	Pit345	34.5	2007	CSTapX20	34.5	1	1	1	0.0898	0.2131	0.0003	22	29	22	29	1	3.08	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2008	CldSt345	34.5	2007	CSTapX20	34.5	1	1	0	0.0071	0.0162	0	22	29	22	29	1	0.13	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2008	CldSt345	34.5	2010	CSTapX21	34.5	1	1	1	0.0048	0.0093	0	25.5	34	25.5	34	1	0.53	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2011	Pul345	34.5	2003	Tal345	34.5	1	1	1	0.0704	0.3619	0.0007	41	54	41	54	1	7.44	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2011	Pul345	34.5	2102	Bar345	34.5	1	1	1	0.0838	0.3837	0.0007	41	54	41	54	1	7.85	0	1	1	1	1	1	90	1	1	89	12	31	0	1
2014	Ten345	34.5	2017	Tenjotap	34.5	1	1	1	0.0074	0.0377	0	41	54	41	54	1	0.69	0	1	1	1	1	1	97	9	1	89	12	31	0	1
2003	Tal345	34.5	2018	Dandan	34.5	1	1	1	0.0686	0.1621	0	21.4	28.3	21.4	28.3	1	5.62	0	1	1	1	1	1	97	9	1	89	12	31	0	1
2101	Aga345	34.5	2102	Bar345	34.5	1	1	1	0.0318	0.139	0.0003	41	54	41	54	1	3.1	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2101	Aga345	34.5	2103	RBa345B1	34.5	1	1	1	0.0419	0.2119	0.0004	22	29	22	29	1	4.6	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2101	Aga345	34.5	2104	Tam345B1	34.5	1	1	1	0.0249	0.1122	0.0002	41	54	41	54	1	2.33	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2102	Bar345	34.5	2216	GAA345B1	34.5	1	1	1	0.0361	0.1554	0.0003	41	54	41	54	1	4.6	0	1	2	1	1	1	40	1	1	39	12	31	0	
2103	RBa345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0773	0.1637	0.0013	22	29	22	29	1	4.36	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2204	Mar345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0796	0.1689	0.0013	22	29	22	29	1	4.46	0	1	3	1	1	1	90	1	1	89	12	31	0	
2104	Tam345B1	34.5	2105	Tum345B1	34.5	1	1	1	0.0218	0.0401	0.0022	41	54	41	54	1	1.68	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2104	Tam345B1	34.5	2110	HafaTap	34.5	1	1	1	0.0025	0.0018	0	31	42	31	42	1	0.19	0	1	2	1	1	1	96	1	1	89	12	31	0	
2110	HafaTap	34.5	2108	SV345B1	34.5	1	1	1	0.014	0.0589	0.0001	41	54	41	54	1	1.46	0	1	2	1	1	1	96	1	1	89	12	31	0	1
2105	Tum345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0359	0.0662	0.0038	41	54	41	54	1	2.77	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2106	Ani345B1	34.5	2101	Aga345	34.5	1	1	1	0.0244	0.1237	0.0002	41	54	41	54	1	2.47	0	1	2	1	1	1	90	1	1	89	12	31	0	1
2108	SV345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0211	0.0213	0.0027	41	54	41	54	1	3.4	0	1	3	1	1	1	96	1	1	89	12	31	0	1
2201	Tan345B1	34.5	2219	Har345B1	34.5	1	1	0	0.0108	0.0409	0.0022	41	54	41	54	1	1.87	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2201	Tan345B1	34.5	2202	Har345B3	34.5	2	1	0	0.0108	0.0409	0.0021	41	54	41	54	1	1.81	0	1	3	1	1	1	90	1	1	89	12	31	0	2
2202	Har345B3	34.5	2203	Ded345B1	34.5	1	1	1	0.0293	0.149	0.0002	41	54	41	54	1	2.53	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2203	Ded345B1	34.5	2210	And345B1	34.5	1	1	1	0.0666	0.0819	0.0106	31	42	31	42	1	7.82	0	1	3	1	1	1	90	1	1	89	12	31	0	
2219	Har345B1	34.5	2208	NCS345	34.5	1	1	1	0.0997	0.226	0.0003	22	29	22	29	1	4.03	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2202	Har345B3	34.5	2211	Mac345B1	34.5	1	1	1	0.0094	0.0097	0.0026	41	54	41	54	1	1.81	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2219	Har345B1	34.5	2214	Yig345B1	34.5	1	1	1	0.0658	0.3018	0.0005	41	54	41	54	1	6.48	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2202	Har345B3	34.5	2219	Har345B1	34.5	1	1	0	0	0.001	0	90	120	90	120	1	0	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2203	Ded345B1	34.5	2204	Mar345B1	34.5	1	1	1	0.0187	0.0909	0.0002	41	54	41	54	1	1.85	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2208	NCS345	34.5	2209	Pott345	34.5	1	1	1	0.0347	0.0788	0.0001	22	29	22	29	1	1.41	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2209	Pott345	34.5	2210	And345B1	34.5	1	1	1	0.1241	0.2814	0.0002	22	29	22	29	1	5.02	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2211	Mac345B1	34.5	2212	Pag345B1	34.5	1	1	0	0.0762	0.1712	0.0003	41	54	41	54	1	3.96	0	1	3	1	1	1	40	1	1	39	12	31	0	
2211	Mac345B1	34.5	2216	GAA345B1	34.5	1	1	1	0.011	0.0114	0.003	41	54	41	54	1	2.12	0	1	3	1	1	1	40	1	1	39	12	31	0	
2214	Yig345B1	34.5	2210	And345B1	34.5	1	1	1	0.0329	0.1511	0.0003	41	54	41	54	1	3.04	0	1	3	1	1	1	90	1	1	89	12	31	0	1
2216	GAA345B1	34.5	2217	GIA345B1	34.5	1	1	1	0.0052	0.0064	0.0008	31	42	31	42	1	0.61	0	1	2	1	1	1	40	1	1	39	12	31	0	
2218	GiatTap	34.5	2217	GIA345B1	34.5	1	1	1	0.0053	0.0066	0.0008	31	42	31	42	1	0.63	0	1	2	1	1	1	40	1	1	39	12	31	0	1
2218	GiatTap	34.5	2219	Har345B1	34.5	1	1	1	0.0316	0.1487	0.0003	41	54	41	54	1	2.97	0	1	2	1	1	1	40	1	1	39	12	31	0	1
1005	Pit115B1	115	2701	Apra_115	115	1	1	1	0.0055	0.0284	0.0043	136	180	136	180	1	5.4	0	1	1	1	1	1	40	1	1	39	12	31	0	
2701	Apra_115	115	2407	HanwhaA_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	1	40	1	1	39	12	31	0	
2701	Apra_115	115	2408	HanwhaB_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	1	40	1	1	39	12	31	0	
2501	Mangilao_	34.5	2507	Mangilao	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0.02	0	1	3	1	1	1	40	1	1	39	12	31	0	
2507	Mangilao	34.5	2212	Pag345B1	34.5	1	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	39	12	31	0	
2507	Mangilao	34.5	2211	Mac345B1	34.5	1	1	1	0.047	0.2243	0	41	54	41	54	1	4.48	0	1	3	1	1	1	40	1	1	39	12	31	0	
2507	Mangilao	34.5	2212	Pag345B1	34.5	2	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	1	40	1	1	39	12	31	0	

ZONE	NAME	PNET	QNET
1	Southern		
		136.8	24.5
2	Central		
		-71.4	-14.3
3	Northern		
		-65.4	-10.2

BUS-NO	NAME	KV	TP	VSCHED	V-PU	DEG	ISLAND	AREA	ZONE	BA	SUBST	ISOL_ST	VMAX	VMIN	OWN	B/N	LID	LATITUDE	LONGITUDE
1	Cabras_1	13.8	2	1.0145	0.9634	33.28	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2	Cabras_2	13.8	2	1.007	0.9634	33.28	1	1	1	0	0	0	1.05	0.95	0	0		0	0
9	ManenDsl	13.8	2	1.02	1.0224	27.07	1	1	1	0	0	0	1.05	0.95	0	0		0	0
10	TalofDsl	13.8	2	1.02	1.0212	26.76	1	1	1	0	0	0	1.05	0.95	0	0		0	0
11	TenjoDsl	13.8	2	1.02	0.9868	32.21	1	1	1	0	0	0	1.05	0.95	0	0		0	0
12	Cabras_3	13.8	2	1.007	0.9592	33.28	1	1	1	0	0	0	1.05	0.95	0	0		0	0
13	Cabras_4	13.8	2	1.007	0.9592	33.28	1	1	1	0	0	0	1.05	0.95	0	0		0	0
14	OrteUnts	13.8	2	1.02	1.0219	31.75	1	1	1	0	0	0	1.05	0.95	0	0		0	0
15	TEMES	13.8	2	0.9927	0.9773	32.53	1	1	1	0	0	0	1.05	0.95	0	0		0	0
16	MEC 8	13.8	2	1	0.9472	33.29	1	1	1	0	0	0	1.05	0.95	1	0		0	0
17	MEC 9	13.8	2	1	0.9472	33.29	1	1	1	0	0	0	1.05	0.95	1	0		0	0
201	Tangui_1	14.4	0	0.976	0.976	0	2	1	3	0	0	1	1.05	0.95	0	0		0	0
202	Tangui_2	14.4	0	0.976	0.976	0	3	1	3	0	0	1	1.05	0.95	0	0		0	0
205	Marbo CT	13.8	2	1.02	1.0209	31.03	1	1	3	0	0	0	1.05	0.95	0	0		0	0
208	Ded CT#1	13.8	2	1.02	1.02	34.92	1	1	3	0	0	0	1.05	0.95	0	0		0	0
209	Ded CT#2	13.8	2	1.02	1.02	34.96	1	1	3	0	0	0	1.05	0.95	0	0		0	0
210	Mache_CT	13.8	2	1.02	1.0024	27.46	1	1	3	0	0	0	1.05	0.95	0	0		0	0
211	Yigo__CT	13.8	2	1.02	1.02	29.24	1	1	3	0	0	0	1.05	0.95	0	0		0	0
1001	Cab115EB	115	1	1.02	1.0071	33.28	1	1	1	0	0	0	1.05	0.95	0	0		0	0
1005	Pit115B1	115	1	1.02	1.007	33.29	1	1	1	0	0	0	1.05	0.95	0	0		0	0
1101	Aga115	115	1	1	1.0079	33.34	1	1	2	0	0	0	1.05	0.95	0	0		0	0
1103	Tam115B1	115	1	1	1.0086	33.56	1	1	2	0	0	0	1.05	0.95	0	0		0	0
1201	Har115B1	115	1	1	1.0107	34.46	1	1	3	0	0	0	1.05	0.95	0	0		0	0
2001	Cab345	34.5	1	1	0.9773	32.59	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2002	Pit345	34.5	1	1	0.9773	32.53	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2003	Tal345	34.5	1	1	0.9787	29.67	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2401	Hanwha_A	34.5	2	1.02	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2501	Mangilao_	34.5	2	0.98	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0		0	0
2502	Mangilao_I	34.5	2	0.98	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0		0	0
2402	Hanwha_B	34.5	2	1.02	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2004	Apr345	34.5	1	1	0.991	32.07	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2005	Oro345	34.5	1	1	0.9794	32.58	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2007	CSTapX20	34.5	1	1	0.9788	32.57	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2008	CldSt345	34.5	1	1	0.9762	32.38	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2009	SRF345	34.5	1	1	0.979	32.57	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2010	CSTapX21	34.5	1	1	0.9767	32.4	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2011	Pul345	34.5	1	1	0.9715	29.19	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2012	Uma345	34.5	1	1	0.9914	31.15	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2014	Ten345	34.5	1	1	0.9868	32.21	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2017	Tenjotap	34.5	1	1	0.9868	32.21	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2018	Dandan	34.5	1	1.02	0.9787	29.67	1	1	1	0	0	0	1.05	0.95	0	0		0	0
2101	Aga345	34.5	1	1	0.9721	31.48	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2102	Bar345	34.5	1	1	0.9728	30.59	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2103	RBa345B1	34.5	1	1	0.9763	30.99	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2104	Tam345B1	34.5	1	1	0.9748	31.34	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2105	Tum345B1	34.5	1	1	0.9743	31	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2106	Ani345B1	34.5	1	1	0.9723	31.48	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2108	SV345B1	34.5	1	1	0.9789	31.34	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2110	HafaTap	34.5	1	1	0.975	31.34	1	1	2	0	0	0	1.05	0.95	0	0		0	0
2219	Har345B1	34.5	1	1	0.9943	32.92	1	1	3	0	0	0	1.05	0.95	0	0		0	0
2201	Tan345B1	34.5	0	1	1	0	4	1	3	0	0	1	1.05	0.95	0	0		0	0
2202	Har345B3	34.5	1	1	0.9842	31.38	1	1	3	0	0	0	1.05	0.95	0	0		0	0
2203	Ded345B1	34.5	1	1	1.0025	31.38	1	1	3	0	0	0	1.05	0.95	0	0		0	0

2204	Mar345B1	34.5	1	1	0.9954	31.03	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2208	NCS345	34.5	1	1	0.9938	32.12	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2209	Pott345	34.5	1	1	0.994	31.86	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2210	And345B1	34.5	1	1	0.9971	31.04	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2211	Mac345B1	34.5	1	1	0.982	31.27	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2212	Pag345B1	34.5	1	1	0.9792	30.57	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2214	Yig345B1	34.5	1	1	0.9995	31.14	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2216	GAA345B1	34.5	1	1	0.9815	31.27	1	1	2	0	0	0	1.05	0.95	0	0	0	0
2217	GIA345B1	34.5	1	1	0.9823	31.32	1	1	2	0	0	0	1.05	0.95	0	0	0	0
2218	GiatTap	34.5	1	1	0.9835	31.38	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3001	Piti T7	13.8	1	1.02	1.0215	30.53	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3002	Piti T8	13.8	1	1.02	1.02	32.53	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3003	TalofT80	13.8	1	1.02	1.0212	26.76	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3004	Apra T70	13.8	1	1.02	1.0253	29.45	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3005	OroteT11	13.8	1	1.02	1.0219	31.75	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3006	OroteT12	13.8	1	1.02	1.02	32.12	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3007	CldST25	13.8	1	1.02	1.021	30.04	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3009	PulanT95	13.8	1	1.02	1.0224	27.07	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3011	UmatT120	13.8	1	1.02	1.0241	30.56	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3012	OroteT13	13.8	1	1.02	1.0207	30.33	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3013	OroteT10	13.8	1	1.02	1.0208	32.05	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3014	SRFT17	13.8	1	1.02	1.0235	31.97	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3015	SRFT18	13.8	1	1.02	1.0214	31.31	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3016	OroteT28	13.8	1	1.02	1.0222	32.55	1	1	1	0	0	0	1.05	0.95	0	0	0	0
3101	Agana T9	13.8	1	1.02	1.0227	30.73	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3102	AganaT65	13.8	1	1.02	1.0226	26.24	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3103	BarriT75	13.8	1	1.02	1.0231	27.11	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3104	RadBaT23	13.8	1	1.02	1.0203	30.94	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3105	RadBaT24	13.8	1	1.02	1.0238	30.78	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3106	TamunT50	13.8	1	1.02	1.0205	28.43	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3107	TumonT60	13.8	1	1.02	1.0227	27.86	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3108	TamunT51	13.8	1	1.02	1.0205	27.56	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3109	TumonT61	13.8	1	1.02	1.0245	27.28	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3110	AnigT100	13.8	1	1.02	1.0239	28.87	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3113	SanVT122	13.8	1	1.02	1.023	28.37	1	1	2	0	0	0	1.05	0.95	0	0	0	0
3201	HarmnT21	13.8	1	1.02	1.0203	30.16	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3202	HarmnT22	13.8	1	1.02	1.0204	32.89	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3204	DededT55	13.8	1	1.02	1.0219	27.3	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3205	MarboT14	13.8	1	1.02	1.0253	30.88	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3207	PotsT110	13.8	1	1.02	1.0215	30.66	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3208	AnderT15	13.8	1	1.02	1.0252	30.12	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3209	AnderT16	13.8	1	1.02	1.0263	30.17	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3210	MacheT90	13.8	1	1.02	1.0024	27.46	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3211	PagaT115	13.8	1	1.02	1.025	26.81	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3212	Yigo T30	13.8	1	1.02	1.02	29.24	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3213	GAA T105	13.8	1	1.02	1.0222	28.92	1	1	3	0	0	0	1.05	0.95	0	0	0	0
3300	Agrko13	12.02	1	1	0.9995	31.13	1	1	3	0	0	0	1.05	0.95	0	0	0	0
4001	CbrsStUp	4.16	1	1	0.9773	32.59	1	1	1	0	0	0	1.05	0.95	0	0	0	0
4201	NCS T47	4.16	1	1.02	1.0219	31.8	1	1	3	0	0	0	1.05	0.95	0	0	0	0
4213	GIAT Trm	4.16	1	1.02	1.0211	29.42	1	1	3	0	0	0	1.05	0.95	0	0	0	0
5201	TangoStr	2.4	0	1	1	0	5	1	3	0	0	1	1.05	0.95	0	0	0	0
6005	Aggreko	0.46	1	1.0435	1.0055	31.13	1	1	3	0	0	0	1.05	0.95	0	0	0	0
2019	Dandan_P\	0.48	2	1.02	0.9548	29.67	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2020	Dandan_W	0.68	2	1.02	0.9548	29.67	1	1	1	0	0	0	1.05	0.95	1	0	0	0

2403	Hanwha_P	0.55	2	1.02	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2404	Hanwha_P	0.55	2	1.02	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2405	Hanwha_E	0.55	2	1.02	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2406	Hanwha_E	0.55	2	1.02	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2503	KEPCO_PV	0.48	2	1.02	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2504	KEPCO_PV	0.48	2	1.02	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2505	KEPCO_ESS	0.48	2	1.02	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0	0	0
4202	SF ESS	0.48	2	1	1	36.36	1	1	1	0	0	0	1.05	0.95	1	0	0	0
4005	Orote ESS	0.48	2	1	1	36.11	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2506	KEPCO_ESS	0.48	2	1.02	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2701	Apra_115	115	2	1	1.004	33.08	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2407	HanwhaA_	115	2	1	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2408	HanwhaB_	115	2	1	1.0043	33.07	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2111	AgESS345	34.5	2	1	0.9721	31.48	1	1	1	0	0	0	1.05	0.95	1	0	0	0
3111	AgESS440	0.44	2	1	0.9721	31.48	1	1	1	0	0	0	1.05	0.95	1	0	0	0
3203	TaESS440	0.44	2	1	0.9928	29.67	1	1	1	0	0	0	1.05	0.95	1	0	0	0
2507	Mangilao	34.5	2	1	0.9796	30.65	1	1	1	0	0	0	1.05	0.95	1	0	0	0
19	HAR_CT1	13.8	2	1.02	1.02	40.04	1	1	1	0	0	0	1.05	0.95	1	0	0	0
20	HAR_CT2	13.8	0	1.02	1.02	40.04	1	1	1	0	0	0	1.05	0.95	1	0	0	0
22	HAR_CT3	13.8	2	1.02	1.02	40.04	1	1	1	0	0	0	1.05	0.95	1	0	0	0
21	HAR_ST	13.8	2	1.02	1.02	37.36	1	1	1	0	0	0	1.05	0.95	1	0	0	0

BUS-NO	NAME1	KV1	ID	ST	BL	CM	QTAB	PGEN	QGEN	QMAX	QMIN	PF	QMX	QMN	IREG	NAME2	KV2	QRF	VSCHED	V-ACT	AR	ZON	PRF	MBASE	PMAX	PMAX2	PMIN	YI	MI	DI	YO	MO	DO	OWN	LID
1	Cabras_1	13.8	1	0	0	0	0	42	34.8	41	-28	0	41	-28	1	Cabras_1	13.8	1	1.0145	0.9634	1	1	1	78	66	0	25	90	1	1	89	12	31	0	
2	Cabras_2	13.8	1	0	0	0	0	57.9	16.5	41	-28	0	41	-28	2	Cabras_2	13.8	1	1.007	0.9634	1	1	1	78	66	0	25	90	1	1	89	12	31	0	
9	ManenDsl	13.8	1	0	0	0	0	3.5	-1.3	3	-4.7	0	3	-4.7	9	ManenDsl	13.8	1	1.02	1.0224	1	1	1	7.3	5	0	0	90	1	1	89	12	31	0	
9	ManenDsl	13.8	2	0	0	0	0	2.8	2.2	3	-4.7	0	3	-4.7	9	ManenDsl	13.8	1	1.02	1.0224	1	1	1	7.3	5	0	0	90	1	1	89	12	31	0	
10	TalofDsl	13.8	1	0	0	0	0	2.4	-0.9	2	-4.7	0	2	-4.7	10	TalofDsl	13.8	1	1.02	1.0212	1	1	1	5	4.4	0	0	90	1	1	89	12	31	0	
10	TalofDsl	13.8	2	0	0	0	0	2.5	-0.9	2	-4.7	0	2	-4.7	10	TalofDsl	13.8	1	1.02	1.0212	1	1	1	5	4.4	0	0	90	1	1	89	12	31	0	
11	TenjoDsl	13.8	1	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9868	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	2	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9868	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	3	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9868	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	4	0	0	0	0	3.5	1.1	2	0	0	2	0	11	TenjoDsl	13.8	1	1.02	0.9868	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	5	0	0	0	0	3.4	1.4	1.5	-1.5	0	1.5	-1.5	11	TenjoDsl	13.8	1	1.02	0.9868	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
11	TenjoDsl	13.8	6	0	0	0	0	3.4	1.4	1.5	-1.5	0	1.5	-1.5	11	TenjoDsl	13.8	1	1.02	0.9868	1	1	1	5	4.4	0	0	40	1	1	39	12	31	0	
12	Cabras_3	13.8	1	0	0	0	0	0	10.4	22	-15	0	22	-15	12	Cabras_3	13.8	1	1.007	0.9592	1	1	1	49	38.4	0	22	90	1	1	89	12	31	0	
13	Cabras_4	13.8	1	0	0	0	0	0	10.4	20	-15	0	20	-15	13	Cabras_4	13.8	1	1.007	0.9592	1	1	1	49	38.4	0	22	90	1	1	89	12	31	0	
14	OrteUnts	13.8	1	1	0	0	0	3	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0219	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0	
14	OrteUnts	13.8	2	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0219	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0	
14	OrteUnts	13.8	3	0	0	0	0	0	0	5	0	0	5	0	14	OrteUnts	13.8	1	1.02	1.0219	1	1	1	12	6.6	0	0	95	11	1	89	12	31	0	
15	TEMES	13.8	1	0	0	0	0	8.3	8.7	27	-10	0	27	-10	15	TEMES	13.8	1	0.9927	0.9773	1	1	1	50.3	40	0	0	95	11	1	89	12	31	0	
16	MEC 8	13.8	1	0	0	0	0	0	15.4	21	-10	0	21	-10	16	MEC 8	13.8	1	1	0.9472	1	1	1	30	44.2	0	22	99	1	1	89	12	31	0	
17	MEC 9	13.8	1	0	0	0	0	43.8	20	35	-10	0	35	-10	17	MEC 9	13.8	1	1	0.9472	1	1	1	51.9	44.2	0	22	95	11	1	89	12	31	0	
201	Tangui_1	14.4	1	0	0	0	0	0	0.3	15	-12	0	15	-12	201	Tangui_1	14.4	1	0.976	0.976	1	3	1	29	25	0	0	90	1	1	89	12	31	0	
202	Tangui_2	14.4	1	0	0	0	0	0	3.2	16	-12.6	0	16	-12.6	202	Tangui_2	14.4	1	0.976	0.976	1	3	1	29	25	0	0	90	1	1	89	12	31	0	
208	Ded CT#1	13.8	1	1	0	0	0	16.4	11	12.5	-10	0	12.5	-10	208	Ded CT#1	13.8	1	1.02	1.02	1	3	1	26	20	0	19	90	1	1	89	12	31	0	
209	Ded CT#2	13.8	1	1	0	0	0	16.4	10.9	12.5	-10	0	12.5	-10	209	Ded CT#2	13.8	1	1.02	1.02	1	3	1	26	20	0	0	90	1	1	89	12	31	0	
210	Mache_CT	13.8	1	0	0	0	0	20	-1.8	13.4	-10.5	0	13.4	-10.5	210	Mache_CT	13.8	1	1.02	1.0024	1	3	1	26	20	0	0	90	1	1	89	12	31	0	
211	Yigo__CT	13.8	1	1	0	0	0	10.3	6.5	13.6	-9.7	0	13.6	-9.7	211	Yigo__CT	13.8	1	1.02	1.02	1	3	1	26	21	0	0	90	1	1	89	12	31	0	
6005	Aggreko	0.46	1	0	0	0	0	39.8	6.2	7	0	0	7	0	6005	Aggreko	0.46	1	1.0435	1.0055	1	3	1	50	40	0	0	90	1	1	89	12	31	0	
2019	Dandan_PV	0.48	1	0	0	0	0	25	3.6	6.6	-6.6	0	6.6	-6.6	2018	Dandan	34.5	1	1.02	0.9787	1	1	1	26	20	0	0	40	1	1	39	12	31	0	
2403	Hanwha_PV	0.55	1	0	0	0	0	30	1.7	21	-21	0	21	-21	2401	Hanwha_A	34.5	1	1.02	1.0043	1	1	1	31.5	30	0	0	40	1	1	89	12	31	0	
2404	Hanwha_PV	0.55	1	0	0	0	0	30	1.7	21	-21	0	21	-21	2402	Hanwha_B	34.5	1	1.02	1.0043	1	1	1	31.5	30	0	0	40	1	1	89	12	31	0	
2405	Hanwha_ES	0.55	1	0	0	0	0	0	2.6	13.5	-13.5	0	13.5	-13.5	2401	Hanwha_A	34.5	1	1.02	1.0043	1	1	1	20.3	20	0	-20	40	1	1	89	12	31	0	
2406	Hanwha_ES	0.55	1	0	0	0	0	0	2.6	13.5	-13.5	0	13.5	-13.5	2402	Hanwha_B	34.5	1	1.02	1.0043	1	1	1	20.3	20	0	-20	40	1	1	89	12	31	0	
2503	KEPCO_PV2	0.48	1	0	0	0	0	30	-0.2	10	-10	0	10	-10	2501	Mangilao_A	34.5	1	0.98	0.9796	1	1	1	30.8	30	0	0	40	1	1	89	12	31	0	
2504	KEPCO_PV2	0.48	1	0	0	0	0	30	-0.2	10	-10	0	10	-10	2502	Mangilao_B	34.5	1	0.98	0.9796	1	1	1	30.8	30	0	0	40	1	1	89	12	31	0	
2505	KEPCO_ESS	0.48	1	0	0	0	0	0	-0.4	5.8	-5.8	0	5.8	-5.8	2501	Mangilao_A	34.5	1	0.98	0.9796	1	1	1	17.6	16	0	-16	40	1	1	89	12	31	0	
4202	SF ESS	0.48	1	1	0	0	0	16.2	0.4	9.8	-9.8	0	9.8	-9.8	4202	SF ESS	0.48	1	1	1	1	1	1	18	16.2	0	0	40	1	1	89	12	31	0	
4005	Orote ESS	0.48	1	1	0	0	0	23.8	6.3	14.3	-14.3	0	14.3	-14.3	4005	Orote ESS	0.48	1	1	1	1	1	1	26.4	23.8	0	0	40	1	1	89	12	31	0	
2506	KEPCO_ESS	0.48	1	0	0	0	0	0	-0.4	5.8	-5.8	0	5.8	-5.8	2502	Mangilao_B	34.5	1	0.98	0.9796	1	1	1	17.6	16	0	-16	40	1	1	89	12	31	0	
3111	AgESS440	0.44	1	1	0	0	0	0	0	0	0	0	0	0	3111	AgESS440	0.44	1	1	0.9721	1	1	1	24	24	0	0	40	1	1	89	12	31	0	
3203	TaESS440	0.44	1	1	0	0	0	0	4	4	-4	0	4	-4	3203	TaESS440	0.44	1	1	0.9928	1	1	1	16	16	0	0	40	1	1	89	12	31	0	
19	HAR_CT1	13.8	1	1	0	0	0	50	7.8	31.6	-31.6	0	31.6	-31.6	19	HAR_CT1	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0	
20	HAR_CT2	13.8	1	1	0	0	0	50	7.8	31.6	-31.6	0	31.6	-31.6	20	HAR_CT2	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0	
22	HAR_CT3	13.8	1	1	0	0	0	50	7.8	31.6	-31.6	0	31.6	-31.6	22	HAR_CT3	13.8	1	1.02	1.02	1	1	1	71	50	0	0	40	1	1	89	12	31	0	
21	HAR_ST	13.8	1	1	0	0	0	30	6.5	19	-16.8	0	19	-16.8	21	HAR_ST	13.8	1	1.02	1.02	1	1	1	54	30	0	0	40	1	1	89	12	31	0	

BUS-NO	NAME	KV	ID	ST	PLOAD	QLOAD	IPLOD	IQLOD	GLOAD	BLOAD	Stdg	Pdgen	Qdgen	NON-CONF	AREA	ZONE	PMOTR	QMOTR	YI	MI	DI	YO	MO	DO	OWN	Long_ID
1	Cabras_1		13.8	1	0	1.83	1.63	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
2	Cabras_2		13.8	1	0	2.8	1.86	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
9	ManenDsl		13.8	1	0	0.08	0.08	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
10	TalofDsl		13.8	1	0	0.09	0.08	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
11	TenjoDsl		13.8	1	0	0.27	0.25	0	0	0	0	0	0	0	0	1	1	0	0	98	6	6	89	6	6	0	1
11	TenjoDsl		13.8	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	98	6	6	89	6	6	0	1
12	Cabras_3		13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
13	Cabras_4		13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
15	TEMES		13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
16	MEC 8		13.8	1	0	1.17	0.83	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
17	MEC 9		13.8	1	0	0.76	0.66	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
19	HAR_CT1		13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
20	HAR_CT2		13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
21	HAR_ST		13.8	1	1	1.05	0.52	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
22	HAR_CT3		13.8	1	1	1.75	0.88	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
201	Tangui_1		14.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
202	Tangui_2		14.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
208	Ded CT#1		13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
209	Ded CT#2		13.8	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
210	Mache_CT		13.8	1	0	0.1	-0.05	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
211	Yigo__CT		13.8	1	1	0.08	0.04	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3300	Agrko13		12.02	1	1	0.09	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3012	OroteT13		13.8	1	1	6.02	3.3	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3013	OroteT10		13.8	1	1	1.33	0.2	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3014	SRFT17		13.8	1	1	1.49	0.61	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3015	SRFT18		13.8	1	1	3.09	1.69	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
3016	OroteT28		13.8	1	1	0.1	0.01	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3207	PotsT110		13.8	1	1	1.03	0.4	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
4001	CbrsStUp		4.16	1	0	0.23	0.21	0	0	0	0	0	0	0	0	1	1	0	0	90	1	1	89	12	31	0	1
4213	GIAT Trm		4.16	1	1	3.49	1.41	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
2005	Oro345		34.5	1	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
5201	TangoStr		2.4	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	90	1	1	89	12	31	0	1
3001	Piti T7		13.8	5	1	1.55	-0.17	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3001	Piti T7		13.8	7	1	0.65	-0.07	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3001	Piti T7		13.8	3	1	1.1	-0.12	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8		13.8	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8		13.8	2	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3002	Piti T8		13.8	6	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80		13.8	61	1	2.89	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80		13.8	62	1	3.98	0.18	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3003	TalofT80		13.8	60	1	0.72	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70		13.8	21	1	4.17	-0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70		13.8	23	1	2.26	-0.02	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70		13.8	20	1	0.57	-0.01	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3004	Apra T70		13.8	22	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11		13.8	15	1	1.76	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11		13.8	13	1	1.76	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3005	OroteT11		13.8	14	1	1.76	0.57	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3006	OroteT12		13.8	30	1	0.61	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3006	OroteT12		13.8	29	1	0.61	0.13	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25		13.8	35	1	1.97	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25		13.8	33	1	1.97	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3007	CldST25		13.8	34	1	1.97	0.78	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95		13.8	94	1	2.32	0.06	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95		13.8	1	1	0.76	0.02	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95		13.8	90	1	0.39	0.01	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95		13.8	98	1	1.03	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95		13.8	92	1	0.02	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3009	PulanT95		13.8	95	1	3.71	0.09	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3011	UmatT120		13.8	40	1	1.41	-0.31	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3011	UmatT120		13.8	41	1	0.91	-0.2	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3101	Agana T9		13.8	26	1	2.51	0.52	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65		13.8	50	1	7.65	0.73	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65		13.8	51	1	2.92	0.28	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65		13.8	52	1	4.96	0.48	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3102	AganaT65		13.8	53	1	5.3	0.51	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75		13.8	12	1	4.27	0.3	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75		13.8	10	1	5.28	0.37	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3103	BarriT75		13.8	13	1	2.71	0.19	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3104	RadBaT23		13.8	41	1	0.03	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	
3104	RadBaT23		13.8	44	1	0.03	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0	

3104 RadBaT23	13.8	49	1	0.03	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3104 RadBaT23	13.8	43	1	0.03	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105 RadBaT24	13.8	47	1	0.15	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105 RadBaT24	13.8	46	1	0.15	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3105 RadBaT24	13.8	48	1	0.15	0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3106 TamunT50	13.8	1	1	3.87	0.32	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3106 TamunT50	13.8	5	1	5.25	0.44	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3106 TamunT50	13.8	6	1	1.07	0.09	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3107 TumonT60	13.8	40	1	5.16	1.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3107 TumonT60	13.8	41	1	3.37	0.67	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3107 TumonT60	13.8	42	1	4.2	0.84	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3108 TamunT51	13.8	2	1	2.37	0.33	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3108 TamunT51	13.8	4	1	3.4	0.47	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3108 TamunT51	13.8	3	1	5.48	0.76	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3109 TumonT61	13.8	44	1	1.98	0.31	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3109 TumonT61	13.8	45	1	5.6	0.88	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3109 TumonT61	13.8	46	1	2.43	0.38	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3109 TumonT61	13.8	43	1	1.98	0.31	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3110 AnigT100	13.8	80	1	1.51	-0.02	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3110 AnigT100	13.8	82	1	3.15	-0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3110 AnigT100	13.8	83	1	3.05	-0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3110 AnigT100	13.8	81	1	2.36	-0.02	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113 SanVT122	13.8	2	1	1.88	0.68	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113 SanVT122	13.8	4	1	1.08	0.39	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113 SanVT122	13.8	3	1	7.59	2.74	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3113 SanVT122	13.8	1	1	1.28	0.46	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201 HarmnT21	13.8	11	1	6.37	1.71	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201 HarmnT21	13.8	46	1	5.02	1.34	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201 HarmnT21	13.8	47	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3201 HarmnT21	13.8	12	1	0.12	0.03	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3202 HarmnT22	13.8	14	1	0.05	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3202 HarmnT22	13.8	45	1	0.05	0	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3204 DededT55	13.8	89	1	4.56	-0.01	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3204 DededT55	13.8	88	1	6.14	-0.02	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3204 DededT55	13.8	87	1	4	-0.01	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205 MarboT14	13.8	51	1	0.11	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205 MarboT14	13.8	52	1	0.11	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205 MarboT14	13.8	53	1	0.11	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3205 MarboT14	13.8	54	1	0.11	0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208 AnderT15	13.8	63	1	1.09	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208 AnderT15	13.8	66	1	1.09	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208 AnderT15	13.8	65	1	1.09	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208 AnderT15	13.8	68	1	1.08	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208 AnderT15	13.8	67	1	1.09	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3208 AnderT15	13.8	62	1	1.08	0.29	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209 AnderT16	13.8	93	1	2.08	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209 AnderT16	13.8	91	1	2.08	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3209 AnderT16	13.8	94	1	2.08	0.24	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3210 MacheT90	13.8	72	1	2.5	-0.06	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3210 MacheT90	13.8	71	1	5.69	-0.14	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3210 MacheT90	13.8	70	1	4.95	-0.12	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3211 PagaT115	13.8	23	1	3.9	0.53	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3211 PagaT115	13.8	22	1	6.27	0.86	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3211 PagaT115	13.8	21	1	4.61	0.63	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3212 Yigo T30	13.8	31	1	6.55	1.47	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3212 Yigo T30	13.8	32	1	5.84	1.31	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3212 Yigo T30	13.8	30	1	5.64	1.27	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3213 GAA T105	13.8	10	1	3.07	-0.07	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3213 GAA T105	13.8	11	1	4.45	-0.09	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
3213 GAA T105	13.8	12	1	1.87	-0.04	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201 NCS T47	4.16	1	1	0.07	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201 NCS T47	4.16	2	1	0.07	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201 NCS T47	4.16	3	1	0.07	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0
4201 NCS T47	4.16	4	1	0.07	0.05	0	0	0	0	1	0	0	0	1	1	0	0	40	1	1	39	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	ID	CK	SE	ST	G-PU	B-PU	SVD	SNAME	SKV	SID	STSW	AREA	ZONE	YI	MI	DI	YO	MO	DO	OWN	LID
3003	TalofT80	13.8	0			0 b			1	0	0	0.03	0		0		0	1	1	90	1	1	89	12	31	0
3109	TumonT61	13.8	0			0 b			1	1	0	0.03	0		0		0	1	2	90	1	1	89	12	31	0
3208	AnderT15	13.8	0			0 b			1	1	0	0.03	0		0		0	1	3	90	1	1	89	12	31	0
3209	AnderT16	13.8	0			0 b			1	1	0	0	0		0		0	1	3	90	1	1	89	12	31	0
3212	Yigo T30	13.8	0			0 b			1	1	0	0.03	0		0		0	1	3	40	1	1	39	12	31	0
3113	SanVT122	13.8	0			0 b			1	0	0	0.03	0		0		0	1	2	90	1	1	89	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	CK	ST	T	TCULTAP	ANGLP	REG	RNAME	RKV	VACT	VMAX	VMIN	STEPP	TMAX	TMIN	TAPFP	TAPFS	AREA	ZONE
1001	Cab115EB	115	1	Cabras_1	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1001	Cab115EB	115	2	Cabras_2	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
2004	Apr345	34.5	2701	Apra_115	115	1	1	0	1	0	0		0	0	0	0	0	1.1	0.9	1	1	1	2
2014	Ten345	34.5	11	TenjoDsl	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1001	Cab115EB	115	12	Cabras_3	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.05	1	1	1
1001	Cab115EB	115	13	Cabras_4	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.05	1	1	1
2002	Pit345	34.5	15	TEMES	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
1005	Pit115B1	115	16	MEC 8	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.0632	1	1	1
1005	Pit115B1	115	17	MEC 9	13.8	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1.0632	1	1	1
2201	Tan345B1	34.5	201	Tangui_1	14.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	0.9524	1	1	3
2201	Tan345B1	34.5	202	Tangui_2	14.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	0.9524	1	1	3
2203	Ded345B1	34.5	209	Ded CT#2	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	0.95	1	3
2203	Ded345B1	34.5	208	Ded CT#1	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	0.95	1	3
2204	Mar345B1	34.5	205	Marbo CT	13.8	1	1	1	0.975	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	3
2001	Cab345	34.5	1001	Cab115EB	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96869	1	1	1
2002	Pit345	34.5	1005	Pit115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96869	1	1	1
2101	Aga345	34.5	1101	Aga115	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	1	1	2
2104	Tam345B1	34.5	1103	Tam115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	1	1	3
2202	Har345B3	34.5	1201	Har115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96246	0.975	1	3
2219	Har345B1	34.5	1201	Har115B1	115	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	1.1	0.9	0.96261	0.975	1	3
2001	Cab345	34.5	4001	CbrsStUp	4.16	1	1	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	1
3001	Piti T7	13.8	2002	Pit345	34.5	1	1	2	1.04375	0	3001	Piti T7	13.8	1.0215	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3002	Piti T8	13.8	2002	Pit345	34.5	1	1	2	1.04375	0	3002	Piti T8	13.8	1.02	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3003	TalofT80	13.8	2003	Tal345	34.5	1	1	2	1.05	0	3003	TalofT80	13.8	1.0212	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3004	Apra T70	13.8	2004	Apr345	34.5	1	1	2	1.0375	0	3004	Apra T70	13.8	1.0253	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3005	OroteT11	13.8	2005	Oro345	34.5	1	1	2	1.05625	0	3005	OroteT11	13.8	1.0219	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3006	OroteT12	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3006	OroteT12	13.8	1.02	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3012	OroteT13	13.8	2005	Oro345	34.5	1	1	2	1.06875	0	3012	OroteT13	13.8	1.0207	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3013	OroteT10	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3013	OroteT10	13.8	1.0208	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3014	SRFT17	13.8	2009	SRF345	34.5	1	1	2	1.05	0	3014	SRFT17	13.8	1.0235	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3015	SRFT18	13.8	2009	SRF345	34.5	1	1	2	1.05625	0	3015	SRFT18	13.8	1.0214	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3007	CldST25	13.8	2008	CldSt345	34.5	1	1	2	1.0375	0	3007	CldST25	13.8	1.021	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	1
3009	PulanT95	13.8	2011	Pul345	34.5	1	1	2	1.05625	0	3009	PulanT95	13.8	1.0224	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3011	UmatT120	13.8	2012	Uma345	34.5	1	1	2	1.03125	0	3011	UmatT120	13.8	1.0241	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3101	Agana T9	13.8	2101	Aga345	34.5	1	1	2	1.05625	0	3101	Agana T9	13.8	1.0227	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3102	AganaT65	13.8	2101	Aga345	34.5	1	1	2	1.075	0	3102	AganaT65	13.8	1.0226	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3103	BarriT75	13.8	2102	Bar345	34.5	1	1	2	1.0625	0	3103	BarriT75	13.8	1.0231	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3104	RadBaT23	13.8	2103	RBa345B1	34.5	1	1	2	0.99375	0	3104	RadBaT23	13.8	1.0203	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	2
3105	RadBaT24	13.8	2103	RBa345B1	34.5	1	1	2	1	0	3105	RadBaT24	13.8	1.0238	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	2
3106	TamunT50	13.8	2104	Tam345B1	34.5	1	1	2	1.05625	0	3106	TamunT50	13.8	1.0205	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3108	TamunT51	13.8	2104	Tam345B1	34.5	1	1	2	1.0625	0	3108	TamunT51	13.8	1.0205	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3107	TumonT60	13.8	2105	Tum345B1	34.5	1	1	2	1.06875	0	3107	TumonT60	13.8	1.0227	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3109	TumonT61	13.8	2105	Tum345B1	34.5	1	1	2	1.05	0	3109	TumonT61	13.8	1.0245	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3110	AnigT100	13.8	2106	Ani345B1	34.5	1	1	2	1.05625	0	3110	AnigT100	13.8	1.0239	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
3113	SanVT122	13.8	2108	SV345B1	34.5	1	1	2	1.06875	0	3113	SanVT122	13.8	1.023	1.03	1.02	0.00625	1.1	0.9	1	1	1	2
2201	Tan345B1	34.5	5201	TangoStr	2.4	1	0	1	1	0	0		0	0	1.05	0.95	-0.00625	0	0	1	1	1	3
3201	HarmnT21	13.8	2219	Har345B1	34.5	1	1	2	1.04375	0	3201	HarmnT21	13.8	1.0203	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3202	HarmnT22	13.8	2219	Har345B1	34.5	1	1	2	0.975	0	3202	HarmnT22	13.8	1.0204	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	3
3016	OroteT28	13.8	2005	Oro345	34.5	1	1	2	1.04375	0	3016	OroteT28	13.8	1.0222	1.03	1.02	0.00625	1.1	0.9	1	1	1	1
3204	DededT55	13.8	2203	Ded345B1	34.5	1	1	2	1	0	3204	DededT55	13.8	1.0219	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3205	MarboT14	13.8	2204	Mar345B1	34.5	1	1	2	1.03125	0	3205	MarboT14	13.8	1.0253	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
4201	NCS T47	4.16	2208	NCS345	34.5	1	1	2	0.98125	0	4201	NCS T47	4.16	1.0219	1.03	1.02	0.00625	1.1	0.9	1	0.95	1	3
3207	PotsT110	13.8	2209	Pott345	34.5	1	1	2	1.0375	0	3207	PotsT110	13.8	1.0215	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3208	AnderT15	13.8	2210	And345B1	34.5	1	1	2	1	0	3208	AnderT15	13.8	1.0252	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3209	AnderT16	13.8	2210	And345B1	34.5	1	1	2	1.00625	0	3209	AnderT16	13.8	1.0263	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3210	MacheT90	13.8	2211	Mac345B1	34.5	1	1	1	1	0	3210	MacheT90	13.8	1.0024	1.03	1.02	0.00625	1.1	0.9	1	0.975	1	3
3211	PagaT115	13.8	2212	Pag345B1	34.5	1	1	2	1.0625	0	3211	PagaT115	13.8	1.025	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3212	Yigo T30	13.8	2214	Yig345B1	34.5	1	1	1	1	0	3212	Yigo T30	13.8	1.02	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3213	GAA T105	13.8	2216	GAA345B1	34.5	1	1	2	1.04375	0	3213	GAA T105	13.8	1.0222	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
4213	GIAT Trm	4.16	2217	GIA345B1	34.5	1	1	2	1.05625	0	4213	GIAT Trm	4.16	1.0211	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
3300	Agrko13	12.02	2214	Yig345B1	34.5	1	1	1	1	0	0		0	0	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
6005	Aggreko	0.46	3300	Agrko13	12.02	1	1	1	1	0	0		0	0	1.03	1.02	0.00625	1.1	0.9	1	1	1	3
2018	Dandan	34.5	2019	Dandan_P\	0.48	1	1	1	1.025	0	0		0	0	1.1	0.9	0.00625	1.1	0.9	1	1	1	1

2018	Dandan	34.5	2020	Dandan_W	0.68	1	1	1	1.025	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2401	Hanwha_A	34.5	2403	Hanwha_P	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2402	Hanwha_B	34.5	2404	Hanwha_P	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2401	Hanwha_A	34.5	2405	Hanwha_E	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2402	Hanwha_B	34.5	2406	Hanwha_E	0.55	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2501	Mangilao_	34.5	2503	KEPCO_PV	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2502	Mangilao_	34.5	2504	KEPCO_PV	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2501	Mangilao_	34.5	2505	KEPCO_ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2502	Mangilao_	34.5	2506	KEPCO_ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2219	Har345B1	34.5	4202	SF ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2005	Oro345	34.5	4005	Orote ESS	0.48	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2407	HanwhaA_	115	2401	Hanwha_A	34.5	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2408	HanwhaB_	115	2402	Hanwha_B	34.5	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2111	AgESS345	34.5	3111	AgESS440	0.44	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
2003	Tal345	34.5	3203	TaESS440	0.44	1	1	1	1	0	0	0	0	1.5	0.51	0.00625	1.5	0.51	1	1	1	1
1201	Har115B1	115	19	HAR_CT1	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	20	HAR_CT2	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	22	HAR_CT3	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1
1201	Har115B1	115	21	HAR_ST	13.8	1	1	1	1	0	0	0	0	1	1	0.00625	1	1	1	1	1	1

FROM	FNAME	FKV	TO	TNAME	TKV	CK	S	MVA	VNOMF	VNOMT	(--R	X--)	BMAG	TZ	MVA1	MVA2	MVA3	MVA4	ALOSS	TERT	TERNAME	TERKV	WCANGL	AREA	AF	AT	ZONE	ZF	ZT	YI	MI	DI	YO	MO	DO	OWN	LID
1001	Cab115EB	115	1	Cabras_1	13.8	1	1	80	115	13.2	0.0044	0.1	0	0	80	80	80	80	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
1001	Cab115EB	115	2	Cabras_2	13.8	1	1	80	115	13.2	0.0044	0.0986	0	0	80	80	80	80	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
2004	Apr345	34.5	2701	Apra_115	115	1	1	50	34.5	115	0.003	0.0606	0	0	50	50	50	50	0	0			0	0	1	1	1	2	1	1	0	0	0	0	0	0	0
2014	Ten345	34.5	11	TenjoDsl	13.8	1	1	18	34.5	13.8	0.0038	0.0764	0	0	18	18	24	30	1	0			0	0	1	1	1	1	1	1	97	9	1	89	12	31	0
1001	Cab115EB	115	12	Cabras_3	13.8	1	1	37.5	115	13.8	0.0043	0.0861	0	0	37.5	37.5	50	50	1	0			0	0	1	1	1	1	1	1	95	9	30	89	12	31	0
1001	Cab115EB	115	13	Cabras_4	13.8	1	1	37.5	115	13.8	0.0043	0.0866	0	0	37.5	37.5	50	50	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0
2002	Pit345	34.5	15	TEMES	13.8	1	1	44	34.5	13.8	0.0051	0.1017	0	0	44	44	59	59	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0
1005	Pit115B1	115	16	MEC 8	13.8	1	1	30	115	13.8	0.006	0.121	0	0	56	56	56	56	1	0			0	0	1	1	1	1	1	1	99	1	1	89	12	31	0
1005	Pit115B1	115	17	MEC 9	13.8	1	1	56	115	13.8	0.0061	0.1212	0	0	56	56	56	56	1	0			0	0	1	1	1	1	1	1	96	10	1	89	12	31	0
2201	Tan345B1	34.5	201	Tangui_1	14.4	1	0	18	36.1	13.8	0.0034	0.0687	0	0	18	24	30	33.6	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2201	Tan345B1	34.5	202	Tangui_2	14.4	1	0	18	36.1	13.8	0.0028	0.0563	0	0	18	24	30	33.6	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2203	Ded345B1	34.5	209	Ded CT#2	13.8	1	1	18	34.5	13.8	0.0039	0.0782	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2203	Ded345B1	34.5	208	Ded CT#1	13.8	1	1	18	34.5	13.8	0.0039	0.0775	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2204	Mar345B1	34.5	205	Marbo CT	13.8	1	1	12	34.5	13.8	0.0038	0.0769	0	0	12	12	16	20	1	0			0	0	1	1	1	3	3	3	40	1	1	39	12	31	0
2001	Cab345	34.5	1001	Cab115EB	115	1	1	60	34.5	115	0.0031	0.0617	0	0	60	80	100	112	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
2002	Pit345	34.5	1005	Pit115B1	115	1	1	60	34.5	115	0.0021	0.0802	0	0	60	60	80	100	1	0			0	0	1	1	1	1	1	1	2	9	1	89	12	31	0
2101	Aga345	34.5	1101	Aga115	115	1	1	60	34.5	115	0.003	0.0606	0	0	60	80	100	112	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
2104	Tam345B1	34.5	1103	Tam115B1	115	1	1	60	34.5	115	0.0025	0.0789	0	0	60	80	100	112	1	0			0	0	1	1	1	3	2	2	90	1	1	89	12	31	0
2202	Har345B3	34.5	1201	Har115B1	115	1	1	112	34.5	115	0.003	0.1413	0	0	80	80	100	112	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2219	Har345B1	34.5	1201	Har115B1	115	1	1	60	34.5	115	0.0029	0.0607	0	0	60	80	100	112	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2001	Cab345	34.5	4001	CbrStUp	4.16	1	1	5	34.5	4.2	0.0059	0.0592	0	0	5	5	7	7	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3001	Piti T7	13.8	2002	Pit345	34.5	1	1	7.5	13.8	34.5	0.0038	0.0756	0	0	7.5	8.4	9.7	10.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3002	Piti T8	13.8	2002	Pit345	34.5	1	1	7.5	13.8	34.5	0.0038	0.0762	0	0	7.5	8.4	9.7	10.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3003	TaloffT80	13.8	2003	Tal345	34.5	1	1	10	13.8	34.5	0.0032	0.0639	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3004	Apra T70	13.8	2004	Apr345	34.5	1	1	10	13.8	34.5	0.0032	0.0639	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3005	OroteT11	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0031	0.0628	0	0	10	10	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3006	OroteT12	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0032	0.0638	0	0	10	10	12.5	12.5	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3012	OroteT13	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0.0031	0.0629	0	0	10	10	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3013	OroteT10	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0	0.0667	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3014	SRFT17	13.8	2009	SRF345	34.5	1	1	10	13.8	34.5	0	0.0665	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3015	SRFT18	13.8	2009	SRF345	34.5	1	1	10	13.8	34.5	0	0.0671	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3007	CldST25	13.8	2008	CldSt345	34.5	1	1	10	13.8	34.5	0	0.068	0	0	10	11.2	12.5	14	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3009	PulanT95	13.8	2011	Pul345	34.5	1	1	18	13.8	34.5	0.0041	0.0765	0	0	18	18	24	20	1	0			0	0	1	1	1	1	1	1	90	1	1	89	12	31	0
3011	UmatT120	13.8	2012	Uma345	34.5	1	1	18	13.8	34.5	0.0039	0.0776	0	0	18	18	24	30	1	0			0	0	1	1	1	1	1	1	97	9	1	89	12	31	0
3101	Agana T9	13.8	2101	Aga345	34.5	1	1	12	13.8	34.5	0.0054	0.0601	0	0	12	12	16	20	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3102	AganaT65	13.8	2101	Aga345	34.5	1	1	18	13.8	34.5	0.0068	0.0737	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3103	BarriT75	13.8	2102	Bar345	34.5	1	1	15	13.8	34.5	0.0047	0.0698	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3104	RadBaT23	13.8	2103	RBa345B1	34.5	1	1	7.5	13.8	34.5	0.0033	0.0651	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3105	RadBaT24	13.8	2103	RBa345B1	34.5	1	1	7.5	13.8	34.5	0.0033	0.0655	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3106	TamunT50	13.8	2104	Tam345B1	34.5	1	1	15	13.8	34.5	0.0046	0.0709	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3108	TamunT51	13.8	2104	Tam345B1	34.5	1	1	15	13.8	34.5	0.0041	0.0829	0	0	15	20	25	28	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3107	TumonT60	13.8	2105	Tum345B1	34.5	1	1	18	13.8	34.5	0.0068	0.0737	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3109	TumonT61	13.8	2105	Tum345B1	34.5	1	1	15	13.8	34.5	0.0038	0.0769	0	0	15	20	25	28	1	0			0	0	1	1	1	2	2	2	90	1	1	89	12	31	0
3110	AniqT100	13.8	2106	Ani345B1	34.5	1	1	18	13.8	34.5	0.0041	0.0765	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	94	1	1	89	12	31	0
3113	SanVT122	13.8	2108	SV345B1	34.5	1	1	18	13.8	34.5	0.0028	0.0749	0	0	18	18	24	30	1	0			0	0	1	1	1	2	2	2	94	1	1	89	12	31	0
2201	Tan345B1	34.5	5201	TangoStr	2.4	1	0	2.5	34.5	2.4	0.0033	0.0651	0	0	2.5	2.5	2.5	2.5	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3201	HarmnT21	13.8	2219	Har345B1	34.5	1	1	18	13.8	34.5	0.0039	0.0743	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3202	HarmnT22	13.8	2219	Har345B1	34.5	1	1	10	13.8	34.5	0.0031	0.0629	0	0	10	10	12.5	14	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3016	OroteT28	13.8	2005	Oro345	34.5	1	1	10	13.8	34.5	0	0.0639	0	0	10	11	13	14	1	0			0	0	1	1	1	1	1	1	95	11	1	89	12	31	0
3204	DededT55	13.8	2203	Ded345B1	34.5	1	1	15	13.8	34.5	0.0041	0.0762	0	0	15	15	18.7	22.4	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3205	MarboT14	13.8	2204	Mar345B1	34.5	1	1	10	13.8	34.5	0.0031	0.0628	0	0	10	10	12.5	14	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
4201	NCS T47	4.16	2208	NCS345	34.5	1	1	3.8	4.2	34.5	0.0042	0.0841	0	0	3.8	4.2	4.7	5.3	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3207	PotsT110	13.8	2209	Pott345	34.5	1	1	3.8	13.8	34.5	0.0038	0.0758	0	0	3.8	4.2	4.7	5.2	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3208	AnderT15	13.8	2210	And345B1	34.5	1	1	30	13.8	34.5	0.0038	0.0765	0	0	30	30	40	40	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3209	AnderT16	13.8	2210	And345B1	34.5	1	1	30	13.8	34.5	0.0038	0.0768	0	0	30	30	40	40	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3210	MacheT90	13.8	2211	Mac345B1	34.5	1	1	15	13.8	34.5	0.0048	0.0765	0	0	15	20	25	28	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3211	PagaT115	13.8	2212	Pag345B1	34.5	1	1	18	13.8	34.5	0.0041	0.0761	0	0	18	18	24	30	1	0			0	0	1	1	1	3	3	3	97	9	1	89	12	31	0
3212	Yigo T30	13.8	2214	Yig345B1	34.5	1	1	18	13.8	34.5	0.004	0.0752	0	0	18	18	24	27	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
3213	GAA T105	13.8	2216	GAA345B1	34.5	1	1	18	13.8	34.5	0.004	0.0756	0	0	18	18	24	25	1	0			0	0	1	1	1	3	3	2	90	1	1	89	12	31	0
4213	GIAT Trm	4.16	2217	GIA345B1	34.5	1	1	7.5	4.2	34.5	0.0035	0.0691	0	0	7.5	7.5	9.4	9.4	1	0			0	0	1	1	1	3	3	2	90	1	1	89	12	31	0
3300	Agrko13	12.02	2214	Yig345B1	34.5	1	1	50	13.8	39.6	0	0.083	0	0	50	50	50	50	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
6005	Aggreko	0.46	3300	Agrko13	12.02	1	1	44.1	0.5	12.5	0.0102	0.054	0	0	44.1	44.1	44.1	44.1	1	0			0	0	1	1	1	3	3	3	90	1	1	89	12	31	0
2018	Dandan	34.5	2019	Dandan_PV	0.48	1	1	20	34.5	0.5	0.0026	0.0574	0	0	33.2	33.2	33.2	33.2	1	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	1
2018	Dandan	34.5	2020	Dandan_W	0.68	1	1	5.6	34.5	0.7	0.006	0.06	0	0	5.6	5.6	5.6	5.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2401	Hanwha_A	34.5	2403	Hanwha_PV	0.55	1	1	31.5	34.5	0.6	0	0.0575	0	0	31.5	31.5	31.5	31.5	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2402	Hanwha_B	34.5	2404	Hanwha_PV	0.55	1	1	31.5	34.5	0.6	0	0.0575	0	0	31.5	31.5	31.5	31.5	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2401	Hanwha_A	34.5	2405	Hanwha_ES	0.55	1	1	20.3	34.5	0.6	0	0.0575	0	0	20.3	20.3	20.3	20.3	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2402	Hanwha_B	34.5	2406	Hanwha_ES	0.55	1	1	20.3	34.5	0.6	0	0.0575	0	0	20.3	20.3	20.3	20.3	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2501	Mangilao_A	34.5	2503	KEPCO_PV1	0.48	1	1	32	34.5	0.5	0.0065	0.065	0	0	32	32	32	32	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2502	Mangilao_B	34.5	2504	KEPCO_PV2	0.48	1	1	32	34.5	0.5	0.0065	0.065	0	0	32	32	32	32	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2501	Mangilao_A	34.5	2505	KEPCO_ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2502	Mangilao_B	34.5	2506	KEPCO_ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2219	Har345B1	34.5	4202	SF ESS	0.48	1	1	17.6	34.5	0.5	0.0065	0.065	0	0	17.6	17.6	17.6	17.6	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2005	Oro345	34.5	4005	Orote ESS	0.48	1	1	25	34.5	0.5	0.0065	0.065	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2407	HanwhaA_	115	2401	Hanwha_A	34.5	1	1	25	115	34.5	0.01	0.1	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2408	HanwhaB_	115	2402	Hanwha_B	34.5	1	1	25	115	34.5	0.01	0.1	0	0	25	25	25	25	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2111	AgESS345	34.5	3111	AgESS440	0.44	1	1	30	34.5	0.4	0	0.07	0	0	30	30	30	30	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
2003	Tal345	34.5	3203	TaESS440	0.44	1	1	20	34.5	0.4	0	0.07	0	0	20	20	20	20	0	0			0	0	1	1	1	1	1	1	40	1	1	39	12	31	0
1201	Har115B1	115	19	HAR_CT1	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0
1201	Har115B1	115	20	HAR_CT2	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0
1201	Har115B1	115	22	HAR_CT3	13.8	1	1	39	115	13.8	0	0.081	0	0	65	65	65	65	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0
1201	Har115B1	115	21	HAR_ST	13.8	1	1	45	115	13.8	0	0.081	0	0	50	50	50	50	0	0			0	0	1	1	1	1	1	3	1	40	1	1	39	12	31	0

FROM	FNAME	FKV	TO	TNAME	TKV	CK	SE	ST	(R--PU	X-PU)	B-PU	MVA1	MVA2	MVA3	MVA4	ALOSS	LENGTH	TP	AREA	ZONE	AF	AT	YI	MI	DI	YO	MO	DO	OWN	LID	
9	ManenDsl	13.8	3009	PulanT95	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
10	TalofDsl	13.8	3003	TalofT80	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
14	OrteUnts	13.8	3005	OroteT11	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	95	11	1	89	12	31	0	1	
210	Mache_CT	13.8	3210	MacheT90	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
211	Yigo__CT	13.8	3212	Yigo T30	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2401	Hanwha_A	34.5	2402	Hanwha_B	34.5	1	1	0	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	40	1	1	39	12	31	0	1	
2501	Mangilao_	34.5	2502	Mangilao_	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2101	Aga345	34.5	2111	AgESS345	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	2	1	1	40	1	1	39	12	31	0	1	
1001	Cab115EB	115	1005	Pit115B1	115	1	1	1	0.0005	0.0026	0.0004	136	181	136	181	1	0.48	0	1	2	1	1	90	1	1	89	12	31	0	2	
1001	Cab115EB	115	1101	Aga115	115	1	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	1	
1001	Cab115EB	115	1101	Aga115	115	2	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	2	
1005	Pit115B1	115	1201	Har115B1	115	1	1	1	0.0115	0.0662	0.011	136	181	136	181	1	12.96	0	1	2	1	1	90	1	1	89	12	31	0	2	
1101	Aga115	115	1103	Tam115B1	115	1	1	1	0.002	0.0104	0.0018	136	181	136	181	1	2.08	0	1	3	1	1	90	1	1	89	12	31	0	1	
1103	Tam115B1	115	1201	Har115B1	115	1	1	1	0.0043	0.023	0.0039	136	181	136	181	1	4.54	0	1	3	1	1	90	1	1	89	12	31	0	1	
2001	Cab345	34.5	2002	Pit345	34.5	1	1	1	0.0016	0.0076	0	81	108	81	108	1	0.3	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2017	Tenjotap	34.5	1	1	1	0.0413	0.2136	0.0003	41	54	41	54	1	3.65	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2010	CSTapX21	34.5	1	1	1	0.0286	0.1458	0.0003	41	54	41	54	1	3.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2101	Aga345	34.5	1	1	1	0.0556	0.3013	0.0005	41	54	41	54	1	5.66	0	1	2	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2106	Ani345B1	34.5	1	1	1	0.0375	0.1762	0.0003	41	54	41	54	1	3.5	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2004	Apr345	34.5	1	1	1	0.1773	0.3705	0.0005	23	31	23	31	1	6.9	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2401	Hanwha_A	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2003	Tal345	34.5	2402	Hanwha_B	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2501	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_	34.5	2204	Mar345B1	34.5	1	1	0	0.0567	0.255	0	41	54	41	54	1	5.62	0	1	3	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2401	Hanwha_A	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2402	Hanwha_B	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2004	Apr345	34.5	2005	Oro345	34.5	1	1	1	0.0405	0.1902	0.0003	41	54	41	54	1	3.8	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2012	Uma345	34.5	1	1	1	0.1284	0.6507	0.0011	41	54	41	54	1	13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2017	Tenjotap	34.5	1	1	1	0.0174	0.0958	0.0001	41	54	41	54	1	1.64	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2007	CSTapX20	34.5	1	1	1	0.0338	0.0796	0	22	29	22	29	1	1.27	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2010	CSTapX21	34.5	1	1	1	0.0156	0.0764	0.0001	41	54	41	54	1	1.03	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	1	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	2	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2007	CSTapX20	34.5	1	1	1	0.0898	0.2131	0.0003	22	29	22	29	1	3.08	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2007	CSTapX20	34.5	1	1	0	0.0071	0.0162	0	22	29	22	29	1	0.13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2010	CSTapX21	34.5	1	1	1	0.0048	0.0093	0	25.5	34	25.5	34	1	0.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2003	Tal345	34.5	1	1	1	0.0704	0.3619	0.0007	41	54	41	54	1	7.44	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2102	Bar345	34.5	1	1	1	0.0838	0.3837	0.0007	41	54	41	54	1	7.85	0	1	1	1	1	90	1	1	89	12	31	0	1	
2014	Ten345	34.5	2017	Tenjotap	34.5	1	1	1	0.0074	0.0377	0	41	54	41	54	1	0.69	0	1	1	1	1	97	9	1	89	12	31	0	1	
2003	Tal345	34.5	2018	Dandan	34.5	1	1	1	0.0686	0.1621	0	21.4	28.3	21.4	28.3	1	5.62	0	1	1	1	1	97	9	1	89	12	31	0	1	
2101	Aga345	34.5	2102	Bar345	34.5	1	1	1	0.0318	0.139	0.0003	41	54	41	54	1	3.1	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2103	RBa345B1	34.5	1	1	1	0.0419	0.2119	0.0004	22	29	22	29	1	4.6	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2104	Tam345B1	34.5	1	1	1	0.0249	0.1122	0.0002	41	54	41	54	1	2.33	0	1	2	1	1	90	1	1	89	12	31	0	1	
2102	Bar345	34.5	2216	GAA345B1	34.5	1	1	1	0.0361	0.1554	0.0003	41	54	41	54	1	4.6	0	1	2	1	1	40	1	1	39	12	31	0		
2103	RBa345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0773	0.1637	0.0013	22	29	22	29	1	4.36	0	1	3	1	1	90	1	1	89	12	31	0	1	
2204	Mar345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0796	0.1689	0.0013	22	29	22	29	1	4.46	0	1	3	1	1	90	1	1	89	12	31	0		
2104	Tam345B1	34.5	2105	Tum345B1	34.5	1	1	1	0.0218	0.0401	0.0022	41	54	41	54	1	1.68	0	1	2	1	1	90	1	1	89	12	31	0	1	
2104	Tam345B1	34.5	2110	HafaTap	34.5	1	1	1	0.0025	0.0018	0	31	42	31	42	1	0.19	0	1	2	1	1	96	1	1	89	12	31	0		
2110	HafaTap	34.5	2108	SV345B1	34.5	1	1	1	0.014	0.0589	0.0001	41	54	41	54	1	1.46	0	1	2	1	1	96	1	1	89	12	31	0	1	
2105	Tum345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0359	0.0662	0.0038	41	54	41	54	1	2.77	0	1	3	1	1	90	1	1	89	12	31	0	1	
2106	Ani345B1	34.5	2101	Aga345	34.5	1	1	1	0.0244	0.1237	0.0002	41	54	41	54	1	2.47	0	1	2	1	1	90	1	1	89	12	31	0	1	
2108	SV345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0211	0.0213	0.0027	41	54	41	54	1	3.4	0	1	3	1	1	96	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2219	Har345B1	34.5	1	1	0	0.0108	0.0409	0.0022	41	54	41	54	1	1.87	0	1	3	1	1	90	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2202	Har345B3	34.5	2	1	0	0.0108	0.0409	0.0021	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	2	
2202	Har345B3	34.5	2203	Ded345B1	34.5	1	1	1	0.0293	0.149	0.0002	41	54	41	54	1	2.53	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2210	And345B1	34.5	1	1	1	0.0666	0.0819	0.0106	31	42	31	42	1	7.82	0	1	3	1	1	90	1	1	89	12	31	0		
2219	Har345B1	34.5	2208	NCS345	34.5	1	1	1	0.0997	0.226	0.0003	22	29	22	29	1	4.03	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2211	Mac345B1	34.5	1	1	1	0.0094	0.0097	0.0026	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	1	
2219	Har345B1	34.5	2214	Yig345B1	34.5	1	1	1	0.0658	0.3018	0.0005	41	54	41	54	1	6.48	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2219	Har345B1	34.5	1	1	0	0	0.001	0	90	120	90	120	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2204	Mar345B1	34.5	1	1	1	0.0187	0.0909	0.0002	41	54	41	54	1	1.85	0	1	3	1	1	90	1	1	89	12	31	0	1	
2208	NCS345	34.5	2209	Pott345	34.5	1	1	1	0.0347	0.0788	0.0001	22	29	22	29	1	1.41	0	1	3	1	1	90	1	1	89	12	31	0	1	
2209	Pott345	34.5	2210	And345B1	34.5	1	1	1	0.1241	0.2814	0.0002	22	29	22	29	1	5.02	0	1	3	1	1	90	1	1	89	12	31	0	1	
2211	Mac345B1	34.5	2212	Pag345B1	34.5	1	1	0	0.0762	0.1712	0.0003	41	54	41	54	1	3.96	0	1	3	1	1	40	1	1	39	12	31	0		
2211	Mac345B1	34.5	2216	GAA345B1	34.5	1	1	1	0.011	0.0114	0.003	41	54	41	54	1	2.12	0	1	3	1	1	40	1	1	39	12	31	0		
2214	Yig345B1	34.5	2210	And345B1	34.5	1	1	1	0.0329	0.1511	0.0003	41	54	41	54	1	3.04	0	1	3	1	1	90	1	1	89	12	31	0	1	
2216	GAA345B1	34.5	2217	GIA345B1	34.5	1	1	1	0.0052	0.0064	0.0008	31	42	31	42	1	0.61	0	1	2	1	1	40	1	1	39	12	31	0		
2218	GiatTap	34.5	2217	GIA345B1	34.5	1	1	1	0.0053	0.0066	0.0008	31	42	31	42	1	0.63	0	1	2	1	1	40	1	1	39	12	31	0	1	
2218	GiatTap	34.5	2219	Har345B1	34.5	1	1	1	0.0316	0.1487	0.0003	41	54	41	54	1	2.97	0	1	2	1	1	40	1	1	39	12	31	0	1	
1005	Pit115B1	115	2701	Apra_115	115	1	1	1	0.0055	0.0284	0.0043	136	180	136	180	1	5.4	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2407	HanwhaA_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2408	HanwhaB_	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2501	Mangilao_	34.5	2507	Mangilao	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0.02	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	1	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2211	Mac345B1	34.5	1	1	1	0.047	0.2243	0	41	54	41	54	1	4.48	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	2	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		

FROM	FNAME	FKV	TO	TNAME	TKV	CK	SE	ST	(R--PU	X-PU)	B-PU	MVA1	MVA2	MVA3	MVA4	ALOSS	LENGTH	TP	AREA	ZONE	AF	AT	YI	MI	DI	YO	MO	DO	OWN	LID	
9	ManenDsl	13.8	3009	PulanT95	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
10	TalofDsl	13.8	3003	TalofT80	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	90	1	1	89	12	31	0	1	
14	OrteUnts	13.8	3005	OroteT11	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	95	11	1	89	12	31	0	1	
210	Mache_CT	13.8	3210	MacheT90	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
211	Yigo__CT	13.8	3212	Yigo T30	13.8	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2401	Hanwha_A	34.5	2402	Hanwha_B	34.5	1	1	0	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	1	1	1	40	1	1	39	12	31	0	1	
2501	Mangilao_A	34.5	2502	Mangilao_B	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	3	1	1	40	1	1	39	12	31	0	1	
2101	Aga345	34.5	2111	AgESS345	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0	0	1	2	1	1	40	1	1	39	12	31	0	1	
1001	Cab115EB	115	1005	Pit115B1	115	1	1	1	0.0005	0.0026	0.0004	136	181	136	181	1	0.48	0	1	2	1	1	90	1	1	89	12	31	0	2	
1001	Cab115EB	115	1101	Aga115	115	1	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	1	
1001	Cab115EB	115	1101	Aga115	115	2	1	1	0.0069	0.04	0.0056	136	181	136	181	1	7.2	0	1	2	1	1	90	1	1	89	12	31	0	2	
1005	Pit115B1	115	1201	Har115B1	115	1	1	1	0.0115	0.0662	0.011	136	181	136	181	1	12.96	0	1	2	1	1	90	1	1	89	12	31	0	2	
1101	Aga115	115	1103	Tam115B1	115	1	1	1	0.002	0.0104	0.0018	136	181	136	181	1	2.08	0	1	3	1	1	90	1	1	89	12	31	0	1	
1103	Tam115B1	115	1201	Har115B1	115	1	1	1	0.0043	0.023	0.0039	136	181	136	181	1	4.54	0	1	3	1	1	90	1	1	89	12	31	0	1	
2001	Cab345	34.5	2002	Pit345	34.5	1	1	1	0.0016	0.0076	0	81	108	81	108	1	0.3	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2017	Tenjotap	34.5	1	1	1	0.0413	0.2136	0.0003	41	54	41	54	1	3.65	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2010	CSTapX21	34.5	1	1	1	0.0286	0.1458	0.0003	41	54	41	54	1	3.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2101	Aga345	34.5	1	1	1	0.0556	0.3013	0.0005	41	54	41	54	1	5.66	0	1	2	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2106	Ani345B1	34.5	1	1	1	0.0375	0.1762	0.0003	41	54	41	54	1	3.5	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2004	Apr345	34.5	1	1	1	0.1773	0.3705	0.0005	23	31	23	31	1	6.9	0	1	1	1	1	90	1	1	89	12	31	0	1	
2003	Tal345	34.5	2401	Hanwha_A	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2003	Tal345	34.5	2402	Hanwha_B	34.5	1	1	0	0.0589	0.2814	0	41	54	41	54	1	5.62	0	1	1	1	1	40	1	1	0	0	0	0		
2501	Mangilao_A	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_B	34.5	2212	Pag345B1	34.5	1	1	0	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	0	0	0	0		
2502	Mangilao_B	34.5	2204	Mar345B1	34.5	1	1	0	0.0567	0.255	0	41	54	41	54	1	5.62	0	1	3	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2401	Hanwha_A	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2012	Uma345	34.5	2402	Hanwha_B	34.5	1	1	0	0.1781	0.8512	0	41	54	41	54	1	17	0	1	1	1	1	40	1	1	0	0	0	0		
2004	Apr345	34.5	2005	Oro345	34.5	1	1	1	0.0405	0.1902	0.0003	41	54	41	54	1	3.8	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2012	Uma345	34.5	1	1	1	0.1284	0.6507	0.0011	41	54	41	54	1	13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2004	Apr345	34.5	2017	Tenjotap	34.5	1	1	1	0.0174	0.0958	0.0001	41	54	41	54	1	1.64	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2007	CSTapX20	34.5	1	1	1	0.0338	0.0796	0	22	29	22	29	1	1.27	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2010	CSTapX21	34.5	1	1	1	0.0156	0.0764	0.0001	41	54	41	54	1	1.03	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	1	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2005	Oro345	34.5	2009	SRF345	34.5	2	1	1	0.0094	0.0183	0	25.5	34	25.5	34	1	1.04	0	1	1	1	1	90	1	1	89	12	31	0	1	
2002	Pit345	34.5	2007	CSTapX20	34.5	1	1	1	0.0898	0.2131	0.0003	22	29	22	29	1	3.08	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2007	CSTapX20	34.5	1	1	0	0.0071	0.0162	0	22	29	22	29	1	0.13	0	1	1	1	1	90	1	1	89	12	31	0	1	
2008	CldSt345	34.5	2010	CSTapX21	34.5	1	1	1	0.0048	0.0093	0	25.5	34	25.5	34	1	0.53	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2003	Tal345	34.5	1	1	1	0.0704	0.3619	0.0007	41	54	41	54	1	7.44	0	1	1	1	1	90	1	1	89	12	31	0	1	
2011	Pul345	34.5	2102	Bar345	34.5	1	1	1	0.0838	0.3837	0.0007	41	54	41	54	1	7.85	0	1	1	1	1	90	1	1	89	12	31	0	1	
2014	Ten345	34.5	2017	Tenjotap	34.5	1	1	1	0.0074	0.0377	0	41	54	41	54	1	0.69	0	1	1	1	1	97	9	1	89	12	31	0	1	
2003	Tal345	34.5	2018	Dandan	34.5	1	1	1	0.0686	0.1621	0	21.4	28.3	21.4	28.3	1	5.62	0	1	1	1	1	97	9	1	89	12	31	0	1	
2101	Aga345	34.5	2102	Bar345	34.5	1	1	1	0.0318	0.139	0.0003	41	54	41	54	1	3.1	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2103	RBa345B1	34.5	1	1	1	0.0419	0.2119	0.0004	22	29	22	29	1	4.6	0	1	2	1	1	90	1	1	89	12	31	0	1	
2101	Aga345	34.5	2104	Tam345B1	34.5	1	1	1	0.0249	0.1122	0.0002	41	54	41	54	1	2.33	0	1	2	1	1	90	1	1	89	12	31	0	1	
2102	Bar345	34.5	2216	GAA345B1	34.5	1	1	1	0.0361	0.1554	0.0003	41	54	41	54	1	4.6	0	1	2	1	1	40	1	1	39	12	31	0		
2103	RBa345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0773	0.1637	0.0013	22	29	22	29	1	4.36	0	1	3	1	1	90	1	1	89	12	31	0	1	
2204	Mar345B1	34.5	2212	Pag345B1	34.5	1	1	1	0.0796	0.1689	0.0013	22	29	22	29	1	4.46	0	1	3	1	1	90	1	1	89	12	31	0		
2104	Tam345B1	34.5	2105	Tum345B1	34.5	1	1	1	0.0218	0.0401	0.0022	41	54	41	54	1	1.68	0	1	2	1	1	90	1	1	89	12	31	0	1	
2104	Tam345B1	34.5	2110	HafaTap	34.5	1	1	1	0.0025	0.0018	0	31	42	31	42	1	0.19	0	1	2	1	1	96	1	1	89	12	31	0		
2110	HafaTap	34.5	2108	SV345B1	34.5	1	1	1	0.014	0.0589	0.0001	41	54	41	54	1	1.46	0	1	2	1	1	96	1	1	89	12	31	0	1	
2105	Tum345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0359	0.0662	0.0038	41	54	41	54	1	2.77	0	1	3	1	1	90	1	1	89	12	31	0	1	
2106	Ani345B1	34.5	2101	Aga345	34.5	1	1	1	0.0244	0.1237	0.0002	41	54	41	54	1	2.47	0	1	2	1	1	90	1	1	89	12	31	0	1	
2108	SV345B1	34.5	2202	Har345B3	34.5	1	1	1	0.0211	0.0213	0.0027	41	54	41	54	1	3.4	0	1	3	1	1	96	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2219	Har345B1	34.5	1	1	0	0.0108	0.0409	0.0022	41	54	41	54	1	1.87	0	1	3	1	1	90	1	1	89	12	31	0	1	
2201	Tan345B1	34.5	2202	Har345B3	34.5	2	1	0	0.0108	0.0409	0.0021	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	2	
2202	Har345B3	34.5	2203	Ded345B1	34.5	1	1	1	0.0293	0.149	0.0002	41	54	41	54	1	2.53	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2210	And345B1	34.5	1	1	1	0.0666	0.0819	0.0106	31	42	31	42	1	7.82	0	1	3	1	1	90	1	1	89	12	31	0		
2219	Har345B1	34.5	2208	NCS345	34.5	1	1	1	0.0997	0.226	0.0003	22	29	22	29	1	4.03	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2211	Mac345B1	34.5	1	1	1	0.0094	0.0097	0.0026	41	54	41	54	1	1.81	0	1	3	1	1	90	1	1	89	12	31	0	1	
2219	Har345B1	34.5	2214	Yig345B1	34.5	1	1	1	0.0658	0.3018	0.0005	41	54	41	54	1	6.48	0	1	3	1	1	90	1	1	89	12	31	0	1	
2202	Har345B3	34.5	2219	Har345B1	34.5	1	1	0	0	0.001	0	90	120	90	120	1	0	0	1	3	1	1	90	1	1	89	12	31	0	1	
2203	Ded345B1	34.5	2204	Mar345B1	34.5	1	1	1	0.0187	0.0909	0.0002	41	54	41	54	1	1.85	0	1	3	1	1	90	1	1	89	12	31	0	1	
2208	NCS345	34.5	2209	Pott345	34.5	1	1	1	0.0347	0.0788	0.0001	22	29	22	29	1	1.41	0	1	3	1	1	90	1	1	89	12	31	0	1	
2209	Pott345	34.5	2210	And345B1	34.5	1	1	1	0.1241	0.2814	0.0002	22	29	22	29	1	5.02	0	1	3	1	1	90	1	1	89	12	31	0	1	
2211	Mac345B1	34.5	2212	Pag345B1	34.5	1	1	0	0.0762	0.1712	0.0003	41	54	41	54	1	3.96	0	1	3	1	1	40	1	1	39	12	31	0		
2211	Mac345B1	34.5	2216	GAA345B1	34.5	1	1	1	0.011	0.0114	0.003	41	54	41	54	1	2.12	0	1	3	1	1	40	1	1	39	12	31	0		
2214	Yig345B1	34.5	2210	And345B1	34.5	1	1	1	0.0329	0.1511	0.0003	41	54	41	54	1	3.04	0	1	3	1	1	90	1	1	89	12	31	0	1	
2216	GAA345B1	34.5	2217	GIA345B1	34.5	1	1	1	0.0052	0.0064	0.0008	31	42	31	42	1	0.61	0	1	2	1	1	40	1	1	39	12	31	0		
2218	GiatTap	34.5	2217	GIA345B1	34.5	1	1	1	0.0053	0.0066	0.0008	31	42	31	42	1	0.63	0	1	2	1	1	40	1	1	39	12	31	0	1	
2218	GiatTap	34.5	2219	Har345B1	34.5	1	1	1	0.0316	0.1487	0.0003	41	54	41	54	1	2.97	0	1	2	1	1	40	1	1	39	12	31	0	1	
1005	Pit115B1	115	2701	Apra_115	115	1	1	1	0.0055	0.0284	0.0043	136	180	136	180	1	5.4	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2407	HanwhaA_115	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2701	Apra_115	115	2408	HanwhaB_115	115	1	1	1	0.0125	0.0648	0.0097	136	180	136	180	1	12.3	0	1	1	1	1	40	1	1	39	12	31	0		
2501	Mangilao_A	34.5	2507	Mangilao	34.5	1	1	1	0	0.0005	0	9999	9999	9999	9999	1	0.02	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	1	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2211	Mac345B1	34.5	1	1	1	0.047	0.2243	0	41	54	41	54	1	4.48	0	1	3	1	1	40	1	1	39	12	31	0		
2507	Mangilao	34.5	2212	Pag345B1	34.5	2	1	1	0.0158	0.0594	0	41	54	41	54	1	1.71	0	1	3	1	1	40	1	1	39	12	31	0		

ZONE	NAME	PNET	QNET
1	Southern		
		163	10
2	Central		
		-105.4	-21.4
3	Northern		
		-57.5	11.4

Island Wide Power System
Underfrequency Load Shedding Relay Settings (8/1/2018)

Stage	Substation	Feeder	Frequency	T/D Set	Relay Type	Light Load @ 4:00 a.m.	Mid Load @ 12:00 p.m.	Peak Load @ 7:00 p.m.
1-1	Harmon	P-111	59.31 Hz	6 cycles (0.1 sec)	SEL-751A (81D1TP)	3.09	4.92	4.94
1-1	Tamuning	P-202	59.31 Hz	6 cycles (0.1 sec)	SEL-351 TP51 (81D1P)	1.38	2.50	2.11
1-1	Tumon	P-244	59.31 Hz	6 cycles (0.1 sec)	SEL-351 TP61 (81D2P)	2.47	3.63	3.90
1-1	Agana	P-251	59.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D3P)	1.26	1.68	1.79
					Total of Stage 1-1	**8.20**	**12.73**	**12.74**
1-2	Macheche	P-272	59.11 Hz	6 cycles (0.1 sec)	SEL-351A (81D3P)	1.34	1.23	1.99
1-2	Pulantat	P-301	59.11 Hz	6 cycles (0.1 sec)	SEL-351-6 (81D2P)	0.85	0.76	1.14
1-2	GAA	P-312	59.11 Hz	6 cycles (0.1 sec)	SEL-351 (81D3P)	1.70	2.81	2.32
1-2	Yigo	P-331	59.11 Hz	6 cycles (0.1 sec)	SEL-351-7 (81D2P)	2.26	2.47	2.86
1-2	Umatac	P-340	59.11 Hz	6 cycles (0.1 sec)	SEL-351 (81D1P)	1.02	0.77	1.30
1-2	Umatac	P-341	59.11 Hz	6 cycles (0.1 sec)	SEL-351 (81D2P)	0.46	0.47	0.57
					Total of Stage 1-2	**7.63**	**8.51**	**10.18**
					Total MW	**15.83**	**21.24**	**22.92**

2	Dededo	P-88	58.81 Hz	6 cycles (0.1 sec)	SEL-351A (81D1P)	3.65	3.93	5.06
2	Apra	P-221	58.81 Hz	6 cycles (0.1 sec)	SEL-351 (81D2P)	1.55	1.58	2.14
2	Anigua	P-281	58.81 Hz	6 cycles (0.1 sec)	SEL-351 (81D2P)	1.06	2.27	1.63
2	Anigua	P-282	58.81 Hz	6 cycles (0.1 sec)	SEL-351 (81D3P)	1.39	2.55	1.91
2	Talofofo	P-261	58.81 Hz	6 cycles (0.1 sec)	SEL-351 (81D2P)	1.89	1.83	2.40
2	Talofofo	P-262	58.81 Hz	6 cycles (0.1 sec)	SEL-351 (81D3P)	2.30	1.72	3.36
2	Pulantat	P-294	58.81 Hz	6 cycles (0.1 sec)	SEL-351-6 (81D1P)	2.54	2.45	3.62
2	GAA	P-310	58.81 Hz	6 cycles (0.1 sec)	SEL-351A (81D1P)	1.21	2.15	1.97
					Total MW	**15.59**	**18.48**	**22.09**

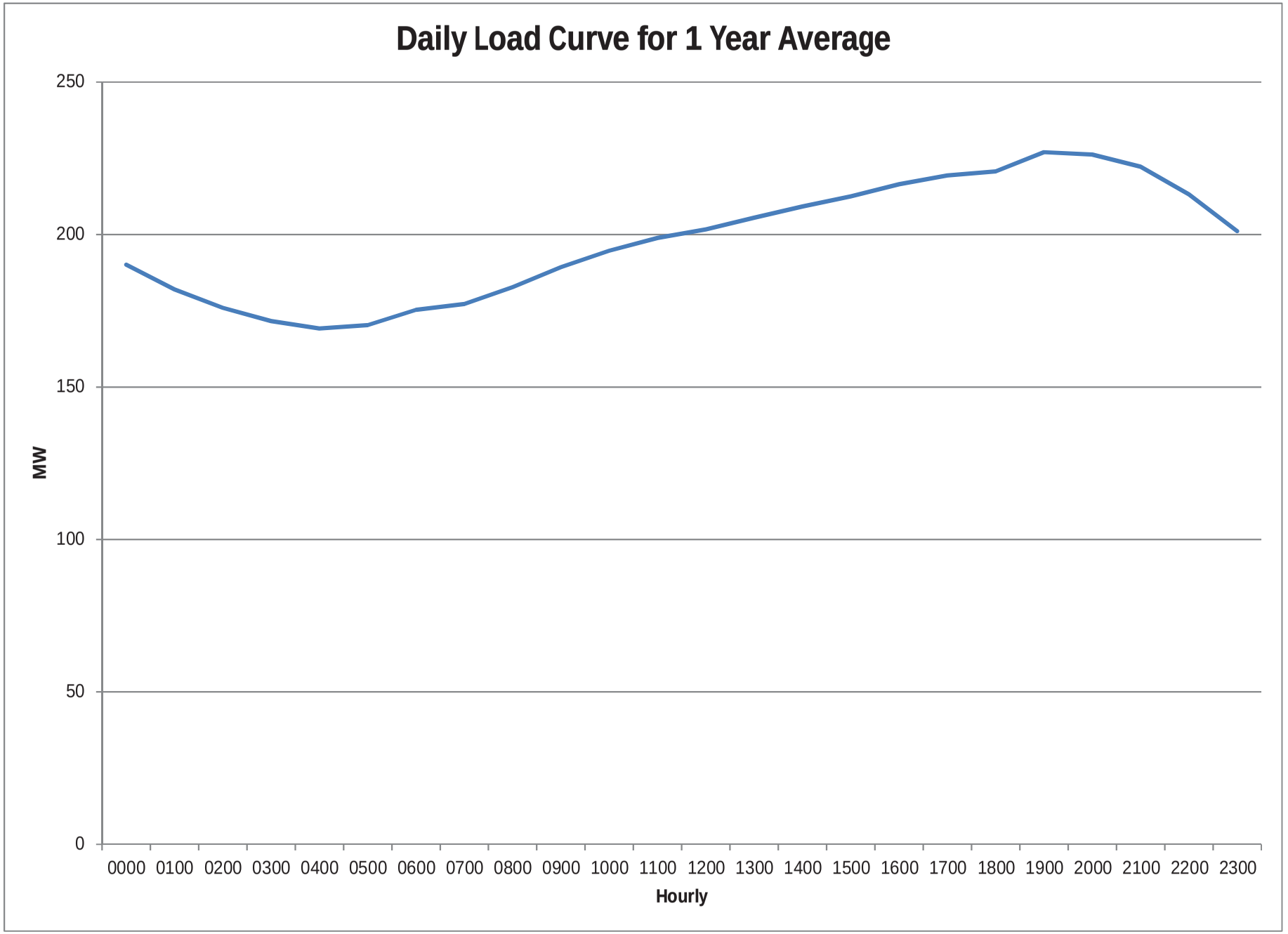
3	Orote	P-15	58.51 Hz	6 cycles (0.1 sec)	SEL	2.95	2.95	2.95
3	Andersen	P-91	58.51 Hz	6 cycles (0.1 sec)	SEL	2.18	2.18	2.18
3	Andersen	P-93	58.51 Hz	6 cycles (0.1 sec)	SEL	2.29	2.29	2.29
3	Tamuning	P-201	58.51 Hz	6 cycles (0.1 sec)	SEL-351 TP50 (81D1P)	2.06	2.61	2.88
3	Tumon	P-242	58.51 Hz	6 cycles (0.1 sec)	SEL-351A (81D3P)	2.21	2.81	3.53
3	Agana	P-252	58.51 Hz	6 cycles (0.1 sec)	SEL-351-6 (81D1P)	1.94	3.02	3.17
3	Anigua	P-280	58.51 Hz	6 cycles (0.1 sec)	SEL-351A (81D1P)	2.27	2.79	2.89
3	San Vitores	P-402	58.51 Hz	6 cycles (0.1 sec)	SEL-351 (81D3P)	1.16	1.52	1.61
3	Cold Storage	P-528	58.51 Hz	6 cycles (0.1 sec)	SEL-351	0.00	0.00	0.00
3	Cold Storage	P-529	58.51 Hz	6 cycles (0.1 sec)	SEL-351	2.62	2.62	2.62
					Total MW	**19.68**	**22.79**	**24.12**

Island Wide Power System
Underfrequency Load Shedding Relay Settings (8/1/2018)

Stage	Substation	Feeder	Frequency	T/D Set	Relay Type	Light Load @ 4:00 a.m.	Mid Load @ 12:00 p.m.	Peak Load @ 7:00 p.m.
4	Macheche	P-270	58.31 Hz	6 cycles (0.1 sec)	SEL-351A (81D1P)	2.50	3.96	4.34
4	Macheche	P-271	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D2P)	3.02	4.64	4.57
4	Anigua	P-283	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D4P)	2.12	2.12	3.07
4	Tumon	P-246	58.31 Hz	6 cycles (0.1 sec)	SEL-351 TP61 (81D4P)	0.55	1.01	1.07
4	Piti	P-5	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D1P)	0.84	1.03	1.30
4	Piti	P-7	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D2P)	0.41	0.56	0.62
4	Barrigada	P-212	58.31 Hz	6 cycles (0.1 sec)	SEL-351-6 (81D3P)	0.00	0.00	0.00
4	Apra	P-220	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D1P)	0.34	0.24	0.52
4	Apra	P-223	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D4P)	2.42	2.72	3.23
4	Pagat	P-323	58.31 Hz	6 cycles (0.1 sec)	SEL-351 (81D4P)	1.07	1.33	1.25
					Total MW	**13.27**	**17.61**	**19.97**

5	Tumon	P-240	58.01 Hz	6 cycles (0.1 sec)	SEL-351 TP60 (81D1P)	0.71	1.21	1.00
5	Tumon	P-245	58.01 Hz	6 cycles (0.1 sec)	SEL-351 TP61 (81D3P)	2.50	4.18	3.10
5	Talofofo	P-260	58.01 Hz	6 cycles (0.1 sec)	SEL-351 (81D1P)	0.36	0.42	0.52
5	GAA	P-311	58.01 Hz	6 cycles (0.1 sec)	SEL-351A (81D2P)	2.53	3.11	3.41
5	San Vitores	P-400	58.01 Hz	6 cycles (0.1 sec)	SEL-351 (81D1P)	0.54	0.80	0.84
5	Tamuning	P-204	58.01 Hz	6 cycles (0.1 sec)	SEL-351 TP51 (81D3P)	2.46	3.79	4.36
5	Tamuning	P-205	58.01 Hz	6 cycles (0.1 sec)	SEL-351 TP50 (81D4P)	2.89	3.97	4.12
5	Barrigada	P-210	58.01 Hz	6 cycles (0.1 sec)	SEL-351-6 (81D1P)	0.00	0.00	0.00
5	Barrigada	P-213	58.01 Hz	6 cycles (0.1 sec)	SEL-351-6 (81D4P)	0.00	0.00	0.00
					Total MW	**11.99**	**17.48**	**17.35**

Notes:
- **Priority energization for feeders with schools.**
- **Stages will rotate after 6 outages on Stage 1.**
- **Barrigada Substation outage in progress. Mobile Substation online.**


Daily Load Curve for 1 Year Average
250
200
150
100
50
0
MW
0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300
Hourly

DATE	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Peak	Min
1/1/2018	200	195	191	184	180	181	179	178	184	192	194	200	203	203	206	211	215	216	220	228	219	217	208	200	228	178
1/2/2018	190	184	176	171	168	170	174	175	183	191	199	205	212	211	218	223	229	232	234	240	236	232	222	210	240	168
1/3/2018	195	185	178	173	169	169	176	177	183	192	194	197	200	206	214	217	227	233	230	238	235	229	218	202	238	169
1/4/2018	191	181	175	171	168	170	177	177	183	195	201	205	209	212	215	222	229	229	230	236	235	230	218	204	236	168
1/5/2018	193	186	181	176	173	175	182	184	188	190	194	195	199	200	203	207	217	215	219	224	224	216	208	200	224	173
1/6/2018	189	181	176	170	167	163	169	168	175	185	188	195	199	201	206	212	217	223	223	229	224	219	212	202	229	163
1/7/2018	188	179	173	167	163	162	163	160	168	176	183	186	197	195	205	202	207	209	217	229	226	222	215	200	229	160
1/8/2018	189	181	175	170	167	169	178	182	190	194	201	205	205	214	220	220	227	230	229	238	237	233	220	205	238	167
1/9/2018	195	187	180	175	173	177	187	188	197	200	206	212	213	221	228	228	228	228	228	236	232	228	215	203	236	173
1/10/2018	193	186	179	174	172	174	185	188	193	196	200	204	207	210	216	219	226	234	231	240	238	232	221	209	240	172
1/11/2018	195	184	179	175	173	176	186	188	189	197	198	203	206	211	216	223	229	231	232	242	243	242	225	212	243	173
1/12/2018	200	192	189	183	182	183	192	194	194	207	207	210	215	217	220	224	229	229	231	237	233	227	217	207	237	182
1/13/2018	197	188	182	178	175	173	174	175	182	187	191	196	198	204	206	213	224	227	225	233	230	225	214	204	233	173
1/14/2018	195	188	181	176	173	172	173	173	180	185	188	192	197	200	207	213	218	223	225	234	230	225	215	206	234	172
1/15/2018	195	187	181	176	173	174	177	176	183	191	196	198	206	208	209	215	224	232	228	238	236	233	220	199	238	173
1/16/2018	196	184	178	174	172	174	183	186	191	193	201	204	205	209	216	224	228	230	230	237	236	227	215	203	237	172
1/17/2018	191	187	180	176	174	178	186	186	188	198	198	209	207	211	220	232	230	232	235	244	242	236	221	212	244	174
1/18/2018	200	191	185	181	179	181	191	189	193	197	204	208	209	214	220	220	230	233	235	242	242	237	224	208	242	179
1/19/2018	196	189	185	179	177	180	190	194	196	204	205	210	213	217	219	218	227	230	228	239	236	231	222	212	239	177
1/20/2018	198	190	184	179	175	173	176	175	181	189	195	198	205	214	215	221	220	229	227	234	232	227	223	209	234	173
1/21/2018	196	188	182	175	172	172	172	169	177	184	186	192	194	201	205	209	218	223	225	236	235	230	222	209	236	169
1/22/2018	195	188	182	179	176	179	190	192	197	201	203	206	211	219	225	227	233	236	235	245	244	238	227	212	245	176
1/23/2018	200	191	186	181	179	181	190	191	193	201	205	207	211	215	226	228	234	238	237	246	246	238	225	210	246	179
1/24/2018	198	191	185	180	178	179	188	191	190	197	198	204	205	203	211	211	216	223	224	232	231	222	209	197	232	178
1/25/2018	187	178	172	167	165	167	178	180	182	184	191	195	199	198	202	205	213	218	225	229	229	226	214	199	229	165
1/26/2018	187	179	174	170	169	170	178	177	185	193	195	193	199	200	203	200	209	215	220	225	224	219	213	204	225	169
1/27/2018	188	178	173	169	165	165	168	167	174	183	189	197	200	201	209	213	217	217	217	225	222	218	212	199	225	165
1/28/2018	184	176	170	166	163	152	156	157	163	174	176	180	184	185	190	196	200	206	209	223	222	220	205	188	223	152
1/29/2018	180	171	164	160	158	160	170	172	176	185	189	192	195	198	205	207	214	217	222	231	230	222	210	191	231	158
1/30/2018	179	172	165	162	159	163	172	174	177	183	188	191	197	204	211	213	222	224	227	238	237	231	222	205	238	159
1/31/2018	192	181	176	170	168	171	180	182	187	188	196	194	199	200	210	217	211	212	217	225	225	222	209	196	225	168
2/1/2018	185	178	172	167	164	168	177	180	182	186	193	199	201	204	209	213	217	226	227	236	231	225	214	199	236	164
2/2/2018	188	178	173	170	168	169	177	179	183	192	194	196	203	206	213	212	219	222	225	230	229	221	215	203	230	168
2/3/2018	192	184	176	170	167	166	169	167	174	182	188	192	192	195	197	208	211	222	220	228	223	218	209	199	228	166
2/4/2018	188	179	172	167	165	164	166	164	170	178	184	186	186	193	197	204	208	212	214	226	227	222	213	200	227	164
2/5/2018	190	173	176	172	170	173	181	184	187	192	200	206	211	210	217	219	225	225	227	235	234	228	218	206	235	170
2/6/2018	191	181	175	169	167	169	184	184	188	193	198	203	202	206	216	217	224	223	224	232	233	230	218	203	233	167
2/7/2018	183	177	172	166	163	165	174	176	180	185	191	195	197	203	210	208	214	221	221	232	230	227	217	202	232	163
2/8/2018	185	178	174	170	169	170	180	185	183	184	196	194	200	206	210	215	222	228	228	237	238	236	218	205	238	169
2/9/2018	196	187	181	177	176	177	186	189	191	193	198	202	203	199	201	203	199	202	207	217	216	209	204	196	217	176
2/10/2018	187	179	174	174	169	169	171	171	176	183	188	194	199	199	205	209	213	216	220	227	225	221	214	204	227	169
2/11/2018	190	184	177	174	172	171	172	171	179	186	185	189	193	195	198	197	214	220	219	231	233	231	218	205	233	171
2/12/2018	192	183	176	170	169	171	181	182	187	196	203	209	212	212	219	223	229	232	232	241	241	233	224	210	241	169
2/13/2018	196	189	184	179	178	180	190	189	190	201	201	207	208	208	209	211	225	227	227	237	236	235	219	202	237	178
2/14/2018	189	181	175	171	171	173	182	183	185	192	194	202	200	205	211	211	219	220	224	232	228	232	219	203	232	171
2/15/2018	192	182	177	174	168	172	182	183	186	189	192	196	200	210	212	215	217	221	225	233	234	227	214	202	234	168
2/16/2018	189	182	176	173	170	170	180	183	185	187	195	201	208	207	212	215	224	226	226	231	226	224	216	204	231	170
2/17/2018	189	182	175	171	168	167	171	169	176	181	188	194	193	200	202	208	222	220	222	230	227	222	215	201	230	167
2/18/2018	192	182	175	171	167	167	167	164	169	174	176	179	183	186	192	196	202	206	214	224	225	222	213	199	225	164
2/19/2018	188	180	173	167	164	166	171	172	178	186	191	193	197	201	205	211	217	222	230	238	238	235	212	202	238	164
2/20/2018	190	181	174	170	168	172	180	181	185	188	195	196	201	207	211	214	219	223	226	234	232	226	213	203	234	168
2/21/2018	189	180	175	170	169	170	183	182	184	194	194	197	203	211	212	217	219	225	225	233	233	231	219	203	233	169
2/22/2018	192	186	179	171	168	174	184	187	185	197	197	206	206	214	212	211	219	222	227	234	236	233	224	209	236	168
2/23/2018	197	190	184	180	176	179	189	189	191	197	203	206	207	209	210	216	221	220	219	228	228	223	215	205	228	176
2/24/2018	192	185	177	170	165	165	166	166	176	188	192	193	201	205	211	212	217	226	218	223	223	217	210	200	226	165
2/25/2018	190	182	176	168	164	164	167	165	168	173	178	180	188	192	202	203	214	218	219	230	230	227	217	205	230	164
2/26/2018	192	182	175	168	166	168	179	182	184	196	201	203	202	211	213	221	224	225	226	235	234	226	217	203	235	166
2/27/2018	186	180	169	166	164	167	177	179	180	187	194	202	207	208	214	215	219	225	225	234	234	230	220	201	234	164
2/28/2018	186	179	170	166	164	166	178	182	187	191	194	193	199	202	212	215	216	219	220	228	200	209	214	199	228	164
3/1/2018	186	178	174	171	171	172	181	181	180	189	190	198	202	206	211	215	222	230	225	234	234	226	218	204	234	171
3/2/2018	184	176	172	171	168	170	178	183	186	193	196	199	202	205	212	218	220	224	226	234	233	227	222	207	234	168
3/3/2018	196	183	176	172	169	165	169	168	178	182	188	189	195	197	204	207	219	219	225	231	230	227	219	208	231	165
3/4/2018	197	189	182	178	174	173	174	170	176	180	185	187	191	195	199	209	217	217	220	227	227	224	216	205	227	170
3/5/2018	193	185	178	175	172	173	179	177	185	189	196	195	199	200	206	207	215	218	220	226	226	221	213	199	226	172
3/6/2018	188	181	172	167	165	166	179	180	183	189	191	196	198	206	212	214	217	223	223	231	231	226	214	198	231	165
3/7/2018	190	181	172	167	165	167	177	180	183	186	188	192	192	199	200	202	206	209	211	221	221	216	205	193	221	165
3/8/2018	178	170	163	159	155	157	169	170	174	181	186	192	194	195	198	202	209	217	218	224	175	207	202	188	224	155
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12/5/2018	193	184	179	176	174	175	181	185	185	198	198	205	207	212	216	220	222	224	228	236	234	228	217	201	236	174
12/6/2018	190	187	181	177	175	179	187	189	190	198	204	207	210	215	217	221	226	230	232	237	227	230	221	209	237	175
12/7/2018	198	190	183	178	176	178	184	185	191	196	202	207	210	215	220	222	227	228	230	236	232	226	219	204	236	176
12/8/2018	195	188	182	176	173	173	177	174	183	188	200	205	206	210	206	216	222	222	224	229	225	222	215	205	229	173
12/9/2018	194	186	177	174	172	171	171	169	176	182	190	195	196	199	205	209	214	218	220	230	230	225	217	202	230	169
12/10/2018	189	182	173	171	169	172	182	184	188	195	195	204	205	208	216	213	217	220	227	233	231	225	215	203	233	169
12/11/2018	190	184	179	174	172	177	185	187	189	195	201	211	205	214	216	210	218	224	228	234	232	226	216	202	234	172
12/12/2018	189	179	175	171	170	172	179	185	184	193	194	202	210	218	216	218	217	226	231	237	235	231	221	209	237	170
12/13/2018	197	187	183	177	174	177	187	187	190	202	200	208	209	213	217	217	222	227	227	235	233	229	217	204	235	174
12/14/2018	195	186	182	178	176	173	182	186	187	195	198	203	198	208	215	218	223	225	224	229	225	221	212	199	229	173
12/15/2018	192	184	177	173	170	170	173	172	182	190	195	203	206	206	210	211	215	220	218	223	220	219	214	208	223	170
12/16/2018	195	187	182	176	174	172	175	172	177	185	188	194	196	196	202	205	209	214	217	222	221	219	210	199	222	172
12/17/2018	191	180	174	170	169	170	180	183	185	193	198	201	201	205	209	208	210	211	215	219	217	214	208	194	219	169
12/18/2018	184	177	173	170	168	173	181	182	187	192	200	202	206	208	214	216	220	221	227	230	229	225	216	203	230	168
12/19/2018	194	187	181	178	176	178	187	188	190	197	201	201	206	210	211	217	226	220	224	226	225	218	211	204	226	176
12/20/2018	193	187	183	178	176	181	187	190	189	195	205	200	200	198	198	196	196	194	201	203	199	201	195	187	205	176
12/21/2018	175	172	169	166	166	169	178	181	184	192	203	203	204	204	207	212	215	220	221	227	222	220	213	201	227	166
12/22/2018	193	184	177	173	170	167	168	164	171	182	184	188	198	205	203	208	208	213	217	220	218	215	210	201	220	164
12/23/2018	192	184	178	174	172	172	172	170	175	185	186	194	193	197	201	206	210	211	214	223	220	218	212	203	223	170
12/24/2018	194	185	181	177	175	176	179	178	185	190	196	200	203	209	212	219	221	224	226	228	222	217	213	205	228	175
12/25/2018	194	188	183	179	174	173	175	173	177	181	187	188	189	191	190	193	196	196	198	200	197	196	191	187	200	173
12/26/2018	174	170	168	165	164	166	173	175	182	191	193	198	196	197	203	204	198	201	209	214	212	208	201	190	214	164
12/27/2018	181	172	169	164	163	163	170	173	177	181	191	194	196	201	206	211	215	216	216	225	221	216	207	198	225	163
12/28/2018	187	179	175	171	170	170	176	179	187	189	198	201	204	202	199	208	213	214	212	217	212	208	199	192	217	170
12/29/2018	184	177	170	165	163	162	163	161	169	176	182	186	193	195	196	203	207	211	212	215	212	209	202	194	215	161
12/30/2018	184	177	171	165	164	163	164	162	167	170	176	183	188	183	185	190	192	200	203	212	207	205	196	187	212	162
12/31/2018	174	167	160	157	156	157	161	162	162	163	163	167	174	176	181	183	189	197	203	207	201	197	188	181	207	156
	0000	**0100**	**0200**	**0300**	**0400**	**0500**	**0600**	**0700**	**0800**	**0900**	**1000**	**1100**	**1200**	**1300**	**1400**	**1500**	**1600**	**1700**	**1800**	**1900**	**2000**	**2100**	**2200**	**2300**		
Average	190	182	176	172	169	170	175	177	183	189	195	199	202	205	209	213	217	219	221	227	226	222	213	201	263	6

GWA INFORMATION PACKET FOR PROSPECTIVE BIDDERS ON THE GPA POWER PLANT

SUPPLEMENTAL 2

February 21, 2019

1. **Definitions:**

- Cooling Tower Effluent: greywater that has been used only in the cooling tower and which does not undergo any treatment process.
- Power Plant Wastewater Effluent: any wastewater resulting from a treatment process within the power plant.

2. **Potable Water Tie-in Point Per GPA Procurement**

- Clarification: from Supplemental dated December 10, 2018 Item #9 the following sentence shall be revised to read as follow:

  "For clarification purposes there is a 16" diameter PVC water main that comes from Route 3 however the closest point of connection without going through existing facilities is located about 3,000 feet away from the Water Line "end-point" shown on the GPA map."

3. **Grey Water Quality and Quantity**

- GWA does not have recorded values of TDS, Hardness, Alkalinity, Silica, Heavy metals (Such as Iron) in NDWWTP (Secondary treatment plant) Grey water effluent nor will GWA expect to test for these parameters when the Northern District WWTP is upgraded to Secondary Treatment. As stated in "GWA INFORMATION PACKET FOR PROSPECTIVE BIDDERS ON THE GPA POWER PLANT SUPPLEMENTAL", Item #2, "Information regarding the composition and characteristics of GWA's effluent water is guided by USEPA sampling requirements. Should any prospective bidder want certain information related to the composition of the GWA effluent water not already tested for will be required to test the water themselves."
- Until such time that the NDWWTP Secondary Treatment is fully functional and can discharge effluent to the NDPES permit limits, the effluent water discharging out into the ocean is only advance primary treatment.

4. **Power Plant Wastewater Effluent**

- Wastewater effluent from the power plant process must be returned to the NDWWTP (identified as the Pipe with Effluent Water from Power Plant excluding any Process Treatment Wastewater) at a point in the WWTP process to be designated by a GWA pretreatment permit which will be prepared once the quality and quantity of water being sent to the NDWWTP has been determined. A Pretreatment Permit for this discharge will be issued by GWA specifying the required water quality (including acceptable temperature range) and flow rate that can be accepted when sent to the NDWWTP. It is expected that the tie-in point will be on the NDWWTP site in the same area as the supply tie-in point. The wastewater from the power plant must be treated by the Developer so that ultimately the wastewater quality discharged by GWA meets its NPDES Permit requirements.

The wastewater return quantity cannot be of a lower quality than what was supplied. The flow rate cannot exceed the flow rate supplied.

- GWA is required to meet the permit limits under US EPA NPDES permit no. GU0020141 thus any wastewater that will "re-enter" the GWA system shall comply with the Pretreatment Permit limits.

5. GWA Effluent Water Supply Failure

- The Northern District WWTP is a facility that was designed to operate with continuous flows through the plant and out the outfall pipe. But if ever there was a reason that no effluent water would flow out the outfall pipe, GWA would expect any duration greater than 2 hours would have catastrophic backup failure into the plant and subsequently to the collection system.
- The WWTP does experience high and low flow rate periods throughout the day (normal dry weather periods.) Highs occurring soon after at peak water demand periods which is usually between 5:30am-6:30am and 6pm-8pm. Lows flows occur between 7am-10am and 12am-1am.

6. Potable Water Supply (Flow Rate)

- The maximum flow rate of potable water GWA will provide is 100gal/min to include operations and construction demands. Demands exceeding 100 gal/min will require off-site source water development (e.g. water well design and construction). Rough estimated cost of a water production well (physical structures) is around $2.0M (note capacity of flow rate from production wells will vary from one location to another thus the cost of source water development may be more.)

7. Potable Water Discharge

- Wastewater generated from any potable water treatment process will be required to follow pretreatment permitting requirements prior to being allowed to discharge into the GWA sewer system.

8. Stormwater Drainage

- All matters pertaining to storm water drainage shall be discussed with DPW and/or GEPA.

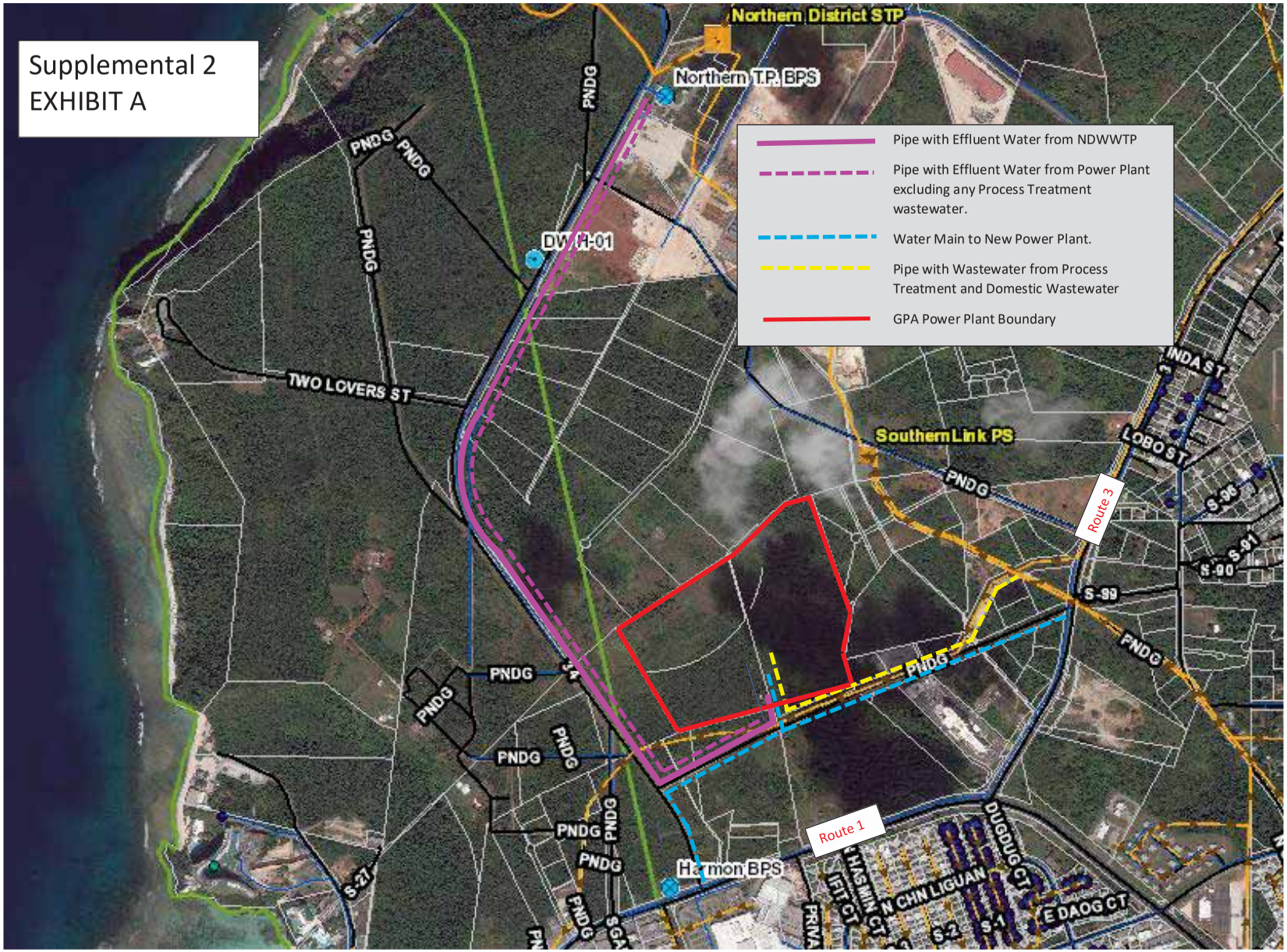
9. Off-site infrastructure

See Supplement 2 Exhibit A for reference.

- If the new power plant will not have a dedicated water storage tank to hold water for fire flow protection then the developer will be required to loop the new water main feeding the plant along Route 1 and Route 3 as shown on Exhibit A identified as "Water Main to New Power Plant." The looping of the water main is intended to better stabilize the water flow to the power plant.
- Given that pretreatment will be required to any wastewater generated as a result of a treatment process at the power plant, the developer can combine all domestic wastewater and wastewater resulting from a treatment process into one wastewater conveyance system as shown on Exhibit A identified as "Pipe with Wastewater from

Process Treatment and Domestic Wastewater". The effluent flowing through this pipe will be metered with a meter provided by the Developer according to GWA requirements and the location of the meter is to be determined during design review. The effluent water will likely have to be pumped from the GPA property to the nearest gravity line flowing to the NDWWTP. The developer shall also connect onto a sewer manhole which is a non-pressurized system. GWA will accept a wastewater load of approximately 150gpm however GWA will require specific wastewater loading calculation during the GPA power plant design phase. GWA will finalize approval wastewater loading rate and frequency upon review of wastewater calculation.

- The wastewater pipe identified in Exhibit A as "Pipe with Effluent Water from Power Plant excluding any Process Treatment Wastewater" is the pipe that contains effluent water which still requires pretreatment but which can be discharged somewhere within the NDWWTP treatment train as designated by GWA. An example of this effluent water is the "Cooling Tower Effluent" which GWA understands is effluent that only had a temperature change. The effluent flowing through this pipe will be metered with a meter provided by the developer according to GWA requirements and the location of the meter is to be determined during design review. The effluent water will likely have to be pumped from the GPA property to the NDWWTP given the distance between both properties and existing ground elevations. Pressurized pipes can be buried with a minimum cover of 3 feet. The range in cost for buried pipe is $250/lf to $350/lf.


Supplemental 2
EXHIBIT A
Northern District STP
Northern T.P. BPS
Pipe with Effluent Water from NDWWTP
Pipe with Effluent Water from Power Plant excluding any Process Treatment wastewater.
Water Main to New Power Plant.
Pipe with Wastewater from Process Treatment and Domestic Wastewater
GPA Power Plant Boundary
DW-H-01
TWO LOVERS ST
Southern Link PS
LOBO ST
INDA ST
Route 3
Route 1
Harmon BPS
DUGDUG CT
E DAOG CT
PNDG

GWA INFORMATION PACKET FOR PROSPECTIVE BIDDERS ON THE GPA POWER PLANT

SUPPLEMENTAL

December 10, 2018

1. **Effluent Water (referred to as "Grey Water" in the Functional Technical Specification) Rate Cost**

   The following are a few scenarios that may be applicable to prospective bidder relative to rate cost:
   - There would not be a cost for the treated effluent itself; GWA is already being paid to receive and treat the wastewater which results in the effluent.
   - If GWA was to provide further treatment (tertiary / filtration) and deliver it to the plant, GWA would have to develop a tariff to cover the cost of treatment, pumping, and the infrastructure needed (debt service on capital, etc.) that would require PUC approval
   - If GWA was to provide effluent as is to the plant (the IPP provides tertiary treatment), then the tariff above would still be required, but would not include the cost of treatment
   - If GWA was to provide effluent as is at our WWTP for a connection to the IPPs infrastructure (piping) with our own pump station, then the tariff would only include the cost of pumping and the pump station infrastructure.
   - If GWA was to provide effluent as is at our WWTP for a connection to the IPPs infrastructure (piping and pump station), then there may not be any cost, but we would charge rent for the space needed for their pump station, and a connection fee to cover the cost of connecting to our effluent pipe. Cost associated with rent will have to be negotiated and the "Connection Fee" has not been established yet given there has never been a situation where there would be a connection to the effluent pipe.

2. **Effluent Water (referred to as "Grey Water" in the Functional Technical Specification)**
   - Information regarding the composition and characteristics of GWA's effluent water is guided by USEPA sampling requirements. Should any perspective bidder want certain information related to the composition of the GWA effluent water not already tested for will be required to test the water themselves.
   - Any issues or requirements related to GWA's or any NPDES permit limits will have to be discussed jointly with US EPA.

3. **Power Plant Effluent Water**
   - Any issues or requirements related to any effluent water to be discharged into the ocean will have to be discussed jointly with US EPA.

4. **Power Requirements**
   - Power required for any facility constructed for the purposes of the new power plant outside of GWA property and operated by the IPP will be meter separately from any GWA facility.

- Power required for any facility constructed for the purposes of the new power plant within GWA property and operated by the IPP will be meter separately from any GWA facility.
- Voltage at the Plant is 480 Volt, 3 Phase, 60 Hz.

5. NPDES Permit Requirements

- GWA is required to only meet the permit limits as stated in the copy provided in the prior Informational Package.
- GWA is not required to maintain any set limits related to Total Dissolved Solid (TDS) thus does not test for it. Should any perspective bidder want to determine TDS GWA can provide a sample of the effluent water for further testing by the others. Note that the current effluent may not reflect the effluent characteristics after the NDWWTP Upgrade.
- GWA is not currently required to maintain a set temperature per the NPDES permit only monitor and report it. The temperature of the effluent ranges from 77-82 degrees Fahrenheit.

6. Maximum Available Potable Water

- As with any proposed large development on Guam, GWA does not "reserve" or "guarantee" volume of water supply to any development at the time of planning, as such GWA does not have a response specific to this inquiry. GWA and the proposed development go through a series of analysis of the water system to develop the recommended solution should the water connection occur on Route 1 or Route 3.

7. Sewer Discharge

- GWA accepts all domestic wastewater that come generally from toilets, showers, bathroom/kitchen sinks. For further information on regulations regarding the use of public sewer see **GWA § 2120 Regulations Regarding the Use of Public Sewers** which can be found on the GWA website.
- An additional regulation applicable and worth noting is § 2106(b) which states "It shall be considered an illegal hookup for any customer to discharge or cause to be discharged any storm water, surface water, unpolluted industrial process water, roof runoff, subsurface drainage, or any waters from an uncontaminated cooling system, swimming pool, decorative fountain or pond, into the public sewer system or any private sewer system which is connected to the public sewer system."
- As with any proposed large development on Guam, GWA does not "reserve" or "guarantee" volume of wastewater load to any development at the time of planning, as such GWA does not have a response specific to this inquiry. GWA and the proposed development go through a series of analysis of the wastewater system to develop the recommended solution.

8. Sewer Tie-in Point Per GPA Procurement

- GWA understands the map provided in the GPA procurement documents relative to the sewer tie-in point was an estimated location and that the intended point of connection per that document was on Route 3. If this was GPA's intention then there are two (2) sewer lines found

on Route 3 that are possible points of connection. One of the pipes is a 36" diameter pipe made fiber glass and the other is a 48" diameter pipe made of corrugated PVC.

- For perspective bidder's awareness, GWA SOP regarding approval of point of connection for sewer involves coordination between GWA and the developer as there may be alternative solutions to sewer being conveyed to a GWA sewer system.

9. <u>Potable Water Tie-in Point Per GPA Procurement</u>

- GWA understands the map provided in the GPA procurement documents relative to the potable water tie-in point was an estimated location and that the intended point of connection per that document would be to a 16" diameter PVC pipe coming from Route 3. For clarification purposes there is a 16" diameter PVC water main that comes from Route 3 however the closest point of connection without going through existing facilities is located about 3,00 feet away from the Water Line "end-point" shown on the GPA map. GWA does have plans to extend this 16" diameter water main to western side of the NDWWTP property however the completion of this work is not expected until 2021. The likely material of the water main extension would be AWWA C-900 PVC pipe.

10. <u>Any Construction Activities</u>

- As stated in initial Informational Package the perspective bidder is fully responsible "for design, permitting and construction of everything necessary to convey the water from the existing effluent pipe to the power plant location and provide any additional treatment processes required. The power plant bidder will be responsible for coordinating the design of any conveyance with GWA, its engineers and contractors." This statement is applicable to any new infrastructure necessary to convey acceptable effluent back to the WWTP.

11. <u>Potable Water Composition</u>

- Information regarding the composition and characteristics of GWA's potable water can be found on GWA's annual water quality report. See GWA website. This report contains information related to inorganic compounds that GWA is required to test for. Any other compound not required of GWA to test for is therefore not included. Any perspective bidder wanting any other information related to the composition of the GWA potable water will be required to test the water themselves.

GWA INFORMATION PACKET FOR PROSPECTIVE BIDDERS ON THE GPA POWER PLANT

7 November 2018

1. Water Supplies available from GWA facilities

There are only two water sources that GWA can supply to the future power plant as follows:

- Potable water – potable water can be supplied from the GWA potable water system. The water is sourced from the wells identified as RAW Water in the Functional Technical Specification.
- Treated effluent – treated effluent can be supplied from the Northern District Wastewater Treatment Plant (NDWWTP) as described below.

GWA does not supply "Raw Water".

2. Effluent Water (referred to as "Grey Water" in the Functional Technical Specification) Supply Information for the NDWWTP

Treated effluent from the NDWWTP can be made available for use at the proposed power plant.

GWA is currently executing a project to upgrade the NDWWTP from an enhanced primary treatment plant to a Secondary treatment plant. The estimated completion date for the project is December 31, 2021. Secondary treated effluent will not be available from the NDWWTP until the expansion/upgrade project is completed.

2.1 Quantity

The maximum average daily treated effluent flow rate available for supply to the power plant is 4.0 MGD.

The effluent flow rate from the plant is continuous but varies throughout the day. There is currently no other flow data available for the plant other than the average daily flow.

2.2 Quality

The treatment plant effluent after completion of the expansion/upgrade project will meet the requirements specified in the US EPA NPDES Permit No. GU0020141. A copy is provided as Attachment 1. The wastewater treatment process will be an activated sludge process using oxidation ditches. The process includes wastewater screening, grit removal, biological treatment (oxidation ditches and secondary clarifiers) followed by ultraviolet disinfection.

The Grey Water Quantity and Analysis provided in Appendix A of the Functional Technical Specification reflects the current primary treatment plant performance. It does not indicate the

quality of the water that will be available after the NDWWTP upgrade and expansion is complete.

Until the NDWWTP upgrade and expansion is complete, there will be no data available for any monthly or seasonal variations in effluent quality. However, the effluent will meet the EPA NPDES Permit requirements.

GWA has no plans for any additional treatment of the wastewater beyond the current permit requirements.

2.3 Treated Effluent Supply Tie-In Point

The tie-in point will be into the existing NDWWTP outfall pipe that was constructed in the 1970's. The drawings for the outfall pipe are included as Attachment 2. The record drawings from the outfall construction indicate the outfall is constructed of reinforced concrete pipe. This pipe material has not been confirmed in the field.

The effluent flows by gravity through this pipe. The pipe is not full or under pressure.

The power plant contractor can connect to the outfall pipe at one of the locations shown on Attachment 2. If the power plant bidder needs additional space beyond what is shown on Attachment 2 for additional treatment processes, the bidder will need to provide the information to GWA for evaluation to see if the facilities can be accommodated into the NDWWTP site.

The power plant bidder will be responsible for design, permitting and construction of everything necessary to convey the water from the existing effluent pipe to the power plant location and provide any additional treatment processes required. The power plant bidder will be responsible for coordinating the design of any conveyance with GWA, its engineers and contractors.

2.4 Power Plant Wastewater Return Tie-In Point and Quality Requirements

Wastewater effluent from the power plant process can be returned to the NDWWTP to be combined with the NDWWTP effluent before discharge to the Philippine Sea. It is expected that the tie-in point will be on the NDWWTP site in the same area as the supply tie-in point.

The wastewater from the power plant must be treated so that the wastewater quality is the same as the quality of the effluent supplied to the power plant. The wastewater return quantity and flow rate cannot exceed the quantity and flow rate of treated effluent transferred to the power plant to ensure that the outfall pipe capacity is not exceeded.

2.5 Cost and Contract

The cost for use of the treated effluent has not been determined. The cost of the treated effluent will be reviewed based on the proposed power plant bidders' plans for treated effluent conveyance, treatment and quantity of water to be used.

There is currently no contract available for review for use of the outfall pipe or use/supply of treated effluent.

3. Potable Water Supply and Sanitary Sewage Disposal

GWA can provide potable water and sanitary sewer service to the power plant. The water and sewer requirements will be established in the same manner as required for any new industrial account. The power plant bidders are expected to submit their water and sewer flow estimates so the impact on the GWA potable water and sanitary sewer system can be evaluated. It is anticipated that GWA will be able to provide the necessary potable water and sanitary sewer service required, however, the extent of upgrade or expansion of the system necessary to suit the power plant bidder's requirements will be evaluated on a case by case basis.

The water source is well water sourced from the Northern Guam Lens Aquifer. Water will be supplied from the GWA distribution system and is not provided from any specific well or groups of wells, as the entire GWA system is linked. Water is pumped from the aquifer, chlorinated and added to the distribution system. There is no other treatment of the potable water. Potable water quality was provided in the bid documents – Appendix E: Raw Water Analysis of the Functional Technical Specification.

The connection point for potable water supply will be either from Route 3 or Route 1. The bidder will be responsible for design, permitting and construction of everything necessary to convey the water from the potable water tie-in to the power plant.

The proposed sanitary sewer connection is shown on the documents provided in Addendum 1. The bidder will be responsible for design, permitting and construction of everything necessary to convey the sewage from the power plant to the connection point.

Rates for potable water and sewer services are available on the GWA website at:

http://guamwaterworks.org/rates/

ATTACHMENT 1

US EPA NPDES Permit No. GU0020141

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

NPDES PERMIT NO. GU0020141

In compliance with the provisions of the Clean Water Act, as amended ("CWA") (33 U.S.C. 1251 et seq.), the following discharger is authorized to discharge from the identified facility at the outfall location(s) specified below, in accordance with the effluent limits, monitoring requirements, and other conditions set forth in this permit and in the attached EPA Region 9 "Standard Federal NPDES Permit Conditions," dated June 3, 2002 :

Discharger Name	Guam Waterworks Authority
Discharger Address	P.O. Box 3010
	Hagatna, Guam 96910
Facility Name	Northern District Sewage Treatment Plant
Facility Location Address	Route 34
	Harmon Annex, GU 96912

Outfall Number	General Type of Waste Discharged	Outfall Latitude	Outfall Longitude	Receiving Water
001	Secondary Treated Domestic Wastewater	N 13° 33' 8.34"	E 144° 48' 25.98"	Philippine Sea

This permit was issued on:	4/10/2013
This permit shall become effective on:	6/01/2013
This permit shall expire at midnight on:	5/31/2018
In accordance with 40 CFR 122.21(d), the discharger shall submit a new application for a permit at least 180 days before the expiration date of this permit	

Signed this 10th day of April, 2013, for the Regional Administrator.

// Nancy Woo, Acting 4/10/13//
John Kemmerer, Acting Director
Water Division

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I. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

A. Effluent Limits and Monitoring Requirements

1. The permittee is authorized to discharge treated wastewater in compliance with the effluent limits and monitoring requirements specified below. The discharge of pollutants at any point other than the outfall specifically authorized in this permit is prohibited.

Table 1. Effluent Limits and Monitoring Requirements – Outfall Number 001

Parameter	Maximum Allowable Discharge Limits Concentration and Loading				Monitoring Requirements	
	Average Monthly	Average Weekly	Maximum Daily	Units	Frequency	Sample Type
Flow rate	12	(1)	(1)	MGD	Continuous	Metered
Biochemical Oxygen Demand (5-day)	30	45	--	mg/L	Weekly	24 hr Composite
	3002	6760	--	lbs/day		
	The average monthly percent removal shall not be less than 85 percent. (2)			%		
Total Suspended Solids	30	45	–	mg/L	Weekly	24 hr Composite
	3002	6760	–	lbs/day		
	The average monthly percent removal shall not be less than 85 percent. (2)			%		
pH (hydrogen ion)	Within 6.5 and 8.5 at all times.			pH units	Weekly	Discrete
Settleable solids	1	–	2	mL/L	Weekly	Discrete
Oil and grease, total recoverable	10	–	15	mg/L	Weekly	Discrete
Enterococcus(3)	35(3)	–	104(3)	CFU/ 100mL	Weekly	Discrete
Chlorine, total residual (TRC)	1.5	–	2.46	mg/L	Weekly	Discrete
Temperature	(1)	–	(1)	˚C	Weekly	Discrete
Ammonia	(1)	–	(1)	mg/L	Yearly (5)	24 hr Composite
Chronic toxicity (4)	(1)	–	(1)	Pass/Fail	Yearly (5)	24 hr Composite
Priority Pollutant Scan	(1)	–	(1)	–	Yearly (5)	24 hr Composite
Ambient Monitoring	(1)	–	(1)	–	Quarterly	Discrete

(1) No effluent limits are set at this time, but monitoring and reporting is required.

(2) Both the influent and the effluent shall be monitored for Biochemical Oxygen Demand (5-day) and Total Suspended Solids. The arithmetic mean of the concentrations of effluent samples collected in a calendar month shall not exceed 15 percent of the arithmetic mean of the influent samples collected in the same calendar month. (e.g., must achieve 85% removal rates).

(3) Average monthly *Enterococcus* effluent monitoring shall be reported as a 30-day geometric mean. Maximum daily *Enterococcus* effluent monitoring shall be reported as the highest instantaneous maximum (The maximum of any single sample shall not exceed 104 CFU/ 100mL).

(4) See section II.D for specific requirements on Whole Effluent Toxicity. The permittee shall attempt to ensure a total holding time from collection of the last portion of the composite sample until arrival at the laboratory of not more than 36 hours. EPA has granted an extension to the Permittee for the holding time due to logistical issues. The extended holding time shall not exceed 72 hours.

(5) Yearly monitoring shall be completed by January 31 each year.

2. Pursuant to Guam water quality standards, the discharge shall[1]:

   a. Be free from substances, conditions or combinations that cause visible floating materials, debris, oil, grease, scum, foam, and other floating material which degrade water quality or use;

   b. Be free from substances, conditions or combinations that produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life;

   c. Be free from substances, conditions or combinations that produce objectionable color, odor, or taste, directly, or by chemical or biological action;

   d. Be free from substances, conditions or combinations that injure or are toxic or harmful to humans, animals, plants or aquatic life;

   e. Be free from substances, conditions or combinations that induce the growth of undesirable aquatic life;

   f. Not cause the pH in the receiving water to be outside the range of 6.5 to 8.5 standard units;

   g. Not cause orthophosphate concentrations in the receiving water to exceed 0.05 mg/L;

   h. Not cause nitrate-nitrogen concentrations to exceed 0.2 mg/L;

   i. Not cause ammonia concentration to exceed 0.02 mg/L;

   j. Not cause the concentration of dissolved oxygen in the receiving water to be less than 75% of saturation;

   k. Not cause alterations of the marine environment that would alter the salinity of marine waters of Guam more than +10% of the ambient conditions, except when due to natural conditions;

   l. Not cause total non-filterable suspended matter at any point to be increased more than 10% from ambient at any time, and the total concentration should not exceed 20 mg/L, except when due to natural conditions;

   m. Not contain any radioactive waste or contaminated radioactive materials from research facilities;

   n. Not cause the temperature in the receiving water to deviate more than 1.0 degree Centigrade (1.8 degree Fahrenheit) from ambient conditions;

[1] The permit incorporates an initial dilution rate of 200:1. Narrative receiving water quality standards apply after initial dilution has occurred.

o. Not cause the concentration of oil or petroleum products in the receiving waters to cause a visible film, or sheen, or result in visible discoloration of the surface with a corresponding oil or petroleum product odor, damage to fish or invertebrates, or an oil deposit on the shore or bottom;

p. Not cause concentrations of toxic substances in the receiving water that produce detrimental physiological, acute, or chronic responses in human, plant, animal or aquatic life;

q. Not cause concentrations of toxic substances in the receiving waters that produce contamination in harvestable aquatic life to the extent that it causes detrimental physiological, acute or chronic responses in humans or protected wildlife, when consumed;

r. Not cause concentrations of toxic substances in the receiving waters that result in the survival of aquatic life subject to the discharge to be less than that for the same water body in areas unaffected by the discharge; and

s. Whenever natural concentrations of any toxic substance occurs and exceeds the limits established in Part I of the Permit, this greater concentration shall constitute the limit, provided that this natural concentration was not directly affected by human-induced causes.

B. Ambient Monitoring

The permittee shall conduct receiving water monitoring in coastal waters near the outfall at receiving water monitoring stations and frequencies as specified in Tables 2 and 3 below. At the discretion of the permittee, ambient monitoring is not required if ocean conditions prevent safely obtaining representative samples. In such instances, the permittee shall report "N/A - sample could not be obtained due to environmental conditions".

Once per quarter, the permittee shall monitor all stations, including mid depth and bottom depth where applicable, for enterocci, ammonia, Total Kjeldahl nitrogen, orthophosphate, nitrate, turbidity, temperature, salinity, pH, and dissolved oxygen in addition to visual monitoring at all stations.

After two years of ambient monitoring, the permittee may request a modification to the permit to reduce monitoring, if the ambient monitoring demonstrates no negative impact to receiving waters surrounding the discharge.

Table 2 – Northern District Receiving Water Monitoring Locations

Station Name	**Description**
Shoreline A (A-sur)	0.4 km Northeast of Station C. Surface sample at shoreline.
Shoreline B (B-sur)	NCS beach. Surface sample at shoreline.
Offshore C (C-sur) (C-mid) (C-bot)	Outfall effluent boil. Surface, Mid (50 ft) depth and bottom (100 ft) depth
Offshore D (D-sur) (D-mid) (D-bot)	100m South of Station C. Surface, Mid (50 ft) depth, and bottom (100 ft) depth.
Offshore E (E-sur) (E-mid) (E-bot)	1000m Northeast of Station C. Surface, Mid (50 ft) depth, and bottom (100 ft) depth

Table 3 - Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Frequency
Oily sheen; Color; Odor; Presence of floating materials; Clarity/turbidity; Weather; Sampling time; Tide conditions.	Narrative	Visual. Surface only.	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab Sample.	Quarterly
Ammonia	mg/L	Grab Sample.	Quarterly
Orthophosphate	mg/L	Grab Sample.	Quarterly
Nitrate	mg/L	Grab Sample.	Quarterly
Enterococci	mg/L	Grab Sample.	Quarterly
Turbidity	NTU	Grab Sample.	Quarterly
Temperature	Degrees	Grab Sample.	Quarterly
Salinity	mg/L	Grab Sample.	Quarterly
pH	Std. Units	Grab Sample.	Quarterly
Dissolved Oxygen	mg/L	Grab Sample.	Quarterly

Part II. MONITORING AND REPORTING

A. Sample locations

Samples taken in compliance with the monitoring requirements specified in Part I, Section A, above, shall be taken at the following location(s):

1. Influent samples shall be taken after the last addition to the collection system, prior to treatment and prior to any process return flows.

2. Effluent samples shall be taken downstream from the last treatment process.

B. Twenty-four Hour Reporting of Noncompliance

1. The permittee shall report any noncompliance which may endanger human health or the environment. This information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances to all of the following:

   U.S. Environmental Protection Agency
   Pacific Islands Office : (415) 972-3769
   EPA Enforcement Division: (415) 972-3577

   Guam EPA
   (671) 475-1658

2. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. The following noncompliance events must also be reported within 24 hours:

   a. Any unanticipated bypass which exceeds any effluent limit in the permit (see 40 CFR 122.44(g)).

   b. Any upset which exceeds any effluent limit in the permit.

C. General Monitoring and Reporting

1. All monitoring shall be conducted in accordance with 40 CFR 136 test methods, unless otherwise specified in this permit. For influent and effluent analyses required in Table 1 of this permit, the permittee shall use 40 CFR 136 test methods with Method Detection Limits (MDLs) and Minimum Levels (MLs) that are lower than the effluent limits in Table 1 of this permit and the water quality criteria concentrations in the National Recommended Water Quality Criteria[2]. If all MDLs or MLs are higher than these effluent limits or criteria concentrations, then the permittee shall use the test method with the lowest MDL or ML available. If all published MDLs are higher than the effluent limitations (or applicable criteria concentrations), the permittee shall

[2] http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm

utilize the EPA-approved analytical method with the lowest published MDL. The permittee is not required to use "ultra low methods" unless specifically required by the permit.

2. The permittee shall ensure that the laboratory uses a standard calibration where the lowest standard point is equal to or less than the ML. Influent and effluent analyses for metals shall measure "total recoverable metal," except as provided under 40 CFR 122.45(c).

3. As an attachment to the first Discharge Monitoring Report ("DMR"), the permittee shall submit for all parameters with monitoring requirements specified in Table 1 of this permit:

   a. The test method number or title and published MDL or ML;

   b. The preparation procedure used by the laboratory;

   c. The laboratory's MDL for the test method computed in accordance with Appendix B of 40 CFR 136;

   d. The standard deviation (S) from the laboratory's MDL study;

   e. The number of replicate analyses (n) used to compute the laboratory's MDL; and

   f. The laboratory's lowest calibration standard.

   As part of each DMR submittal, the permittee shall certify that there are no changes to the laboratory's test methods, MDLs, MLs, or calibration standards. If there are any changes to the laboratory's test methods, MDLs, MLs, or calibration standards, these changes shall be summarized in an attachment to the subsequent DMR submittal.

4. The permittee shall develop a Quality Assurance ("QA") Manual for the field collection and laboratory analysis of samples. The purpose of the QA Manual is to assist in planning for the collection and analysis of samples and explaining data anomalies if they occur. At a minimum, the QA Manual shall include the following:

   a. Identification of project management and a description of the roles and responsibilities of the participants; purpose of sample collection; matrix to be sampled; the analytes or compounds being measured; applicable technical, regulatory, or program-specific action criteria; personnel qualification requirements for collecting samples;

   b. Description of sample collection procedures; equipment used; the type and number of samples to be collected including QA/Quality Control ("QC") samples; preservatives and holding times for the samples (see 40 CFR 136.3); and chain of custody procedures;

   c. Identification of the laboratory used to analyze the samples; provisions for any proficiency demonstration that will be required by the laboratory before or after contract award such as passing a performance evaluation sample; analytical

method to be used; MDL and ML to be reported; required QC results to be reported (e.g., matrix spike recoveries, duplicate relative percent differences, blank contamination, laboratory control sample recoveries, surrogate spike recoveries, etc.) and acceptance criteria; and corrective actions to be taken in response to problems identified during QC checks; and

d. Discussion of how the permittee will perform data review and reporting of results to EPA and Guam EPA and how the permittee will resolve data quality issues and identify limits on the use of data.

5. Throughout all field collection and laboratory analyses of samples, the permittee shall use the QA/QC procedures documented in its QA Manual. If samples are tested by a contract laboratory, the permittee shall ensure that the laboratory has the permittee's QA Manual on file. A copy of the permittee's QA Manual shall be retained on the permittee's premises and available for review upon request. The permittee shall review its QA Manual annually and revise it, as appropriate.

6. Samples collected during each month of the reporting period must be reported on DMR forms, as follows:

   a. For a *maximum daily* permit limit or monitoring requirement when one or more samples are collected during the month, report either:

      The *maximum value*, if the maximum value of all analytical results is greater than or equal to the ML; or
      NODI (Q), "No Discharge No Data Information" if the maximum value of all analytical results is greater than or equal to the laboratory's MDL, but less than the ML; or
      NODI (B), if the maximum value of all analytical results is less than the laboratory's MDL.

   b. For an *average weekly* or *average monthly* permit limit or monitoring requirement when only one sample is collected during the week or month, report either:

      The *maximum value*, if the maximum value of all analytical results is greater than or equal to the ML; or
      NODI (Q), if the maximum value of all analytical results is greater than or equal to the laboratory's MDL, but less than the ML; or
      NODI (B), if the maximum value of all analytical results is less than the laboratory's MDL.

   c. For an *average weekly* or *average monthly* permit limit or monitoring requirement when more than one sample is collected during the week or month, report:

      The *average value* of all analytical results where 0 (zero) is substituted for *NODI (B)* and the laboratory's MDL is substituted for *NODI (Q)*.

7. All monitoring results shall be submitted in such a format as to allow direct comparison with the effluent limits, monitoring requirements, and conditions of this permit. Influent and effluent monitoring results are to be reported on EPA Form 3320-1, a pre-printed DMR provided by the EPA Region 9 DMR Coordinator for NPDES. A DMR form must be submitted for the reporting period even if there was not any discharge. DMR forms shall be submitted by the 28th day of the month following the previous quarterly reporting period. For example, the three DMR forms for January, February, and March are due on April 28th. Duplicate signed copies of these, and all other reports required herein, shall be submitted to EPA and Guam EPA at the following addresses, unless otherwise specified in this permit:

   U.S. EPA Region 9
   Enforcement Division DMR (ENF-4-1)
   75 Hawthorne Street
   San Francisco, CA 94105

   Administrator
   Guam EPA
   P.O. Box 22439 GMF
   Barrigada, GU 96921

   The Discharger has the option to submit all monitoring results in the electronic reporting format approved by EPA. The Discharger may submit DMRs electronically using EPA's NetDMR application. NetDMR is a national tool for regulated Clean Water Act permittees to submit DMRs electronically via a secure Internet application to EPA. By using NetDMR, dischargers can discontinue mailing hard copy forms under 40 CFR 122.41 and 403.12.

D. Whole Effluent Toxicity (WET) Requirements

1. Monitoring Frequency

   The permittee shall conduct a yearly static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus* (Fertilization Test Method 1008.0).

   The permittee shall attempt to ensure a total holding time from collection of the last portion of the composite sample until arrival at the laboratory of not more than 36 hours. EPA is granting an extension to the Permittee for an extension of the holding time due to the difficulty in getting samples from Guam to an approved laboratory. The extended holding time shall not exceed 72 hours.

2. Marine and Estuarine Species and Test Methods

   Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the first edition of *Short-term Methods for Estimating the*

Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA/600/R-95/136, 1995; methods manual) and applicable water quality standards; also see 40 CFR Parts 122.41(j)(4) and 122.44(d)(1)(iv) and 40 CFR Part 122.21(j)(5)(viii) for POTWs.

3. "Pass" or "Fail" Determination

The permittee shall use an Instream Waste Concentration (IWC) of 0.5 percent effluent for chronic toxicity testing. This is based on the amount of dilution determined available in the receiving water.

To calculate either "Pass" or "Fail", the permittee shall follow the instructions in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*, Appendix A (EPA 833-R-10-003, 2010). For any one toxicity test, the WET permit limit that must be met is rejection of the null hypothesis (H_o):

IWC (0.5 percent effluent) mean response $\leq 0.75 \times$ Control mean response

A test result that rejects the null hypothesis is reported as "Pass" on the DMR form.

A test result that does not reject this null hypothesis is reported as "Fail" on the DMR form. If a test result is reported as "Fail", then the permittee shall follow the Accelerated Toxicity Testing and TRE/TIE Process, below, of this permit.

4. Quality Assurance

a. Quality assurance measures, instructions, and other recommendations and requirements are found in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* referenced above. Additional requirements are specified below.

b. This discharge is subject to a determination of "Pass" or "Fail" from a single-effluent concentration chronic toxicity test at the IWC (for statistical flowchart and procedures, see *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*, Appendix A, Figure A-1).

c. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA/600/R-95/136, 1995).* If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the EPA.

d. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly

reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

e. All multi-concentration reference toxicant test results must be reviewed and reported according to EPA guidance on the evaluation of concentration-response relationships found in *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR 136)* (EPA 821-B-00-004, 2000).

f. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* , then the permittee shall resample and retest within 14 days.

g. If the discharged effluent is chlorinated, then chlorine shall not be removed from the effluent sample prior to toxicity testing without written approval by the permitting authority

5. Initial Investigation TRE Work Plan

This plan shall include steps the permittee intends to follow if toxicity is measured above the WET permit limit or trigger and should include the following, at minimum:

a. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

b. A description of methods for maximizing in-house treatment system efficiency, good housekeeping practices, and a list of all chemicals used in operations at the facility.

c. If a Toxicity Identification Evaluation (TIE) is necessary, an indication of who will conduct the TIEs (i.e., an in-house expert or outside contractor).

d. The permittee may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and the following EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996).

6. Accelerated Toxicity Testing and TRE/TIE Process

a. If the WET permit limit or trigger is exceeded and the source of toxicity is known (e.g., a temporary plant upset), then the permittee shall conduct one additional toxicity test using the same species and test method. This toxicity test shall begin within 14 days of receipt of a test result exceeding the chronic WET permit limit or trigger. If the additional toxicity test does not exceed the chronic WET permit limit or trigger, then the permittee may return to the regular testing frequency.

b. If the WET permit limit or trigger is exceeded and the source of toxicity is not known, then the permittee shall conduct six additional toxicity tests using the same species and test method, approximately every two weeks, over a 12-week period. This testing shall begin within 14 days of receipt of a test result exceeding the chronic WET permit limit or trigger. If none of the additional toxicity tests exceed the chronic WET permit limit or trigger, then the permittee may return to the regular testing frequency.

7. If one of the additional toxicity tests (in paragraphs 6.a or 6.b) exceeds the WET permit limit or trigger, then, within 14 days of receipt of this test result, the permittee shall initiate a TRE using, according to the type of treatment facility, EPA manual Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants (EPA/833/B-99/002, 1999) or EPA manual Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070, 1989).

8. In conjunction, the permittee shall develop and implement a Detailed TRE Work Plan which shall include the following: further actions undertaken by the permittee to investigate, identify, and correct the causes of toxicity; actions the permittee will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

9. Reporting of Toxicity Monitoring Results

a. The permittee shall submit a full laboratory report for all toxicity testing as an attachment to the DMR for the month in which the toxicity test was conducted. The laboratory report shall contain: the toxicity test results; the dates of sample collection and initiation of each toxicity test; all results for effluent parameters monitored concurrently with the toxicity test(s); and progress reports on TRE/TIE investigations.

b. The permittee shall provide the actual test endpoint responses for the control (i.e., the control mean) and the IWC (i.e., the IWC mean) for each toxicity test to facilitate the review of test results and determination of reasonable potential for chronic WET by the permitting authority.

c. The permittee shall notify the permitting authority in writing within 14 days of exceedance of the chronic WET permit limit or trigger. This notification shall describe actions the permittee has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

10. Permit Reopener for Chronic Toxicity

In accordance with 40 CFR Parts 122 and 124, this permit may be modified to include effluent limitations or permit conditions to address chronic toxicity in the effluent or receiving waterbody, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.

Part III. Special Conditions

A. Reporting of Capacity Attainment and Planning

If the average dry-weather waste flow for any month either equals or exceeds 90 percent of the annual dry weather design capacity of the waste treatment and/or disposal facilities, the permittee shall file a written report with EPA within ninety (90) days. The permittee's senior administrative officer shall sign a letter which transmits that report and certifies that the policy-making body is adequately informed about it. The report shall include:

1. Average daily flow for the month, the date on which the instantaneous peak flow occurred, the rate of that peak flow, and the total flow for the day.

2. The permittee's best estimate of when the average daily dry weather flow rate will equal or exceed the design capacity of the facilities.

3. The permittee's intended schedule for the studies, design, and other steps needed to provide additional capacity for the waste treatment and/or disposal facilities before the waste flow rate equals the capacity of present facilities.

B. Sanitary Sewer Overflows

1. A Sanitary Sewer Overflow (SSO) is an overflow, spill, release, or diversion of wastewater from a sanitary sewer collection system designed to carry only sewage and prior to reaching the treatment plant. Sanitary sewer overflows include: a) overflows or releases of wastewater that reach waters of the U.S.; b) overflows or releases of wastewater that do not reach waters of the U.S.; and c) wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a building lateral. SSOs are generally caused by high volumes of infiltration and inflow (I/I), pipe blockages, pipe breaks, power failure, and insufficient system capacity.

2. SSO identification: The permittee shall identify all wastewater discharges, at locations not authorized as permitted outfalls, that occur prior to the headworks of the wastewater treatment plant covered by this permit. The permittee shall submit, with the scheduled DMR Form, the following information for each discharge event at each source that occurs during the reporting period covered by the DMR Form:

   a) The cause of the discharge;

   b) Duration and volume (estimate, if unknown);

   c) Description of the source (e.g., manhole cover, pump station, etc.);

   d) Type of collection system that overflowed (i.e., combined or separate);

e) Location by street address, or any other appropriate method;

f) Date(s) and time(s) of event;

g) The ultimate destination of the flow, e.g., surface water body, land use location, via municipal separate storm sewer system to a surface water body (show location on a USGS map or copy thereof); and

h) Corrective action taken and steps taken or planned to eliminate reoccurrence of discharge.

C. Pretreatment

1. Revise Ordinance: GWA shall review and revise any existing pretreatment ordinance for consistency with 40 CFR Part 403. GWA shall submit to EPA for review and approval this revised pretreatment ordinance to develop, implement, and enforce Section 403. [3] The objectives of this ordinance are:

- To prevent the introduction of pollutants into the Publicly Owned Treatment Works (POTW) that will interfere with its operation;
- To prevent the introduction of pollutants into the POTW that will pass through the POTW, inadequately treated, into receiving waters, or otherwise be incompatible with the POTW;
- To protect both POTW personnel who may be affected by wastewater and sludge in the course of their employment and the general public;
- To promote reuse and recycling of industrial wastewater and sludge from the POTW;
- To enable GWA to comply with its NPDES permit conditions, sludge use and disposal requirements, and any other Federal or State laws to which the POTW is subject.

2. Notifications required for New Pollutants and Substantial Changes: The permittee must provide notice to U.S. EPA within 30 days when the permittee becomes aware of the following:

a) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 and 306 of the CWA if it were directly discharging those pollutants; and

b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of this permit.

[3] EPA recommends consultation with EPA's Model Pretreatment Ordinance (EPA 833-B-06-002), available at http://cfpub.epa.gov/npdes/docs.cfm?view=allprog&program_id=3&sort=name

c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

D. Fats Oils and Grease (FOG) Program

As part of its pretreatment ordinance, GWA shall submit to EPA for review and approval a comprehensive FOG Program to develop, implement, and enforce grease control measures.[4] At a minimum, GWA shall incorporate the following:

1. Ordinance

   GWA shall review existing ordinances for FOG control and adopt or revise as necessary a municipal ordinance to control FOG. At a minimum the ordinance shall specify:
   - **a.** allowable types of connections,
   - **b.** suitable uses of the equipment,
   - **c.** appropriate sizing criteria,
   - **d.** proper sampling box installation, and
   - **e.** Minimum schedules for cleaning.

2. Baseline Assessment

   GWA shall conduct a baseline assessment of all known SSOs over the past 10 years by evaluating work orders, complaints and local knowledge of sewer blockages to identify geographical areas of repeated problems for FOG discharges. These areas shall be prioritized for outreach, inspections, and enforcement. The Baseline Assessment shall be completed within two years of permit issuance.

   GWA shall supplement the Baseline Assessment by TV/video inspection of sewer mains. The areas where sewer lines are found to contain visible accumulation of fats, oils and grease shall be prioritized for outreach, inspections, and enforcement. At each location where fats, oils and grease are identified in the sewer lines, GWA shall implement a targeted strategy to identify, inspect, and monitor the establishments discharging FOG to the sewer system.

3. Food Service Establishment (FSE) Database within priority areas

   GWA shall identify and maintain a database of Food Service Establishments ("FSE") discharging to the sewer system that are upgradient of the priority areas identified in the Baseline Assessment. FSEs include any facility preparing and/or serving food for commercial use or sale, such as restaurants; cafes; lunch counters; cafeterias; hotels;

[4] EPA recommends consultation with California's Guide for Developing and Implementing a Fats, Oils, and Grease (FOG) Control Program for Food Service Establishments September 2004. http://www.calfog.org/docs/ProgDevGuide.pdf.

hospitals; convalescent homes; factory or school kitchens; catering kitchens; bakeries; grocery stores with food preparation, food packaging, meat cutting, and meat preparation (excluding grocery stores with only food warming operations); and meat packing facilities. The database shall include at a minimum:

a. FSE name, address, phone number, & manager,
b. property owner, address, phone & number,
c. type of food served,
d. health Department license number,
e. monthly average water use,
f. seating capacity or approximate number of employees,
g. type of grease removal equipment & capacity,
h. current FOG disposal method,
i. name of contracted grease hauler,
j. interceptor cleaning frequency,
k. dates of GWA Inspections,
l. results of GWA Inspections,
m. history of compliance,
n. outreach program,
o. other information as necessary.

GWA shall update the database yearly.

4. Outreach Program

a. GWA shall establish an outreach program to Food Service Establishments, restaurant associations, grease haulers, grease recyclers, and any municipal agencies that are responsibilities for controlling FOG. The outreach materials should include at a minimum:

i. acceptable FOG handling and disposal practices,
ii. required operation and maintenance of grease traps,
iii. FOG disposal and/or recycling methods, and
iv. Instructions on how to properly operate and maintain grease traps and grease interceptors.

b. GWA shall establish an outreach program to all residential customers explaining the proper disposal of oil and greases and the negative impacts from dumping grease down the drain. Outreach shall consist of, at a minimum:

i. leaflet materials with water bills and/or sewer bills which describe measures to control and properly dispose of FOG wastes;
ii. doorhangers that GWA will distribute to all residences within 1000 feet of any identified SSO;
iii. materials on GWA's website, and

iv. public service announcement or other methods of outreach to specific communities, especially priority and hotspot areas previously identified.

5. Inspection Program

GWA shall develop an inspection program to evaluate, track and enforce its ordinance to control FOG. The inspection program shall at a minimum include:

a. an inspection protocol to inspect priority areas and areas of known SSOs. Inspections may be coordinated with Health Department Inspections.
b. a standardized inspection checklist form to be used by GWA:
c. a training program for GWA FOG inspectors.
d. a formal enforcement response plan, including Education, Verbal Warning, Follow-up Inspections, Notice of Violation, Administrative Fines, Re-inspection Fees, Violations, Cost Recovery for GWA- provided clean-ups and/or termination of water/wastewater service.

6. Annual report

GWA shall provide an annual report to EPA that shall at a minimum consist of the following:

a. copy of updated FSE database;
b. a description of SSOs or sewage clogging and area prioritization;
c. summary of outreach performed;
d. summary of inspection results;
e. a discussion of the budget and staffing levels for the previous and current years; and
f. analysis of the program's performance over the past year, including, but not limited to, the reduced number of sewer blockages and SSOs, improved POTW performance, and any reduction in the number of collection system hot spots.

E. Permit Reopener

In accordance with 40 CFR 122 and 124, this permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.

The effluent limitations contained in this permit are based on the presumption that the permittee will install the multi-port outfall diffuser as the permittee has stated in the permit application. EPA conducted reasonable potential based on the presumed mixing zone that will be achieved by the diffuser. If the permittee has not installed the diffuser, EPA may reopen this permit to reassess the presence of effluent toxicity

or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards based upon new data. EPA may reopen the permit at this time to establish new effluent limits based on a re-evaluation of the mixing zone.

Part IV BIOSOLIDS

"Biosolids" means non-hazardous sewage sludge, as defined in 40 CFR 503.9. Sewage sludge that is hazardous, as defined in 40 CFR 261, must be disposed of in accordance with the Resource Conservation and Recovery Act.

1. General Requirements

   a. All biosolids generated by the permittee shall be used or disposed of in compliance with the applicable portions of:

      (1) 40 CFR 503 - for biosolids that are land applied, placed in a surface disposal site (dedicated land disposal site, monofill, or sludge-only parcel at a municipal landfill), or incinerated;

      (2) 40 CFR 258 - for biosolids disposed of in a municipal solid waste landfill (with other material);

      (3) 40 CFR 257 - for all biosolids use and disposal practices not covered under 40 CFR 258 or 503.

   b. The permittee is responsible for assuring that all biosolids produced at its facility are used or disposed of in accordance with these rules, whether the permittee itself uses or disposes of the biosolids, or transfers the biosolids to another party for further treatment, use, or disposal. The permittee is responsible for informing subsequent preparers, appliers, and disposers of the requirements that they must meet under these rules.

   c. Duty to mitigate: The permittee shall take all reasonable steps to prevent or minimize any biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.

   d. No biosolids shall be allowed to enter wetlands or other waters of the United States.

   e. Biosolids treatment, storage, use, or disposal shall not contaminate groundwater.

   f. Biosolids treatment, storage, use, or disposal shall not create a nuisance such as objectionable odors or flies.

   g. The permittee shall assure that haulers transporting biosolids off site for treatment, storage, use, or disposal take all necessary measures to keep the biosolids contained. All haulers must have spill clean-up procedures. Trucks

hauling biosolids that are not classified as Class A, as defined at 40 CFR 503.32(a), shall be cleaned as necessary after loading and after unloading so as to have no biosolids on the exterior of the truck body or wheels. Trucks hauling biosolids that are not Class A shall be tarped. Trucks hauling biosolids that are not Class A may not be used for hauling food or feed crops after unloading the biosolids, unless the permittee submits, for EPA approval, a hauling description of how trucks will be thoroughly cleaned prior to adding food or feed.

h. If biosolids are stored over two years from the time they are generated, then the permittee must ensure compliance with all surface disposal requirements under 40 CFR 503, Subpart C, or must submit a written notification to EPA and Guam EPA with the information under 40 CFR 503.20(b) demonstrating the need for longer temporary storage. During temporary storage (of any length of time) for biosolids that are not Class A, whether on the facility site or off-site, adequate procedures must be taken to restrict public access and access by domestic animals.

i. Any biosolids treatment, disposal, or storage site shall have facilities adequate to: divert surface runoff from adjacent areas, protect the site boundaries from erosion, and prevent any conditions that would cause drainage from the materials at the site to escape from the site. Adequate protection is defined as protection from at least a 100-year storm event and from the highest tidal stage that may occur.

2. Inspection and Entry

The EPA, Guam EPA, or an authorized representative thereof, upon presentation of credentials, shall be allowed by the permittee, directly or through contractual arrangements with their biosolids management contractors, to:

a. Enter upon all premises where biosolids produced by the permittee are treated, stored, used, or disposed of, either by the permittee or another party to whom the permittee transfers the biosolids for treatment, storage, use, or disposal;

b. Have access to and copy any records that must be kept under the conditions of this permit or 40 CFR 503, by the permittee or another party to whom the permittee transfers the biosolids for further treatment, storage, use, or disposal; and

c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations used in biosolids treatment, storage, use, or disposal by the permittee or another party to whom the permittee transfers the biosolids for treatment, use, or disposal.

3. Land Application

For biosolids that are land-applied:

a. There shall be adequate screening at the treatment plant headworks and/or at the biosolids treatment units to ensure that all pieces of metal, plastic, glass, and other inert objects with a diameter greater than 3/8" are removed.

b. The permittee shall track and keep records of the operational parameters used to achieve the Vector Attraction Reduction requirements in 40 CFR 503.33(b).

c. Biosolids shall be monitored for: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, zinc at the frequency specified "Biosolids Monitoring Frequency", below. Additionally, Class 1 facilities (facilities with pretreatment programs or designated as Class 1 by the Regional Administrator) and Federal facilities with >5 mgd influent flow shall also sample biosolids once per year for pollutants listed under CWA section 307(a). This monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA publication SW-846), as required in 40 CFR 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is."

d. Prior to land application, the permittee shall demonstrate that biosolids meet Class A or Class B pathogen reduction levels using one of the alternatives listed under 40 CFR 503.32.

e. If pathogen reduction is demonstrated by testing for fecal coliform and/or other pathogens, then samples must be drawn at the frequency described in "Biosolids Monitoring Frequency", below. If Class B pathogen reduction levels are demonstrated using fecal coliform, then at least seven grab samples must be drawn during each sampling event and a geometric mean calculated from these seven samples.

   The following sample holding times between sample collection and sample analysis shall not be exceeded: fecal coliform - 24 hours when cooled to 4 ˚C if composted, mesophillically digested, or aerobically digested, 6 hours otherwise; Salmonella sp. - 24 hours when cooled to 4 ˚C; enteric viruses - 2 weeks when frozen; helminth ova - one month when cooled to 4 ˚C.

f. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, then the permittee shall maintain daily records of the operating parameters used to achieve this reduction.

4. Surface Disposal

For biosolids that are placed in a surface disposal site (dedicated land disposal site or monofill, or sludge-only parcel at a municipal landfill):

a. A qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.

b. The permittee shall track and keep records of the operational parameters used to achieve the Vector Attraction Reduction requirements in 40 CFR 503.33(b).

c. No food crop, feed crop, or fiber crop may be grown on a surface disposal site, unless approved by US EPA.

d. If the surface disposal site is unlined, biosolids shall be monitored for: arsenic, chromium, and nickel at the frequency specified "Biosolids Monitoring Frequency", below. If the surface disposal unit is lined, no monitoring is required. Additionally, Class 1 facilities (facilities with pretreatment programs or designated as Class 1 by the Regional Administrator) and Federal facilities with >5 mgd influent flow shall also sample biosolids once per year for pollutants listed under CWA section 307(a). This monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA publication SW-846), as required in 40 CFR 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is."

e. The permittee shall demonstrate that the biosolids meet Class B pathogen reduction levels using one of the alternatives listed under 40 CFR 503.32 or shall ensure that the site is covered at the end of each operating day.

f. If pathogen reduction is demonstrated by testing for fecal coliform and/or other pathogens, then samples must be drawn at the frequency described in "Biosolids Monitoring Frequency", below. If Class B pathogen reduction levels are demonstrated using fecal coliform, then at least seven grab samples must be drawn during each sampling event and a geometric mean calculated from these seven samples.

   The following sample holding times between sample collection and sample analysis shall not be exceeded: fecal coliform - 24 hours when cooled to 4 ˚C if composted, mesophillically digested, or aerobically digested, 6 hours otherwise; Salmonella sp. - 24 hours when cooled to 4 ˚C; enteric viruses - 2 weeks when frozen; helminth ova - one month when cooled to 4 ˚C.

g. If pathogen reduction is demonstrated using a Process to Significantly/Further Reduce Pathogens, then the permittee shall maintain daily records of the operating parameters used to achieve this reduction.

5. Municipal Solid Waste Landfill Disposal

For biosolids placed in a municipal solid waste landfill:

a. Biosolids shall be tested by the Paint Filter Liquids Test (Method Number 9095 in SW-846) at frequency described in "Biosolids Monitoring Frequency", below, to demonstrate that there are no free liquids.

b. Biosolids shall be tested by the Toxicity characteristic leaching procedure (TCLP) Test (Method 6010B) once during the first year after issuance of this permit.

c. Class 1 facilities (facilities with pretreatment programs or designated as Class 1 by the Regional Administrator) and Federal facilities with >5 mgd influent flow shall also sample biosolids once per year for pollutants listed under CWA section 307(a). This monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA publication SW-846), as required in 40 CFR 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is."

6. Biosolids Monitoring Frequency

Monitoring shall be conducted at the following frequency, based on the volume of biosolids generated per year:

Volume Generated (dry metric tons per year)	Monitoring Frequency *
>0 - <290	Once per year
290 - <1,500	Four times per year
1,500 - <15,000	Six times per year
>15,000	12 times per year

* If biosolids are removed for use or disposal on a routine basis, then monitoring should be scheduled at regular intervals throughout the year. If biosolids are stored for an extended period of time prior to use or disposal, then monitoring may occur either at regular intervals, or prior to use or disposal corresponding to tonnage accumulated during the period of storage.

7. Notification and Reporting

a. The permittee, either directly or through contractual arrangements with its biosolids management contractors, shall comply with the following notification requirements:

(1) Notification of noncompliance: The permittee shall notify EPA and Guam EPA of any noncompliance within 24 hours of becoming aware of the circumstances, if the noncompliance may seriously endanger health or the environment. For other instances of noncompliance, the permittee shall notify EPA and Guam EPA, in writing, within five working days of becoming aware of the circumstances. The permittee shall require its biosolids management contractors to notify EPA and Guam EPA of any noncompliance within these same timeframes.

(2) Interstate notification: If biosolids are shipped to another State, Tribal Lands, or Territory, then the permittee shall send a 60-day prior notice of the shipment to permitting authorities in the receiving State, Tribal Lands, or Territory, and EPA Region 9.

(3) Land Application: Prior to sending biosolids (other than composted biosolids) to a new or previously unreported site, the permittee shall notify EPA and Guam EPA. The notification shall include: a description and topographic map of the proposed site(s), names and addresses of the applier and site owner, and a list of any state or local permits which must be obtained. The plan shall include a description of the crops or vegetation to be grown, proposed loading rates, and determination of agronomic rates.

Land Application: If any biosolids within a given monitoring period do not meet the pollutant limits for metals under 40 CFR 503.13, then the permittee (or its contractor) must notify EPA and determine the cumulative metals loading to date at that site, as required in 40 CFR 503.12.

Land Application: The permittee shall notify the applier of 40 CFR 503 requirements that are applicable to the applier, including applier certification that management practices, site restrictions, and vector attraction reduction requirements have been met. The permittee shall require the applier to certify at the end of 38 months following the application of Class B biosolids, that the harvesting restrictions in effect for up to 38 months have been met.

(4) Surface Disposal: Prior to disposal at a new or previously unreported site, the permittee shall notify EPA and Guam EPA. The notice shall include: a description and topographic map of the proposed site, depth to groundwater, whether the site is lined or unlined, site operator, site owner, and any State, Territory or local permits. The notice shall describe procedures for ensuring restricted public access and grazing restrictions for three years following site closure. The notice shall include a groundwater monitoring plan, or a description of why groundwater monitoring is not required.

b. The permittee shall submit an annual biosolids report to the EPA Region 9 Biosolids Coordinator and Guam EPA by February 19 of each year for the period covering the previous calendar year. This report shall include:

(1) The amount of biosolids generated that year and the amount of biosolids accumulated from previous years, in dry metric tons.

(2) Results of all pollutant monitoring required in the Monitoring section, above, reported on a 100% dry weight basis.

(3) For Land Application and Surface Disposal: Demonstrations and certifications of pathogen reduction methods and vector attraction reduction methods, as required in 40 CFR 503.17 and 503.27.

(4) For Land Application Sites, the following information must be submitted by the permittee, unless the permittee requires its biosolids management contractors to report this information directly to the EPA Region 9 Biosolids Coordinator:

The locations of land application sites used that calendar year (with field names and numbers), size of each field applied to, applier, and site owner; the volumes applied to each field (in wet tons and dry metric tons), nitrogen applied, and calculated plant available nitrogen; the crop planted, date of planting, and date of harvesting; for biosolids exceeding 40 CFR 503.13 Table 3 pollutant concentrations, the locations of sites where applied and cumulative metals loading at that site to date; certifications of management practices in 40 CFR 503.14 and certifications of site restrictions in 40 CFR 503.17(b)(6).

(5) For Surface Disposal Sites: The locations of sites, site operator, site owner, and size of parcel on which disposed; the results of any required groundwater monitoring; certifications of management practices in 40 CFR 503.24; and for closed sites, the date of site closure and certifications of management practices for the three years following site closure.

(6) For Municipal Solid Waste Landfill disposal sites: Names, mailing addresses, and street addresses of persons who received biosolids for disposal in a municipal waste landfill, or, and the tonnages delivered to each.

(7) For other use or disposal methods not covered above, the following information must be submitted by the permittee: Names, mailing addresses, and street addresses of persons who received biosolids for storage, further treatment, or disposal, and the tonnages delivered to each.

(8) For temporary storage of biosolids on-site, GWA shall report how long the biosolids have been stored at the facility, if greater than 2 years.

(9) All reports shall be submitted to:

Regional Biosolids Coordinator
U.S. Environmental Protection Agency
Region 9

CWA Compliance Office (WTR-7)
75 Hawthorne Street
San Francisco, CA 94105-3901

Guam EPA
17-3304 Mariner Avenue
Tiyan, Guam 96913

ATTACHMENTS

Attachment A: Definitions

Best Management Practices" or "BMPs" are schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of the U.S. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may further be characterized as operational, source control, erosion and sediment control, and treatment BMPs.

"Composite" sample means a time-proportioned mixture of not less than eight discrete aliquots obtained at equal time intervals (e.g., 24-hour composite means a minimum of eight samples collected every three hours). The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling, but not less than 100 ml. Sample collection, preservation, and handling shall be performed as described in the most recent edition of 40 CFR 136.3, Table II. Where collection, preservation, and handling procedures are not outlined in 40 CFR 136.3, procedures outlined in the 18th edition of Standard Methods for the Examination of Water and Wastewater shall be used.

"Daily discharge" means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

"Daily maximum allowable effluent limitation" means the highest allowable "daily discharge.

"DMR" is a "Discharge Monitoring Report" that is an EPA uniform national form, including any subsequent additions, revisions, or modifications for reporting of self-monitoring results by the permittee.

"Grab" sample is a single sample collected at a particular time and place that represents the composition of the discharge only at that time and place. Sample collection, preservation, and handling shall be performed as described in the most recent edition of 40 CFR 136.3, Table II. Where collection, preservation, and handling procedures are not outlined in 40 CFR 136.3, procedures outlined in the 18th edition of Standard Methods for the Examination of Water and Wastewater shall be used.

"Method detection limit" or "MDL" is the minimum concentration of an analyte that can be

detected with 99% confidence that the analyte concentration is greater than zero, as defined by a specific laboratory method in 40 CFR 136. The procedure for determination of a laboratory MDL is in 40 CFR 136, Appendix B.

"Minimum level" or "ML" is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed in a specific analytical procedure, assuming that all the method-specific sample weights, volumes, and processing steps have been followed (as defined in EPA's draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-Based Effluent Limitations Set Below Analytical Detection/Quantitative Levels, March 22, 1994). If a published method-specific ML is not available, then an interim ML shall be calculated. The interim ML is equal to 3.18 times the published method-specific MDL rounded to the nearest multiple of 1, 2, 5, 10, 20, 50, etc. (When neither an ML nor MDL are available under 40 CFR 136, an interim ML should be calculated by multiplying the best estimate of detection by a factor of 3.18; when a range of detection is given, the lower end value of the range of detection should be used to calculate the ML.) At this point in the calculation, a different procedure is used for metals, than non-metals:

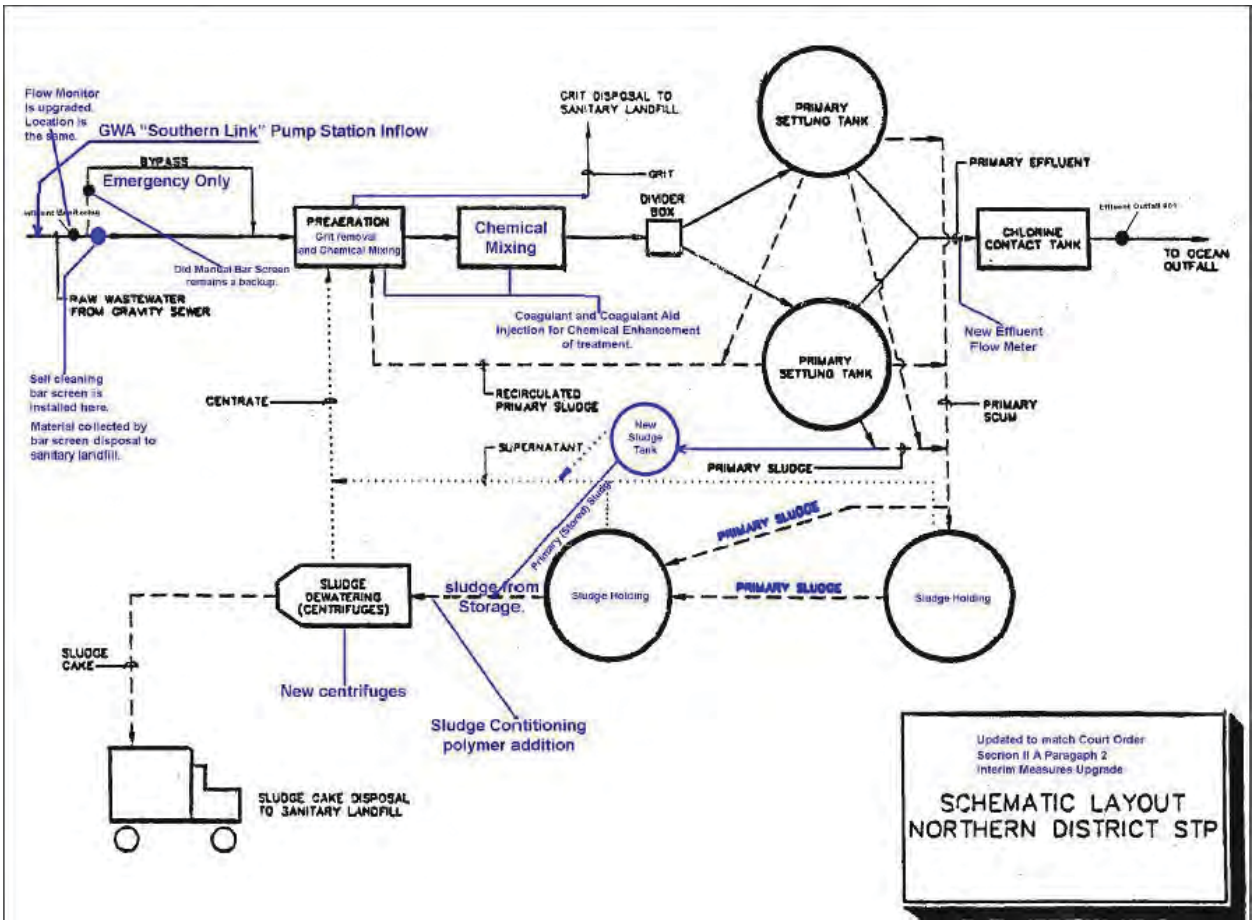
a. For metals, due to laboratory calibration practices, calculated MLs may be rounded to the nearest whole number.

b. For non-metals, because analytical instruments are generally calibrated using the ML as the lowest calibration standard, the calculated ML is then rounded to the nearest multiple of (1, 2, or 5) x 10n, where n is zero or an integer. (For example, if an MDL is 2.5 µg/l, then the calculated ML is: 2.5 µg/l x 3.18 = 7.95 µg/l. The multiple of (1, 2, or 5) x 10n nearest to 7.95 is 1 x 101 = 10 µg/l, so the calculated ML, rounded to the nearest whole number, is 10 µg/l.)

"NODI(B)" No Discharge No Data Information means that the concentration of the pollutant in a sample is not detected. NODI(B) is reported when a sample result is less than the laboratory's MDL.

"NODI(Q)" No Discharge No Data Information means that the concentration of the pollutant in a sample is detected but not quantified. NODI(Q) is reported when a sample result is greater than or equal to the laboratory's MDL, but less than the ML.

Attachment B: Existing Process Flow Diagram (does not represent new secondary treatment facility to be built)



Attachment C: Standard NPDES Conditions

Attached

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

CWA STANDARDS AND PERMITS OFFICE (WTR-5)

STANDARD FEDERAL NPDES PERMIT CONDITIONS

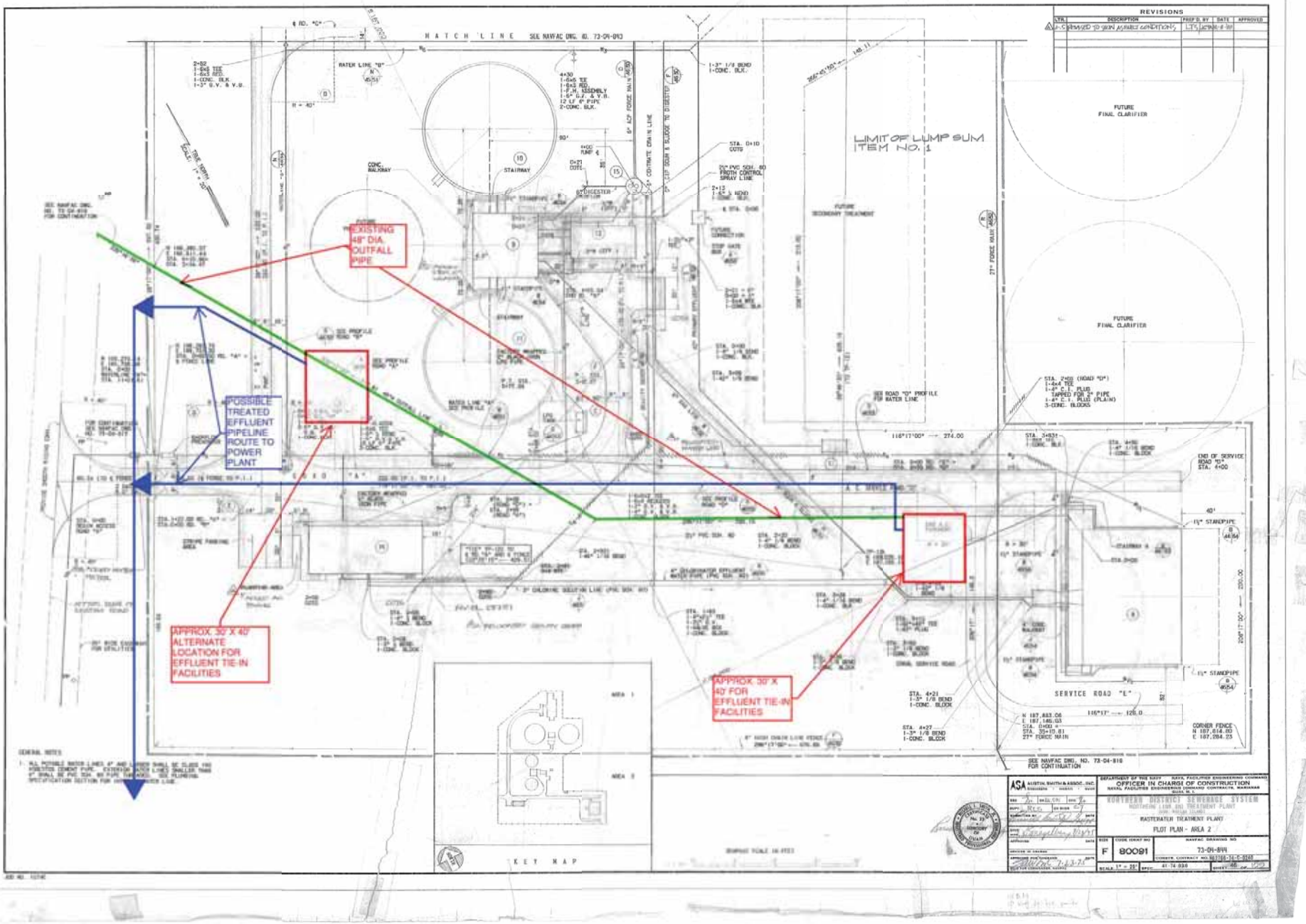
Updated as of June 3, 2002

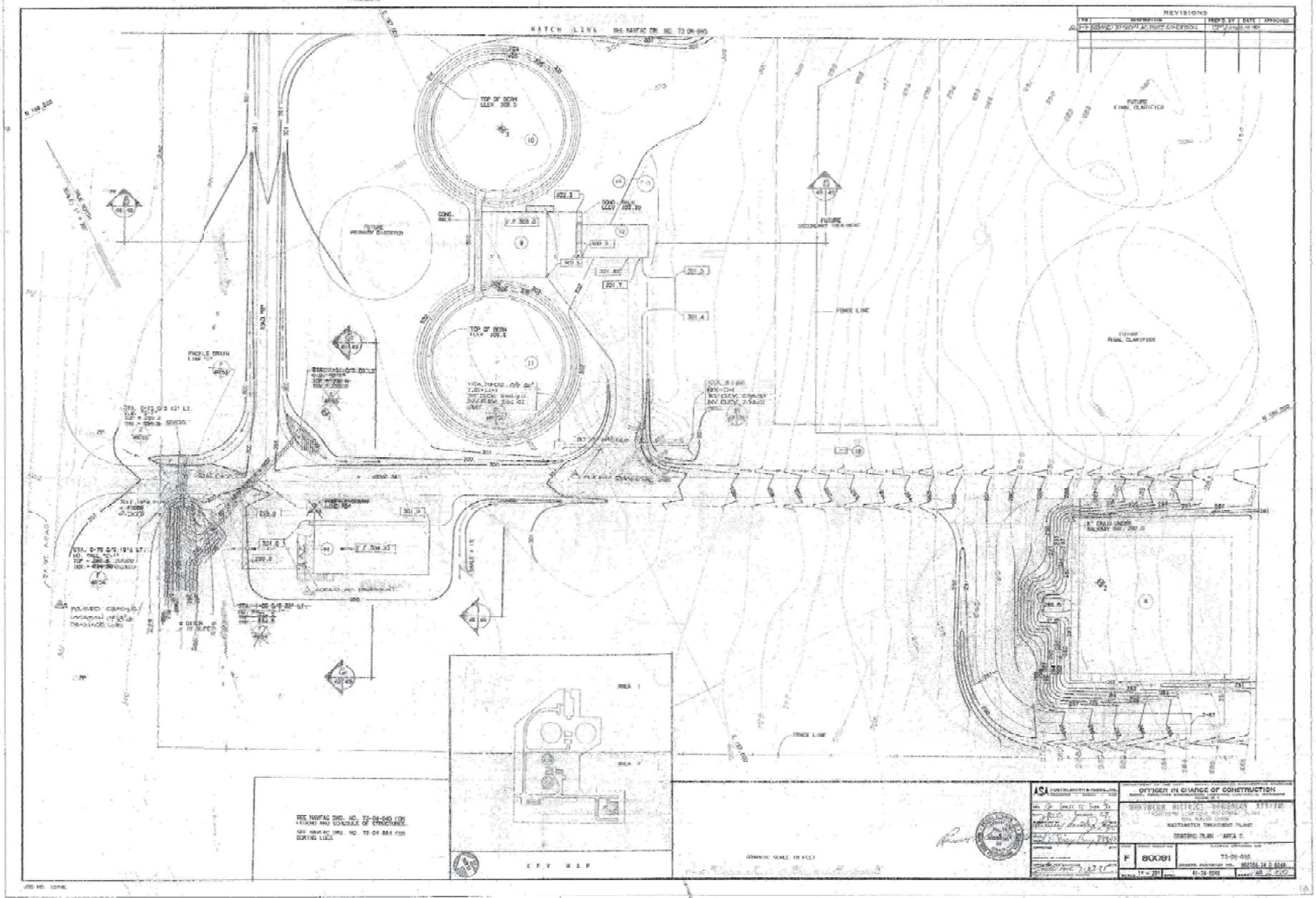
Reference: CFR 40 Parts 100 to 135, July 1, 2001

ATTACHMENT 2

NORTHERN DISTRICT WASTEWATER TREATMENT PLANT (NDWWTP)

RECORD DRAWINGS AND POSIBLE TIE-IN LOCATIONS


EXISTING 48" DIA. OUTFALL PIPE
POSSIBLE TREATED EFFLUENT PIPELINE ROUTE TO POWER PLANT
APPROX. 30' X 40' ALTERNATE LOCATION FOR EFFLUENT TIE-IN FACILITIES
APPROX. 30' X 40' FOR EFFLUENT TIE-IN FACILITIES
LIMIT OF LUMP SUM ITEM NO. 1
FUTURE FINAL CLARIFIER
FUTURE FINAL CLARIFIER
FUTURE SECONDARY TREATMENT
SERVICE ROAD "E"
KEY MAP
REVISIONS
NORTHERN DISTRICT SEWERAGE SYSTEM
WASTEWATER TREATMENT PLANT
PLOT PLAN - AREA 2
F 80091
73-01-814


MATCH LINE - SEE NAWFAC DWG. NO. 73-04-895
REVISIONS
NO. DESCRIPTION PREP'D BY DATE APPROVED
ADDED 72" DUCTILE IRON PIPE EXTENSION
TOP OF BERM ELEV. 308.5
TOP OF BERM ELEV. 308.5
FUTURE PRIMARY DIGESTER
FUTURE SECONDARY DIGESTER
FUTURE FINAL CLARIFIER
FENCE LINE
FENCE DRAIN
EXISTING 24" RCP
EXISTING 18" RCP
EXISTING 12" RCP
EXISTING 8" RCP
EXISTING 6" RCP
EXISTING 4" RCP
EXISTING 3" RCP
EXISTING 2" RCP
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EXISTING 1/2" RCP
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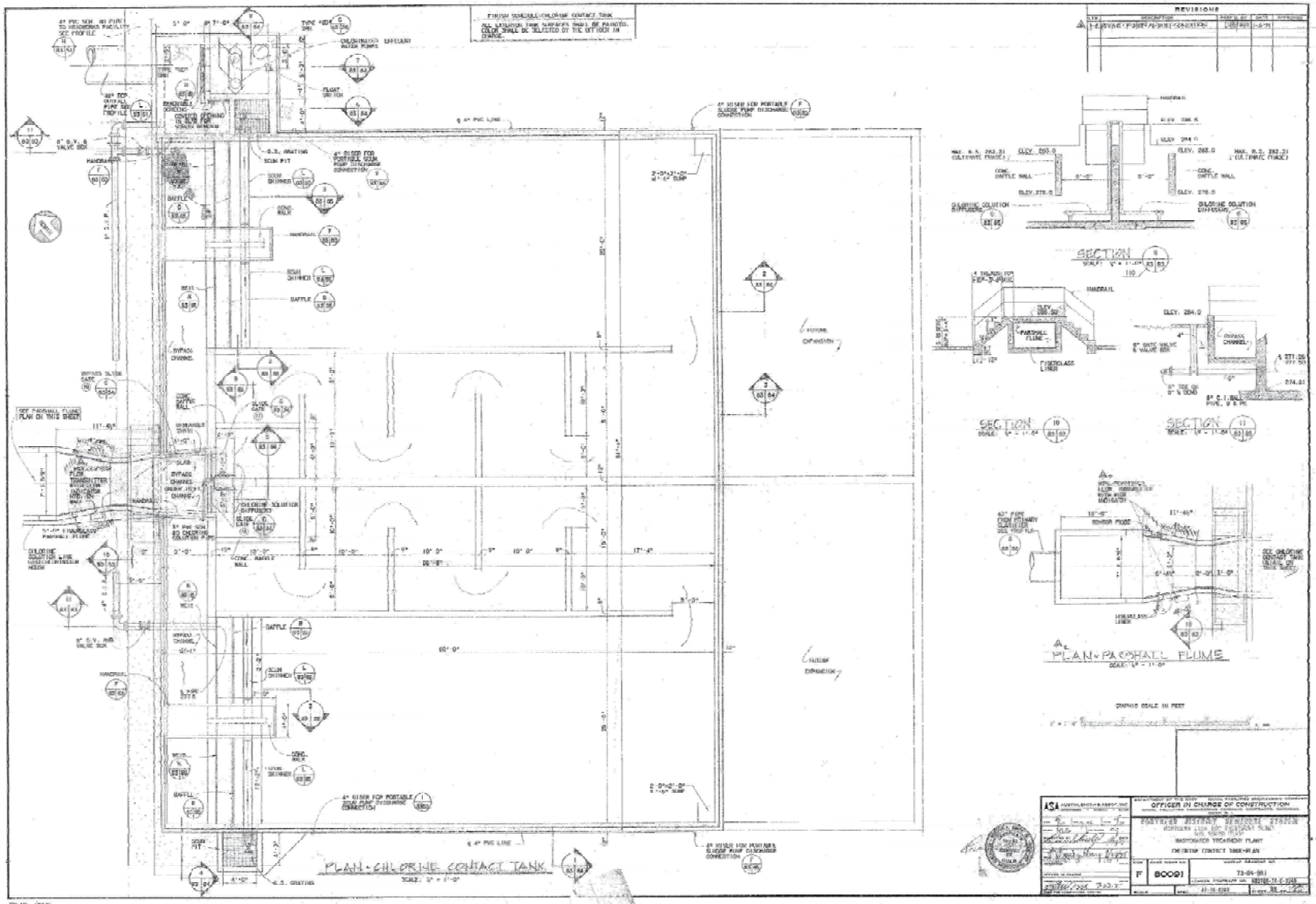
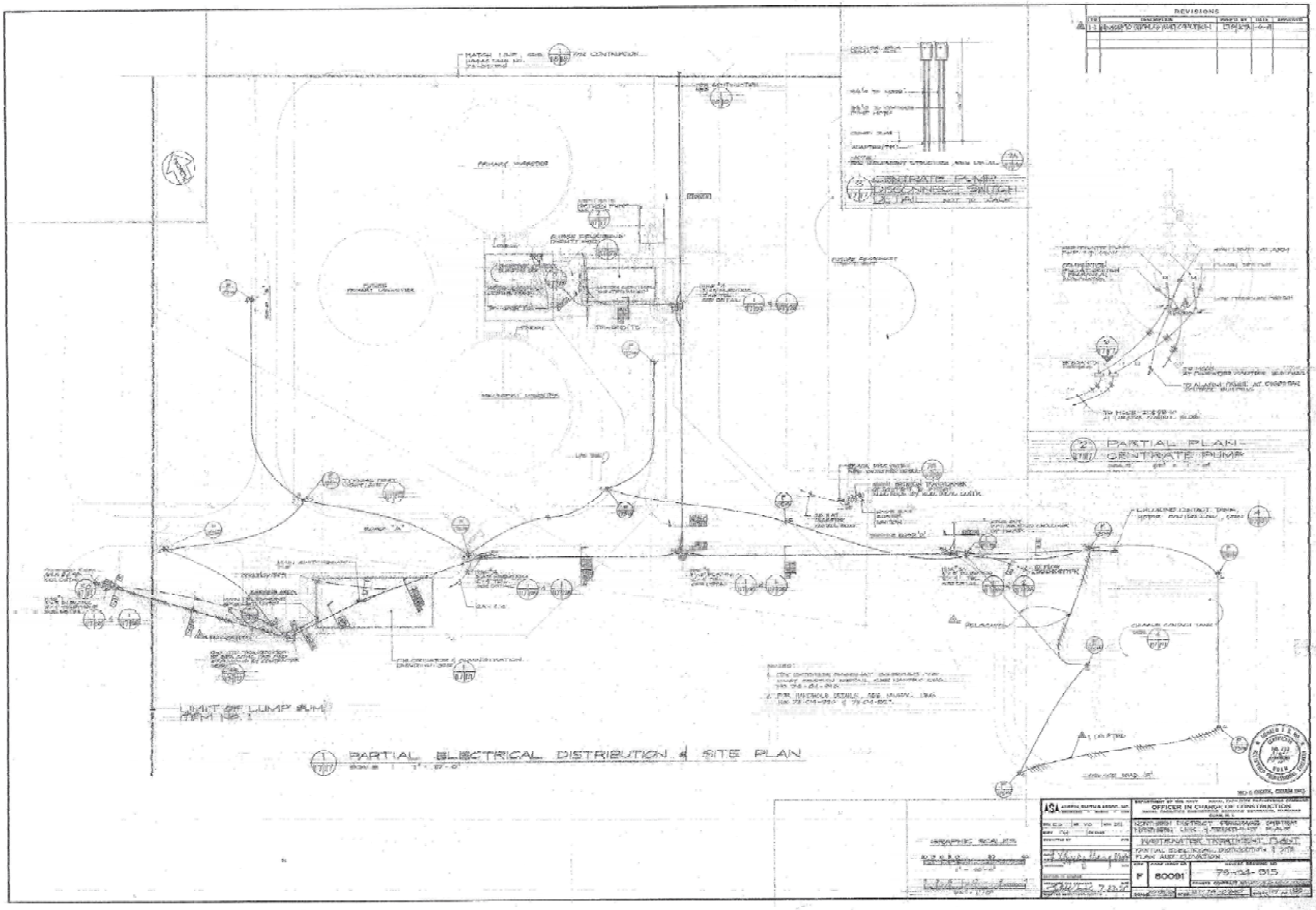
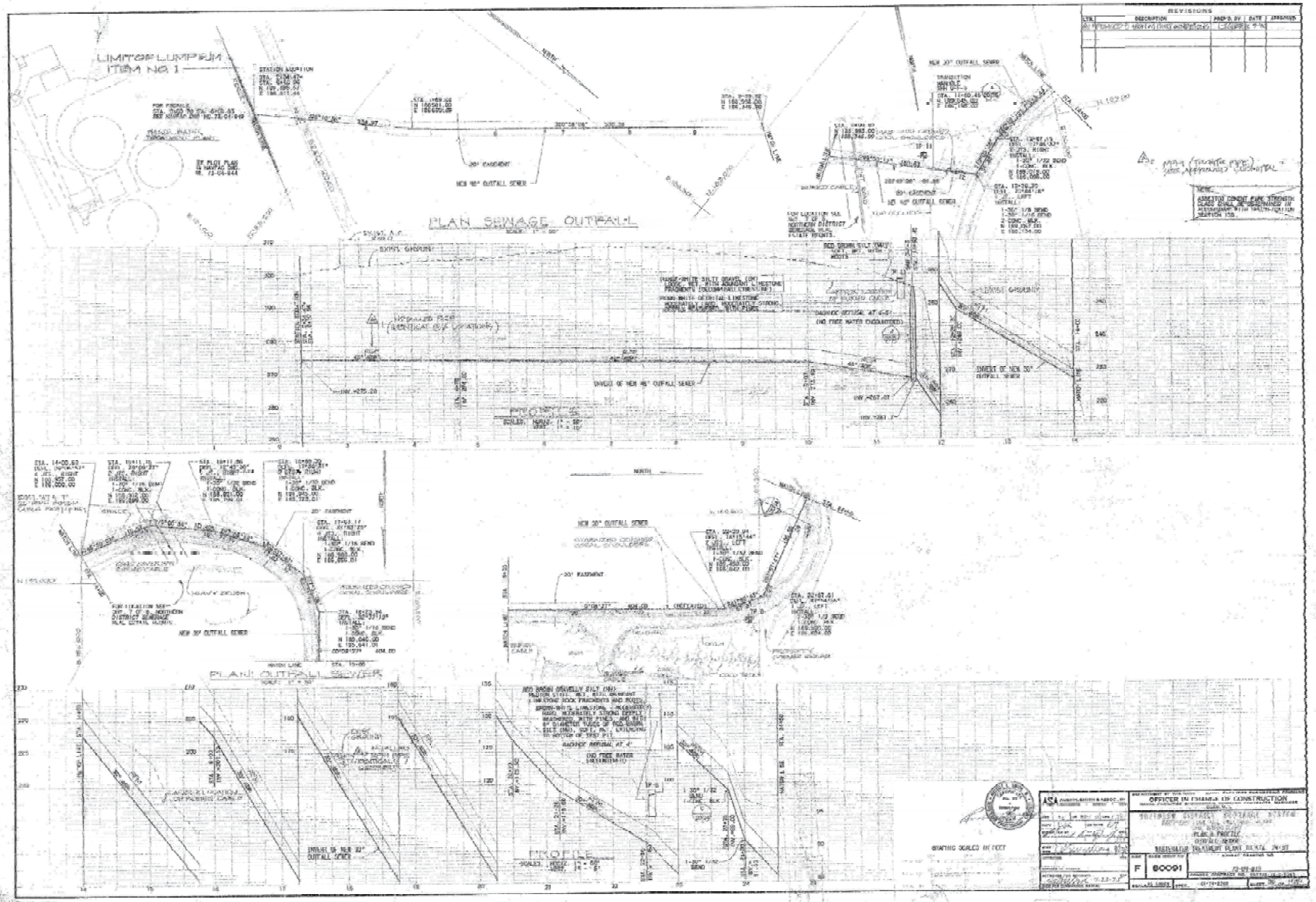
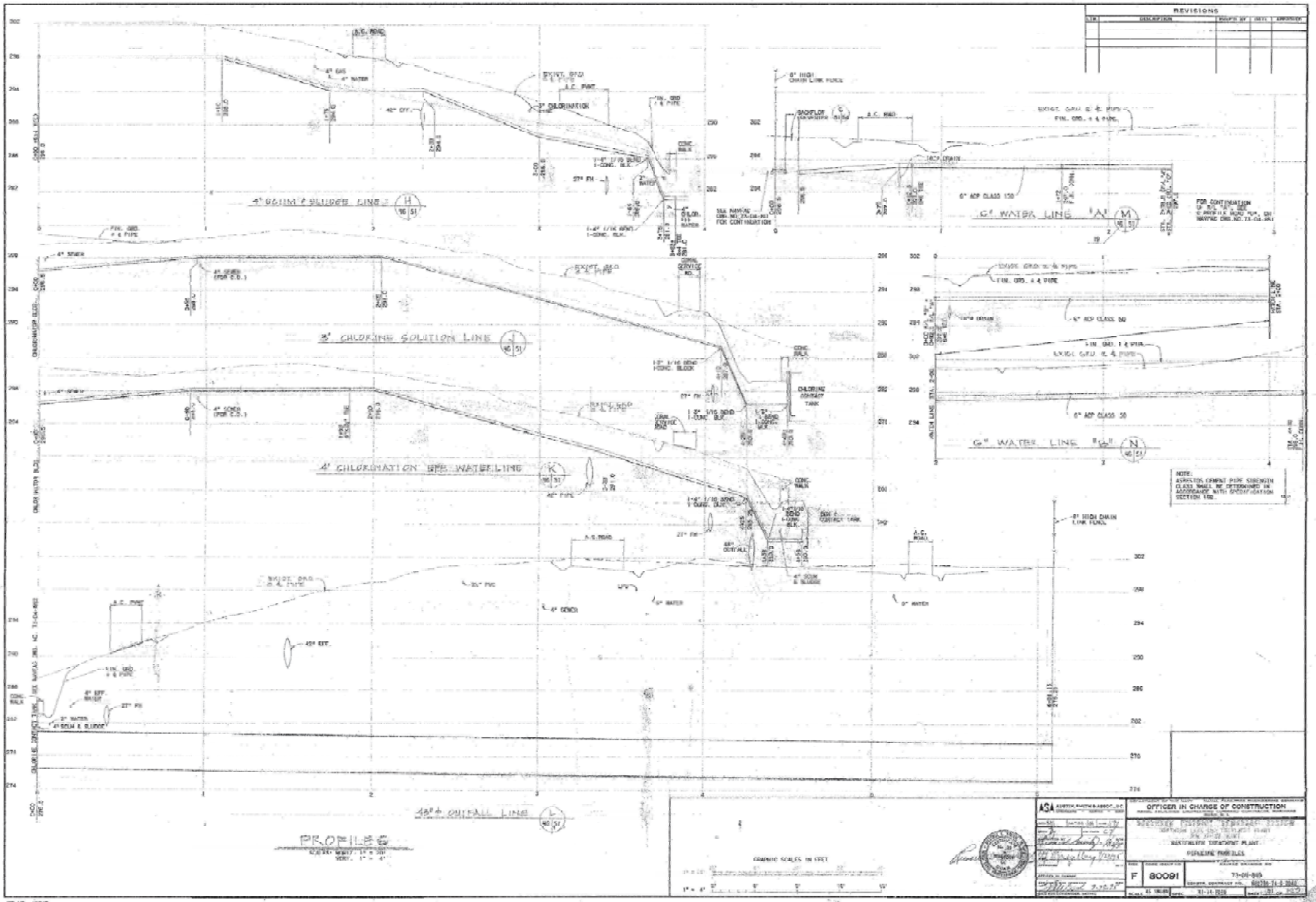
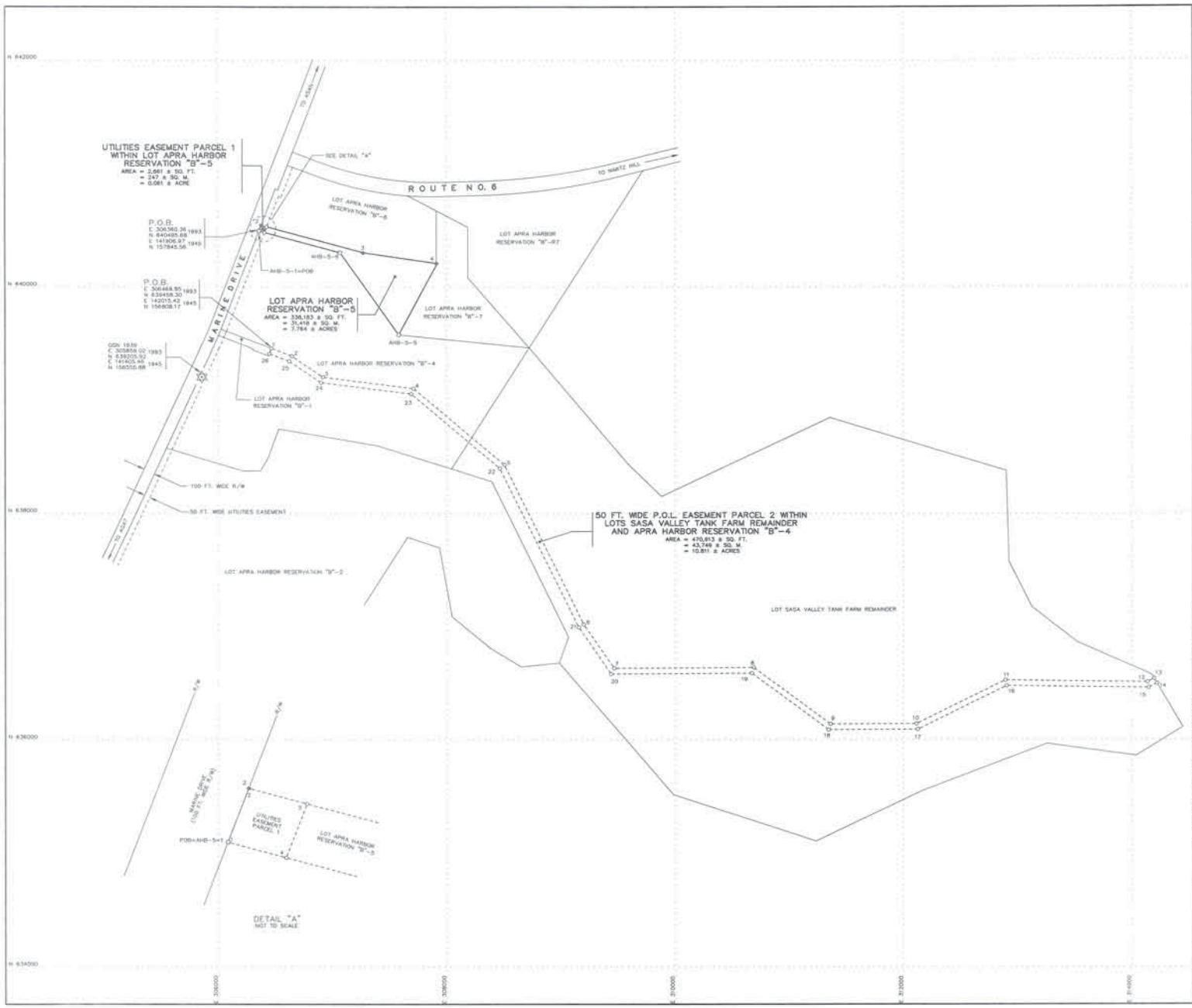

FINISH SCHEDULE-CHLORINE CONTACT TANK
ALL INTERIOR TANK SURFACES SHALL BE PAINTED. COLOR SHALL BE SELECTED BY THE OFFICER IN CHARGE.
REVISIONS
PLAN - CHLORINE CONTACT TANK
SCALE: 1/4" = 1'-0"
SECTION
SECTION
SECTION
PLAN - PARSHALL FLUME
GRAPHIC SCALE IN FEET
OFFICER IN CHARGE OF CONSTRUCTION
F 80091


REVISIONS
CENTRATE PUMP DISCONNECT SWITCH DETAIL
NOT TO SCALE
PARTIAL PLAN CENTRATE PUMP
PARTIAL ELECTRICAL DISTRIBUTION & SITE PLAN
LIMIT OF LUMP SUM
GRAPHIC SCALES
OFFICER IN CHARGE OF CONSTRUCTION
NORTHERN DISTRICT PROGRAMS SYSTEM
WASTEWATER TREATMENT PLANT
PARTIAL ELECTRICAL DISTRIBUTION & SITE PLAN AND ELEVATION
80091
79-04-915


LIMIT OF LUMP SUM ITEM NO. 1
PLAN SEWAGE OUTFALL
PLAN OUTFALL SEWER
PROFILE
REVISIONS
OFFICER IN CHARGE OF CONSTRUCTION
F 80091


REVISIONS
4" SCUM & SLUDGE LINE
3" CHLORINE SOLUTION LINE
4" CHLORINATION EFF. WATERLINE
48"ø OUTFALL LINE
6" WATER LINE "A"
6" WATER LINE "B"
PROFILES
GRAPHIC SCALES IN FEET
OFFICER IN CHARGE OF CONSTRUCTION
RESTORATION TREATMENT PLANT
PERIMETER PROFILES
F
80091



624374

GRID ROTATION

1993 GRID

GRAPHIC SCALE 1" = 400 FEET

GRAPHIC SCALE 1:4800 METERS

REFERENCES:

SEE SHEET 23 OF 29

NOTES:

SEE SHEET 23 OF 29

LEGEND:

SEE SHEET 23 OF 29

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision; that it is based on a field survey made in OCT.-NOV.1999, in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon. I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

THOMAS J. CONDON, PLS NO. 71 — DATE 1/27/00

THOMAS J. CONDON — CERTIFICATE — 1/27/00 — GUAM — PROFESSIONAL LAND SURVEYOR

EXPIRES: 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED

SURVEY DATA	DATE
FIELD BY: D&A CREW	10/99
JOB NO. GF99-02C	6/99
COMPUTED BY: NCI	10/99
DRAWN BY: D&A CREW	11/99
RESEARCHED BY: TJC	11/99
CHECKED BY: NCI/TJC	12/99
SCALE : 1" = 400 FEET	

DUNGAS & ASSOCIATES
ENGINEERING PLANNING SURVEYING
TRANSPORTATION SERVICES GEOMATIC SYSTEMS
CONSTRUCTION MANAGEMENT

LOT APRA HARBOR RESERVATION "B" AND SASA VALLY TANK FARM

C.T. NO./DOC. NO. CIVIL NOS. 5-49 & 29-50

RECORDED : DATE OF TAKING - NOVEMBER 30, 1948 - JUNE 29, 1950

IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001 — SHEET 24 OF 29 — D&A JOB NO. GF99-02C

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOTS APRA HARBOR RESERVATION "B" AND SASA VALLEY TANK FARM

MUNICIPALITY OF PITI
GUAM, M.I.

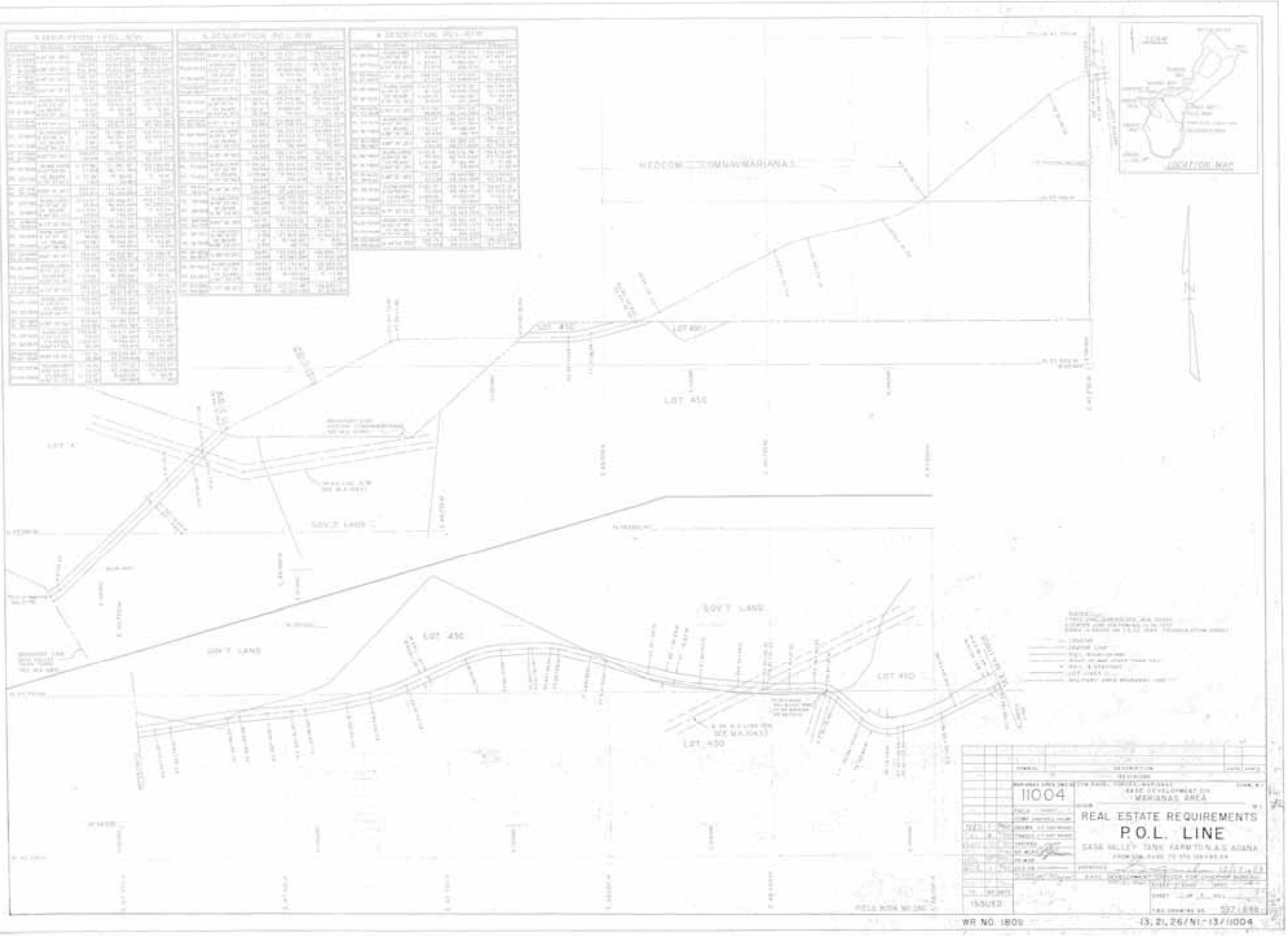
LAND SQUARE 31 — SECTIONS 3

CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7843933

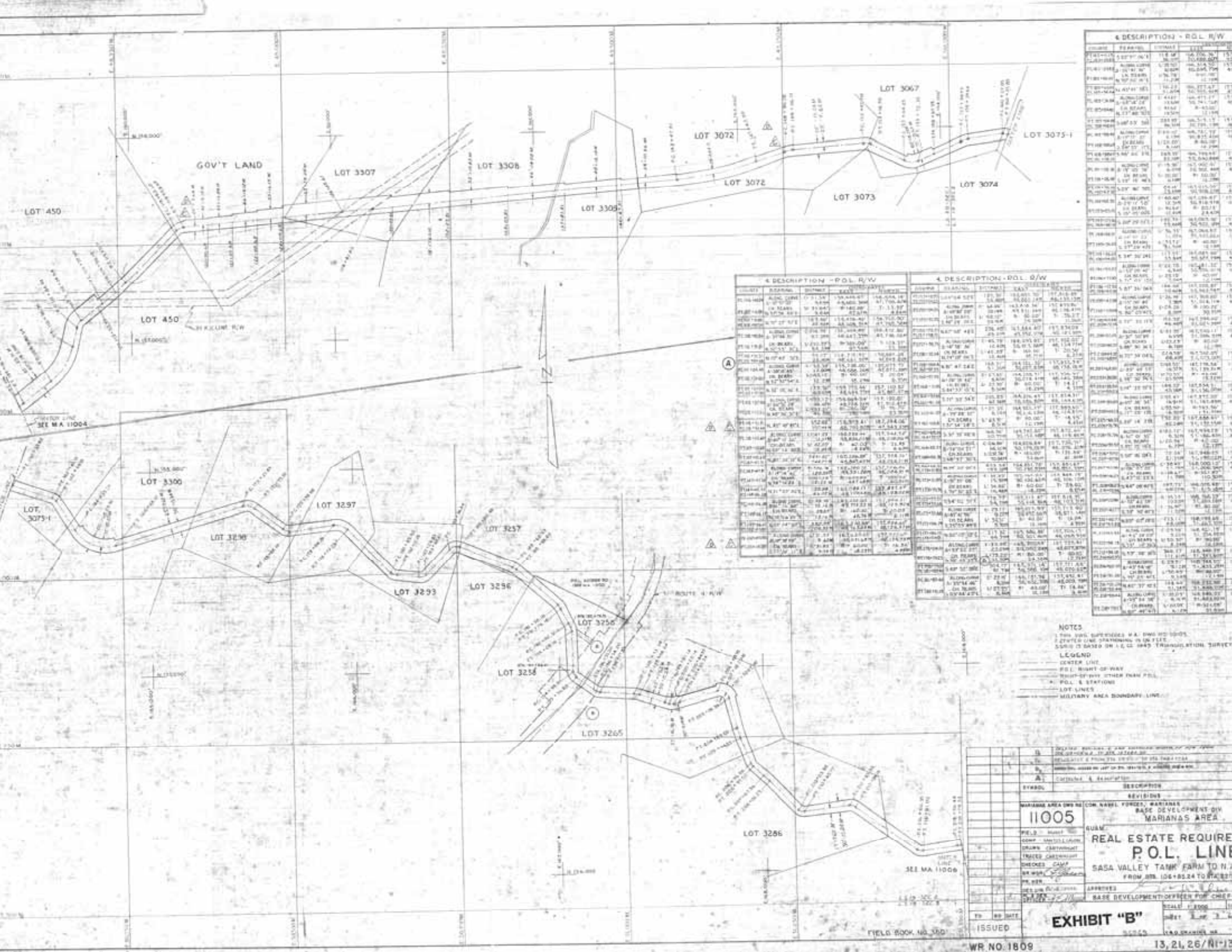
REVIEWED & ACCEPTED BY: RON DARRINGTON 3/13/00 DATE
RACON CODE RPM 241C

APPROVED BY: COMMANDER 3/15/00 DATE
NAVAL FACILITIES ENGINEERING COMMAND

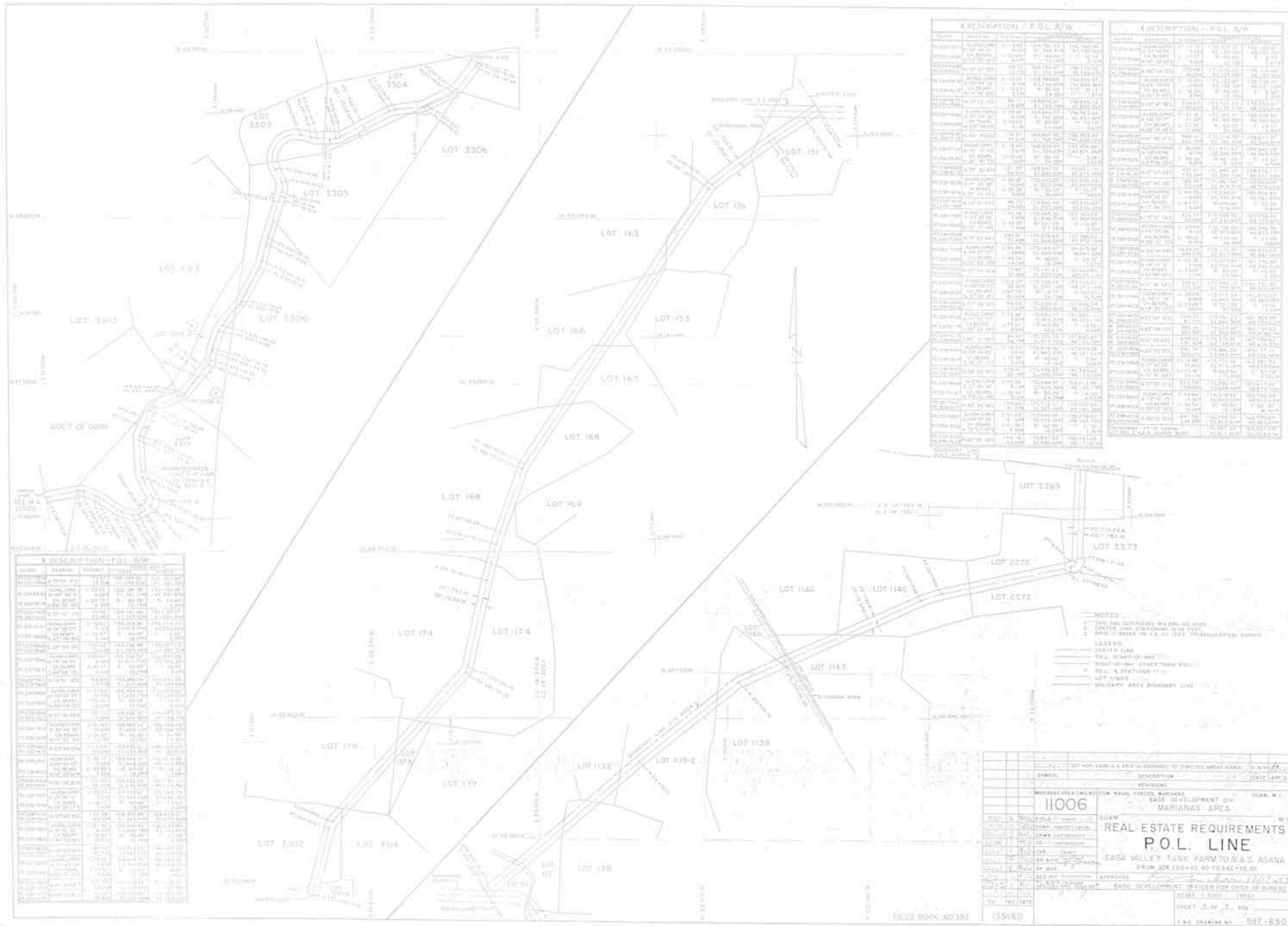
Y&D 597-648



HEDCOM COMNAVMARIANAS
LOCATION MAP
LOT 450
LOT 450-1
LOT 'A'
GOV'T LAND
GOV'T LAND
GOV'T LAND
LOT 450
LOT 450
LOT 450
11004
BASE DEVELOPMENT DIV.
MARIANAS AREA
REAL ESTATE REQUIREMENTS
P.O.L. LINE
SASA VALLEY TANK FARM TO N.A.S. AGANA
ISSUED
WR NO. 1809
13, 21, 26/N1-13/11004


GOV'T LAND
LOT 450
LOT 3307
LOT 3308
LOT 3309
LOT 3072
LOT 3067
LOT 3073
LOT 3074
LOT 3075-1
SEE MA 11004
LOT 3300
LOT 3297
LOT 3298
LOT 3257
LOT 3293
LOT 3296
LOT 3256
LOT 3258
LOT 3265
LOT 3286
SEE MA 11006
4 DESCRIPTION - P.O.L. R/W
NOTES
LEGEND
EXHIBIT "B"
11005
MARIANAS AREA
REAL ESTATE REQUIRE
P.O.L. LINE
ISSUED
FIELD BOOK NO. 350
WR NO. 1809
13, 21, 26/N-15

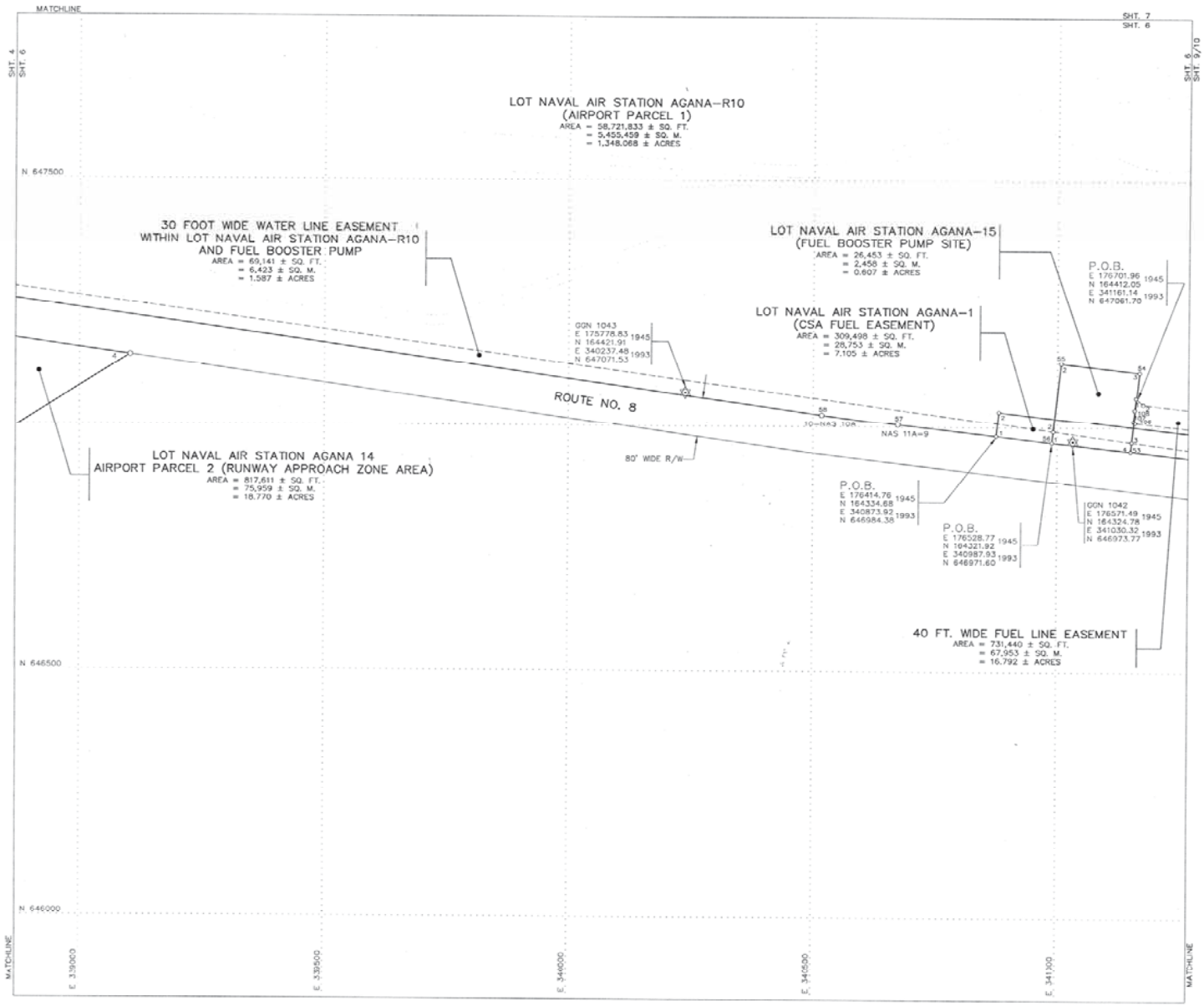
Y&D 597-650

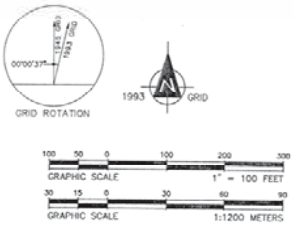


℄ DESCRIPTION - P.O.L. R/W				
COURSE	BEARING	DISTANCE	CURVE DATA	NOTES
P.O.L. 0+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 10+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 20+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 30+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 40+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 50+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 60+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 70+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 80+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 90+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 100+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 110+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 120+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 130+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 140+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 150+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 160+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 170+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 180+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 190+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 200+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 210+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 220+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 230+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 240+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 250+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 260+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 270+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 280+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 290+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 300+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 310+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 320+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 330+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 340+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 350+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 360+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 370+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 380+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 390+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 400+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 410+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 420+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 430+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 440+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 450+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 460+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 470+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 480+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 490+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 500+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 510+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 520+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 530+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 540+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 550+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 560+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 570+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 580+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 590+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 600+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 610+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 620+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 630+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 640+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 650+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 660+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 670+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 680+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 690+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 700+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 710+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 720+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 730+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 740+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 750+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 760+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 770+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 780+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 790+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 800+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 810+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 820+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 830+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 840+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 850+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 860+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 870+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 880+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 890+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 900+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 910+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 920+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 930+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 940+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 950+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 960+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 970+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 980+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 990+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1000+00.00				

℄ DESCRIPTION - P.O.L. R/W				
COURSE	BEARING	DISTANCE	CURVE DATA	NOTES
P.O.L. 1000+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1010+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1020+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1030+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1040+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1050+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1060+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1070+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1080+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1090+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1100+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1110+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1120+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1130+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1140+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1150+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1160+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1170+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1180+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1190+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1200+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1210+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1220+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1230+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1240+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1250+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1260+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1270+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1280+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1290+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1300+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1310+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1320+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1330+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1340+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1350+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1360+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1370+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1380+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1390+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1400+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1410+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1420+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1430+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1440+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1450+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1460+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1470+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1480+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1490+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1500+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1510+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1520+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1530+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1540+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1550+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1560+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1570+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1580+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1590+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1600+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1610+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1620+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1630+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1640+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1650+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1660+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1670+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1680+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1690+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1700+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1710+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1720+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1730+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1740+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1750+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1760+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1770+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1780+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1790+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1800+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1810+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1820+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1830+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1840+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1850+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1860+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1870+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1880+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1890+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1900+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1910+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1920+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1930+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1940+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1950+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1960+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1970+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1980+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 1990+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2000+00.00				

℄ DESCRIPTION - P.O.L. R/W				
COURSE	BEARING	DISTANCE	CURVE DATA	NOTES
P.O.L. 2000+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2010+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2020+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2030+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2040+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2050+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2060+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2070+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2080+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2090+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2100+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2110+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2120+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2130+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2140+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2150+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2160+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2170+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2180+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2190+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2200+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2210+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2220+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2230+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2240+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2250+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2260+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2270+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2280+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2290+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2300+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2310+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2320+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2330+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2340+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2350+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2360+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2370+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2380+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2390+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2400+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2410+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2420+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2430+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2440+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2450+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2460+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2470+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2480+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2490+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2500+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2510+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2520+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2530+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2540+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2550+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2560+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2570+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2580+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2590+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2600+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2610+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2620+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2630+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2640+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2650+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2660+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2670+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2680+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2690+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2700+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2710+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2720+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2730+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2740+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2750+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2760+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2770+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2780+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2790+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2800+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2810+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2820+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2830+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2840+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2850+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2860+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2870+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2880+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2890+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2900+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2910+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2920+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2930+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2940+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2950+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2960+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2970+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2980+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 2990+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3000+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3010+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3020+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3030+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3040+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3050+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3060+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3070+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3080+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3090+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3100+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3110+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3120+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3130+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3140+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3150+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3160+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3170+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3180+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3190+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3200+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3210+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3220+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3230+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3240+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3250+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3260+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3270+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3280+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3290+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3300+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3310+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3320+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3330+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3340+00.00				
	N 89°-14'-00"E	1,000.00		
P.O.L. 3





REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision; that it is based on a field survey made in MAY 1999, in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon. I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

THOMAS J. CONDON, PLS NO. 71 — DATE 12/31/99

THOMAS J. CONDON CERTIFICATE NO. 12/31/99 NATIONAL LAND SURVEYOR

EXPIRES: 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED
A	12/99	REPLACED CORNERS ON NAS AGANA 1	TJC	

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. GF99-028	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW	6/99
RESEARCHED BY: NQ	5/99
CHECKED BY: TJC/NQ	6/99
SCALE : 1" = 100 FEET	

DUEÑAS & ASSOCIATES
ENGINEERING · PLANNING · SURVEYING
ENVIRONMENTAL SERVICES · GEOSPATIAL SYSTEMS
CONSTRUCTION MANAGEMENT

LOT NO. NAVAL AIR STATION AGANA
C.T. NO./DOC. NO. CIVIL NO. 21-50
RECORDED : DATE OF TAKING - JUNE 21, 1950
IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001 | SHEET 6 OF 36 | D&A JOB NO. GF99-028

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF DARRIGADA AND TAMUNING
GUAM, M.I.

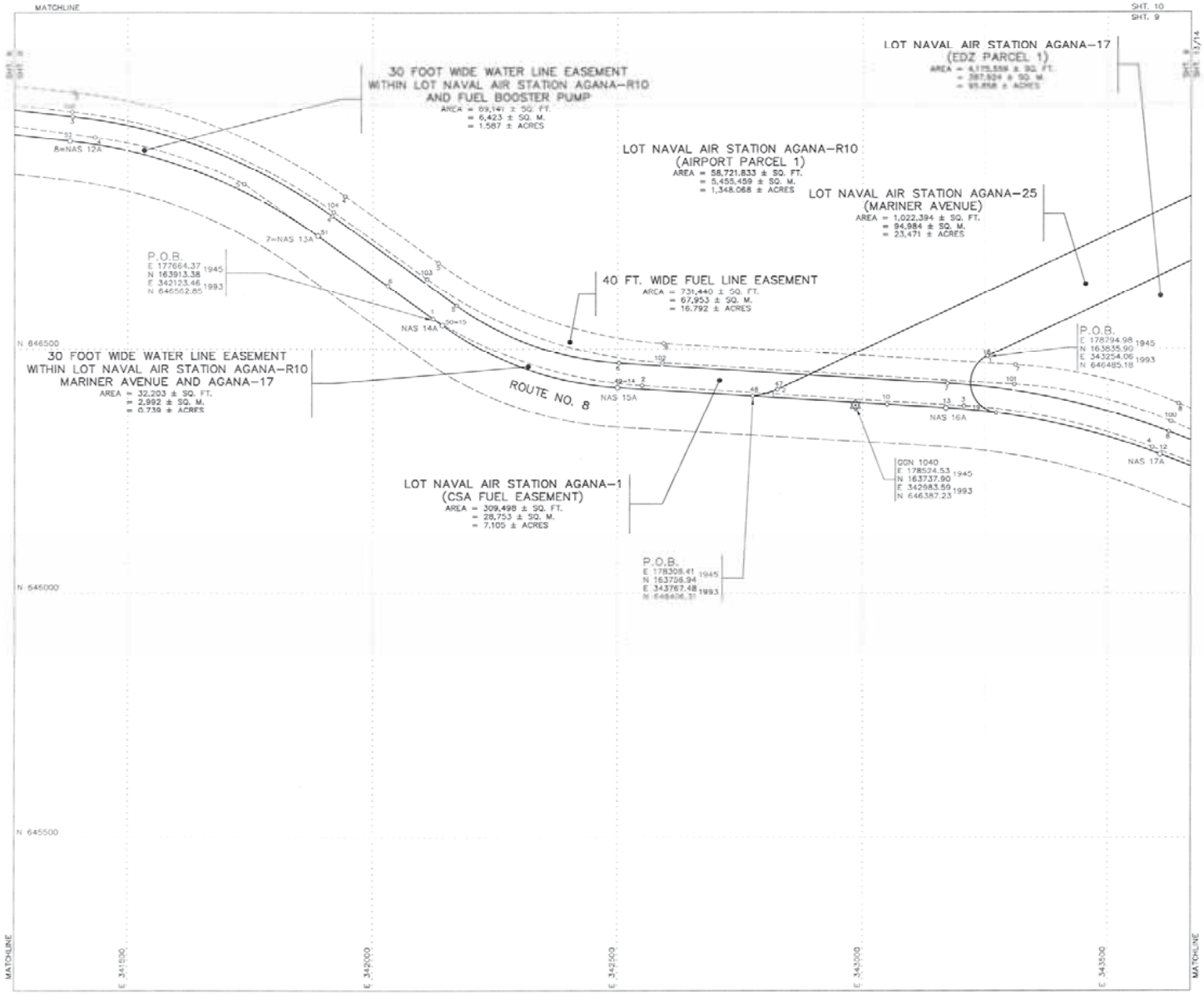
LAND SQUARES 13 / 14 — SECTIONS 2, 3 & 4

CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7942092

REVIEWED & ACCEPTED BY: RON DARLINGTON 3/13/00 DATE
PACDIV CODE RPM 2410

APPROVED BY: COMMANDER 3/13/00 DATE
NAVAL FACILITIES ENGINEERING COMMAND

624410



GRID ROTATION 00°00'37" (1945 TO 1993)

GRAPHIC SCALE 1" = 100 FEET

GRAPHIC SCALE 1:1200 METERS

REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision, that it is based on a field survey made by me on DEC. 1999, in accordance with all applicable laws and regulations, that I am responsible for the accuracy of all the data and information shown hereon, I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

Thos J. Condon 12/31/99

THOMAS J. CONDON, PLS NO. 71 DATE

EXPIRES 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED
Δ	12/99	RE-CHECKED CORNERS ON WATER EASEMENT WITHIN AGANA R10	TJC	

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. GF99-029	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW (PRINT-SYNC)	6/99
RESEARCHED BY: NO	5/99
CHECKED BY: TJC/NO	6/99
SCALE : 1" = 100 FEET	

DUENAS & ASSOCIATES INC.
ENGINEERING · PLANNING · SURVEYING
ENVIRONMENTAL PROTECTION DIVISION
CONSTRUCTION MANAGEMENT
TAMUNING, GUAM 96911

LOT NO. NAVAL AIR STATION AGANA
C.T. NO./DOC. NO. CIVIL NO. 21-50
RECORDED : DATE OF TAKING - JUNE 21, 1950
IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001
SHEET 9 OF 36
D&A JOB NO. GF99-029

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF BARRIGADA AND TAMUNING
GUAM, M.I.

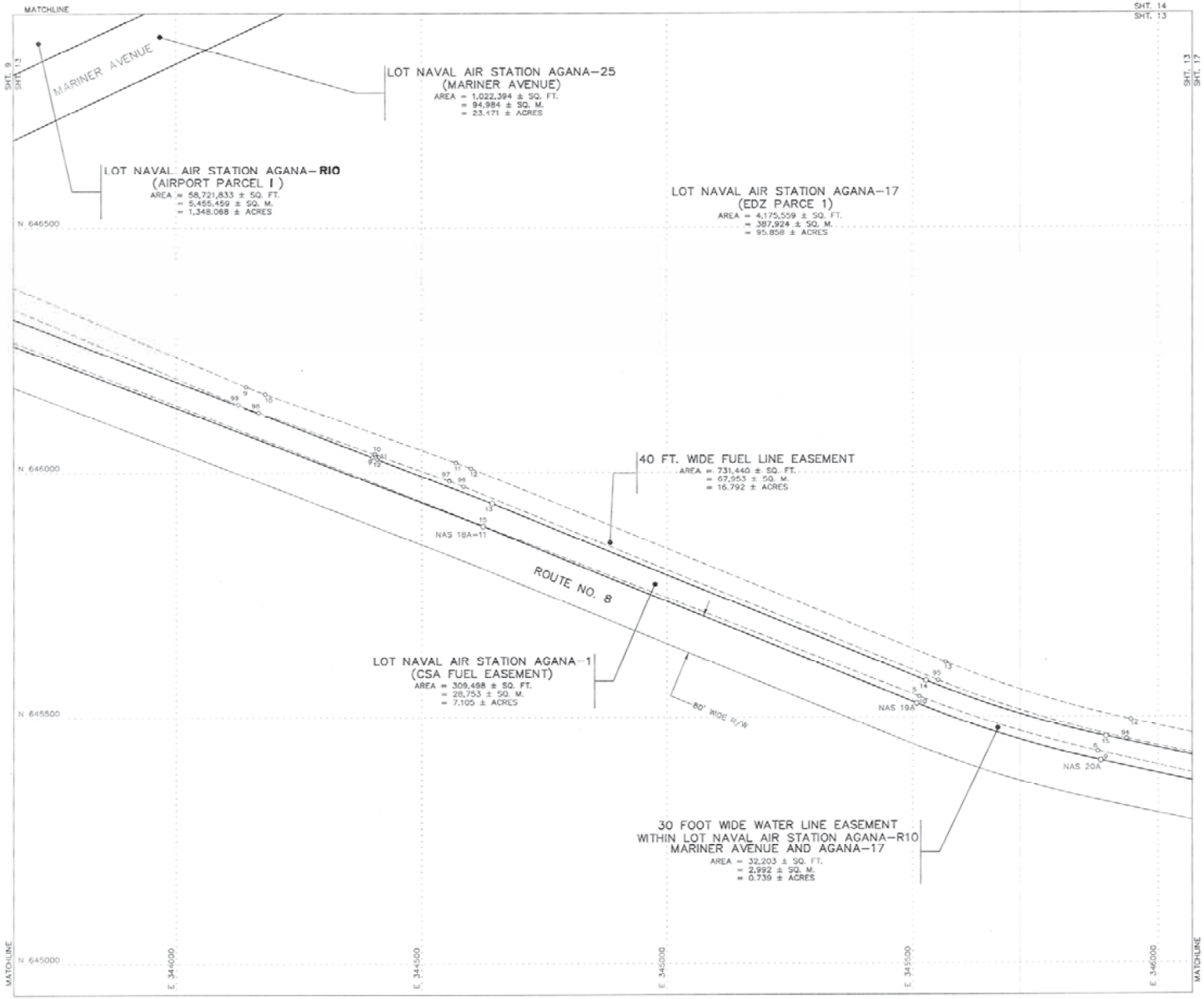
LAND SQUARES 13 / 14 SECTIONS 2 , 3 & 4

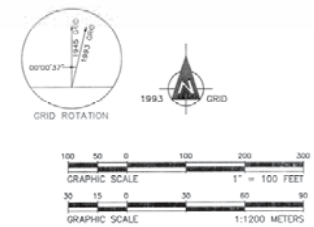
CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7942095

REVIEWED & ACCEPTED BY:
E Duenas 3/13/00
RON LAMARTON DATE

APPROVED BY:
[signature] 3/13/00
DATE

874410





REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision; that it is based on a field survey made in MAY 1999, in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon. I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

THOMAS J. CONDON, PLS NO. 71 — DATE 12/31/99

THOMAS J. CONDON CERTIFICATE No. 12/31/99 PROFESSIONAL LAND SURVEYOR — EXPIRES: 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED
A	12/99	RE-CHECKED CORNER ON NAS AGANA-1	TJC	

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. GF99-028	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW	6/99
RESEARCHED BY: NCI	5/99
CHECKED BY: TJC/NCI	6/99
SCALE : 1" = 100 FEET	

DUEÑAS & ASSOCIATES INC.
ENGINEERING PLANNING SURVEYING
ENVIRONMENTAL SERVICES GEOGRAPHIC SYSTEMS
CONSTRUCTION MANAGEMENT
P. O. BOX 8000 TAMUNING, GUAM 96925

LOT NO. NAVAL AIR STATION AGANA

C.T. NO./DOC. NO. CIVIL NO. 21-50

RECORDED : DATE OF TAKING - JUNE 21, 1950

IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001

SHEET 13 OF 36

D&A JOB NO. GF99-028

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF BARRICADA AND TAMUNING
GUAM, M.I.

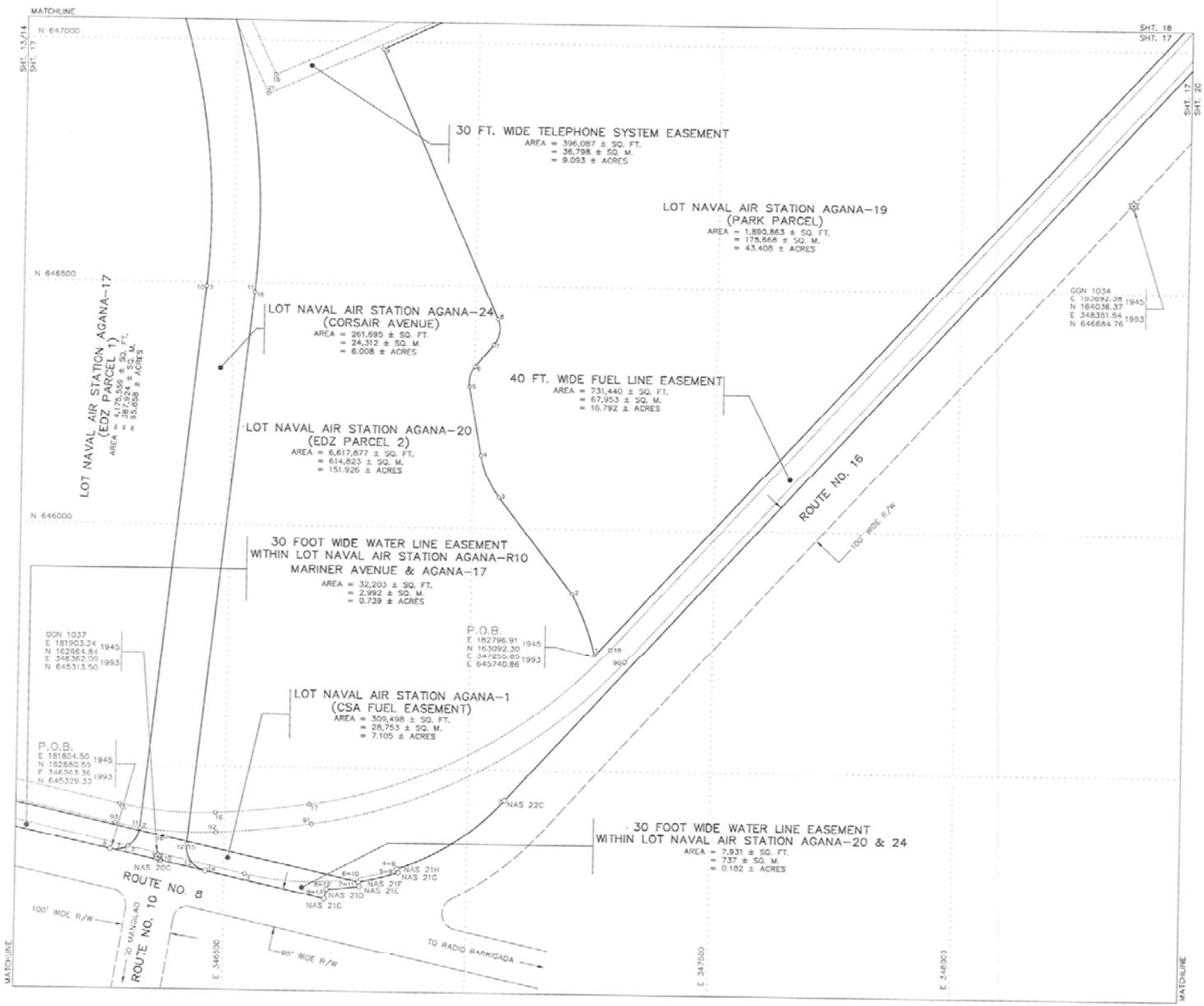
LAND SQUARES 13 / 14 — SECTIONS 2, 3 & 4

CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7942099

REVIEWED & ACCEPTED BY: RON DARLINGTON 3/13/00 DATE
PACDIV CODE RPM 241C

APPROVED BY: COMMANDER 3/15/00 DATE
NAVAL FACILITIES ENGINEERING COMMAND

624410



GRID ROTATION

1993 GRID

GRAPHIC SCALE 1" = 100 FEET

GRAPHIC SCALE 1:1200 METERS

REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision, that it is based on a field survey made in MAY 1999, in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon. I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

THOMAS J. CONDON, PLS NO. 71 — DATE 12/31/99

THOMAS J. CONDON — CERTIFICATE NO. 71 — 12/31/99 — STATE OF UTAH — PROFESSIONAL LAND SURVEYOR — EXPIRES: 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED
△	12/99	RE-CHECKED CORNER NOS. OF TELEPHONE SYSTEM AND WATER EASEMENT	TJC	

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. OF99-028	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW	6/99
RESEARCHED BY: MD	5/99
CHECKED BY: TJC/MD	6/99
SCALE : 1" = 100 FEET	

DUNCAN & ASSOCIATES INC. — ENGINEERING PLANNING SURVEYING INFORMATION SERVICES SCANNING SYSTEMS CONSTRUCTION MANAGEMENT

LOT NO. NAVAL AIR STATION AGANA

C.T. NO./DOC. NO. CIVIL NO. 21 - 50

RECORDED : DATE OF TAKING - JUNE 21, 1950

IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001 — SHEET 17 OF 36 — D&A JOB NO. OF99-028

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF BARRIGADA AND TAMUNING
GUAM, M.I.

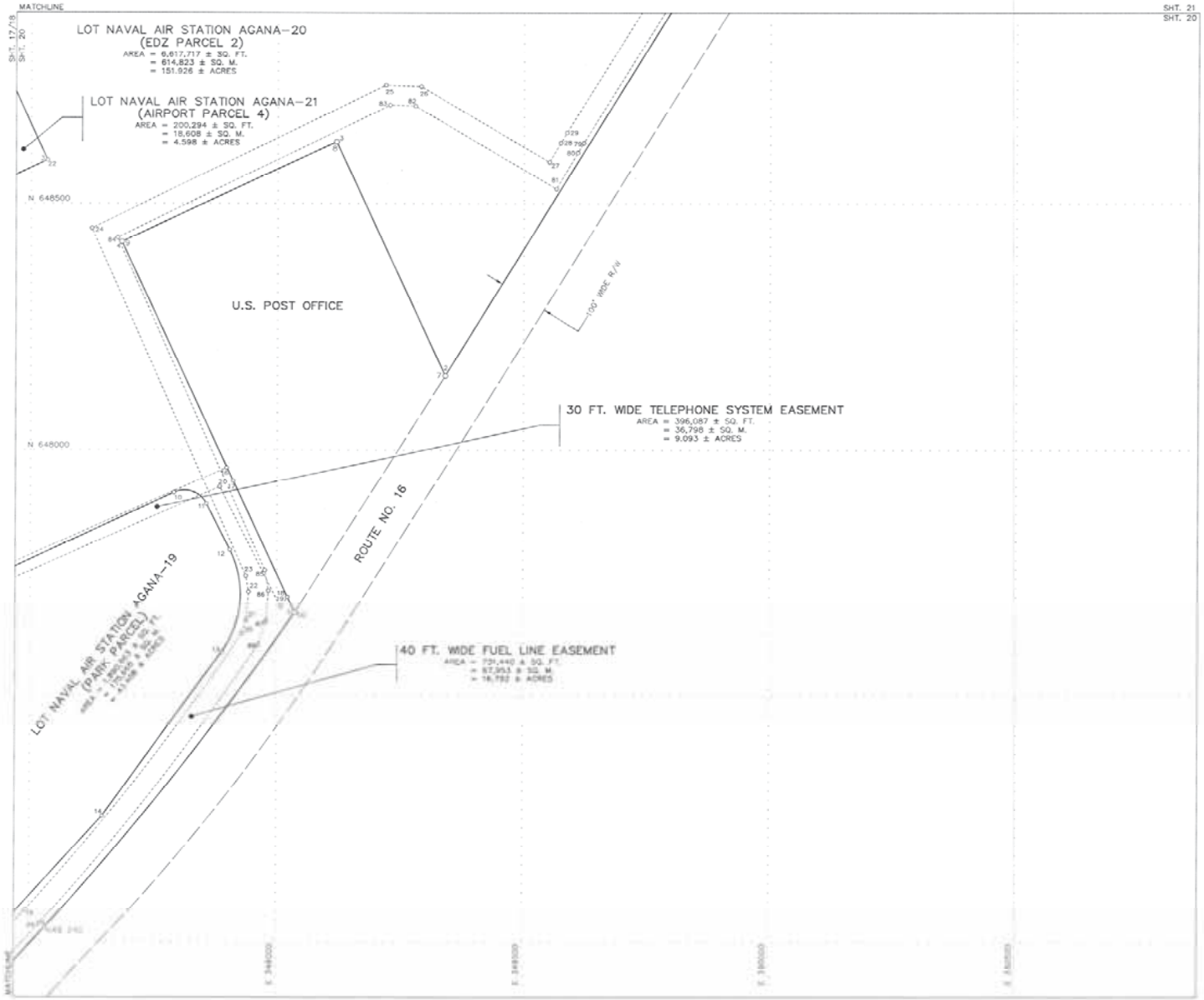
LAND SQUARES 13 / 14 — SECTIONS 2 , 3 & 4

CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7943103

REVIEWED & ACCEPTED BY:
RON DARLINGTON / DATE 3/13/00
PACDIV CODE RPM 2410

APPROVED BY:
COMMANDER — DATE 3/15/00
NAVAL FACILITIES ENGINEERING COMMAND

624410



GRID ROTATION

1993 GRID

GRAPHIC SCALE 1" = 100 FEET

GRAPHIC SCALE 1:1200 METERS

REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

THOMAS J. CONDON, PLS NO. 71 DATE

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. GF99–020	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW	6/99
RESEARCHED BY: NCI	5/99
CHECKED BY: TJC/NCI	6/99
SCALE : 1" = 100 FEET	

DUENAS & ASSOCIATES INC.
ENGINEERING PLANNING SURVEYING
MICRONESIA BUSINESS CENTER
DEDEDO, GUAM 96912

LOT NO. NAVAL AIR STATION AGANA
C.T. NO./DOC. NO.: CIVIL NO. 21 - 50
RECORDED : DATE OF TAKING - JUNE 21, 1950
IN THE NAME OF : UNITED STATES OF AMERICA
CONTRACT NO. N62766–98–D–0001
SHEET 20 OF 35
D&A JOB NO. GF99–020

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF BARRIGADA AND TAMUNING
GUAM, M.I.

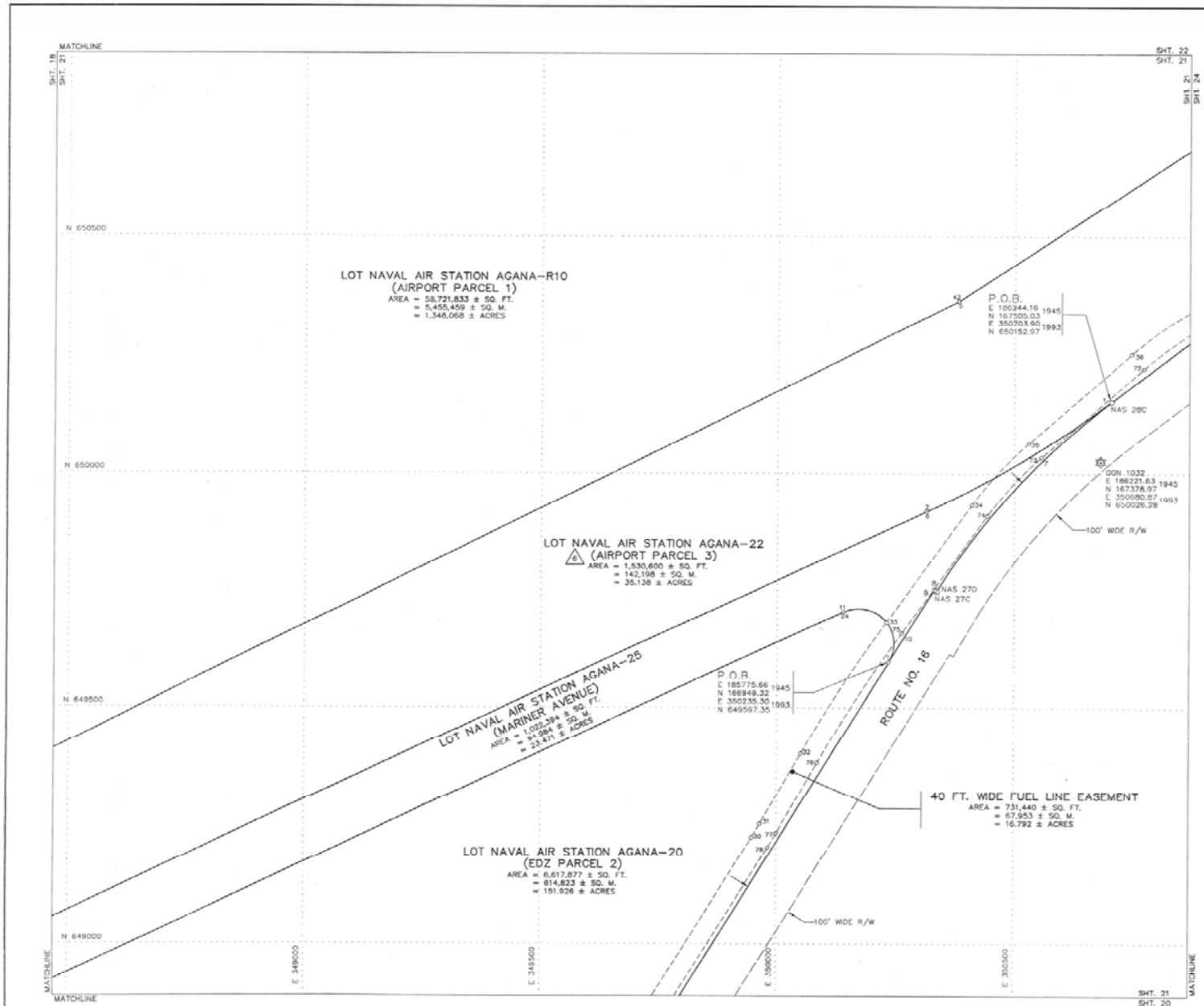
LAND SURVEYS NO. DATE REVISIONS INITIALS

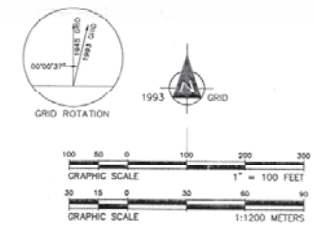
REVIEWED & ACCEPTED BY:

RON DARLINGTON DATE
PACDIV CODE RPM 241C

for COMMANDER DATE
NAVAL FACILITIES ENGINEERING COMMAND

624410





REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision; that it is based on a field survey made in MAY 1999, in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon. I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

Thomas J. Condon 12/31/99

THOMAS J. CONDON, PLS NO. 71 DATE

THOMAS J. CONDON CERTIFICATE 12/31/99 GUAM PROFESSIONAL LAND SURVEYOR

EXPIRES 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED
6	12/99	NAS AGANA-22, REVISED EDZ PARCEL 2 TO AIRPORT PARCEL 3	TJC	

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. GF99-028	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW	6/99
RESEARCHED BY: NCI	5/99
CHECKED BY: TJC/NCI	6/99
SCALE : 1" = 100 FEET	

DUGGS & ASSOCIATES
ENGINEERING PLANNING SURVEYING
CONSTRUCTION MANAGEMENT

LOT NO. NAVAL AIR STATION AGANA

C.T. NO./DOC. NO. CIVIL NO. 21-50

RECORDED : DATE OF TAKING - JUNE 21, 1950

IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001

SHEET 21 OF 36

D&A JOB NO. GF99-028

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF BARRIGADA AND TAMUNING
GUAM, M.I.

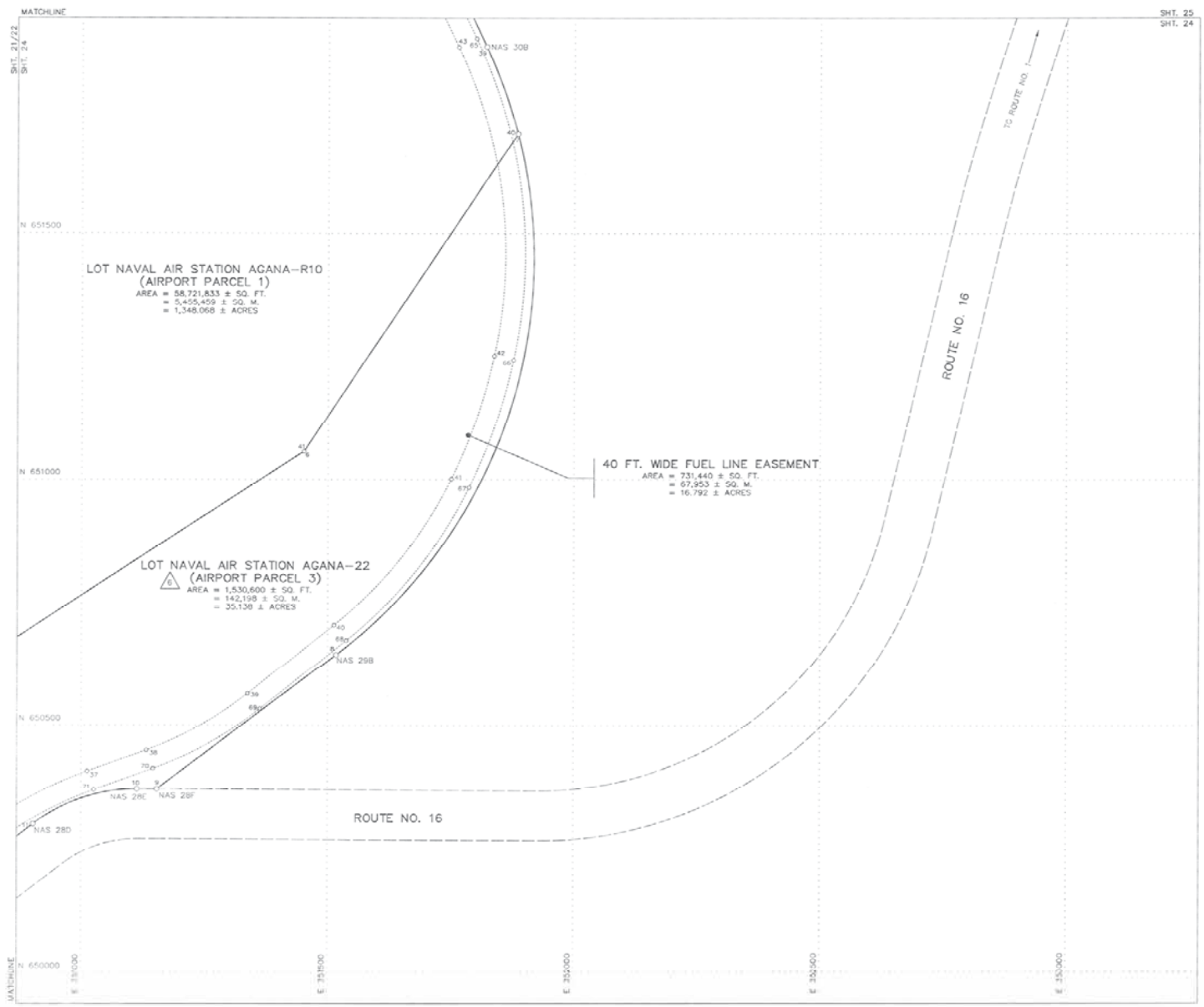
LAND SQUARES 13 / 14 SECTIONS 2, 3 & 4

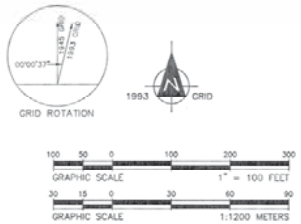
CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7942107

REVIEWED & ACCEPTED BY: RON DARLINGTON 3/13/00 DATE
PACDIV CODE RPM 241C

APPROVED BY: COMMANDER 3/13/00 DATE
NAVAL FACILITIES ENGINEERING COMMAND

624410





REFERENCES:

SEE SHEET 1 OF 36

NOTES:

SEE SHEET 1 OF 36

SYMBOLS:

SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision; that it is based on a field survey made in MAY 1999 , in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon. I also certify that all the monuments are of the character and occupy the positions indicated on this map. (At the request of the United States Navy.)

THOMAS J. CONDON, PLS NO. 71 — DATE 12/31/99

THOMAS J. CONDON CERTIFICATE No. 12/31/99 GUAM PROFESSIONAL LAND SURVEYOR

EXPIRES 09-30-2000

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED
2	12/99	NAS AGANA 22, REVISED EDZ PARCEL 3 TO AIRPORT PARCEL 3	TJC	

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. CF99-028	---
COMPUTED BY: FLU	5&6/99
DRAWN BY: D&A CREW	6/99
RESEARCHED BY: NCI	5/99
CHECKED BY: TJC/NCI	6/99
SCALE : 1" = 100 FEET	

DUEÑAS & ASSOCIATES
ENGINEERING · PLANNING · SURVEYING
ENVIRONMENTAL SERVICES · GEOGRAPHIC SYSTEMS
CONSTRUCTION MANAGEMENT
P.O. BOX 8000 TAMUNING, GUAM 96911

LOT NO. NAVAL AIR STATION AGANA

C.T. NO./DOC. NO. CIVIL NO. 21 - 50

RECORDED : DATE OF TAKING - JUNE 21, 1950

IN THE NAME OF : UNITED STATES OF AMERICA

CONTRACT NO. N62766-98-D-0001

SHEET 24 OF 36

D&A JOB NO. CF99-028

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENG'G. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

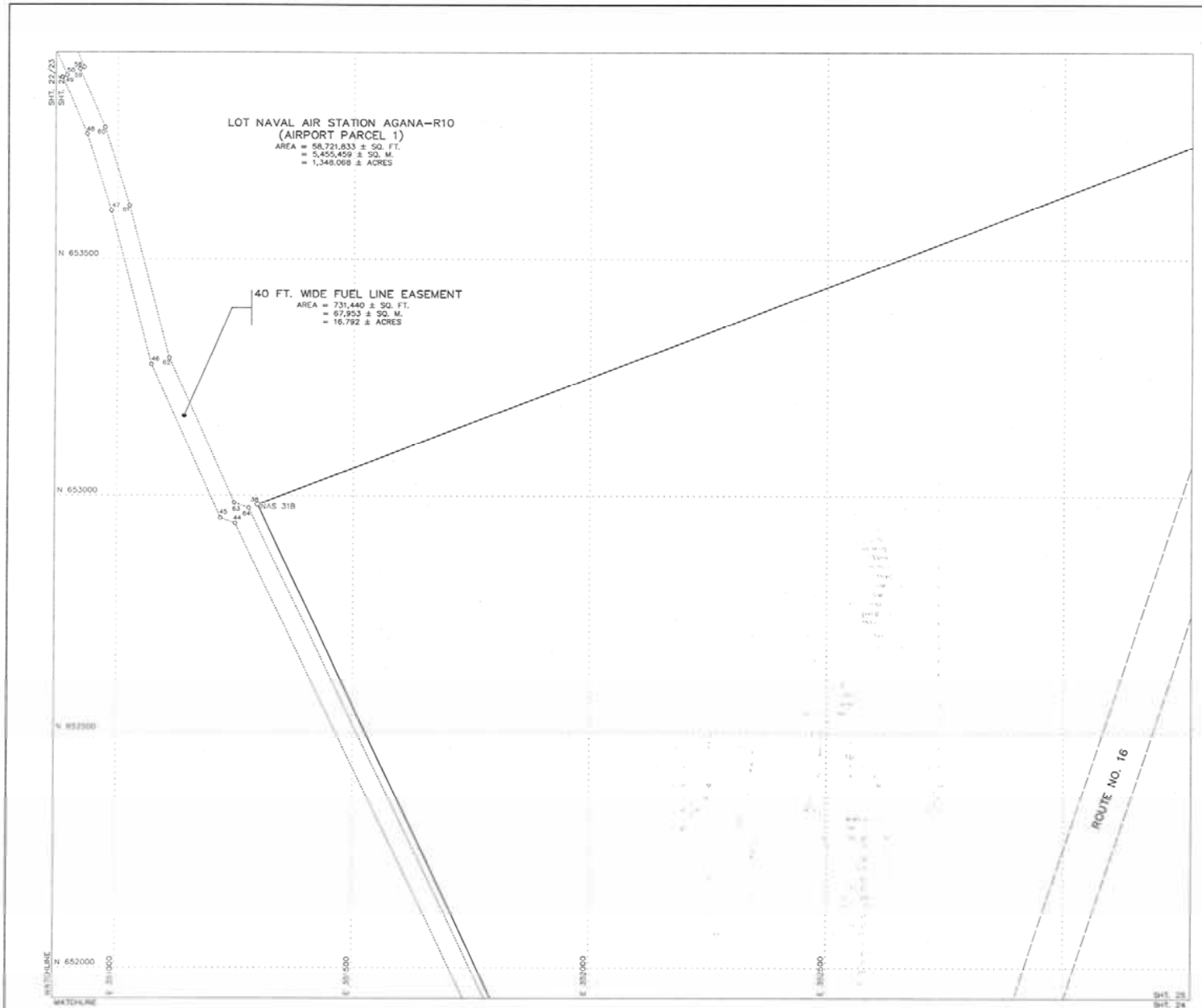
REAL ESTATE REQUIREMENT SURVEY MAP
OF
LOT NAVAL AIR STATION AGANA
MUNICIPALITIES OF BARRIGADA AND TAMUNING
GUAM, M.I.

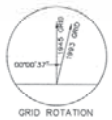
LAND SQUARES 14 / 14 — SECTIONS E, 5 & 6

CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
	D	7942110

REVIEWED & ACCEPTED BY: RON DARLINGTON 3/13/00 DATE
PACDIV CODE RPM 2410

APPROVED BY: for COMMANDER 3/15/00 DATE
NAVAL FACILITIES ENGINEERING COMMAND





100 50 0 100 200 300
GRAPHIC SCALE 1" = 100 FEET

30 15 0 30 60 90
GRAPHIC SCALE 1:1200 METERS

REFERENCES:
SEE SHEET 1 OF 36

NOTES:
SEE SHEET 1 OF 36

SYMBOLS:
SEE SHEET 1 OF 36

CERTIFICATE OF SURVEYOR

I, THOMAS J. CONDON, hereby certify that this map was prepared by me or under my direct supervision; that it is based on a field survey made in MAY 1999 in accordance with all applicable laws and regulations; that I am responsible for the accuracy of all the data and information shown hereon; I also certify that all the monuments are of the character and occupy the positions indicated on this map; all at the request of the United States Navy.

THOMAS J. CONDON, PLS NO. 71 — DATE 12/21/99

REVISION	DATE	BRIEF DESCRIPTION	BY	APPROVED

SURVEY DATA	DATE
FIELD BY: D&A CREW	5/99
JOB NO. 0799-008	—
COMPUTED BY: FLU	06/99
DRAWN BY: D&A CREW	6/99
MISS-MARKED BY: MD	6/99
CHECKED BY: TJC/MD	6/99
SCALE: 1" = 100 FEET	

DUENAS & ASSOCIATES
ENGINEERING PLANNING SURVEYING
NATIONWIDE AUTHORIZED AGENT
LOT NO. NAVAL AIR STATION AGANA
C.T. NO./DOC. NO. ENVIL NO. 31-98
RECORDED: DATE OF TAKING - JUNE 21, 1950
IN THE NAME OF: UNITED STATES OF AMERICA
CONTRACT NO. N62708-98-D-0001
SHEET 35 OF 36
D&A JOB NO. 0799-008

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGG. COMMAND
PACIFIC DIVISION
PEARL HARBOR, HAWAII

REAL ESTATE REQUIREMENT SURVEY MAP OF LOT NAVAL AIR STATION AGANA

MUNICIPALITIES OF BARRIGADA AND TAMUNING
GUAM, M.I.

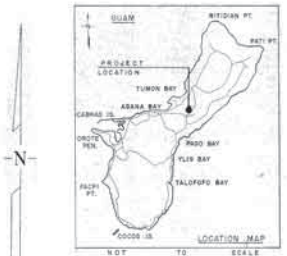
LAND SQUARES 12 / 14 — SECTIONS 1, 2 & 3

CODE IDENT. NO.	DRAWING NO.
31205	FM42011
D	

REVIEWED & ACCEPTED BY:
ROD SUNDERLAND — DATE 12/22/99
PACDIV CODE 4PW (RE)

APPROVED BY:
COMMANDER — DATE 12/28/99
NAVAL FACILITIES ENGINEERING COMMAND

62410



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
5	1. REVISED PARCEL NO.3 2. ELIMINATED PARCEL NOS. 4 & 5 3. REVISED PARCEL NO.5 AND RENUMBERED TO PARCEL NO. 4 4. REVISED PARCEL NO.7 AND RENUMBERED TO PARCEL NO. 5 5. CHANGED LEGEND	11/8/72	[illegible]

PARCEL NO. 1 U.S. POSTAL SERVICE MAIL PROCESSING FACILITY SITE

COURSE		BEARING	DISTANCE	COORDINATES EAST	COORDINATES NORTH
1	2	N 25°01'57" W	333.751M 832.45'	56 258.819 M 184 575.87	50 288.587 M 165 081.28
2	3	N 64°58'03" E	149.304 M 490.00	56 191.456 M 184 223.53'	50 509.466 M 165 775.54'
3	4	S 25°01'57" E	159.850 M 524.44'	56 264.020 M 184 458.43'	50 360.381 M 165 878.64'
4	5	S 31°45'34" W	100.255 M 328.92'	56 351.859 M 184 840.40'	50 445.585 M 165 503.46'
5	1	S 00°26'09" E S 32°58'39" W	L=73.091 M 241.46' 73.591 M 241.44'	56 298.882 M 184 707.28' R=1 C=1	50 360.216 M 160 223.91 R=1 (L)
EMH # 1		S 30°07'44" E	111.481 M 365.75'	56 202.861 M 184 382.22'	50 365.007 M 165 537.42'

AREA = 326,702.32 SQ.FT. = 30,351.78 SQ. METERS = 7.5001 ACRES

326,697.42ft = 7.4999
3.5ft

PARCEL NO. 2 ℄ EASE. FOR TELE. CABLE

STATION	BEARING	DISTANCE	COORDINATES EAST	COORDINATES NORTH
0+00	N 70°19'35" E	98.930M	56 216.970 M	50 548.194 M
1+17.88		117.88'	184 438.5'	165 810.28'
1+17.88	N 72° 24' 03" E	32.770 M	56 250.900 M	50 400.305 M
PC 2+91.01		173.13'	184 549.90'	165 595.00'
PC 2+91.01	ALONG CURVE Δ 49°17'58" N 02°18'05" E	L= 12.833 M 42.13' D= 12.591 M 41.31'	56 301.001 M 184 714.51' R= 116.276 M 59.94'	50 416.208 M 165 407.34'
PT 3+33.18				
PT 3+33.18	N 32°06'15" E	54.672 M	56 311.096 M	50 423.906 M
3+42.55		179.37'	184 747.19'	165 432.63
5+16.56			56 340.115 M 184 842.53'	50 470.278 M 165 584.85'

AREA = 15,129.50 SQ. FT. = 476.18 SQ. METERS = 0.1177 ACRE

PARCEL NO. 3 ℄ EASE. FOR TELE. CABLE

STATION	BEARING	DISTANCE	COORDINATES EAST	COORDINATES NORTH
0+00		20.062 M	56 308.760 M	50 418.262 M
0+67.75	N 73°28'05" E	67.75'	184 736.56'	165 464.90'
			56 328.041 M	50 424.811 M
0+90.73			184 803.98'	165 485.40'

AREA = 67.50 SQ. FT. = 6.38 SQ. METERS = 0.0156 ACRE

PARCEL NO. 4 ℄ EASE. FOR ANT. GUY POLE & DOWN GUY

STATION	BEARING	DISTANCE	COORDINATES EAST	COORDINATES NORTH
0+00	S 73°28'34" E	1.417 M	56 308.529 M	50 418.867 M
0+04.65		4.65'	184 738.30'	165 390.64'
0+04.65			56 309.689 M	50 418.463 M
			184 742.34'	165 389.12'

AREA = 46.50 SQ. FT. = 4.32 SQ. METERS = 0.0001 ACRE

PARCEL NO. 5 ℄ EASE. FOR POL

STATION	BEARING	DISTANCE	COORDINATES EAST	COORDINATES NORTH
0+00	S 00°20'49"	70.483M L=231.90'	56 256.567 M 184 568.42'	50 103.409M 165 017.19'
0+31.90	S 82°58'16" E	70.677 M D=231.90'	56 326.674 M 184 840.60'	
0+31.90 0+70.62	N 31°45'34" E	103.242 M 338.72'	56 234.356 M 184 746.50'	50 366.726M 165 291.71'
0+70.62			56 289.948 M 184 870.92'	50 450.508 M 165 518.70'

AREA = (7)18.60 SQ. FT. = 1690.68 SQ. METERS = 0.3930 ACRE

LEGEND

- MILITARY AND U.S. POSTAL SERVICE MAIL PROCESSING FACILITY BOUNDARY
- 10' AND 30' WIDE UTILITY EASEMENT
- ASPHALT CONCRETE PAVED ROAD
- COMPUTED POINT

NOTE

THE GRID IS BASED ON LAND AND CLAIMS COMMISSION 1948 TRIANGULATION SURVEY

DEPT OF THE NAVY NAVFAC PUBLIC WORKS CENTER GUAM, M. I.

DESIGNED E.B.M. DR. SALAS DRAWN DAN ROSIER

DEPT HEAD [signature] DATE 11/8/72

PLAN OFF [signature] DATE 11/8/72

W.R. NO. 1718643

APPROVED

OFFICER IN CHARGE DATE

RECOMMENDED FOR COMMANDER'S APPROVAL

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
OFFICER IN CHARGE OF CONSTRUCTION
NAVAL FACILITIES ENGINEERING COMMAND DETACHMENT GUAM
GUAM, M. I.

NAS AGANA GUAM, M.I.

REAL ESTATE REQUIREMENTS
U.S. POSTAL SERVICE
MAIL PROCESSING FACILITY
SITE

SIZE F | CODE IDENT NO. 80091 | SUPSHIP DRAWING NO. 7,305,210

SCALE 1"=80' DATE CONTR. CONTR. NO.

SHEET 1 OF 1

Land of Guam, Government of Guam
Department of Land Management Office of the Recorder

For filing with the Registrar of land titles pursuant to the Land Title Registration Act. Requested by Guam Power Authority. After filing, deliver copies to Guam Power Authority P.O. Box 2977 Hagatña, Guam 96932.

File for Record is Instrument No. 845793
On the Year 12 Month 12 Day 27 Time 3:55
Recording Fee DE-OFFICIO Receipt No ____
Deputy Recorder Lisa B. Mangaoang

(Space above this line for Recorder's use only.)

GRANT OF RIGHT-OF-WAY
FOR THE ERECTION AND MAINTENANCE OF POWER
PAD-MOUNTED TRANSFORMERS, HAND-HOLES, MAN-HOLES,
UNDERGROUND CONDUITS, AND FUEL OIL PIPELINE

Estella Blas Aflague, Jose Leon Guerrero Blas, Maria Leon Guerrero Blas, Dolores Torres Matagulay, Ignacio Torres Blas, Emiliana Torres Blas, John Torres Blas whose address is P.O. Box 8974, Tamuning, Gu 96931 hereinafter called the "Owner", hereby grants **GUAM POWER AUTHORITY**, hereinafter called the "Authority", its successors and assigns, the right to erect, construct, re-construct, replace, remove, maintain and use pad-mounted transformers, hand-holes, man-holes, underground conduits with such wires and cables and fuel pipelines, as the Authority shall from time to time run therethrough for power and communication purposes, and all necessary and proper foundation, footings, and other appliances and fixtures for use in connection with said pad-mounted transformers, hand-holes, man-holes, underground conduits, wire and cables and fuel pipelines, together with a right-of-way, on, along and in all of the hereinafter described strip of those certain lands which are situated in the Municipality of **Barrigada**, Guam, and more particularly described as follows:

> A strip of land **(as shown on Exhibit "A" attached hereto)** extending partially across Lot No. **Part of Lot 5201 (within Lot Naval Air Station Agana-20)**, Municipality of **Barrigada** Guam as delineated in that certain sketch (or map) and marked Exhibit "A" attached hereto and is made a part hereof.

Owner further grants to the Authority, the right of ingress to and egress from said strip over and across said lands by means of roads and lanes thereon, if such there be, otherwise by such route or routes as shall occasion the least practicable damage and inconvenience to Owner.

Owner shall have the right to use said strip for purpose not inconsistent with Authority's full enjoyment of the rights hereby granted, provided that Owner shall not erect

or construct any building or other structure, or drill or operate any well within said strip. Authority shall have the further right, from time to time, to trim and to cut down and clear away any and all trees and brush now or hereafter on said strip and shall have the further right from time to time to trim and to cut down and clear away any trees on either side of said strip which now or hereafter in the opinion of Authority may be a hazard to said pad-mounted transformers, hand-holes, man-holes, underground conduits, wires or cables and fuel pipelines, by reason of the danger of falling thereon or interfering therewith, provided, however, that all trees which Authority is hereby authorized to cut and remove, if valuable for timber or wood, shall continue to be the property of Owner, but all tops, brush and refuse wood shall be removed by Authority.

Authority shall also have the right to mark the location of said strip by suitable markers set in the ground or on said pad-mounted transformers, hand-holes, man holes, underground conduits, wires or cables and fuel pipelines, but said markers set in the ground shall be placed in fences or other locations which will not interfere with any reasonable use Owner shall make of said strip.

Authority shall repair any damage it shall do to Owner's private roads or lanes on said lands, and shall indemnify Owner against any loss and damage which shall be caused by the exercise of said ingress and egress, or by any wrongful or negligent act or omission of Authority or of its agents or employees in the course of their employment.

The provisions hereof shall inure to the benefit of and bind the successors and assigns of the respective parties hereto.

IN WITNESS WHEREOF, Owner has executed these presents this day of 12/11, 2012.

OWNER:

ESTELLA BLAS AFLAGUE
By: Agusto B. Aflague, administrator
Document Number 822752

MARIA LEON GUERRERO BLAS
Now known as MARIA BLAS REYES
By: Eddy J. Reyes, administrator
Document Number 823377

EMILIANA TORRES BLAS
Now known as EMILIANA BLAS LIMTIACO
By: John B. Limtiaco, executor
Document Number 844896

EMILIANA TORRES BLAS
Now known as EMILIANA BLAS LIMTIACO
By: Angela C. Guerrero, executor
Document Number 844896

DOLORES TORRES MATAGULAY
By: John Torres Blas, administrator
Document Number 843819

IGNACIO TORRES BLAS
By: John Torres Blas, attorney in fact
Document Number 843581

JOSE LEON GUERRERO BLAS

JOHN TORRES BLAS

A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 27th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **Agusto B. Aflague**, known to me to be the **Administrator of the Estate of Estella Blas Aflague** whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Frances V. Reyes
Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: Sept. 18, 2014
P.O. Box 2977 Hagatna, Guam 96932

NOTE:
Real Estate Division, Department of Revenue and Taxation (b) (P.L. 7-140), Government Code of Guam, exempts from Real Property Taxes all property to which...the Government of Guam has the right of possession which is being used for public roads or easements.

A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 27th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **Eddy J. Reyes**, known to me to be the **Administrator of the Estate of Maria Blas Reyes** whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: **Sept. 18, 2014**
P.O. Box 2977 Hagatna, Guam 96932

NOTE:
Real Estate Division, Department of Revenue and Taxation (b) (P.L. 7-140), Government Code of Guam, exempts from Real Property Taxes all property to which...the Government of Guam has the right of possession which is being used for public roads or easements.

A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 28th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **John B. Limtiaco**, known to me to be the **Executor of the Estate of Emiliana Blas Limtiaco** whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public

TINA K. NAVARRO
NOTARY PUBLIC
In and for Guam U.S.A.
My Commission Expires: March. 07, 2016
131 NORTH PIAO CT., DEDEDO GU. 96929

NOTE:
Real Estate Division, Department of Revenue and Taxation (b) (P.L. 7-140), Government Code of Guam, exempts from Real Property Taxes all property to which…the Government of Guam has the right of possession which is being used for public roads or easements.

A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 28th day of November 2012, before me, a Notary Public in and for Guam, personally appeared **Angela L. Guerrero**, known to me to be the **Administrator of the Estate of Emiliana Torres Blas** whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public

TINA K. NAVARRO
NOTARY PUBLIC
In and for Guam U.S.A.
My Commission Expires: March. 07, 2016
131 NORTH PIAO CT., DEDEDO GU. 96929

NOTE:
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A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 11th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **John Torres Blas**, known to me to be the **Administrator of the Estate of Dolores Torres Matagulay** whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: Sept. 18, 2014
P.O. Box 2977 Hagatna, Guam 96932

NOTE:
Real Estate Division, Department of Revenue and Taxation (b) (P.L. 7-140), Government Code of Guam, exempts from Real Property Taxes all property to which…the Government of Guam has the right of possession which is being used for public roads or easements.

A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 11th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **John Torres Blas**, known to me to be the **Attorney in fact of the Estate of Ignacio Torres Blas** whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Frances S. Reyes
Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: **Sept. 18, 2014**
P.O. Box 2977 Hagatna, Guam 96932

NOTE:
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A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 11th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **Jose Leon Guerrero Blas**, known to me to be the person (s) whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: Sept. 18, 2014
P.O. Box 2977 Hagatna, Guam 96932

NOTE:
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A C K N O W L E D G E M E N T

In and for Guam,)
)ss
City of Hagatna)

On this 11th day of December 2012, before me, a Notary Public in and for Guam, personally appeared **John Torres Blas**, known to me to be the person (s) whose name (s) is (are) subscribed the foregoing **Grant of Right of Way for the Erection and Maintenance of Power Pad-mounted transformers, Hand-holes, Man-holes, Underground Conduits and Fuel Pipeline** and acknowledged to me that he /she (they) executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: Sept. 18, 2014
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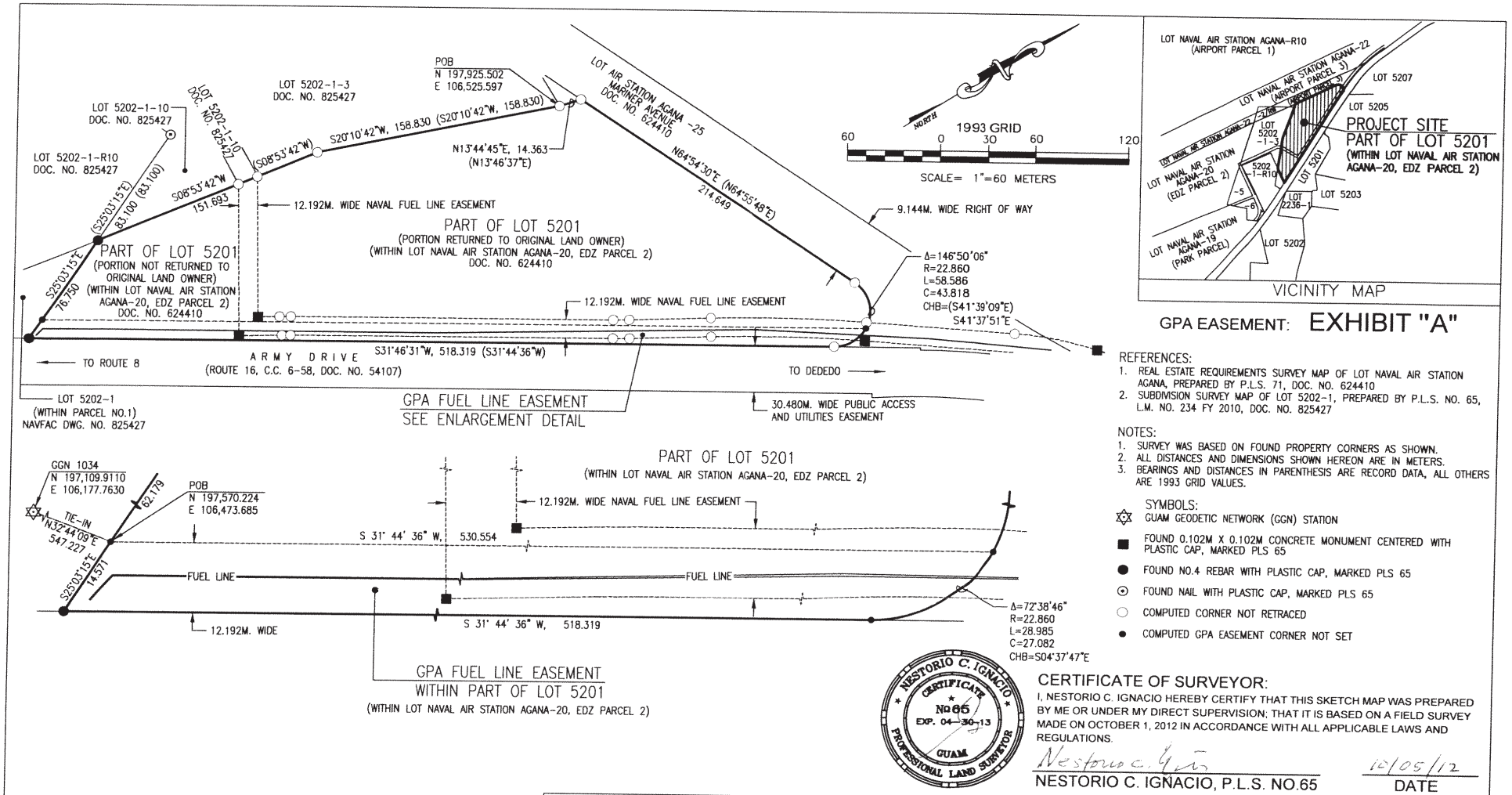


VICINITY MAP

GPA EASEMENT: EXHIBIT "A"

REFERENCES:
1. REAL ESTATE REQUIREMENTS SURVEY MAP OF LOT NAVAL AIR STATION AGANA, PREPARED BY P.L.S. 71, DOC. NO. 624410
2. SUBDIVISION SURVEY MAP OF LOT 5202-1, PREPARED BY P.L.S. NO. 65, L.M. NO. 234 FY 2010, DOC. NO. 825427

NOTES:
1. SURVEY WAS BASED ON FOUND PROPERTY CORNERS AS SHOWN.
2. ALL DISTANCES AND DIMENSIONS SHOWN HEREON ARE IN METERS.
3. BEARINGS AND DISTANCES IN PARENTHESIS ARE RECORD DATA, ALL OTHERS ARE 1993 GRID VALUES.

SYMBOLS:
- GUAM GEODETIC NETWORK (GGN) STATION
- FOUND 0.102M X 0.102M CONCRETE MONUMENT CENTERED WITH PLASTIC CAP, MARKED PLS 65
- FOUND NO.4 REBAR WITH PLASTIC CAP, MARKED PLS 65
- FOUND NAIL WITH PLASTIC CAP, MARKED PLS 65
- COMPUTED CORNER NOT RETRACED
- COMPUTED GPA EASEMENT CORNER NOT SET

NESTORIO C. IGNACIO CERTIFICATE No 65 EXP. 04-30-13 GUAM PROFESSIONAL LAND SURVEYOR

CERTIFICATE OF SURVEYOR:

I, NESTORIO C. IGNACIO HEREBY CERTIFY THAT THIS SKETCH MAP WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION; THAT IT IS BASED ON A FIELD SURVEY MADE ON OCTOBER 1, 2012 IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

Nestorio C. Ignacio — 10/05/12

NESTORIO C. IGNACIO, P.L.S. NO.65 — DATE

GUAM POWER AUTHORITY
P.O. BOX 2977 AGANA, GUAM 96910-2977

DCA DUEÑAS · CAMACHO
- ENGINEERING (CIVIL/STRUCTURAL)
- CONSTRUCTION MANAGEMENT
- PLANNING
- ENVIRONMENTAL SERVICES
- SURVEYING
- DEVELOPMENT CONSULTATION
- GEOGRAPHIC INFORMATION SYSTEMS

P.O. Box 8900 Tamuning, Guam 96931

PROJECT:	12.192M. WIDE GPA FUEL LINE EASEMENT
	TIYAN, BARRIGADA, GUAM
REVIEWED BY:	JBA (GPA) / CEH (DCA)
CHECKED BY:	NCI (P.L.S.)
	NESTORIO C. IGNACIO P.L.S. NO 65
W.O. _NUMBER	WO#1000-82
FIELD BY:	RSP/ JSC (GPA) / WKS (DCA)
COMPUTED BY:	RSP (GPA) / NCI (DCA)
DRAWN BY:	RSP (GPA) / CEH (DCA)
SCALE:	1" = 60 METERS
DATE:	OCTOBER 5, 2012

835952

For filing with the Registrar of land titles pursuant to the Land Title Registration Act. Requested by Guam Power Authority. After filing, deliver copies to Guam Power Authority P.O Box 2977 Hagatna, Guam 96932.

Island of Guam, Department of Land Management

This is Instrument No. 835952

Year 12, Month 04, Day 26, Time 8:20

Receiving Office DE-OFFICIO Receipt No.

Deputy Recorder Asa Untalan

(Space above this line for Recorder's use only.)

GRANT OF RIGHT-OF-WAY
FOR THE OPERATION AND MAINTENANCE
OF FUEL PIPELINE

WHEREAS, **A.B. WON PAT INTERNATIONAL AIRPORT AUTHORITY, GUAM**, whose address is 355 Chalan Pasaheru, Tamuning, Guam 96911, hereinafter called the "Owner", is the operator of the A.B. Won Pat International Air Terminal ("Airport") and owner of the following property (hereinafter called "Airport Parcel 1"): Lot Naval Air Station Agana R-10 (Airport Parcel 1), Municipality of Barrigada, Guam; and

WHEREAS, **GUAM POWER AUTHORITY**, hereinafter called the "Authority", operates and maintains a critical fuel pipeline (the "Fuel Pipeline"), a portion of which runs on Airport Parcel 1, that provides bulk fuel to the Tanguisson Power Plant under a lease agreement with the Department of the Navy; and

WHEREAS, when Airport Parcel 1 was transferred from the United States to Owner via Quitclaim Deed recorded at the Office of the Recorder, Department of Land Management, Government of Guam on October 6, 2000 under Instrument No. 628020, a reservation of an easement by the United States for the operation, maintenance, inspection, repair, and replacement of the Fuel Pipeline that runs on Airport Parcel 1 was inadvertently omitted; and

WHEREAS, the Authority is in the process of placing the portion of the Fuel Pipeline that runs on Airport Parcel 1 underground and requests that Owner grant the Authority its successors and assigns, the right to operate, maintain, inspect, repair, relocate, and/or replace that portion of the Fuel Pipeline running on Airport Parcel 1, together with a right-of-way, on, along and in a portion of Airport Parcel 1.

NOW THEREFORE, in consideration of the benefits derived by the underground conversion of the Fuel Pipeline, and other good and valuable consideration, receipt of which is hereby acknowledged, Owner does hereby grant unto Authority, its successors and assigns,

subject to the terms and conditions set forth herein, the right to operate, maintain, inspect, repair, relocate, and/or replace that portion of the Fuel Pipeline running on Airport Parcel 1, together with a right of way, on, along and in Airport Parcel 1 more particularly described as follows (hereinafter referred to as "Easement Strip"):

> A 12.2 meter x 672.7 meter strip of land extending partially across Lot Naval Air Station Agana-R10 (Airport Parcel 1), Municipality of Barrigada, Guam as delineated in that certain sketch (or map) and marked Exhibit "A" attached hereto and made a part hereof.

Owner further grants to Authority the right of ingress to and egress from the Easement Strip over and across Airport Parcel 1 by means of roads and lanes thereon, if such there be, otherwise by such route or routes as shall occasion the least practicable damage and inconvenience to Owner.

Nothing in this Grant shall be construed to grant or authorize Authority exclusive rights of use of the Easement Strip or Airport Parcel 1.

This Grant shall be subject to the following terms and conditions:

1. Authority understands that for Owner to acquire airport improvement funds from the Federal Aviation Administration it is required that Authority agree to subordinate its rights under this Grant. Authority hereby agrees to subordinate Authority's rights under this Grant to airport use and development and will not, in the operation, maintenance, inspection, repair, relocation and/or replacement of the Fuel Pipeline running on Airport Parcel 1 or in the exercise of any other right granted under this Grant, go upon the Easement Strip or in any manner interfere with or interrupt the use or operation of the Airport or its attendant facilities, without prior approval of Owner.

2. Owner shall proceed and continue to use and develop Airport Parcel 1 for any and all Airport purposes including but not limited to the construction of runways, taxiways, aprons, apron entrance pavements and associated utilities and appurtenances necessary for these airfield facilities; provided, however, Owner shall neither construct nor permit to be constructed any building upon or drill or operate any well within the Easement Strip, which would directly interfere with Authority's exercise of the rights hereby conveyed, including access to the Easement Strip, and the safe operation of the Fuel Pipeline.

3. Authority shall have the further right, from time to time, at its sole cost and expense, to trim and to cut down and clear away any and all trees now or hereafter on the Easement Strip whose growth may reasonably be determined to pose a hazard to the Fuel

Pipeline, provided, however, that all trees that Authority is hereby authorized to cut and remove, if valuable for timber or wood, shall continue to be the property of Owner and shall be disposed of in such manner as directed by Owner, but all tops, brush and refuse wood shall be removed by Authority at Authority's sole cost and expense.

4. Authority shall coordinate all activities on the Easement Strip with Owner. Authority will not permit, allow or engage in any activity in the Easement Strip or Airport Parcel 1 that interferes with the operation of the Airport or Owner's use of Airport Parcel 1 for Airport purposes, including but not limited to the construction, operation and maintenance of runways and associated taxiways and utilities necessary for the runways.

5. Authority will not permit, allow or engage in any activity in the Easement Strip or Airport Parcel 1 that would require closure of the Airport runways or taxiways.

6. Authority agrees that during any and all activities which require Authority to access the property across current or future airport designated secure areas Authority shall comply with and conform its use of the Easement Strip to Owner's Airport Security Program, Security Directives and Emergency Amendments and FAA regulations (collectively, "Security Requirements"). Authority shall require all persons, including without limitation its agents, employees, or invitees, entering the Easement Strip, including without limitation, surrounding facilities, parking lots, and runways, (collectively the "Airport Premises") to comply with the Security Requirements and the Airport Rules and Regulations. Authority agrees to pay, indemnify and save Owner harmless from and against any and all fines and penalties imposed or assessed on Owner and/or Authority for any breach of the Security Requirements by Authority, its agents, employees, or invitees, whether intentional, non-intentional, or through negligence occurring on the Airport Premises during the term of this Grant.

7. In accomplishing any and all construction activities which may be needed to operate, maintain, inspect, repair, relocate and/or replace the portion of the Fuel Pipeline running on Airport Parcel 1, Authority shall prepare and submit to Owner a work authorization application with all supporting plans for review and approval by Owner at least thirty days prior to the commencement of any such work. No such work shall commence without the prior written approval of Owner.

8. Authority shall have the right to mark the location of the Easement Strip by suitable markers set in the ground and approved by Owner. Said markers shall not interfere

with any reasonable use Owner shall make of the Easement Strip.

9. Authority shall, at all times, protect, repair, and maintain the Easement Strip in good order and condition at its own expense and without cost or expense to Owner. Authority shall exercise due diligence in protecting the Easement Strip and Airport Parcel 1 against damage or destruction related to Authority's activities. Any property on the Easement Strip or Airport Parcel 1 damaged or destroyed by Authority incident to the exercise of the rights and privileges herein granted shall be promptly repaired or replaced by Authority at Authority's sole cost and expense.

10. Authority shall comply with all Guam and Federal laws in its exercise of the rights and privileges granted herein, including, without limitation, obtaining all Guam and Federal regulatory approvals that may be needed to operate, maintain, inspect, repair, relocate and/or replace the portion of the Fuel Pipeline running on Airport Parcel 1. The Authority shall pay all costs associated with any environmental remediation that may be required by Owner or Guam and/or Federal regulatory authorities.

11. Owner shall not be responsible for damage to property or injuries to persons that may arise from, or be attributable or incident to, Authority's use of the Easement Strip and/or Airport Parcel 1, and its activities conducted under this Grant. Authority agrees that it shall be responsible for all risks of loss or damage to property and injury or death to persons, whether to its officers, employees, contractors of any tier, agents, invitees, or others, by reason of or incident to Authority's use of the Easement Strip, and its activities conducted under this Grant. Authority shall, at its expense, pay any settlements of or judgments on claims arising out of its use of the Easement Strip.

12. Authority agrees to indemnify and hold Owner harmless from and against any liability, losses, damages, costs or expenses, including, but not limited to, reasonable attorneys' fees and environmental damage, that Owner may suffer or incur as a result of claims, demands, costs, or judgments against Owner arising out of Authority's use of the Easement Strip and Airport Parcel 1.

The provisions hereof shall inure to the benefit of and bind the successors and assigns of the respective parties hereto.

IN WITNESS WHEREOF, Owner has executed these presents this _____ day of _____, 2012.

OWNER:

A.B. WON PAT INTERNATIONAL AIRPORT AUTHORITY, GUAM

By:_____
CHARLES H. ADA II
Executive Manager

GUAM POWER AUTHORITY

By:_____
JOAQUIN C. FLORES, P.E.
General Manager

ACKNOWLEDGEMENT

GUAM, U.S.A.)
)ss
City of Tamuning)

On this 19th day of April, 2012, before me, a Notary Public in and for Guam, personally appeared **CHARLES H. ADA II** known to me to be the **EXECUTIVE MANAGER** of **A.B. WON PAT INTERNATIONAL AIRPORT AUTHORITY, GUAM** whose name is subscribed to the foregoing **GRANT OF RIGHT-OF-WAY FOR THE OPERATION AND MAINTENANCEOF FUEL PIPELINE** and acknowledged to me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day, month and year first above written.

Rosie U. Balajadia
Notary Public

ROSIE U. BALAJADIA
NOTARY PUBLIC
In and For Guam, U.S.A
My Commission Expires: June 16, 2012
P.O. Box 7010 Tamuning, Guam 96931

ACKNOWLEDGEMENT

Guam, U.S.A.)
)ss
City of Harmon)

On this 24th day of April, 2012, before me, a Notary Public in and for Guam, personally appeared **JOAQUIN C. FLORES, P.E.**, known to me to be the General **MANAGER** of **GUAM POWER AUTHORITY** whose name is subscribed to the foregoing **GRANT OF RIGHT-OF-WAY FOR THE OPERATION AND MAINTENANCEOF FUEL PIPELINE** and acknowledged to me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day, month and year first above written.

Francis S. Reyes
Notary Public

FRANCES S. REYES
NOTARY PUBLIC
In and for Guam, U.S.A.
My Commission Expires: Sept. 18, 2014
P.O. Box 2977 Hagatna, Guam 96932

NOTE:

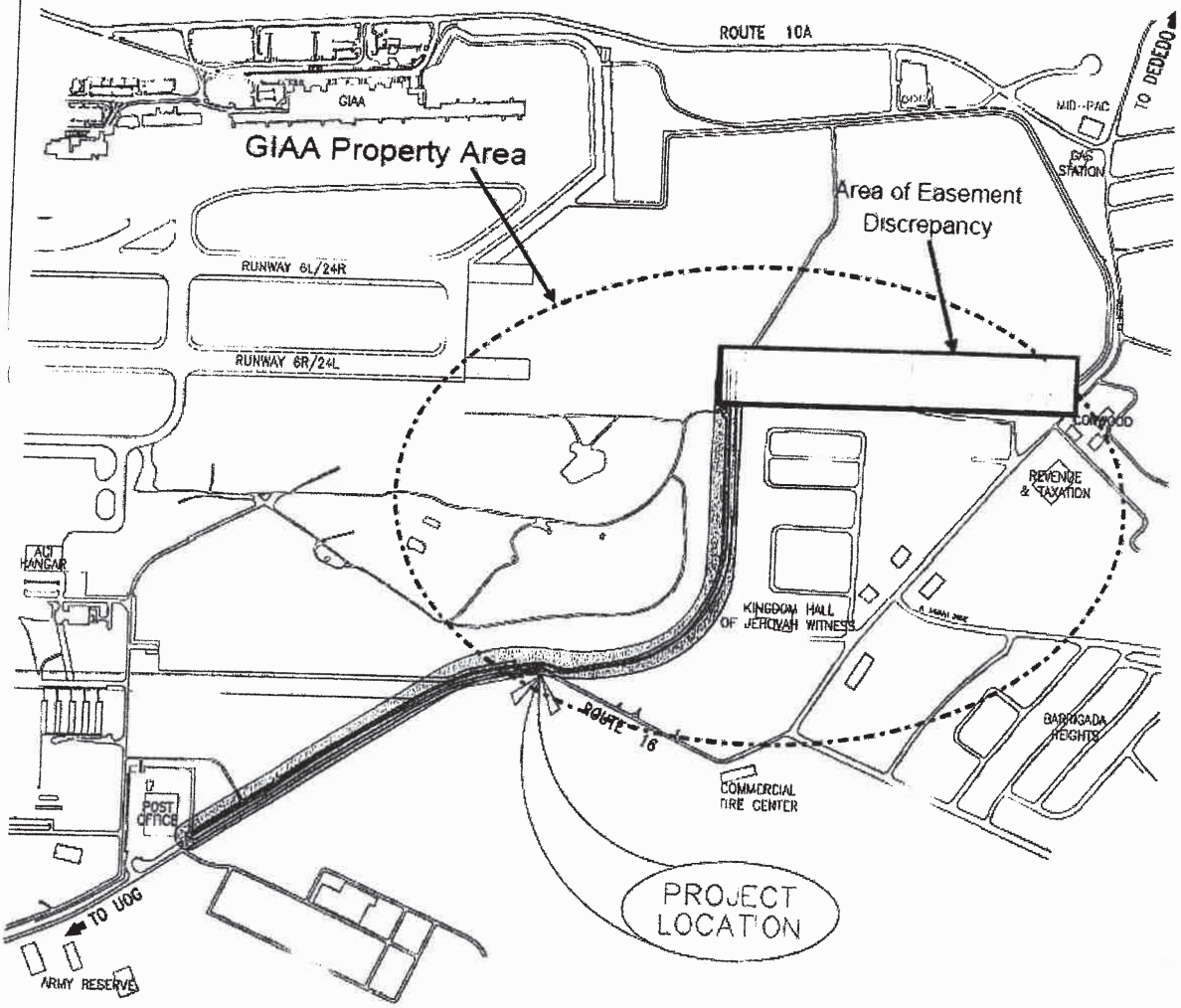
Real Estate Division, Department of Revenue and Taxation (b) (P.L. 7-140), Government Code of Guam, exempts from Real Property Taxes all property to which. . .Government of Guam has the right of possession which is being used for public roads or easements.

EXHIBIT A

(Easement Strip)

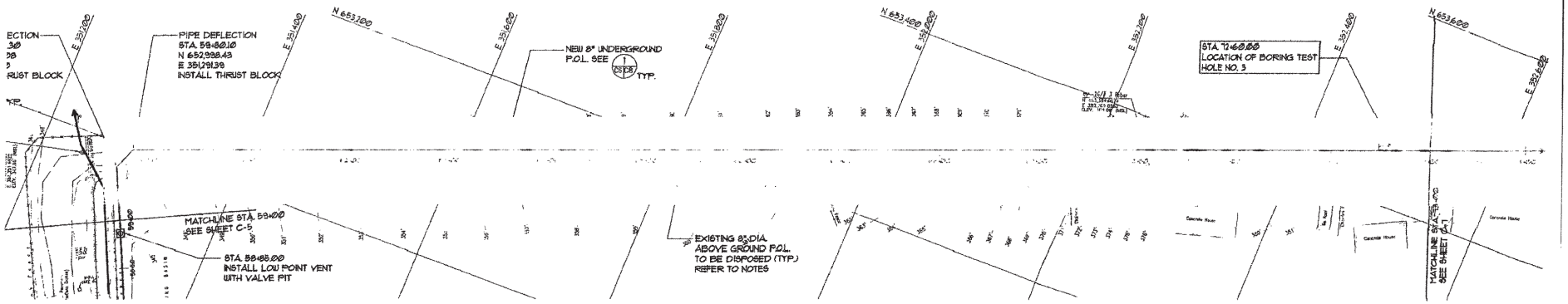
835952

VICINITY MAP



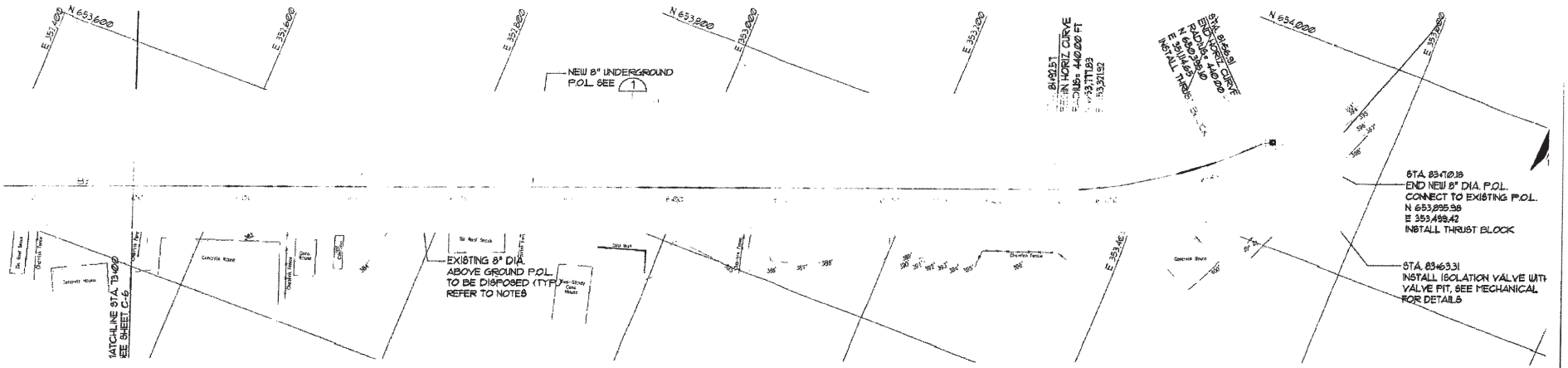
835952

Exhibit "A"

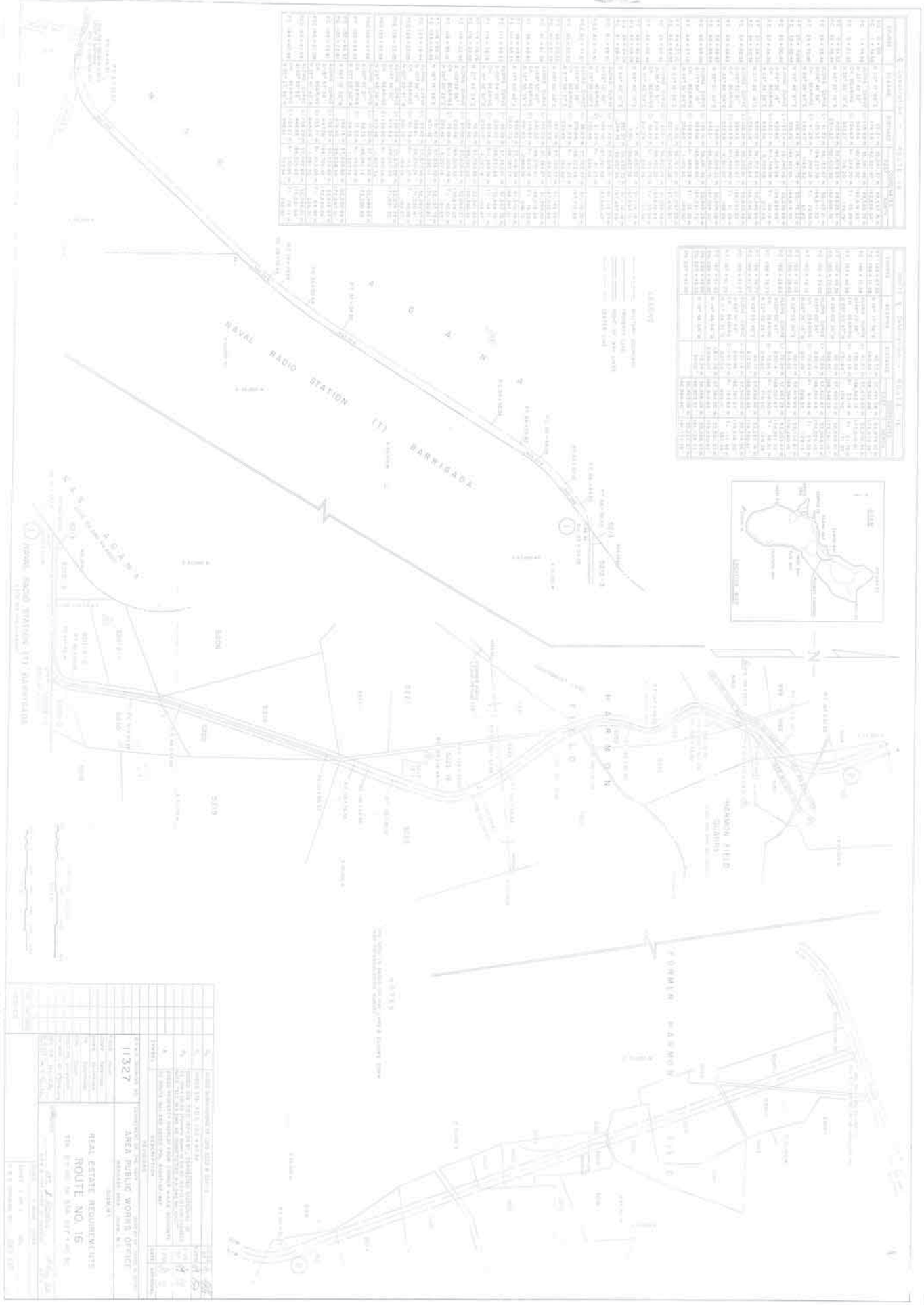


835952

Exhibit "A"



Y&D 683-339


NAVAL RADIO STATION (T) BARRIGADA
HARMON FIELD
FORMER HARMON FIELD
11327
AREA PUBLIC WORKS OFFICE
REAL ESTATE REQUIREMENTS
ROUTE NO. 16

NICAL DESCRIPTIONS

EUM
(AJKV)
ORD DATA)

COORDINATES	
NORTHING	EASTING
81,973.02	186,426.71
81,325.20	187,165.23
81,816.69	187,088.77
81,733.96	187,044.04
81,611.02	186,702.23
81,210.46	186,846.30
81,054.59	186,412.92
80,885.04	185,890.76
80,900.65	185,587.46
80,939.89	185,224.03
81,357.28	185,278.73
81,475.00	185,249.74
82,227.97	186,857.37
82,070.18	186,872.23
81,770.79	187,137.01
81,639.95	187,181.07
81,389.13	187,359.37
38 ACRES	

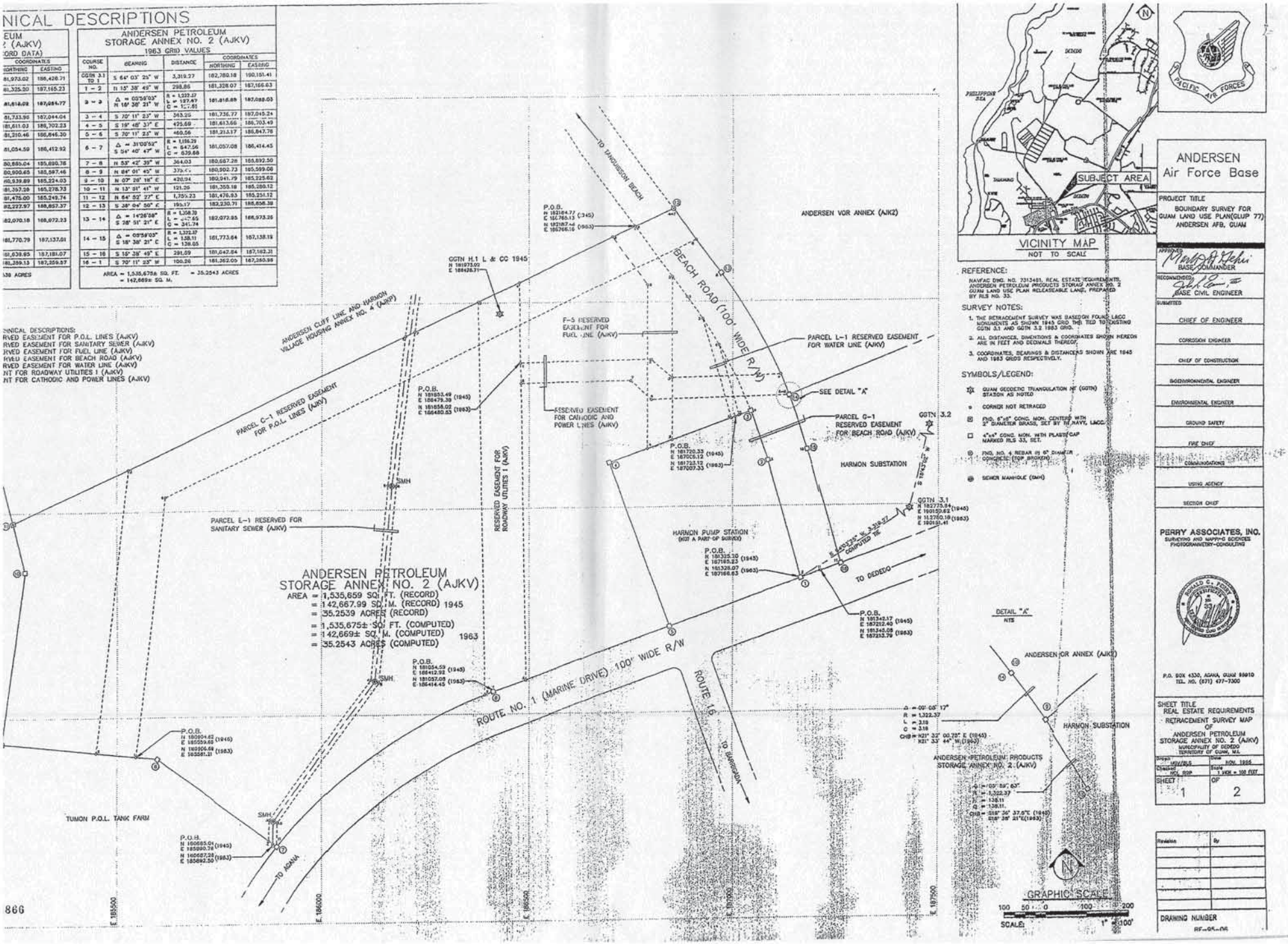
ANDERSEN PETROLEUM STORAGE ANNEX NO. 2 (AJKV)

1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 64° 03' 25" W	3,319.27	182,780.18	190,151.41
1 – 2	N 15° 38' 49" W	298.86	181,328.07	187,166.63
2 – 3	Δ = 03°59'03" N 18° 38' 21" W	R = 1,322.37 L = 137.69 C = 137.61	181,616.69	187,088.03
3 – 4	S 70° 11' 23" W	363.26	181,736.77	187,045.24
4 – 5	S 19° 48' 37" E	425.69	181,613.66	186,703.49
5 – 6	S 70° 11' 23" W	460.56	181,213.17	186,847.76
6 – 7	Δ = 31°00'54" S 54° 40' 47" W	R = 1,186.29 L = 642.56 C = 639.68	181,057.08	186,414.45
7 – 8	N 53° 42' 39" W	364.03	180,687.28	186,892.50
8 – 9	N 84° 01' 45" W	379.64	180,902.73	185,599.06
9 – 10	N 07° 28' 18" E	420.94	180,941.79	185,225.62
10 – 11	N 13° 31' 41" W	121.26	181,359.18	185,280.12
11 – 12	N 64° 52' 27" E	1,755.23	181,476.93	185,251.12
12 – 13	S 38° 04' 50" E	193.17	182,230.71	186,858.38
13 – 14	Δ = 14°26'08" S 28° 51' 21" E	R = 1,358.39 L = 342.45 C = 341.74	182,072.85	186,973.26
14 – 15	Δ = 03°56'03" S 18° 38' 21" E	R = 1,322.37 L = 138.11 C = 138.05	181,773.64	187,138.19
15 – 16	S 19° 28' 49" E	291.09	181,642.84	187,182.31
16 – 1	S 70° 11' 23" W	100.26	181,362.05	187,260.98

AREA = 1,535,675± SQ. FT. = 35.2543 ACRES
= 142,669± SQ. M.

TECHNICAL DESCRIPTIONS:
RVED EASEMENT FOR P.O.L. LINES (AJKV)
RVED EASEMENT FOR SANITARY SEWER (AJKV)
RVED EASEMENT FOR FUEL LINE (AJKV)
RVED EASEMENT FOR BEACH ROAD (AJKV)
RVED EASEMENT FOR WATER LINE (AJKV)
NT FOR ROADWAY UTILITIES I (AJKV)
NT FOR CATHODIC AND POWER LINES (AJKV)



REFERENCE:

NAVFAC DWG. NO. 7313481, REAL ESTATE REQUIREMENTS, ANDERSEN PETROLEUM PRODUCTS STORAGE ANNEX NO. 2 GUAM LAND USE PLAN RELEASABLE LAND, PREPARED BY RLS NO. 33.

SURVEY NOTES:

1. THE RETRACEMENT SURVEY WAS BASED ON FOUND LACC MONUMENTS AS SHOWN 1945 GRID THEN TIED TO EXISTING GGTN 3.1 AND GGTN 3.2 1983 GRID.
2. ALL DISTANCES, DIMENTIONS & COORDINATES SHOWN HEREON ARE IN FEET AND DECIMALS THEREOF.
3. COORDINATES, BEARINGS & DISTANCES SHOWN ARE 1945 AND 1983 GRIDS RESPECTIVELY.

SYMBOLS/LEGEND:

- GUAM GEODETIC TRIANGULATION MT (GGTN) STATION AS NOTED
- CORNER NOT RETRACED
- FND. 6"x6" CONC. MON. CENTERED WITH 2" DIAMETER BRASS, SET BY RI NAVY, LACC.
- 4"x4" CONC. MON. WITH PLASTIC CAP MARKED RLS 33, SET.
- FND. NO. 4 REBAR IN 6" DIAMETER CONCRETE (TOP BROKEN)
- SEWER MANHOLE (SMH)

ANDERSEN Air Force Base

PROJECT TITLE
BOUNDARY SURVEY FOR GUAM LAND USE PLAN(GLUP 77) ANDERSEN AFB, GUAM

APPROVED
BASE COMMANDER

RECOMMENDED
BASE CIVIL ENGINEER

SUBMITTED
CHIEF OF ENGINEER
CORROSION ENGINEER
CHIEF OF CONSTRUCTION
BIOENVIRONMENTAL ENGINEER
ENVIRONMENTAL ENGINEER
GROUND SAFETY
FIRE CHIEF
COMMUNICATIONS
USING AGENCY
SECTION CHIEF

PERRY ASSOCIATES, INC.
SURVEYING AND MAPPING SCIENCES
PHOTOGRAMMETRY-CONSULTING

RONALD C. PERRY CERTIFICATE NO. 33 REGISTERED LAND SURVEYOR

P.O. BOX 4330, AGANA, GUAM 96910
TEL. NO. (671) 477-7300

SHEET TITLE
REAL ESTATE REQUIREMENTS
RETRACEMENT SURVEY MAP
OF
ANDERSEN PETROLEUM STORAGE ANNEX NO. 2 (AJKV)
MUNICIPALITY OF DEDEDO
TERRITORY OF GUAM, M.I.

Drawn	Issue
HSV/BLS	NOV. 1986
Checked	Scale
NCL ROP	1 INCH = 100 FEET

SHEET 1 OF 2

Revision	By

DRAWING NUMBER
RE-05-00

866

TECHNICAL DESCRIPTIONS

RESERVED EASEMENT O.L. LINES (AJKV)
RID VALUES (RECORD DATA)

	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
W	1,337.25	181,973.02	186,428.71
W	100.10	180,904.62	185,559.40
E	678.42	180,915.08	185,460.04
E	1,498.64	181,592.32	185,500.52
E	101.86	182,227.97	186,857.37
W	1,458.49	182,145.92	186,917.31
W	823.47	181,527.00	185,596.52

O. FT. = 4.8887 ACRES
SQ. M.

PARCEL C-1 RESERVED EASEMENT FOR P.O.L. LINES (AJKV)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN 33 TO 1	S 67° 47' 56" W	4,957.81	182,780.18	190,151.41
1 - 2	N 84° 01' 45" W	100.10	180,906.62	185,561.21
2 - 3	N 03° 22' 00" E	678.42	180,917.10	185,461.66
3 - 4	N 64° 53' 27" E	1,498.65	181,594.35	185,501.50
4 - 5	S 36° 04' 50" E	101.86	182,230.71	186,858.38
5 - 6	S 64° 32' 27" W	1,458.49	182,148.37	186,918.33
6 - 1	S 03° 22' 00" W	823.47	181,529.08	185,597.84

AREA = 212,967± SQ. FT. = 4.8890 ACRES
= 19,785± SQ. M.

RESERVED EASEMENT TARY SEWER (AJKV)
RID VALUES (RECORD DATA)

	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
W	1,395.80	181,973.02	186,427.71
W	23.72	180,685.04	185,850.78
E	51.84	180,699.09	185,871.67
E	416.82	180,750.72	185,872.88
E	475.08	181,088.61	186,116.85
E	381.18	181,561.97	186,158.10
E	23.56	181,920.52	186,200.94
W	373.31	181,930.52	186,222.38
W	480.28	181,559.84	186,178.00
W	416.13	181,081.37	186,136.40
W	58.31	180,744.05	185,892.73
F R = 1,196.29 L = 0.922 W C = 0.922		180,685.75	185,891.36

J. FT. = 0.6046 ACRES
SQ. M.

PARCEL E-1 RESERVED EASEMENT FOR SANITARY SEWER (AJKV)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN 33 TO 1	S 63° 49' 47" W	4,745.37	182,780.18	190,151.41
1 - 2	N 53° 42' 39" W	23.72	180,687.28	185,892.50
2 - 3	N 01° 18' 50" E	51.84	180,701.31	185,873.38
3 - 4	N 20° 48' 50" E	416.82	180,752.94	185,874.56
4 - 5	N 04° 56' 25" E	475.08	181,090.95	186,118.47
5 - 6	N 06° 47' 03" E	381.18	181,564.26	186,159.38
6 - 7	N 64° 32' 27" E	23.56	181,922.92	186,202.05
7 - 8	S 06° 47' 03" W	373.31	181,932.92	186,223.39
8 - 9	S 04° 56' 25" W	480.28	181,562.22	186,179.28
9 - 10	S 20° 48' 50" W	416.13	181,083.73	186,137.92
10 - 11	S 01° 18' 50" W	58.31	180,746.28	185,894.42
11 - 1	Δ = 00°02'39" S 39° 31' 31" W	R = 1,196.29 L = 0.07 C = 0.92	180,687.98	185,893.08

AREA = 26,337± SQ. FT. = 0.6046 ACRES
= 2,447± SQ. M.

RESERVED EASEMENT UEL LINE (AJKV)
RID VALUES (RECORD DATA)

	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
E	709.09	182,784.68	186,387.08
E	152.27	182,184.77	186,765.13
	395.78	182,061.66	186,854.74
W	53.14	181,665.86	186,854.74
	392.49	181,847.80	186,804.74
W	145.68	182,045.39	186,804.74
E	50.93	182,163.16	186,719.01

SQ. FT. = 0.6283 ACRES
SQ. M.

PARCEL F-5 RESERVED EASEMENT FOR FUEL LINE (AJKV)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN 33 TO 1	S 80° 04' 08" W	3,436.75	182,780.18	190,151.41
1 - 2	S 36° 04' 50" E	152.27	182,187.46	186,766.16
2 - 3	S 00° 01' 43" E	395.78	182,061.40	186,855.83
3 - 4	S 90° 11' 23" W	53.14	181,668.62	186,858.03
4 - 5	N 00° 01' 43" W	392.49	181,850.61	186,806.04
5 - 6	N 36° 04' 50" W	145.68	182,048.10	186,805.84
6 - 1	N 64° 53' 27" E	50.93	182,165.84	186,720.04

AREA = 27,283± SQ. FT. = 0.6263 ACRES
= 2,535± SQ. M.

RESERVED EASEMENT ACH ROAD (AJKV)
RID VALUES (RECORD DATA)

	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
E	1,005.08	181,973.02	186,428.71
W	50.13	181,342.17	187,212.40
W	298.86	181,325.20	187,165.23
F R = 1,322.37 L = 127.67 W C = 127.61		181,613.02	187,084.77
F R = 1,358.70 L = 317.43 W C = 316.59		181,733.96	187,044.04
W	214.53	182,011.33	186,891.39
E	101.86	182,184.77	186,765.13
E	195.17	182,227.97	186,857.37
F R = 1,358.70 L = 342.85 E C = 341.74		182,070.18	186,972.23
F R = 1,322.37 L = 138.11 F E C = 138.05		181,770.79	187,137.01
E	291.59	181,629.90	187,181.07
W	50.13	181,353.13	187,259.57

PARCEL G-1 RESERVED EASEMENT FOR BEACH ROAD (AJKV)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN 33 TO 1	S 63° 53' 47" W	3,389.43	182,780.18	190,151.41
1 - 2	S 70° 11' 23" W	50.13	181,345.06	187,213.79
2 - 3	N 15° 38' 49" W	298.86	181,328.07	187,165.63
3 - 4	Δ = 05°39'03" N 18° 38' 21" W	R = 1,322.37 L = 127.67 C = 127.61	181,615.85	187,086.03
4 - 5	Δ = 14°26'58" N 28° 21' 21" W	R = 1,358.70 L = 317.43 C = 316.59	181,736.77	187,045.24
5 - 6	N 36° 04' 50" W	214.53	182,014.06	186,892.45
6 - 7	N 64° 53' 27" E	101.86	182,187.44	186,766.11
7 - 8	S 36° 04' 50" E	195.17	182,230.71	186,858.38
8 - 9	Δ = 14°26'58" S 28° 21' 21" E	R = 1,358.70 L = 342.85 C = 341.74	182,072.93	186,973.25
9 - 10	Δ = 05°39'03" S 18° 38' 21" E	R = 1,322.37 L = 138.11 C = 138.05	181,773.64	187,138.19
10 - 11	S 15° 38' 49" E	291.59	181,642.64	187,182.31
11 - 1	S 70° 11' 23" W	50.13	181,362.05	187,260.98

TECHNICAL DESCRIPTIONS

RESERVED EASEMENT FOR ROADWAY UTILITIES 1 (AJKV)
L&CC 1945 GRID VALUES (RECORD DATA)

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN N.T TO 1	S 00° 58' 05" W	918.57	181,973.02	186,428.71
1 - 2	Δ = 01°01'58" S 89° 42' 07" W	R = 1,196.29 L = 21.56 C = 21.56	181,054.59	186,412.92
2 - 3	N 00° 56' 47" W	955.85	181,047.11	186,392.70
3 - 4	N 84° 54' 10" E	109.59	182,002.93	186,378.91
4 - 5	S 00° 58' 47" E	966.48	182,048.42	186,476.15
5 - 1	S 70° 13' 06" W	84.16	181,083.07	186,492.12

AREA = 96,112.66 SQ. FT. = 2.2064 ACRES
= 8,929.19 SQ. M.

RESERVED EASEMENT FOR CATHODIC AND POWER LINES (AJKV)
L&CC 1945 GRID VALUES (RECORD DATA)

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN N.T TO 1	S 22° 58' 35" E	129.83	181,973.02	186,428.71
1 - 2	N 88° 58' 51" E	326.40	181,853.49	186,479.39
2 - 3	S 47° 57' 17" E	67.33	181,858.28	186,804.74
3 - 4	N 88° 39' 28" E	261.58	181,814.19	186,854.74
4 - 5	Δ = 02°15'53" S 22° 44' 16" E	R = 1,356.70 L = 53.70 C = 53.70	181,820.32	187,116.25
5 - 6	S 88° 39' 28" W	332.35	181,770.79	187,137.01
6 - 7	N 47° 57' 17" W	67.75	181,763.00	186,804.74
7 - 8	S 88° 58' 51" W	274.26	181,808.38	186,754.43
8 - 1	N 00° 56' 47" W	50.00	181,803.50	186,480.21

AREA = 34,678.52 SQ. FT. = 0.7981 ACRES
= 3,221.75 SQ. M.

RESERVED EASEMENT FOR ROADWAY UTILITIES 1 (AJKV)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN N.T TO 1	S 65° 14' 45" W	4,115.09	182,780.18	190,151.41
1 - 2	Δ = 01°01'58" S 89° 40' 24" W	R = 1,196.29 L = 21.56 C = 21.56	181,057.08	186,414.43
2 - 3	N 00° 58' 30" W	955.95	181,049.88	186,394.23
3 - 4	N 84° 52' 27" E	109.59	182,005.40	186,377.97
4 - 5	S 00° 56' 30" E	966.48	182,051.93	186,477.19
5 - 1	S 70° 11' 23" W	84.16	181,085.89	186,493.63

AREA = 96,111± SQ. FT. = 2.2064 ACRES
= 8,929± SQ. M.

RESERVED EASEMENT FOR CATHODIC AND POWER LINES (AJKV)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
BGN N.T TO 1	S 75° 52' 08" W	3,705.42	182,780.18	190,151.41
1 - 2	N 88° 57' 05" E	325.40	181,856.02	186,480.53
2 - 3	S 47° 59' 00" E	67.33	181,861.87	186,805.87
3 - 4	N 88° 37' 45" E	261.58	181,816.90	186,855.90
4 - 5	Δ = 02°15'53" S 22° 45' 59" E	R = 1,356.70 L = 53.71 C = 53.70	181,823.16	187,117.40
5 - 6	S 88° 37' 45" W	332.26	181,773.64	187,138.19
6 - 7	N 47° 59' 00" W	67.75	181,765.69	186,805.92
7 - 8	S 88° 57' 08" W	274.26	181,811.04	186,755.58
8 - 1	N 00° 58' 30" W	50.00	181,806.02	186,481.37

AREA = 34,880± SQ. FT. = 0.7981 ACRES
= 3,222± SQ. M.

ANDERSEN VOR ANNEX (AJKZ)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	N 13° 49' 40" E	1,631.06	182,780.18	190,151.41
1 – 2	Δ = 16°49'04" R = 1,665.99 S 15° 39' 31" W L = 489.02 C = 487.26		184,363.97	190,541.24
2 – 3	S 07° 14' 29" W	544.98	183,894.79	190,409.72
3 – 4	Δ = 10°41'49" R = 804.51 S 12° 35' 54" W L = 150.20 C = 149.95		183,354.17	190,340.95
4 – 5	S 17° 56' 48" W	78.55	183,207.60	190,306.24
5 – 6	Δ = 13°27'47" R = 627.79 S 24° 40' 42" W L = 147.51 C = 147.18		183,134.97	190,284.65
6 – 7	S 31° 24' 35" W	840.93	183,001.24	190,223.20
7 – 8	S 89° 58' 17" W	853.42	182,454.23	189,889.18
8 – 9	S 70° 11' 23" W	2,018.88	182,453.80	189,035.76
9 – 10	Δ = 60°08'17" R = 1,322.37 N 21° 33' 44" W L = 3.19 C = 3.19		181,770.68	187,139.36
10 – 11	Δ = 14°26'58" R = 1,358.70 N 28° 51' 21" W L = 342.65 C = 341.74		181,773.64	187,138.19
11 – 12	N 36° 04' 50" W	185.17	182,072.95	186,973.26
12 – 13	N 36° 04' 50" W	833.99	182,230.71	186,858.38
13 – 14	N 36° 04' 50" W	1,780.55	182,904.72	186,367.22
14 – 15	Δ = 01° 26' 59" R = 1,103.92 S 35° 21' 20" E L = 27.93 C = 27.93		184,343.72	185,318.80
15 – 16	N 53° 55' 10" E	783.33	184,368.50	185,302.44
16 – 17	N 29° 03' 47" E	1,914.37	184,827.82	185,935.52
17 – 18	S 44° 08' 20" E	1,436.63	186,501.14	186,865.46
18 – 19	S 67° 32' 08" E	283.09	185,470.14	187,865.90
19 – 20	S 67° 32' 08" E	1,902.21	185,361.97	188,127.54
20 – 1	S 67° 32' 08" E	709.67	184,635.10	189,665.37

AREA = 13,441,203± SQ. FT. = 308.9932 ACRES
= 1,248,733± SQ. M.

PARCEL A-1 RESERVED EASEMENT (AJKZ)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 62° 22' 46" W	703.59	182,780.18	190,151.41
1 – 2	S 89° 58' 17" W	13.80	182,454.05	189,528.19
2 – 3	N 25° 08' 05" W	3,199.33	182,454.07	189,514.39
3 – 4	S 67° 32' 08" E	37.05	185,350.46	188,155.46
4 – 5	S 25° 08' 06" E	3,183.67	185,336.39	188,189.73
5 – 1	S 89° 58' 17" W	13.80	182,454.08	189,542.00

AREA = 79,798± SQ. FT. = 1.8319 ACRES
= 7,414± SQ. M.

PARCEL E-3 RESERVED EASEMENT FOR SEWER LINE (AJKZ)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 89° 20' 28" W	3,497.95	182,780.18	190,151.41
1 – 2	N 36° 04' 50" W	21.28	182,498.03	186,865.02
2 – 3	N 76° 35' 40" E	365.99	182,513.85	186,652.26
3 – 4	N 80° 02' 51" E	376.38	182,598.40	187,008.27
4 – 5	N 89° 44' 43" E	374.34	182,663.45	187,378.99
5 – 6	N 65° 58' 06" E	32.44	182,691.22	187,702.30
6 – 7	S 25° 01' 07" E	5.66	182,704.43	187,731.83
7 – 8	S 65° 58' 06" W	75.89	182,699.31	187,704.32
8 – 9	S 85° 44' 43" W	334.48	182,688.40	187,715.01
9 – 10	S 80° 02' 51" W	374.79	182,643.59	187,381.47
10 – 1	S 76° 35' 40" W	357.03	182,578.81	187,012.32

AREA = 22,130± SQ. FT. = 0.5080 ACRES
= 2,056± SQ. M.

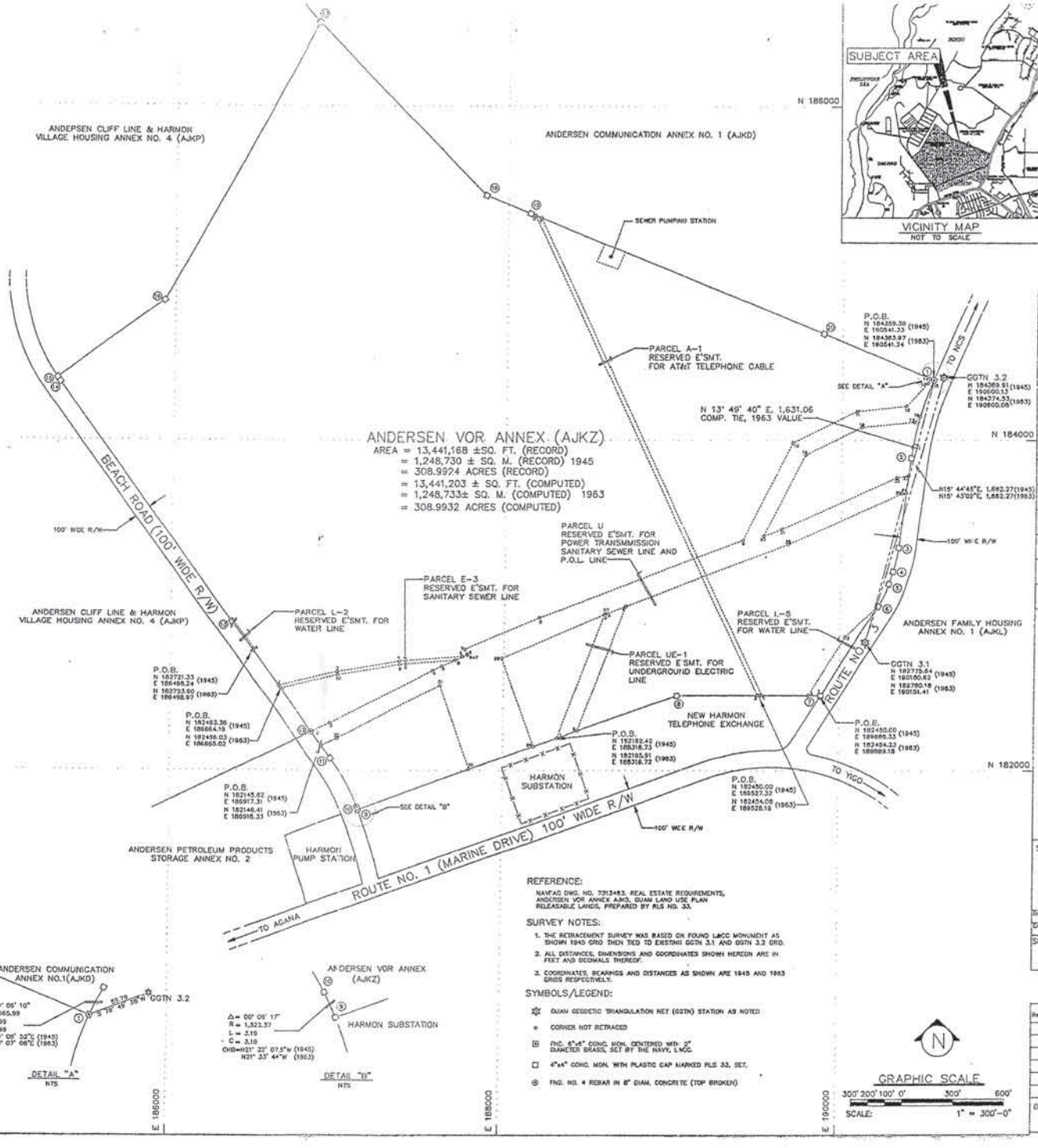
PARCEL L-2 RESERVED EASEMENT FOR WATER LINE (AJKZ)
1963 GRID VALUES

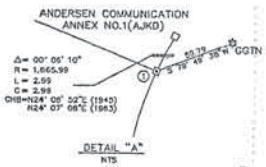
COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 89° 07' 02" W	3,652.67	182,780.18	190,151.41
1 – 2	N 36° 04' 50" W	323.76	182,723.90	186,498.97
2 – 3	N 53° 55' 10" E	10.00	182,904.73	186,367.22
3 – 4	S 36° 04' 50" E	213.76	182,910.63	186,375.27
4 – 1	S 08° 55' 10" W	14.14	182,737.88	186,501.16

AREA = 2,188± SQ. FT. = 0.0502 ACRES
= 203± SQ. M.

SEE SHEET 2 FOR TECHNICAL DESCRIPTIONS OF:
PARCEL L-5 RESERVED EASEMENT FOR WATER LINE (AJKZ)
PARCEL U RESERVED EASEMENT FOR POWER TRANSMISSION SANITARY SEWER LINE AND P.O.L. LINE (AJKZ)
PARCEL UE-1 RESERVED EASEMENT FOR UNDERGROUND ELECTRICAL LINE (AJKZ)

664868





PACIFIC AIR FORCES

ANDERSEN
Air Force Base

PROJECT TITLE
BOUNDARY SURVEY FOR GUAM LAND USE PLAN (GLUP '77)
ANDERSEN AFB, GUAM

APPROVED
BASE COMMANDER

RECOMMENDED
BASE CIVIL ENGINEER

SUBMITTED
CHIEF OF ENGINEER
CORROSION ENGINEER
CHIEF OF CONSTRUCTION
BIOENVIRONMENTAL ENGINEER
ENVIRONMENTAL ENGINEER
GROUND SAFETY
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SHEET TITLE
REAL ESTATE REQUIREMENTS
RETRACEMENT SURVEY MAP
OF
ANDERSEN VOR ANNEX (AJKZ)
MUNICIPALITY OF TUMON-TAMUNING
TERRITORY OF GUAM, M.I.

Drawn	Date
MDV/BKS	NOV. 1995
Checked	Scale
RCL, RCP	1 INCH = 300 FEET

SHEET 1 OF 2

REFERENCE:
NAVFAC DWG. NO. 7313463, REAL ESTATE REQUIREMENTS, ANDERSEN VOR ANNEX AJKD, GUAM LAND USE PLAN RELEASABLE LANDS, PREPARED BY RLS NO. 33.

SURVEY NOTES:
1. THE RETRACEMENT SURVEY WAS BASED ON FOUND LACC MONUMENT AS SHOWN 1945 GRID THEN TIED TO EXISTING GGTN 3.1 AND GGTN 3.2 GRID.
2. ALL DISTANCES, DIMENSIONS AND COORDINATES SHOWN HEREON ARE IN FEET AND DECIMALS THEREOF.
3. COORDINATES, BEARINGS AND DISTANCES AS SHOWN ARE 1945 AND 1963 GRIDS RESPECTIVELY.

SYMBOLS/LEGEND:
- GUAM GEODETIC TRIANGULATION NET (GGTN) STATION AS NOTED
- CORNER NOT RETRACED
- FND. 6"x6" CONC. MON. CENTERED WITH 2" DIAMETER BRASS, SET BY THE NAVY, LACC.
- 4"x4" CONC. MON. WITH PLASTIC CAP MARKED PLS 33, SET.
- FND. NO. 4 REBAR IN 8" DIAM. CONCRETE (TOP BROKEN)

GRAPHIC SCALE
300' 200' 100' 0' 300' 600'
SCALE: 1" = 300'-0"

Revision	By

DRAWING NUMBER
RE-95-07

CHNICAL DESCRIPTIONS

VED EASEMENT NE (AJKZ) (RECORD DATA)

OE	COORDINATES NORTHING	EASTING
3	182,775.42	190,152.45
	182,450.00	189,888.33
	182,448.09	189,812.68
	182,807.15	190,031.29
	182,898.82	190,222.82

= 0.7808 ACRES

PARCEL L-5 RESERVED EASEMENT FOR WATER LINE (AJKZ)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	EASTING
OGTN 3.1 TO 1	S 38° 49' 01" W	416.34	182,780.18	190,151.41
1 – 2	S 89° 58' 17" W	75.00	182,454.23	190,889.18
2 – 3	N 31° 51' 27" E	418.40	182,684.19	190,814.18
3 – 4	N 45° 13' 13" E	269.41	182,811.45	190,031.89
4 – 1	S 31° 24' 35" W	640.93	183,001.32	190,733.19

AREA = 34,002± SQ. FT. = 0.7806 ACRES
= 3,158± SQ. M.

EASEMENT FOR LINE, SANITARY O.L. LINE (AJKZ) S (RECORD DATA)

OE	COORDINATES NORTHING	EASTING
5	182,784.28	188,387.08
	182,145.82	188,917.31
	182,337.97	188,857.37
5	182,374.97	188,967.75
	182,609.41	187,574.67
	182,627.78	187,630.19
	182,898.00	187,783.38
7	182,733.45	187,786.83
37	182,927.11	188,203.82
4	183,384.32	189,413.36
	183,995.11	189,708.04
2	184,174.57	190,091.03
	184,203.11	190,360.80
	184,339.45	190,505.37
	184,368.98	190,518.21
66.99 1.78 3.89	184,359.39	190,541.33
	184,142.88	190,461.98
2	184,107.42	190,429.79
5	184,078.47	190,119.01
3	183,910.35	189,782.50
1	183,419.83	189,537.77
1	183,462.28	189,647.61
	183,772.74	190,327.59
3	183,780.68	190,396.21
	183,681.35	190,382.90
4	183,678.29	190,337.98
01	183,370.02	189,666.33
3	182,952.01	188,604.24
5	182,678.54	187,985.78
0	182,141.848	188,178.128
5	182,008.47	187,801.73
9	182,511.34	187,620.15
1	182,192.13	187,612.34

= 18.295 ACRES

PARCEL U RESERVED EASEMENT FOR POWER TRANSMISSION LINE, SANITARY SEWER LINE AND P.O.L. LINE (AJKZ)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	EASTING
OGTN 3.1 TO 1	S 78° 56' 36" W	3,294.33	182,780.18	190,151.41
1 – 2	N 38° 04' 50" W	101.86	182,148.41	188,918.33
2 – 3	N 64° 52' 27" E	121.89	182,330.71	188,855.32
3 – 4	N 62° 07' 00" E	888.45	182,282.49	188,966.70
4 – 5	N 63° 43' 37" E	51.90	182,603.52	187,575.45
5 – 6	N 65° 58' 13" E	187.91	182,630.92	187,630.98
6 – 7	N 25° 01' 07" W	40.13	182,699.31	187,784.32
7 – 8	N 65° 58' 13" E	478.57	182,735.68	187,767.34
8 – 9	N 68° 51' 00" E	1,298.57	182,930.54	188,204.44
9 – 10	N 26° 29' 14" E	660.24	183,398.36	189,413.67
10 – 11	N 63° 41' 52" E	427.11	183,989.29	189,708.14
11 – 12	N 84° 17' 00" E	292.02	184,178.55	190,091.03
12 – 13	N 42° 12' 25" E	184.13	184,307.64	190,381.59
13 – 14	N 23° 28' 45" E	22.18	184,344.02	190,505.29
14 – 15	S 67° 32' 08" E	25.02	184,373.54	190,518.12
15 – 16	Δ = 07°58'12" S 20° 05' 57" W	R = 1,665.93 L = 230.77 C = 230.59	184,363.97	190,541.24
16 – 17	S 42° 12' 25" W	47.89	184,147.43	190,462.00
17 – 18	S 84° 17' 00" W	312.32	184,111.96	190,429.82
18 – 19	S 63° 41' 52" W	375.28	184,080.65	190,118.06
19 – 20	S 26° 29' 14" W	848.18	183,914.56	189,782.63
20 – 21	N 68° 51' 00" E	117.75	183,423.92	189,558.14
21 – 22	N 65° 25' 48" E	747.51	183,468.41	189,647.98
22 – 23	N 79° 23' 12" E	89.81	183,777.22	190,327.79
23 – 24	S 07° 14' 59" W	105.06	183,790.05	190,396.40
24 – 25	S 79° 23' 12" W	25.37	183,685.86	190,363.14
25 – 26	S 65° 25' 48" W	738.34	183,681.18	190,358.21
26 – 27	S 68° 51' 00" W	1,160.01	183,374.18	189,686.72
27 – 28	S 65° 58' 13" W	678.99	182,955.84	188,604.65
28 – 29	S 19° 48' 37" E	568.33	182,679.86	187,968.53
29 – 30	S 70° 11' 23" W	400.00	182,140.27	188,179.14
30 – 31	N 19° 48' 37" W	536.53	182,009.70	187,802.62
31 – 32	S 62° 07' 00" W	887.46	182,514.48	187,620.98
32 – 1	S 64° 52' 27" W	104.94	182,192.98	187,013.33

AREA = 801,305± SQ. FT. = 18.3954 ACRES
= 74,444± SQ. M.

ED EASEMENT FOR NICAL LINE (AJKZ) S (RECORD DATA)

OE	COORDINATES NORTHING	EASTING
40	182,784.28	188,387.08
16	182,192.92	188,318.73
1	182,948.26	188,595.82
12	182,952.01	188,604.24
71	182,896.77	188,720.11
16	182,236.54	188,441.41

= 1.8541 ACRES

PARCEL UE-1 RESERVED EASEMENT FOR UNDERGROUND ELECTRICAL LINE (AJKZ)
1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	EASTING
OGTN 3.1 TO 1	S 72° 18' 30" W	1,922.62	182,780.18	190,151.41
1 – 2	N 20° 06' 16" E	805.04	182,195.91	188,219.72
2 – 3	N 65° 58' 13" E	9.22	182,951.89	188,596.44
3 – 4	N 68° 51' 00" E	124.22	182,955.65	188,604.68
4 – 5	S 20° 06' 16" W	809.71	183,000.47	188,720.71
5 – 1	S 70° 11' 23" W	130.38	182,240.10	188,442.39

AREA = 80,770± SQ. FT. = 1.8542 ACRES
= 7,504± SQ. M.

ANDERSEN
Air Force Base

PROJECT TITLE
BOUNDARY SURVEY FOR GUAM LAND USE PLAN (GLUP '77) ANDERSEN AFB, GUAM

APPROVED
BASE COMMANDER

RECOMMENDED
BASE CIVIL ENGINEER

SUBMITTED
CHIEF OF ENGINEER

CORROSION ENGINEER

CHIEF OF CONSTRUCTION

BIOENVIRONMENTAL ENGINEER

ENVIRONMENTAL ENGINEER

GROUND SAFETY

FIRE CHIEF

COMMUNICATIONS

USING AGENCY

SECTION CHIEF

PERRY ASSOCIATES, INC.
SURVEYING AND MAPPING SCIENCES
PHOTOGRAMMETRY-CONSULTING

P.O. BOX 4350, AGANA, GUAM 96910
TEL. NO. (671) 477-7300

SHEET TITLE
REAL ESTATE REQUIREMENTS
RETRACEMENT SURVEY MAP
OF
ANDERSEN VOR ANNEX (AJKZ)
MUNICIPALITY OF YIGO-TAMUNING
TERRITORY OF GUAM, M.I.

Drawn	Date
HDV/RLS	NOV. 1995
Checked	Scale
NO, RAP	

SHEET	OF
2	2

Revision	By

DRAWING NUMBER
RE-93-27

CHNICAL DESCRIPTIONS

ILY HOUSING 4 (AJKP) ES (RECORD DATA)

NCE	COORDINATES NORTHING	COORDINATES EASTING
3.83	186,256.09	182,225.19
3.33	182,227.97	186,857.37
98	181,478.00	185,349.74
5.02	181,727.15	185,187.65
59	182,606.94	184,701.82
77	182,742.01	184,433.21
56	183,080.43	183,826.04
2.28	183,088.14	183,083.28
3.86	184,871.19	183,234.88
12	185,708.40	182,815.01
3.43	185,719.99	183,400.02
30	187,388.76	183,352.66
1.41	187,484.44	183,450.57
1.32	188,549.62	185,255.47
3.26	187,734.27	185,950.42
53	187,136.87	187,036.27
92	186,616.95	186,749.76
1.36	186,499.40	186,868.61
53	184,825.55	185,935.82
103.92 7.93 7.93	184,364.56	185,302.61
1.54	184,341.78	185,318.68

= 396.4745 ACRES

ANDERSEN FAMILY HOUSING ANNEX NO. 4 (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 80° 31' 37" W	3,338.56	182,780.18	190,151.41
1 – 2	S 64° 52' 27" W	1,775.23	182,230.71	186,858.38
2 – 3	N 13° 31' 41" W	236.68	181,476.93	185,251.12
3 – 4	N 28° 58' 11" W	1,005.02	181,729.05	185,186.91
4 – 5	N 63° 14' 54" W	300.89	182,608.60	184,702.84
5 – 6	N 56° 14' 58" W	607.72	182,744.04	184,433.90
6 – 7	N 89° 38' 28" W	844.60	183,081.70	183,926.62
7 – 8	N 03° 28' 06" E	1,592.29	183,086.99	183,083.96
8 – 9	N 30° 56' 43" W	1,206.66	184,672.12	183,234.77
9 – 10	N 88° 58' 46" E	765.12	185,707.03	182,814.29
10 –11	N 01° 40' 23" W	1,649.45	185,721.01	183,399.28
11 – 12	N 49° 58' 46" E	180.00	187,369.76	183,351.11
12 – 13	N 58° 51' 33" E	2,061.41	187,485.51	183,488.95
13 – 14	S 40° 28' 13" E	1,071.32	188,551.56	185,253.33
14 – 15	S 61° 17' 26" E	1,236.35	187,736.58	185,948.67
15 – 16	S 28° 49' 49" W	393.61	187,141.71	187,034.82
16 – 17	S 44° 08' 20" E	167.89	186,621.65	186,748.56
17 – 18	S 29° 03' 47" W	1,814.35	186,501.14	186,863.45
18 – 19	S 53° 55' 10" W	783.33	184,827.82	185,935.52
19 – 20	Δ = 01°26'58" S 35° 21' 20" E	R = 1,103.92 L = 27.93 C = 27.93	184,366.50	185,302.44
20 – 1	S 36° 04' 50" E	2,614.34	184,343.72	183,318.60

AREA = 17,270,401± SQ. FT. = 396.4739 ACRES
= 1,604,479± SQ. M.

G-2 MENT (AJKP) ES (RECORD DATA)

NGE	COORDINATES NORTHING	COORDINATES EASTING
18	182,784.68	186,387.08
6	182,227.97	186,857.37
1.18	182,184.77	186,765.13
203.92 155.18 284.74	184,282.63	185,237.82
1.85	185,564.84	185,182.68
0	187,754.80	186,241.23
1.33	187,526.72	186,328.91
103.92 142.80 178.03	185,517.22	185,240.49
1.68	184,341.78	185,318.68
19	182,802.24	186,386.65

= 14.2088 ACRES

PARCEL G-2 RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 80° 31' 37" W	3,338.56	182,780.18	190,151.41
1 – 2	S 64° 52' 27" W	101.86	182,230.71	186,858.38
2 – 3	N 38° 04' 50" W	2,595.18	182,187.46	186,766.16
3 – 4	Δ = 64°29'37" N 03° 50' 02" W	R = 1,203.92 L = 1,355.16 C = 1,284.74	184,284.86	185,237.80
4 – 5	N 28° 24' 47" E	2,285.85	185,565.72	185,181.89
5 – 6	S 61° 17' 26" E	100.00	187,377.22	186,239.56
6 – 7	S 28° 24' 47" W	2,285.33	187,529.18	186,327.28
7 – 8	Δ = 64°29'37" S 03° 50' 02" E	R = 1,101.92 L = 1,241.60 C = 1,176.03	185,519.15	185,239.85
8 – 9	S 36° 04' 50" E	1,780.53	184,343.75	185,318.62
9 – 1	S 36° 04' 50" E	833.91	182,904.73	186,367.22

AREA = 816,035± SQ. FT. = 14.2088 ACRES
= 87,901± SQ. M.

F-1 MENT (AJKP) ES (RECORD DATA)

NGE	COORDINATES NORTHING	COORDINATES EASTING
19	182,784.68	186,387.08
	182,184.77	186,765.13
1.25	182,180.45	186,755.90
1.27	184,277.05	185,229.72
1.77	185,192.52	184,506.65
19	187,519.13	184,163.54
5	187,881.25	184,114.89
0	187,946.13	184,255.52
	187,771.22	184,285.67
5	187,759.67	184,218.86
	187,606.18	184,246.13
1.97	187,572.08	184,214.56
1	185,264.27	184,695.63
8	185,157.42	184,844.34
103.92 3.56 4.74	184,550.02	185,091.10
1.18	184,282.93	185,237.82

= 6.3452 ACRES

PARCEL F-1 RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 80° 04' 08" W	3,346.73	182,780.18	190,151.41
1 – 2	S 64° 52' 27" W	10.19	182,187.46	186,766.16
2 – 3	N 38° 04' 50" W	2,595.25	182,183.13	186,756.93
3 – 4	N 36° 21' 08" W	1,136.27	184,278.97	185,229.71
4 – 5	N 09° 22' 57" W	2,418.77	185,184.11	184,556.19
5 – 6	N 09° 48' 40" W	288.29	187,580.52	184,161.87
6 – 7	N 58° 51' 33" E	184.25	187,862.63	184,113.09
7 – 8	S 09° 48' 40" E	172.49	187,947.57	184,253.67
8 – 9	S 80° 11' 20" W	68.00	187,772.67	184,283.91
9 – 10	S 09° 48' 40" E	155.75	187,761.09	184,216.91
10 –11	S 48° 22' 42" W	42.21	187,607.61	184,243.45
11 – 12	S 09° 22' 57" E	2,343.97	187,578.49	184,212.69
12 – 13	S 24° 40' 13" E	117.56	185,265.88	184,595.01
13 – 14	S 36° 21' 08" E	753.88	185,169.05	184,644.08
14 – 15	Δ = 14°32'30" S 28° 48' 35" E	R = 1,203.92 L = 305.55 C = 304.74	184,551.88	185,090.84
15 – 1	S 36° 04' 50" E	2,595.13	184,284.86	185,237.80

AREA = 232,826± SQ. FT. = 5.3450 ACRES
= 21,630± SQ. M.

F-2 MENT (AJKP) S (RECORD DATA)

ICE	COORDINATES NORTHING	COORDINATES EASTING
31	189,123.81	186,454.82
	187,771.22	184,285.67
	187,820.49	184,277.18
	187,850.99	184,454.07
	188,045.70	184,420.50
	188,073.43	184,468.46
	187,810.21	184,511.84

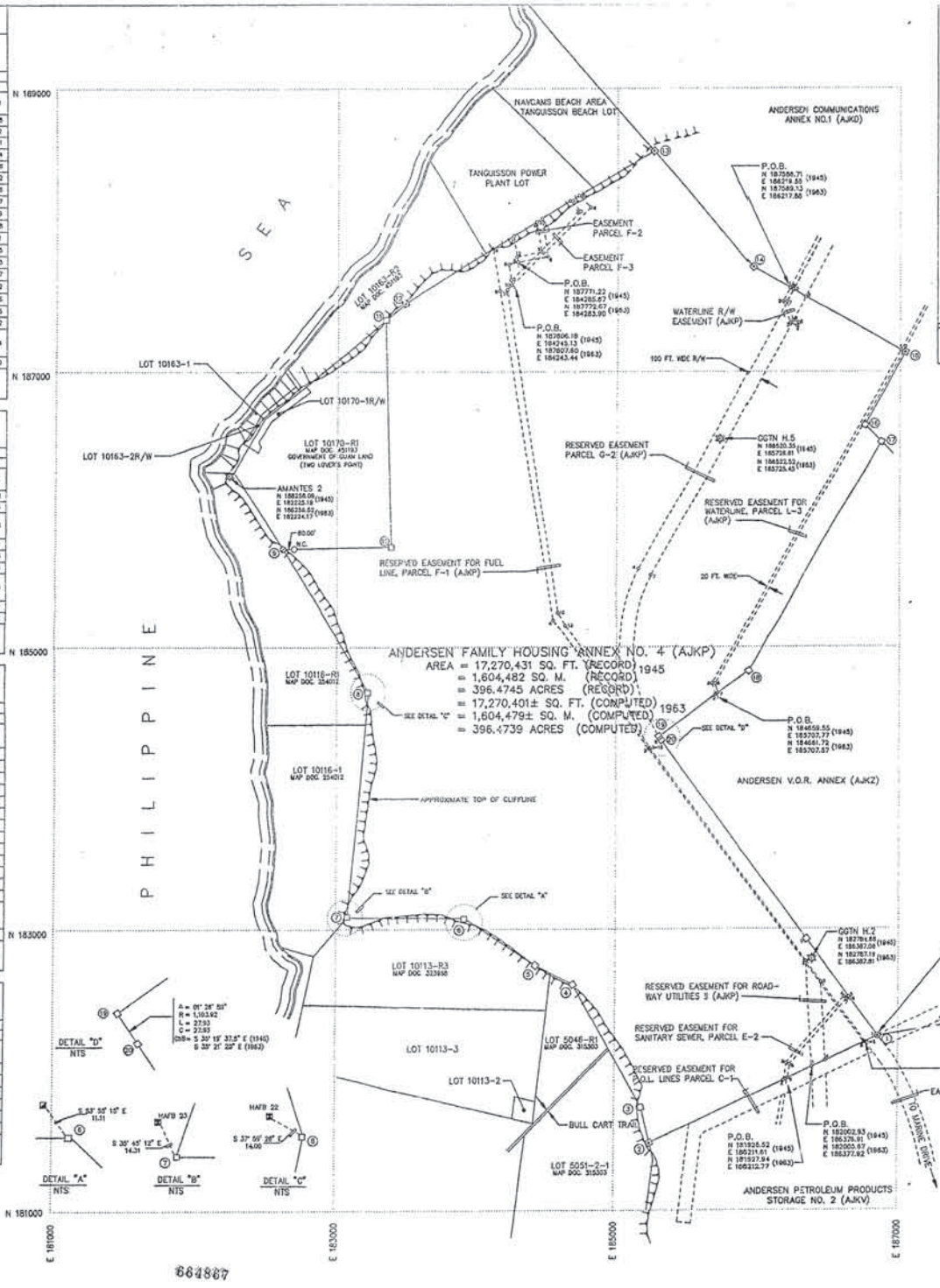
= 0.5014 ACRES

PARCEL F-2 RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	N 49° 36' 23" W	7,704.07	182,780.18	190,151.41
1 – 2	N 09° 48' 40" W	50.00	187,772.67	184,283.90
2 – 3	N 80° 11' 20" E	179.50	187,821.94	184,275.38
3 – 4	N 09° 48' 40" W	197.88	187,852.52	184,452.26
4 – 5	N 58° 51' 33" E	53.68	188,047.21	184,418.59
5 – 6	S 09° 48' 40" E	247.10	188,074.97	184,464.53
6 – 1	S 80° 11' 20" W	229.50	187,811.78	184,510.05

AREA = 21,842± SQ. FT. = 0.5014 ACRES
= 2,029± SQ. M.

SEE SHEET 2 FOR TECHNICAL DESCRIPTIONS OF:
1. PARCEL F-3 RESERVED EASEMENT (AJKP)
2. PARCEL E-2 RESERVED EASEMENT (AJKP)
3. PARCEL L-3 RESERVED EASEMENT (AJKP)
4. RESERVED EASEMENT FOR ROADWAY UTILITIES II (AJKP)
5. WATER LINE RIGHT OF WAY EASEMENT INSIDE HARMON VILLAGE (AJKP)



REFERENCE MAPS:

1. REAL ESTATE REQUIREMENTS, ANDERSEN AFB HARMON ANNEX COMPLEX & NAVCAMS WESTPAC, GUJP RELEASABLE LANDS, NAVFAC DRAWING No. 7313481 SHEET 2 OF 8/SHEETS.
2. PROPERTY PLAN, TANGUISSON POINT STEAM POWER PLANT UNIT No. 2, NAVFAC DRAWING No. 1102205
3. PARCELLING & SEVERANCES OF LOTS 10163 & 10170 (PORTION OF ESTATE 103 REM) PREPARED BY R.L.S. No. 14, LM. No. 300–FY91, DOC. No. 451183 ;
4. RETRACEMENT & PARCELLING OF LOT 10118, PREPARED BY R.L.S. No. 16, LM. No. 707–FY74, DOC. No. 254012
5. PARCELLING SURVEY OF BASIC LOT # 10113–R3, PREPARED BY R.L.S. No. 24, LM. No. 307–FY81 DOC. No. 323868
6. RETRACEMENT SURVEY OF LOTS 5046–R1 & 5051–2–1 PREPARED BY R.L.S. No. 24, LM. No. 241–FY80, DOC. No. 315303

SURVEY NOTES:

1. THIS RETRACEMENT SURVEY WAS BASED ON FOUND L&OC MONUMENTS AS SHOWN 1945 GRID, THEN TIED TO EXISTING GGTN 3.1 AND GGTN 3.2 1963 GRIDS.
2. ALL DISTANCES, DIMENSIONS AND COORDINATES SHOWN HEREON ARE IN FEET AND DECIMALS THEREOF.
3. COORDINATES, BEARINGS AND DISTANCES AS SHOWN ARE 1945 AND 1963 GRIDS RESPECTIVELY.

SYMBOLS/LEGEND:

- GUAM GEODETIC TRIANGULATION NET (GGTN) STA. AS NOTED
- INACCESSIBLE CORNER
- SET NO. 4 REBAR WITH PLASTIC CAP MARKED RLS 33 ON CORAL ROCK OUTCROP AS WITNESS CORNER (W.C.)
- CORNER NOT RETRACED
- FND. 4"x4" CONC. MON. MARKED RLS 3
- FND. 6"x6" CONC. MON. CENTERED WITH 2" DIAMETER BRASS, SET BY THE NAVY, L&OC
- FOUND SPIKE IN CONCRETE
- 4"x4" CONC. MON. WITH PLASTIC CAP MARKED RLS 33, SET
- FND. NO. 4 REBAR IN 6" DIAMETER CONCRETE (TOP BROKEN)
- FND. BRASS IN CONCRETE SET BY U.S. ARMY CORPS OF ENGINEERS 1949 MARKED HAFB 22 AND HAFB 23 AS NOTED.

GRAPHIC SCALE
400' 200' 0' 400' 800'
SCALE: 1" = 400'–0"

ANDERSEN Air Force Base

PROJECT TITLE
BOUNDARY SURVEY FOR GUAM LAND USE PLAN (GLUP 77)
ANDERSEN AFB, GUAM

APPROVED
BASE COMMANDER
RECOMMENDED
BASE CIVIL ENGINEER
SUBMITTED
CHIEF OF ENGINEER
CORROSION ENGINEER
CHIEF OF CONSTRUCTION
BIOENVIRONMENTAL ENGINEER
ENVIRONMENTAL ENGINEER
GROUND SAFETY
FIRE CHIEF
COMMUNICATIONS
USING AGENCY
SECTION CHIEF

PERRY ASSOCIATES, INC.
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P.O. BOX 4330, AGANA, GUAM 96910
TEL. NO. (671) 477–7300

SHEET TITLE
REAL ESTATE REQUIREMENTS RETRACEMENT SURVEY MAP OF ANDERSEN FAMILY HOUSING ANNEX No. 4 (AJKP)
MUNICIPALITIES OF TAMUNING & DEDEDO
TERRITORY OF GUAM, M.I.

Drawn	Date
NDV/RLS	NOV. 1995
Checked	Scale
NCL RGP	1 INCH = 400 FEET

SHEET 1 OF 2

Revision	By

DRAWING NUMBER
RE–95–04

664887

HNICAL DESCRIPTIONS

3 NT (AJKP) RECORD DATA)

COORDINATES	
NORTHING	EASTING
189,123.81	186,454.82
187,606.26	184,245.13
187,641.78	184,238.88
188,119.01	184,740.27
188,189.46	184,656.73
188,232.65	184,730.77
188,154.73	184,821.30

.7211 ACRES

PARCEL F-3 RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	N 50° 44' 51" W	7,829.42	182,780.18	190,151.41
1 – 2	N 09° 48' 40" W	26.11	187,607.80	184,243.44
2 – 3	N 48° 22' 42" E	692.13	187,643.19	184,237.29
3 – 4	N 49° 11' 53" W	107.77	188,120.66	184,736.33
4 – 5	N 58° 51' 53" E	84.14	188,189.10	184,656.75
5 – 6	S 49° 11' 53" E	119.64	188,234.82	184,728.76
6 – 1	S 46° 22' 42" W	795.53	188,156.44	184,819.33

AREA = 31,409± SQ. FT. = 0.7211 ACRES
= 2,918± SQ. M.

2 NT (AJKP) RECORD DATA)

COORDINATES	
NORTHING	EASTING
181,973.02	186,428.71
181,925.62	186,311.81
181,920.32	186,200.94
182,021.89	186,213.05
182,502.04	186,614.24
182,510.89	186,651.43
182,493.06	186,664.19
182,464.22	186,625.33
182,013.81	186,232.21
181,930.82	186,222.28

.3450 ACRES

PARCEL E-2 RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 77° 47' 26" W	4,029.79	182,780.18	190,151.41
1 – 2	S 84° 52' 27" W	11.78	181,927.94	186,212.77
2 – 3	N 06° 47' 03" E	102.08	181,922.94	186,202.10
3 – 4	N 39° 15' 03" E	625.71	182,024.30	186,214.16
4 – 5	N 78° 35' 40" E	38.23	182,504.67	186,615.11
5 – 6	S 38° 04' 50" E	21.68	182,513.53	186,652.30
6 – 7	S 78° 35' 40" W	39.94	182,496.01	186,665.07
7 – 8	S 38° 51' 03" W	613.13	182,466.75	186,626.22
8 – 9	S 06° 47' 03" W	83.69	182,016.04	186,223.33
9 – 1	S 84° 52' 27" W	11.78	181,932.94	186,223.44

AREA = 15,033± SQ. FT. = 0.3451 ACRES
= 1,397± SQ. M.

3 NT (AJKP) RECORD DATA)

COORDINATES	
NORTHING	EASTING
182,784.58	186,387.08
184,659.65	185,707.77
184,653.15	185,698.95
184,731.39	185,851.10
187,186.09	187,001.20
187,148.97	187,018.74
184,728.48	185,702.28
184,663.75	185,716.57

2998 ACRES

PARCEL L-3 RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	N 67° 03' 07" W	4,625.75	182,780.18	190,151.41
1 – 2	S 53° 55' 10" W	10.88	184,661.72	185,707.57
2 – 3	N 12° 54' 04" W	80.26	184,655.31	185,696.77
3 – 4	N 28° 31' 02" E	2,762.52	184,733.54	185,850.85
4 – 5	S 61° 17' 26" E	20.00	187,160.90	187,999.74
5 – 6	S 28° 31' 02" W	2,754.89	187,151.29	187,017.28
6 – 7	S 12° 54' 04" E	64.14	184,730.84	185,702.04
7 – 1	S 53° 55' 10" W	10.88	184,666.12	185,716.36

AREA = 56,618± SQ. FT. = 1.2998 ACRES
= 5,258± SQ. M.

TIES II T (AJKP) ECORD DATA)

COORDINATES	
NORTHING	EASTING
181,973.02	186,428.71
182,002.03	186,376.91
182,734.70	186,364.82
182,594.92	186,467.15
182,049.42	186,478.15

4854 ACRES

ROADWAY UTILITIES II RESERVED EASEMENT (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	S 78° 24' 04" W	3,852.15	182,780.18	190,151.41
1 – 2	N 00° 58' 30" W	731.87	182,005.87	186,377.92
2 – 3	S 38° 04' 50" E	173.89	182,737.43	186,385.46
3 – 4	S 00° 58' 30" E	844.77	182,595.89	186,467.67
4 – 1	S 84° 52' 17" W	109.58	182,052.20	186,477.14

AREA = 63,833± SQ. FT. = 1.4654 ACRES
= 5,930± SQ. M.

AY EASEMENT GE (AJKP) ECORD DATA)

COORDINATES	
NORTHING	EASTING
186,520.05	185,726.81
187,586.77	186,219.55
187,499.09	186,171.60
187,352.12	186,214.60
187,328.87	185,757.45
187,345.21	185,267.05
187,365.69	186,231.46
187,496.75	186,193.12
187,577.09	186,237.09

.310 ACRES

WATER LINE RIGHT OF WAY EASEMENT INSIDE HARMON VILLAGE (AJKP) 1963 GRID VALUES

COURSE NO.	BEARING	DISTANCE	COORDINATES NORTHING	COORDINATES EASTING
GGTN 3.1 TO 1	N 39° 18' 55" W	6,212.79	182,780.18	190,151.41
1 – 2	S 28° 39' 47" W	99.58	187,589.13	186,317.66
2 – 3	S 16° 20' 13" E	153.13	187,501.49	186,169.95
3 – 4	S 61° 20' 13" E	48.85	187,354.54	186,213.02
4 – 5	N 28° 39' 47" E	20.00	187,331.11	186,255.89
5 – 6	N 61° 20' 13" W	40.57	187,348.68	186,265.48
6 – 7	N 16° 20' 13" W	136.55	187,368.12	186,229.88
7 – 8	N 28° 39' 47" E	91.58	187,499.15	186,191.47
8 – 1	N 61° 20' 13" W	20.00	187,579.51	186,335.40

AREA = 5,705± SQ. FT. = 0.1310 ACRES
= 530± SQ. M.

PACIFIC AIR FORCES

ANDERSEN
Air Force Base

PROJECT TITLE
BOUNDARY SURVEY FOR GUAM LAND USE PLAN (GLUP '77)
ANDERSEN AFB, GUAM

APPROVED
BASE COMMANDER

RECOMMENDED
BASE CIVIL ENGINEER

SUBMITTED
CHIEF OF ENGINEER

CORROSION ENGINEER

CHIEF OF CONSTRUCTION

BIOENVIRONMENTAL ENGINEER

ENVIRONMENTAL ENGINEER

GROUND SAFETY

FIRE CHIEF

COMMUNICATIONS

USING AGENCY

SECTION CHIEF

PERRY ASSOCIATES, INC.
SURVEYING AND MAPPING SCIENCES
PHOTOGRAMMETRY-CONSULTING

RONALD G. PERRY CERTIFICATE 13 GUAM LAND SURVEYOR

P.O. BOX 4330, AGANA, GUAM 96910
TEL. NO. (671) 477-7300

SHEET TITLE
REAL ESTATE REQUIREMENTS
RETRACEMENT SURVEY MAP
OF
ANDERSEN FAMILY HOUSING
ANNEX No. 4 (AJKP)
MUNICIPALITIES OF TAMUNING & DEDEDO
TERRITORY OF GUAM, M.I.

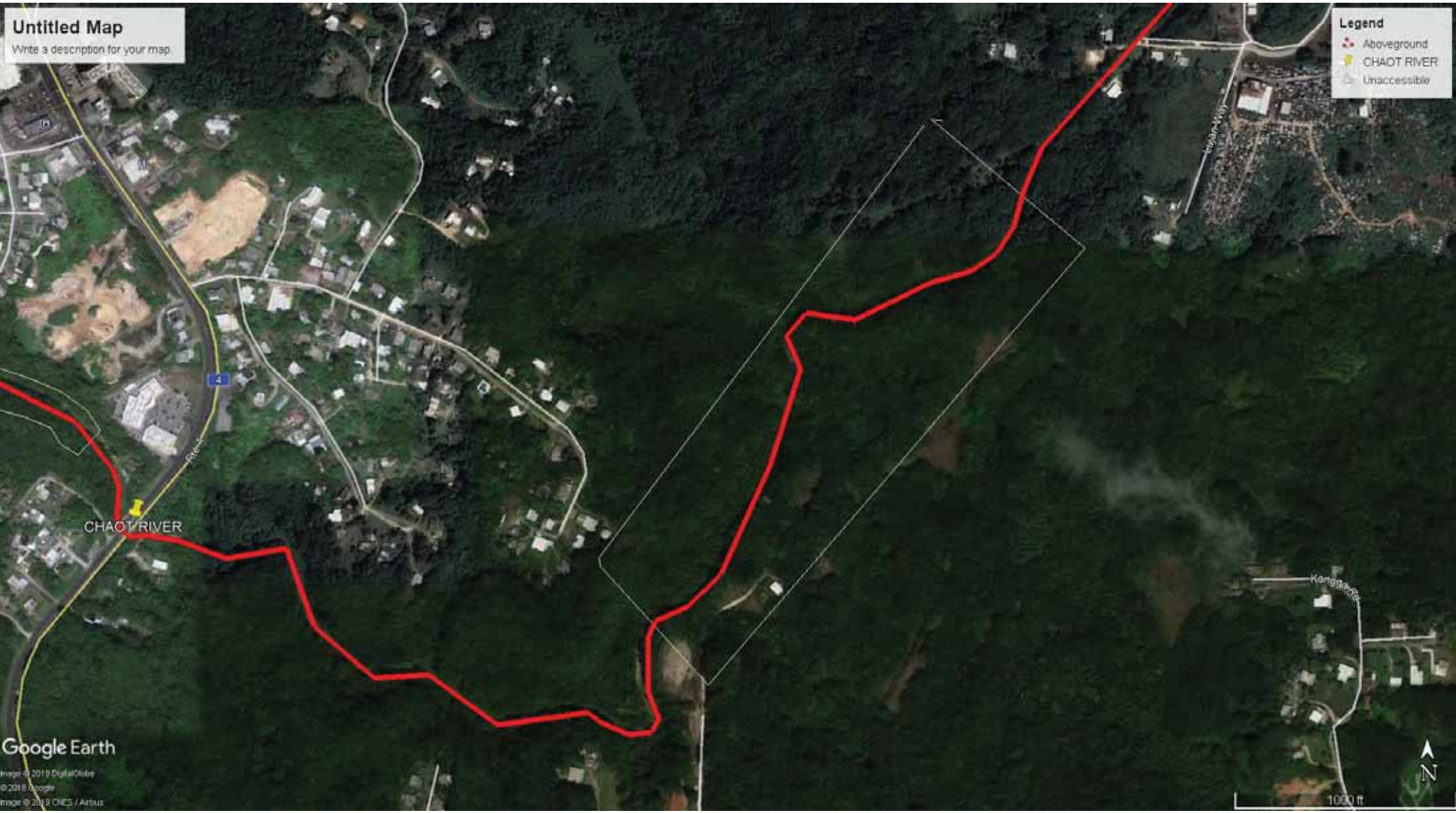
Drawn	MVS/ERS	Date	NOV. 1995
Checked	MCL ROP	Scale	

SHEET 2 OF 2

Revision	By

DRAWING NUMBER
RE-55-94

684867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Write a description for your map
Legend
Aboveground
CHAOT RIVER
Unaccessible
CHAOT RIVER
Google Earth
1000 ft
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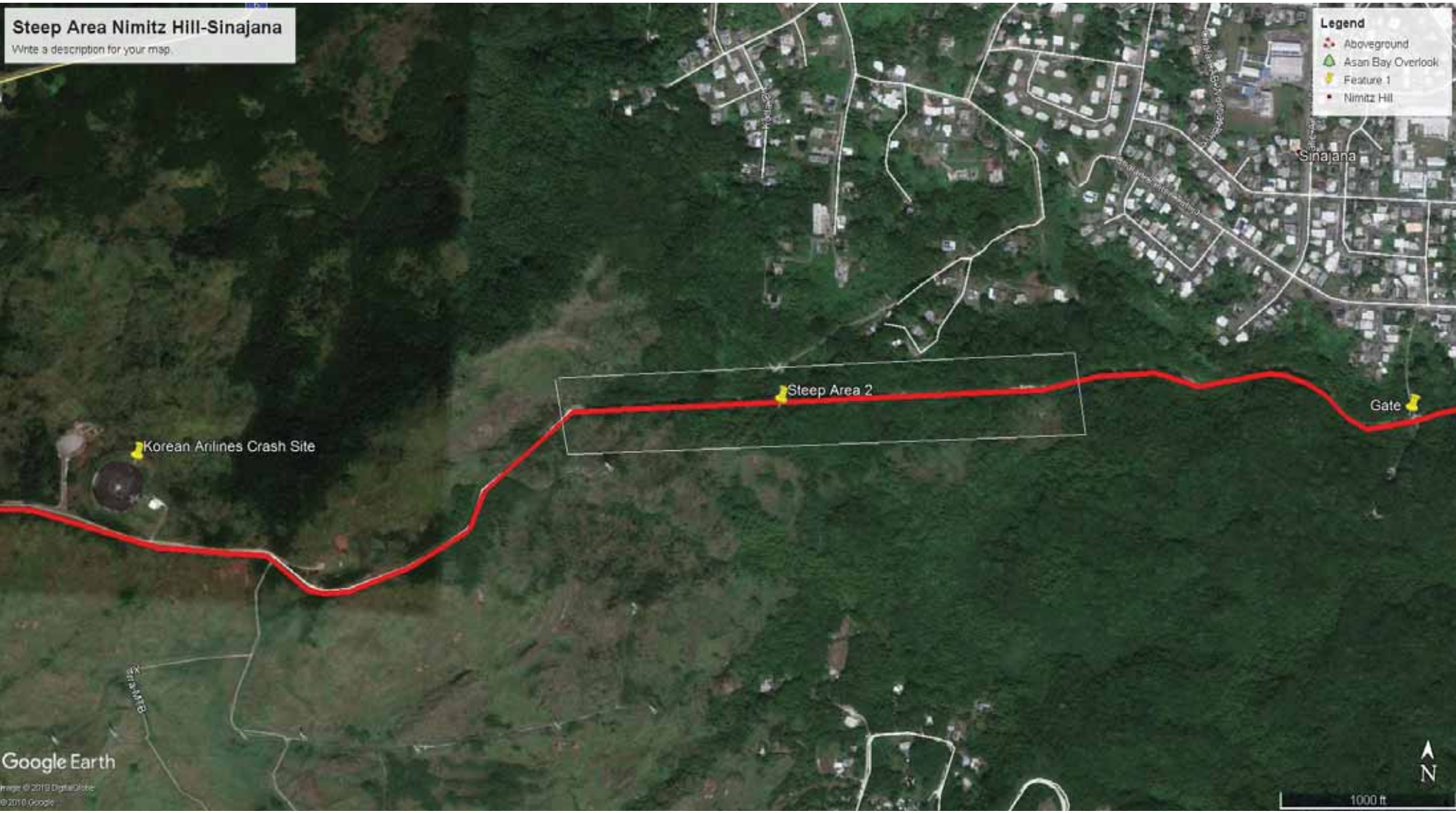
Steep Area Nimitz Hill-Sinajana
Write a description for your map.
Legend
Aboveground
Asan Bay Overlook
Feature 1
Nimitz Hill
Sinajana
Steep Area 2
Gate
Korean Arilines Crash Site
Google Earth
1000 ft
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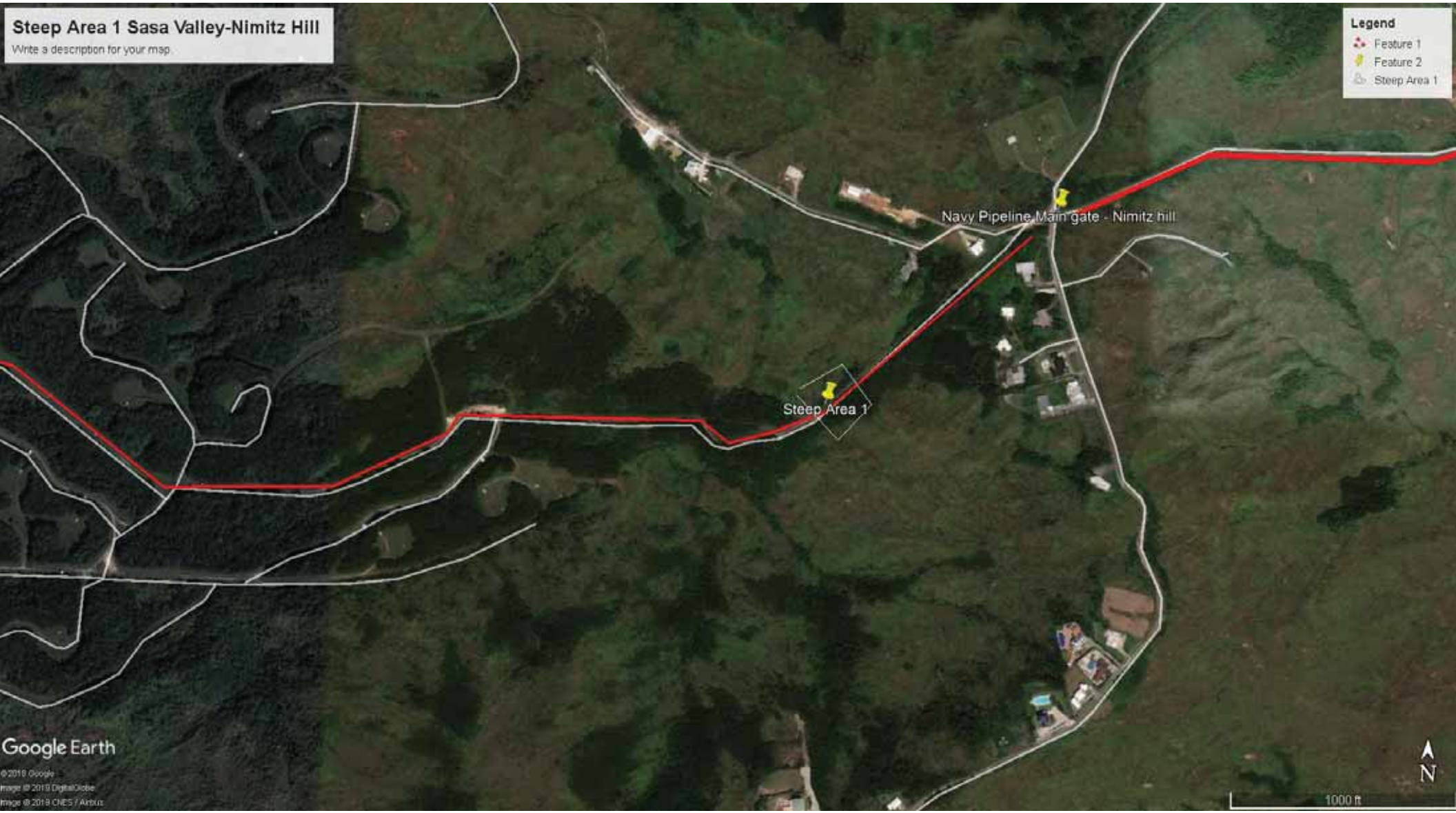
Steep Area 1 Sasa Valley-Nimitz Hill
Write a description for your map.
Legend
Feature 1
Feature 2
Steep Area 1
Navy Pipeline Main gate - Nimitz hill
Steep Area 1
Google Earth
©2018 Google
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Image ©2018 CNES / Airbus
N
1000 ft

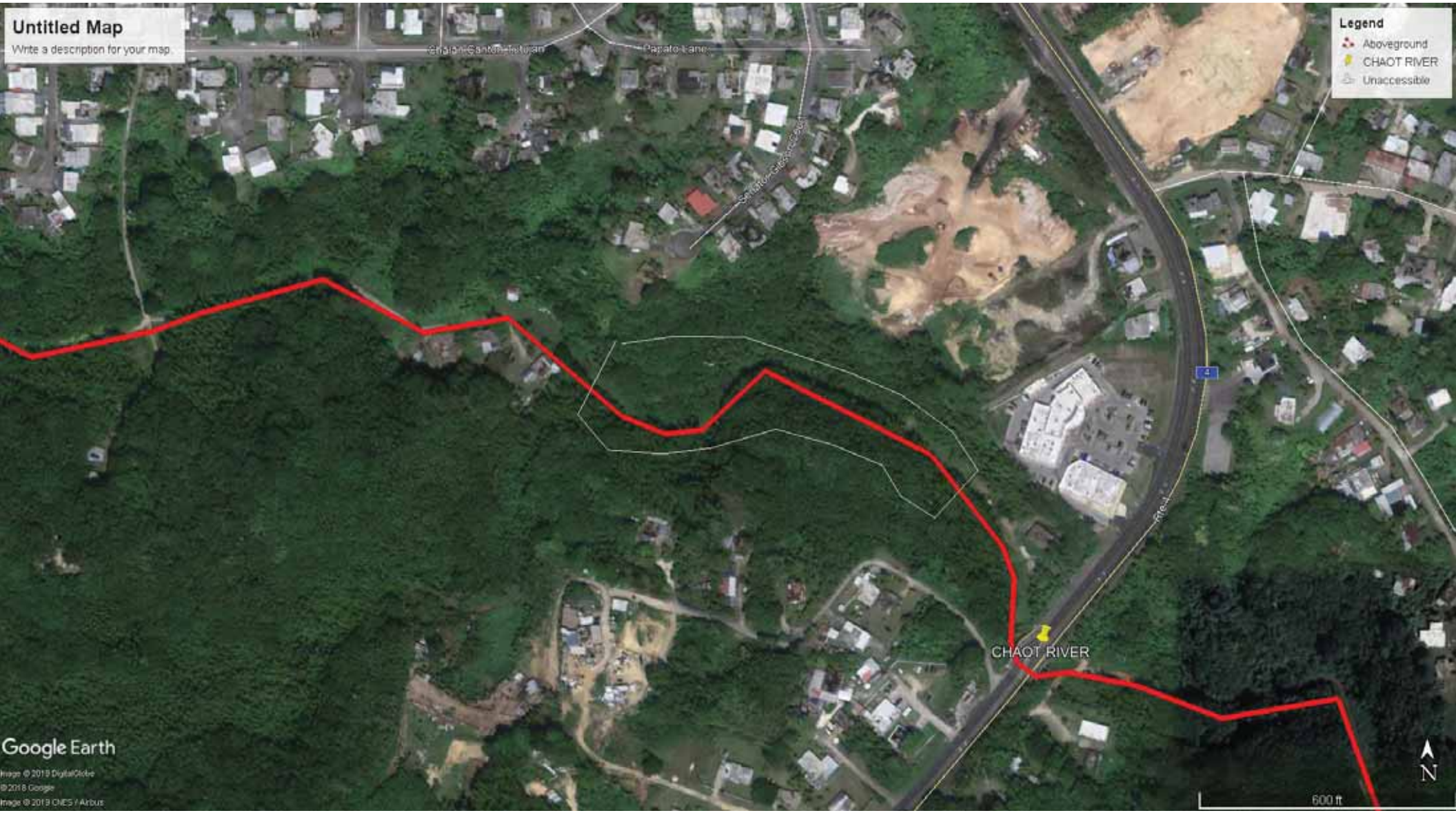
Untitled Map
Write a description for your map.
Legend
Aboveground
CHAOT RIVER
Unaccessible
Papato Lane
CHAOT RIVER
Google Earth
Image © 2019 DigitalGlobe
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Image © 2019 CNES / Airbus
600 ft
N

The test borings were drilled utilizing a truck-mounted, hollow stem auger drilling equipment with an 8-inch diameter hollow stem auger drill head, and is capable of obtaining undisturbed subsurface soil and rock samples.

Table 1 below summarizes the test boreholes performed and their approximate depths and coordinates:

Table 1: Summary of Test Borings, Depths, and Approximate Coordinates

Boring No	Depth feet	Approximate Coordinates	
		Latitude	Longitude
BH-1	33.5	13°31'32.19"	144°48'58.76"
BH-2	30	13°31'33.40"	144°49'02.65"
BH-3	27	13°31'34.60"	144°49'06.54"
BH-4	30	13°31'35.75"	144°49'10.43"
BH-5	33.5	13°31'39.59"	144°49'09.27"
BH-6	30	13°31'38.40"	144°49'05.33"
BH-7	33.5	13°31'37.23"	144°49'01.44"
BH-8	33.5	13°31'36.08"	144°48'57.64"
BH-9	30	13°31'39.85"	144°48'56.41"
BH-10	30	13°31'41.00"	144°49'00.32"
BH-11	30	13°31'42.16"	144°49'04.22"
BH-12	30	13°31'43.38"	144°49'08.06"

Note: The coordinates were obtained from a Garmin hand-held device.

During the subsurface exploration, GET's engineering staff was at the project site full-time logging the subsurface materials that were encountered in the test boreholes and also obtaining undisturbed and disturbed subsurface soil and rock samples for visual examination, classification, and laboratory testing. The logs of the test borings are presented on Plates 2 through 13.

While obtaining the subsurface soil and rock samples in the test boreholes, GET also conducted the standard penetration test (SPT) or N-values. The N-value is defined as the number of blows per one foot of penetration into