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BENJAMIN CRUZ <speaker@senatorbjcruz.com>

MC Fwd: GWA WORK SESSION FEB 20 / MEETING MATERIALS

1 message

BENJAMIN CRUZ <speaker@senatorbjcruz.com> Tue, Feb 20, 2018 at 4:21 PM
To: 34th Guam Legislature Clerks <clerks@guamlegislature.org>
Cc: Rennae Meno <rennae@guamlegislature.org>

02/20/18	02/20/18	Consolidated Commission on Utilities	GWA Work Session2.20.18*	34-18-1555

---------- Forwarded message ----------
From: **Bernadette Lou Sablan** <l.sablan@gpagwa.com>
Date: Tue, Feb 20, 2018 at 3:57 PM
Subject: GWA WORK SESSION FEB 20 / MEETING MATERIALS
To: "Andy Niven (ndynvn@yahoo.com)" <ndynvn@yahoo.com>, Angelica Perez <aperez@amibrokers.com>, Ann Borja - GWA <annborja@guamwaterworks.org>, "Annmarie Muna (amuna@ambrokers.com)" <amuna@ambrokers.com>, Artemio S Perez <aperez@gpagwa.com>, BENJAMIN CRUZ <speaker@senatorbjcruz.com>, "Cameron Mulka (cimiculka@guampdn.com)" <cimiculka@guampdn.com>, "Charlene Calvo (charlene.calvo@ipehq.com)" <charlene.calvo@ipehq.com>, Chilang F Unpingco <cfejeran@gpagwa.com>, "Fred Horecky (horeckylaw@teleguam.net)" <horeckylaw@teleguam.net>, "Gaynor Delano (gdumat-ol@guam.gannett.com)" <gdumat-ol@guam.gannett.com>, GIlda Mafnas <gildam@guamwaterworks.org>, Governor's Office <joy.unpingco@guam.gov>, "Greg P. Cruz" <gpcruz@guamwaterworks.org>, Heidi Ballendorf <heidi@guamwaterworks.org>, "Jams Y Kim (pacguam@gmail.com)" <pacguam@gmail.com>, "Jeff Johnson (jeffcharjohnson@hotmail.com)" <jeffcharjohnson@hotmail.com>, Jennifer G Sablan <jsablan@gpagwa.com>, "Jessica Peterson (webmaster@theguamguide.com)" <webmaster@theguamguide.com>, "Jessy Gogue (ocp.mayor@gmail.com)" <ocp.mayor@gmail.com>, "Joe John Mantanona (joejohnmantanona@gmail.com)" <joejohnmantanona@gmail.com>, "John O'Connor (john@postguam.com)" <john@postguam.com>, "John Reigel (jriegel@brwncald.com)" <jriegel@brwncald.com>, Joyce N Sayama <jsayama@gpagwa.com>, Karla Tydingco <ktydingco@guamwaterworks.org>, "Louella Losinio (louella@postguam.com)" <louella@postguam.com>, Manny Apuron <mapuron@guamwaterworks.org>, "Maripaz N. Perez" <mnperez@gpagwa.com>, "Michael White (whitema@cdmsmith.com)" <whitema@cdmsmith.com>, "Nestor Licanto (nestor@kuam.com)" <nestor@kuam.com>, "PDN Newsroom (news@guampdn.com)" <news@guampdn.com>, "Peter Montinola (peter@isuguam.com)" <peter@isuguam.com>, Selma HG Blas <sblas@gpagwa.com>, "Telena Nelson (senatortcnelson@gmail.com)" <senatortcnelson@gmail.com>, "Therese Terlaje (senatorterlajeguam@gmail.com)" <senatorterlajeguam@gmail.com>

GC#34-18-1555
Speaker Benjamin J.F. Cruz

Hi everyone,

FEB 20 2018
Time: 421 [ ] AM [ ] PM File No.
Received By:

Attached is meeting materials for today's GWA Work Session.

Best,

B. Lou Sablan

Board Secretary

Consolidated Commission on Utilities

Admin Asst., Legal Counsel, GPA

GLORIA B. NELSON PUBLIC SERVICE BLDG.

3RD Floor, Executive Division

688 Route 15, Mangilao, GU 96913

P.O. Box 2977, Hagatna, GU 96932

Tel: (671) 648-3002

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Website: http://guamccu.org/

http://guampowerauthority.com/home.html

http://guamwaterworks.org/

2018 FEB 20 PM 4:27

GC 1555

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OFFICE OF SPEAKER BENJAMIN J.F. CRUZ

Committee on Appropriations and Adjudication

I Mina'trentai Kuattro na Liheslaturan Guahan

Guam Congress Building | 163 Chalan Santo Papa | Hagatna, GU 96910

T: **(671) 477-2520**/1 | F: **(671) 477-2522** | **www.senatorbjcruz.com**

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671) 648-3002 | guamccu.org

GUAM WATERWORKS AUTHORITY WORK SESSION

CCU February 20, 2018

AGENDA

1. **ISSUES FOR DECISION**
   - 1.1 **Approval of Change Order No. 4 for the Agat-Santa Rita WWTP Upgrade Construction Management Contract / Resolution 17-FY2018**
   - 1.2 **Approval of 2010 Bond Proceeds Reallocation / Resolution 18-FY2018**
   - 1.3 **Approval of Contract for the NDWWTP Outfall Effluent Diffuser Installation Project / Resolution 19-FY2018**

2. **GM REPORT**

3. **ISSUES FOR DISCUSSION**

4. **DIVISION REPORTS**
   - 4.1 **Communications**
   - 4.2 **Compliance & Safety**
   - 4.3 **Customer Service**
   - 4.4 **Engineering**
   - 4.5 **Finance**
   - 4.6 **Operations**

5. **ANNOUNCEMENTS**
   - 5.1 **Next CCU Meetings: GPA Work Session: 2/22/18; CCU Meeting: 2/27/18**

6. **ADJOURNMENT**

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 17-FY2018
Relative to Approval of Change Order No. 4 for the Agat Santa Rita Wastewater Treatment Plant Upgrade Construction Management Contract

What is the project's objective and is it necessary and urgent?
The objective of the Change Order is to continue construction management services at the Agat Santa Rita WWTP construction project until such time the contractor has completed all required work. GWA has executed an extension to the contractor's contract completion date to March 2018, and has adjusted the CM's contract accordingly. The contractor, Sumitomo Mitsui Construction Corp (SMCC), recently presented a proposed construction schedule that extends the current contract completion date. GWA is currently assessing the contractual implications of the Contractor's failure to meet the current construction schedule that notwithstanding, CM services will be required on the project until all work is completed. The completion of the construction work is the responsibility of SMCC however, GWA must ensure that CM services also continues, and thus the resolution before the CCU is to approve a Change Order that will extend the required CM services possibly to July or August of 2018 and will necessarily increase the authorized CM contract amount.

The Change order would also cover work related to construction activities associated with the installation of the 21-inch diameter gravity sewer line on the A-SR WWTP site that is part of the Baza Gardens Pumping and Conveyance project but which is not currently contracted out for installation.

Where is the location?
New Agat Santa Rita WWTP

How much will it cost?
GWA management seeks CCU approval of Change Order No. 4 with GHD, Inc. in an amount not-to-exceed Eight Hundred Eighty-Two Thousand Six Hundred Thirty-One Dollars ($882,631.00). The change order will be negotiated to an appropriate amount and expended on a Time and Materials basis.

When will it be completed?
The anticipated completion of the construction activities by the contractor is May 2018 however the Change Order covers additional services up unto August 2018.

What is the funding source?
Funding for the Change Order will be from the bond funds under the line item - WW 11-08 "Agat/ Sta Rita STP Replacement" and/or funds derived from Liquidated Damages assessed the Contractor and will be applied to pay CM services.

The RFP/BID responses (if applicable):
NOT APPLICABLE

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

RESOLUTION NO. 17–FY2018

RELATIVE TO CHANGE ORDER NO. 4 FOR THE AGAT SANTA RITA WASTEWATER TREATMENT PLANT UPGRADES CONSTRUCTION MANAGEMENTCONTRACT

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities ("CCU") has plenary authority over financial, contractual and policy matters relative to the Guam Waterworks Authority ("GWA"); and

WHEREAS, the Guam Waterworks Authority ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA currently has a number of critical Court Order ("CO") projects including construction of the new Agat Santa Rita Wastewater Treatment Plant that is necessary for the plant to achieve compliance with the GWA's NDPES permit, eliminate by-passes at the old Agat wastewater treatment plant, ensure that solids generated by the WWTP are adequately stabilized and dewatered, and to comply with sludge and biosolids requirements 40 C.F.R. Part 503 as stated in Paragraph 11 of the 2011 Court Order; and

WHEREAS, GWA executed contracts with Sumitomo Mitsui Construction Company (SMCC) to construct the new WWTP and GHD, Inc. to provide construction management services as a means to work towards achieving the Court Order requirements; and

WHEREAS, GWA has executed a few Change Orders to the SMCC contract with the latest one extending the phase II construction completion deadline to March 25, 2018 to address SMCC's claims related to rain delays; and

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WHEREAS, via CCU Resolution No. 48-FY2017 executed in July of 2017, the CCU also authorized the continuation of CM services with GHD. Inc. from August 15, 2017 through the then anticipated March 31, 2018 construction completion date, after which GWA executed Change Orders 2 and 3 in the total amount of One Million Fourteen Thousand Four Hundred Twelve Dollars ($1,014,412.00); and

WHEREAS, while SMCC has maintained its staffing levels and construction effort, they recently submitted an updated project schedule that shows completion of all critical process facilities by March 2018 and all remaining construction activities by May 2018. SMCC claims additional delays due to adverse weather and work force shortages as a result of the H2-B visa program; and

WHEREAS, GWA management has not agreed to accept this claim and if, after further investigation, GWA denies the additional delay claims, the current construction contract completion date of March 25, 2018 will stand; after which Liquidated Damages will be assessed against the Contractor; and

WHEREAS, notwithstanding the final disposition of any SMCC claims for an extension of schedule, construction work will continue until the facility is completed. This means GWA will still require continuity of construction management services and has therefore requested that GHD provide a fee proposal for CM services related to the potential extension of the contract completion date; and

WHEREAS, the fee proposal submitted by GHD is being evaluated and GWA intends to negotiate a reasonable not-to-exceed amount to cover the anticipated services needed until construction completion; and

WHEREAS, GWA management may also request that GHD, Inc submit a fee proposal for additional construction management services on the Agat Santa Rita WWTP site related to the installation of the 21-inch diameter gravity line that ties in the Baza Gardens Pumping and Conveyance project which is not currently contracted out for installation; and

WHEREAS, GWA management seeks CCU approval to execute Change Order No. 4 with GHD, Inc. on a Time and Materials basis related to the above described additional work in an amount not-to-exceed Eight Hundred Eighty-Two Thousand Six Hundred Thirty-One Dollars ($882,631.00); and

WHEREAS, funding for this project will be from the bond funds under the line item - WW 11-08 "Agat/ Sta Rita STP Replacement" and/or funds derived from the Liquidated Damages that may be assessed the contractor and will be applied to pay the additional CM services; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the scope of additional work requested of GHD is reasonable and necessary.
3. The CCU finds that the fee proposal submitted by GHD, subject to final negotiation by GWA Management, to be fair and reasonable, and the terms of the conditions set by GWA relative to commencement of subsequent work activities are fair and reasonable and serve as a measure of Quality Assurance/Quality Control (QA/QC).
4. The CCU hereby approves GWA management to execute Change Order No. 4 on a Time and Materials basis in an amount not-to-exceed Eight Hundred Eighty-Two Thousand Six Hundred Thirty-One Dollars ($882,631.00) (EXHIBIT A) which would cover CM services through final construction completion and close-out.
5. The source of funding for the additional CM services will be from the bond funds under the line item - WW 11-08 "Agat/ Sta Rita STP Replacement" and/or funds withheld from the construction contract with SMCC as Liquidated Damages assessed to the contractor.

DRAFT

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 27th day of February 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS **J. GEORGE BAMBA**
Chairperson Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

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DRAFT

Exhibit A

Date: February 16, 2018

Reference No.: GHD/GWA – LTR-04

To: Mr. John Davis, P.E., Project Manager
Guam Waterworks Authority
Gloria B. Nelson Public Utilities Complex
Route 15, Mangilao, Guam

Project: Agat-Santa Rita WWTP Replacement Project - Phase II
Project No. S14-002-BND

Subject: MOD 004, 005, & 006 – Additional Construction Management Services Scope of Work and Fee Proposal

Dear Mr. Davis:

We are pleased to submit this proposal for additional CM support services as described below.

SCOPE OF WORK:

In follow up to our meeting with yourself and Mr. Tom Cruz on February 07, 2018 at the GWA Multi-Purpose Room following our Monthly Managers Meeting, we have prepared three (3) cost proposals to extend our Construction Management Services from April 01, 2018 through June 30, 2018, July 01, 2018 through August 31, 2018, and CM services for the on-site installation of the sanitary sewer line from Baza Gardens. Each has been detailed below.

1. **MOD 04** has been prepared to provide additional CM services from April 01, 2018 to June 30, 2018 per **Table 1**. This modification is needed due to an increase in the overall construction schedule. Additional support services and expenses associated with this effort is detailed below.

    - **Item 01: Clearing & Grading QA Testing and Survey Services**
      Our original SOW provides concrete testing, material testing, and field verification survey services as a budgetary amount with the understanding that should additional services be needed, they can be brought to GWA's attention for additional compensation.

      No budget for these services was allocated in the Clearing and Grading (C&G) phase of work. GHD provided these services using the available Waste Water Treatment Plant Replacement budget with the intent of revisiting the need for additional budget at a later date only if required. The cost to provide compaction testing during the C&G phase was $6,757.40, concrete testing was $2,580.60, and survey was $6,900.00. We request the QA Services budgets be restored by these amounts to allow us to maintain the same level of QA testing and survey for the duration of the project. See attached **Exhibit A.**

- **Item 02: Construction Site Camera**
  Our original Contract duration for this project was September 08, 2015 through June 07, 2017. MOD's 01, 02, 03, 04, & 05 extend the Contract Completion date to the end of August 2018. The monthly cost for the site camera fully hosted website is $325.00 per month. The extension of the contract through August 2018 will require an additional 13 months at a cost of $4,225.00. Please see attached Work Zone Cam Invoice #ZC0306175169 for the prorated monthly cost. Currently the services are through April 05, 2018 and they will be extended by GHD through June 2018. See attached **Exhibit B.**

- **Item 03: Additional Survey for Hyundai Line Permit Issue**
  GHD provided a survey of the centerline of Hyundai Construction Access Road from station 16+51.44 to 24+11.88 to advance the work of the Archaeologist for the permitting of the Hyundai Waterline. Obtaining access for the easement from the Navy and processing of the Building Permit with DPW took in excess of one (1) year. At the time of the survey, DCA's surveyor was not available and the Contractor declined to do the work. GHD took action to advance the work. See attached **Exhibit C.**

2. **MOD 05** has been prepared to provide GWA with advanced notice of anticipated additional CM services that may be required from July 01 to August 31, 2018 per **Table 2**. It is our opinion that the Phase 2 System Priority Work will not ramp down by the end of March 2018 and the project will extend through August of 2018. We base this on field observation and our review of the most recent percent completes provided in the Contractor's updated January 2018 Progress Schedule as follows:

   - Process 08 Effluent Pump Station – 45% complete
   - Process 10 Aerobic Digester – 64% complete
   - Process 11 Dewatering Centrifuge Building – 59%
   - Process 13 Plant Water System – 74%
   - Process 14 On-site sewer system and collection – 66%
   - Process 15 Administrative Building – 45%

   We estimate the Phase 2 System Priority Work to be approximately 58% complete in aggregate and this does not include the Equalization Tank which is currently at 5% complete. The contractor's January 2018 progress schedule indicates that Priority Structures will be completed on April 2, 2018 and Non-Priority Structures will be completed on August 10, 2018.

3. **MOD 06** has been prepared to provide additional CM services for the proposed 21-inch Baza Gardens Sanitary Sewer extension from Route 2A to the new ASRWWTP lift station. We have spoken with the Contractor and their current estimated duration for this work is four (4) months per **Table 3.** Our estimate assumes the same duration and also includes the associated QA testing and surveying services. See attached **Exhibit E.**

CLARIFICATIONS AND ASSUMPTIONS:

1. The CM's staffing shall consist of the following: one (1) Project Manager, one (1) Assistant PM, one (1) Civil/General Inspector, one (1) Special Inspector, one (1) RFI/Submittal Manager, and one (1) Scheduler. The onsite staffing will vary based on the Contractor's level of the work in progress. The CM will coordinate staffing based on the requirements for a particular day or week. No time has been provided for the Principal or any other staff position although they will be participating as needed on the project.

2. Additional budget has been requested for Quality Assurance Compaction Testing, Concrete Strength Testing, Material Testing and Survey Verification for the balance of the work. The execution of MOD 05 assumes the QA services budget requested via MOD 04 have been accepted and approved by GWA. If additional QA services are required it will be brought to GWA's attention and negotiated.

3. The Construction contract will include requirements that the Construction Contractor pay for overtime inspection outside of the normal 40 hour work week and this requirement will be strictly enforced and supported by GWA with payment coming out of the Contractor's Pay Request and then distributed to GHD by GWA or by other acceptable terms to GHD and GWA.

4. GWA agrees to negotiate with GHD for change orders for additional construction phase services due to construction delays, additional work, adverse weather delays, or any other reason not due to the negligent acts of GHD until final acceptance of the project is achieved.

The following tables show the summary of hours and cost for **MOD 04, MOD 05,** and **MOD 06** and the totals for all three (3)

TABLE 1. SUMMARY OF MOD 04 COSTS (April 01, 2018 through June 30, 2018)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost 04/01/18 to 06/30/18
Project Manager	520	$100,360	$4,182	$104,542
Special Inspector	130	$28,730	$1,197	$29,927
Civil Inspector	520	$62,920	$2,622	$65,542
Assistant PM	520	$62,920	$2,622	$65,542
Special Inspector	520	$65,520	$2,730	$68,250
Submittal/ RFI Manager	520	$52,520	$2,189	$54,709
Scheduler	30	$4,500	$188	$4,688
Expenses				$32,189
Total	**2760**	**$377,470**	**$15,729**	**$425,388**

TABLE 2. SUMMARY OF MOD 05 COSTS (July 01, 2018 through August 31, 2018)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost 07/01/18 to 08/31/18
Project Manager	360	$69,480	$2,895	$72,375
Special Inspector	90	$19,890	$829	$20,719
Civil Inspector	360	$43,560	$1,815	$45,375
Assistant PM	360	$43,560	$1,815	$45,375
Special Inspector	360	$45,360	$1,890	$47,250
Submittal/ RFI Manager	360	$36,360	$1,515	$37,875
Scheduler	20	$3,000	$125	$3,125
Expenses				$3,260
Total	**1910**	**$261,210**	**$10,885**	**$275,355**

- **Item 02: Construction Site Camera**
  Our original Contract duration for this project was September 08, 2015 through June 07, 2017. MOD's 01, 02, 03, 04, & 05 extend the Contract Completion date to the end of August 2018. The monthly cost for the site camera fully hosted website is $325.00 per month. The extension of the contract through August 2018 will require an additional 13 months at a cost of $4,225.00. Please see attached Work Zone Cam Invoice #ZC0306175169 for the prorated monthly cost. Currently the services are through April 05, 2018 and they will be extended by GHD through June 2018. See attached **Exhibit B.**

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2. **MOD 05** has been prepared to provide GWA with advanced notice of anticipated additional CM services that may be required from July 01 to August 31, 2018 per **Table 2**. It is our opinion that the Phase 2 System Priority Work will not ramp down by the end of March 2018 and the project will extend through August of 2018. We base this on field observation and our review of the most recent percent completes provided in the Contractor's updated January 2018 Progress Schedule as follows:

   - Process 08 Effluent Pump Station – 45% complete
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2. Additional budget has been requested for Quality Assurance Compaction Testing, Concrete Strength Testing, Material Testing and Survey Verification for the balance of the work. The execution of MOD 05 assumes the QA services budget requested via MOD 04 have been accepted and approved by GWA. If additional QA services are required it will be brought to GWA's attention and negotiated.

3. The Construction contract will include requirements that the Construction Contractor pay for overtime inspection outside of the normal 40 hour work week and this requirement will be strictly enforced and supported by GWA with payment coming out of the Contractor's Pay Request and then distributed to GHD by GWA or by other acceptable terms to GHD and GWA.

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Submittal/ RFI Manager	520	$52,520	$2,189	$54,709
Scheduler	30	$4,500	$188	$4,688
Expenses				$32,189
Total	**2760**	**$377,470**	**$15,729**	**$425,388**

TABLE 2. SUMMARY OF MOD 05 COSTS (July 01, 2018 through August 31, 2018)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost 07/01/18 to 08/31/18
Project Manager	360	$69,480	$2,895	$72,375
Special Inspector	90	$19,890	$829	$20,719
Civil Inspector	360	$43,560	$1,815	$45,375
Assistant PM	360	$43,560	$1,815	$45,375
Special Inspector	360	$45,360	$1,890	$47,250
Submittal/ RFI Manager	360	$36,360	$1,515	$37,875
Scheduler	20	$3,000	$125	$3,125
Expenses				$3,260
Total	**1910**	**$261,210**	**$10,885**	**$275,355**

TABLE 3. SUMMARY OF MOD 06 COSTS (Baza Gardens – Four (4) Months)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost (Four Months)
Project Manager	84	$15,708	$655	$16,363
Civil Inspector	672	$77,280	$3,220	$80,500
Expenses				$25,026
Total	**756**	**$92,988**	**$3,875**	**$121,889**

TABLE 4. SUMMARY OF MOD 04, MOD 05, & MOD 06 TOTAL COSTS

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost MOD 04, 05, & 06
Project Manager	964	$185,548	$7,732	$193,280
Special Inspector	220	$48,620	$2,026	$50,646
Civil Inspector	1552	$183,760	$7,657	$191,417
Assistant PM	880	$106,480	$4,437	$110,917
Special Inspector	880	$110,880	$4,620	$115,500
Submittal/ RFI Manager	880	$88,880	$3,704	$92,584
Scheduler	50	$7,500	$313	$7,813
Expenses				$60,475
			GRAND TOTAL	**$822,631**

We look forward to your favourable and expeditious response to this proposal. If you have any questions or concerns please do not hesitate to contact me directly.

Yours sincerely,



Paul K. Baron
Principal

Attachments:

- Exhibit A - QA Services Summary
- Exhibit B - Work Zone Camera Invoices
- Exhibit C - Survey Invoices
- Exhibit D – EarthCam Invoices
- Exhibit E – Baza Gardens Sanitary Sewer Documents

TABLE 3. SUMMARY OF MOD 06 COSTS (Baza Gardens – Four (4) Months)

Description/Labor Class	Labor Hours	Estimated Labor Cost	GRT	Total Cost (Four Months)
Project Manager	84	$15,708	$655	$16,363
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Special Inspector	220	$48,620	$2,026	$50,646
Civil Inspector	1552	$183,760	$7,657	$191,417
Assistant PM	880	$106,480	$4,437	$110,917
Special Inspector	880	$110,880	$4,620	$115,500
Submittal/ RFI Manager	880	$88,880	$3,704	$92,584
Scheduler	50	$7,500	$313	$7,813
Expenses				$60,475
			GRAND TOTAL	**$822,631**

We look forward to your favourable and expeditious response to this proposal. If you have any questions or concerns please do not hesitate to contact me directly.

Yours sincerely,



Paul K. Baron
Principal

Attachments:

- Exhibit A - QA Services Summary
- Exhibit B - Work Zone Camera Invoices
- Exhibit C - Survey Invoices
- Exhibit D – EarthCam Invoices
- Exhibit E – Baza Gardens Sanitary Sewer Documents

EXHIBIT A - QA SERVICES SUMMARY

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: GWA Construction Agat-Santa Rita WWTP **- CM Services for MOD 04** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared by: Bryan J. Ryley **Checked by:** Paul K. Baron
Date: **Date:**

EXPENSE ITEM	QUANTITY	UNIT COST	AMOUNT	MARKUP	TOTAL
PRECONSTRUCTION PHASE TASKS					
SUBTOTAL					
CONSTRUCTION PHASE TASKS					
Mileage (3 vehicles x 24 miles x 65 days)	4,680	$ 0.52	$ 2,433.60	$ 365.04	$ 2,798.64
Report Reproduction, misc	1	$ 1,500.00	$ 1,500.00	$ 225.00	$ 1,725.00
Live video feed, website access & maintenance (month)	13	$ 325.00	$ 4,225.00	$ 633.75	$ 4,858.75
CQA Compaction Testing	1	$ 6,757.40	$ 6,757.40	$ 1,013.61	$ 7,771.01
CQA Concrete Testing	1	$ 2,580.60	$ 2,580.60	$ 387.09	$ 2,967.69
CQA Survey Verification	1	$ 10,493.76	$ 10,493.76	$ 1,574.06	$ 12,067.82
SUBTOTAL			**$ 27,990.36**	**$ 4,198.55**	**$ 32,188.91**
POST CONSTRUCTION SERVICES					
GHD Consumables ($6.00/hour)					
SUBTOTAL					
TOTAL		**$ -**	**$ 27,990.36**	**$ 4,198.55**	**$ 32,188.91**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: GWA Construction Agat-Santa Rita WWTP **- CM Services for MOD 05** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared by: Bryan J. Ryley **Checked by:** Paul K. Baron
Date: **Date:**

EXPENSE ITEM	QUANTITY	UNIT COST	AMOUNT	MARKUP	TOTAL
PRECONSTRUCTION PHASE TASKS					
SUBTOTAL					
CONSTRUCTION PHASE TASKS					
Mileage (3 vehicles x 24 miles x 45 days)	3,240	$ 0.52	$ 1,684.80	$ 252.72	$ 1,937.52
Report Reproduction, misc	1	$ 500.00	$ 500.00	$ 75.00	$ 575.00
Live video feed, website access & maintenance (month)	2	$ 325.00	$ 650.00	$ 97.50	$ 747.50
CQA Compaction Testing		$ -	$ -	$ -	$ -
CQA Concrete Testing		$ -	$ -	$ -	$ -
CQA Survey Verification		$ -	$ -	$ -	$ -
SUBTOTAL			**$ 2,834.80**	**$ 425.22**	**$ 3,260.02**
POST CONSTRUCTION SERVICES					
GHD Consumables ($6.00/hour)					
SUBTOTAL					
TOTAL		**$ -**	**$ 2,834.80**	**$ 425.22**	**$ 3,260.02**

GHD - PROJECT ESTIMATING SHEET- GHD EXPENSES

Project Name: GWA Construction Agat-Santa Rita WWTP **- CM Services for MOD 06** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared by: Bryan J. Ryley **Checked by:** Paul K. Baron
Date: **Date:**

EXPENSE ITEM	QUANTITY	UNIT COST	AMOUNT	MARKUP	TOTAL
PRECONSTRUCTION PHASE TASKS					
SUBTOTAL					
CONSTRUCTION PHASE TASKS					
Mileage (1.5 vehicles x 24 miles x 84 days)	3,024	$ 0.52	$ 1,572.48	$ 235.87	$ 1,808.35
Report Reproduction, misc	1	$ 500.00	$ 500.00	$ 75.00	$ 575.00
Live video feed, website access & maintenance (month)	4	$ 325.00	$ 1,300.00	$ 195.00	$ 1,495.00
CQA Compaction Testing	1	$ 2,289.08	$ 2,289.08	$ 343.36	$ 2,632.44
CQA Concrete Testing	0	$ -	$ -	$ -	$ -
CQA Survey Verification	1	$ 16,100.00	$ 16,100.00	$ 2,415.00	$ 18,515.00
SUBTOTAL			**$ 21,761.56**	**$ 3,264.23**	**$ 25,025.79**
POST CONSTRUCTION SERVICES					
GHD Consumables ($6.00/hour)					
SUBTOTAL					
TOTAL		**$ -**	**$ 21,761.56**	**$ 3,264.23**	**$ 25,025.79**

GHD - PROJECT ESTIMATING SHEET - GHD QA SERVICES SUMMARY

Project Name: GWA Construction Agat-Santa Rita WWTP - **QA Services for MOD 06** **Attachment:**
GHD Project Number: 11109000 **of:**
Prepared By: Bryan J. Ryley **Checked By:** Paul K. Baron
Date: **Date:**

QA SURVEY ESTIMATE

Sanitary Sewer Manholes	Quantity	Quantity	Cost
Base Section	4	$800	$3,200
Sanitary Sewer Pipeline			
Vertical Alignment (at 100 Ft. Stations)	8	$1,200	$9,600
Bench Marks:			
Establish/Verify project bench	1	$1,200	$1,200
		Subtotal	$14,000

Rate			
Half Day	$800	Contingency **15%**	$2,100
Full Day	$1,200		
Hourly	$150	**TOTAL ESTIMATED BUDGET**	**$16,100**

CQA TESTING ESTIMATE

Material Labratory Testing:

Procotor & Seive Analysis:	Quantity	Quantity	Cost
Base Course	$234.50	1	$234.50
Fill Material	$234.50	1	$234.50
Bedding Material	$234.50	1	$234.50

Compaction Testing:

Sanitary Sewer Pipeline			
Manhole Base Course	$99.00	4	$396.00
Sand Bedding	$99.00	2	$198.00
Backfill	$99.00	5	$495.00
Pavement Base Course	$99.00	2	$198.00
		Contingency **15%**	$298.58
		TOTAL ESTIMATED BUDGET:	**$2,289.08**

DESCRIPTION OF TESTS:

Modified Proctor Test		$115.00
Sieve Analysis		$50.00
Soil Classification		$38.50
Amount of Material in Soils Finer than No. 200 Sieve		$31.00
	SUBTOTAL:	**$234.50**
Compaction Test - First Test $49.50		$49.50
Compaction Tests - Subsequent Tests $16.50 (Assume 3 subsequent tests)		$49.50
	SUBTOTAL:	**$99.00**
	GRAND TOTAL ESTIMATED QA TESTING BUDGET:	**$18,389**

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
Quality Assurance Services Summary

A	B	C	D	E	F
Item No.	Description of Work	Value	Total Amount to Date	Percent Complete	Remaining
1	QA Material Testing	$ 28,871.00	$ 20,819.60	72%	$ 8,051.40
2	QA Concrete Testing	$ 28,551.00	$ 51,403.28	180%	$ (22,852.28)
3	QA Survey	$ 102,718.00	$ 105,570.00	103%	$ (2,852.00)
	SubTotal	$ 160,140.00	$ 177,792.88	111%	$ (17,652.88)

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
Quality Assurance Material Testing Summary

Invoice Date	Invoice Number	Sub-consultant	Description	Invoice Amount	Invoice Amount With Mark Up	Running Total Invoice Amount	Remaining Balance
							$28,871.00
1/11/2016	1	PSET	Phase I QA Material Testing Services	$ 1,603.50	$ 1,844.03	$ 1,844.03	$27,026.98
2/10/2016	2	PSET	Phase I QA Material Testing Services	$ 709.50	$ 815.93	$ 2,659.95	$26,211.05
3/10/2016	3	PSET	Phase I QA Material Testing Services	$ 1,835.00	$ 2,110.25	$ 4,770.20	$24,100.80
4/10/2016	4	PSET	Phase I QA Material Testing Services	$ 985.50	$ 1,133.33	$ 5,903.53	$22,967.48
5/10/2016	5	PSET	Phase I QA Material Testing Services	$ 742.50	$ 853.88	$ 6,757.40	$22,113.60
8/22/2016	155-365.68	GEO	Phase II QA Material Testing Services	$ 200.00	$ 230.00	$ 6,987.40	$21,883.60
8/22/2016	156-365.68	GEO	Phase II QA Material Testing Services	$ 720.00	$ 828.00	$ 7,815.40	$21,055.60
8/22/2016	158-365.68	GEO	Phase II QA Material Testing Services	$ 300.00	$ 345.00	$ 8,160.40	$20,710.60
8/22/2016	159-365.68	GEO	Phase II QA Material Testing Services	$ 95.00	$ 109.25	$ 8,269.65	$20,601.35
9/21/2016	162-365.68	GEO	Phase II QA Material Testing Services	$ 182.50	$ 209.88	$ 8,479.53	$20,391.48
9/21/2016	163-365.68	GEO	Phase II QA Material Testing Services	$ 808.00	$ 929.20	$ 9,408.73	$19,462.28
9/21/2016	166-365.68	GEO	Phase II QA Material Testing Services	$ 285.00	$ 327.75	$ 9,736.48	$19,134.53
9/21/2016	167-365.68	GEO	Phase II QA Material Testing Services	$ 170.00	$ 195.50	$ 9,931.98	$18,939.03
5/31/2016	147-365.68	GEO	Phase II QA Material Testing Services	$ 739.00	$ 849.85	$ 10,781.83	$18,089.18
6/30/2016	151-365.68	GEO	Phase II QA Material Testing Services	$ 750.00	$ 862.50	$ 11,644.33	$17,226.68
10/18/2016	170-365.68	GEO	Phase II QA Material Testing Services	$ 402.00	$ 462.30	$ 12,106.63	$16,764.38
10/21/2016	173-365.68	GEO	Phase II QA Material Testing Services	$ 234.00	$ 269.10	$ 12,375.73	$16,495.28
10/21/2016	174-365.68	GEO	Phase II QA Material Testing Services	$ 274.00	$ 315.10	$ 12,690.83	$16,180.18
10/28/2016	178-365.68	GEO	Phase II QA Material Testing Services	$ 75.00	$ 86.25	$ 12,777.08	$16,093.93
11/11/2016	180-365.68	GEO	Phase II QA Material Testing Services	$ 130.00	$ 149.50	$ 12,926.58	$15,944.43
11/17/2016	182-365.68	GEO	Phase II QA Material Testing Services	$ 95.00	$ 109.25	$ 13,035.83	$15,835.18
11/18/2019	183-365.68	GEO	Phase II QA Material Testing Services	$ 233.00	$ 267.95	$ 13,303.78	$15,567.23
11/23/2016	184-365.68	GEO	Phase II QA Material Testing Services	$ 194.00	$ 223.10	$ 13,526.88	$15,344.13
11/28/2016	187-365.68	GEO	Phase II QA Material Testing Services	$ 370.00	$ 425.50	$ 13,952.38	$14,918.63
11/28/2016	188-365.69	GEO	Phase II QA Material Testing Services	$ 190.00	$ 218.50	$ 14,170.88	$14,700.13
11/28/2016	189-365.68	GEO	Phase II QA Material Testing Services	$ 275.00	$ 316.25	$ 14,487.13	$14,383.88
12/16/2016	194-365.68	GEO	Phase II QA Material Testing Services	$ 170.00	$ 195.50	$ 14,682.63	$14,188.38
12/30/2016	200-365.68	GEO	Phase II QA Material Testing Services	$ 75.00	$ 86.25	$ 14,768.88	$14,102.13
1/24/2017	208-365.68	GEO	Phase II QA Material Testing Services	$ 210.00	$ 241.50	$ 15,010.38	$13,860.63
3/31/2017	218-365.68	GEO	Phase II QA Material Testing Services	$ 305.00	$ 350.75	$ 15,361.13	$13,509.88
3/31/2017	219-365.68	GEO	Phase II QA Material Testing Services	$ 174.00	$ 200.10	$ 15,561.23	$13,309.78
3/31/2017	220-365.68	GEO	Phase II QA Material Testing Services	$ 131.00	$ 150.65	$ 15,711.88	$13,159.13
3/31/2017	224-365.68	GEO	Phase II QA Material Testing Services	$ 192.00	$ 220.80	$ 15,932.68	$12,938.33
4/28/2017	229-365.68	GEO	Phase II QA Material Testing Services	$ 142.00	$ 163.30	$ 16,095.98	$12,775.03
4/28/2017	231-365.68	GEO	Phase II QA Material Testing Services	$ 218.00	$ 250.70	$ 16,346.68	$12,524.33
5/11/2017	235-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 16,472.03	$12,398.98
6/16/2017	246-365.67	GEO	Phase II QA Material Testing Services	$ 349.00	$ 401.35	$ 16,873.38	$11,997.63
6/19/2017	248-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 16,998.73	$11,872.28
6/30/2017	254-365.68	GEO	Phase II QA Material Testing Services	$ 87.00	$ 100.05	$ 17,098.78	$11,772.23
7/10/2017	257-365.68	GEO	Phase II QA Material Testing Services	$ 135.00	$ 155.25	$ 17,254.03	$11,616.98
7/27/2017	264-365.68	GEO	Phase II QA Material Testing Services	$ 87.00	$ 100.05	$ 17,354.08	$11,516.93
8/31/2017	276-365.68	GEO	Phase II QA Material Testing Services	$ 87.00	$ 100.05	$ 17,454.13	$11,416.88
9/27/2017	287-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 17,579.48	$11,291.53
10/31/2017	301-365.68	GEO	Phase II QA Material Testing Services	$ 371.00	$ 426.65	$ 18,006.13	$10,864.88
11/30/2017	323-365.68	GEO	Phase II QA Material Testing Services	$ 176.00	$ 202.40	$ 18,208.53	$10,662.48
12/29/2017	330-365.68	GEO	Phase II QA Material Testing Services	$ 109.00	$ 125.35	$ 18,333.88	$10,537.13
12/29/2017	337-365.68	GEO	Phase II QA Material Testing Services	$ 395.00	$ 454.25	$ 18,788.13	$10,082.88
12/29/2017	339-365.68	GEO	Phase II QA Material Testing Services	$ 278.00	$ 319.70	$ 19,107.83	$9,763.18
1/31/2018	342-365.68	GEO	Phase II QA Material Testing Services	$ 403.00	$ 463.45	$ 19,571.28	$9,299.73
1/31/2018	343-365.68	GEO	Phase II QA Material Testing Services	$ 239.00	$ 274.85	$ 19,846.13	$9,024.88
1/31/2018	344-365.68	GEO	Phase II QA Material Testing Services	$ 162.00	$ 186.30	$ 20,032.43	$8,838.58
1/31/2018	372-365.68	GEO	Phase II QA Material Testing Services	$ 422.50	$ 485.88	$ 20,518.30	$8,352.70
1/31/2018	373-365.68	GEO	Phase II QA Material Testing Services	$ 262.00	$ 301.30	$ 20,819.60	$8,051.40

GWA Agat Santa Rita Waste Water Treatment Plant Replacement
Quality Assurance Concrete Testing Summary

Invoice Date	Invoice Number	Sub-consultant	Description	Invoice Amount	Invoice Amount With Mark Up	Running Total Invoice Amount	Remaining Balance $28,551.00
2/10/2016	2	PSET	Phase I QA Testing Services	$ 405.00	$ 465.75	$ 465.75	$28,085.25
3/10/2016	3	PSET	Phase I QA Testing Services	$ 433.50	$ 498.53	$ 964.28	$27,586.73
4/10/2016	4	PSET	Phase I QA Testing Services	$ 495.00	$ 569.25	$ 1,533.53	$27,017.48
5/10/2016	5	PSET	Phase I QA Testing Services	$ 910.50	$ 1,047.08	$ 2,580.60	$25,970.40
8/22/2016	157-365.68	GEO	Phase II QA Testing Services	$ 606.50	$ 697.48	$ 3,278.08	$25,272.93
8/30/2016	160-365.68	GEO	Phase II QA Testing Services	$ 444.00	$ 510.60	$ 3,788.68	$24,762.33
8/30/2016	161-365.68	GEO	Phase II QA Testing Services	$ 569.00	$ 654.35	$ 4,443.03	$24,107.98
9/21/2016	164-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 4,773.08	$23,777.93
9/21/2016	165-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 5,103.13	$23,447.88
9/29/2016	168-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 5,498.73	$23,052.28
9/29/2016	169-365.68	GEO	Phase II QA Testing Services	$ 264.00	$ 303.60	$ 5,802.33	$22,748.68
10/18/2016	170-365.68	GEO	Phase II QA Testing Services	$ 110.00	$ 126.50	$ 5,928.83	$22,622.18
10/21/2016	171-365.68	GEO	Phase II QA Testing Services	$ 241.00	$ 277.15	$ 6,205.98	$22,345.03
10/21/2016	172-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 6,536.03	$22,014.98
10/24/2016	175-365.68	GEO	Phase II QA Testing Services	$ 252.50	$ 290.38	$ 6,826.40	$21,724.60
10/27/2016	176-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 7,156.45	$21,394.55
10/28/2016	177-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 7,486.50	$21,064.50
11/11/2016	179-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 7,816.55	$20,734.45
11/11/2016	180-365.68	GEO	Phase II QA Testing Services	$ 224.00	$ 257.60	$ 8,074.15	$20,476.85
11/11/2016	181-365.68	GEO	Phase II QA Testing Services	$ 379.00	$ 435.85	$ 8,510.00	$20,041.00
11/17/2016	182-365.68	GEO	Phase II QA Testing Services	$ 275.50	$ 316.83	$ 8,826.83	$19,724.18
11/18/2016	183-365.68	GEO	Phase II QA Testing Services	$ 132.00	$ 151.80	$ 8,978.63	$19,572.38
11/28/2016	185-365.68	GEO	Phase II QA Testing Services	$ 287.00	$ 330.05	$ 9,308.68	$19,242.33
11/28/2016	186-365.68	GEO	Phase II QA Testing Services	$ 264.00	$ 303.60	$ 9,612.28	$18,938.73
12/16/2016	190-365.68	GEO	Phase II QA Testing Services	$ 346.00	$ 397.90	$ 10,010.18	$18,540.83
12/16/2016	191-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 10,366.68	$18,184.33
12/16/2016	192-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 10,723.18	$17,827.83
12/16/2016	193-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 11,079.68	$17,471.33
12/20/2016	195-365.68	GEO	Phase II QA Testing Services	$ 288.00	$ 331.20	$ 11,410.88	$17,140.13
12/21/2016	196-365.68	GEO	Phase II QA Testing Services	$ 631.50	$ 726.23	$ 12,137.10	$16,413.90
12/30/2016	197-365.68	GEO	Phase II QA Testing Services	$ 677.50	$ 779.13	$ 12,916.23	$15,634.78
12/30/2016	198-365.68	GEO	Phase II QA Testing Services	$ 310.00	$ 356.50	$ 13,272.73	$15,278.28
12/30/2016	199-365.68	GEO	Phase II QA Testing Services	$ 331.50	$ 381.23	$ 13,653.95	$14,897.05
12/30/2016	200-365.68	GEO	Phase II QA Testing Services	$ 346.00	$ 397.90	$ 14,051.85	$14,499.15
1/20/2017	201-365.68	GEO	Phase II QA Testing Services	$ 356.50	$ 409.98	$ 14,461.83	$14,089.18
1/20/2017	202-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 14,828.68	$13,722.33
1/20/2017	203-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 15,166.78	$13,384.23
1/20/2017	204-365.68	GEO	Phase II QA Testing Services	$ 283.50	$ 326.03	$ 15,492.80	$13,058.20
1/20/2017	205-365.68	GEO	Phase II QA Testing Services	$ 291.50	$ 335.23	$ 15,828.03	$12,722.98
1/20/2017	206-365.68	GEO	Phase II QA Testing Services	$ 369.00	$ 424.35	$ 16,252.38	$12,298.63
1/20/2017	207-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 16,619.23	$11,931.78
1/24/2017	208-365.68	GEO	Phase II QA Testing Services	$ 356.50	$ 409.98	$ 17,029.20	$11,521.80
2/13/2017	209-365.68	GEO	Phase II QA Testing Services	$ 495.50	$ 569.83	$ 17,599.03	$10,951.98
2/13/2017	210-365.68	GEO	Phase II QA Testing Services	$ 369.00	$ 424.35	$ 18,023.38	$10,527.63
2/22/2017	211-365.68	GEO	Phase II QA Testing Services	$ 394.00	$ 453.10	$ 18,476.48	$10,074.53
2/22/2017	212-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 18,843.33	$9,707.68
2/28/2017	213-365.68	GEO	Phase II QA Testing Services	$ 473.00	$ 543.95	$ 19,387.28	$9,163.73
2/28/2017	214-365.68	GEO	Phase II QA Testing Services	$ 563.00	$ 647.45	$ 20,034.73	$8,516.28
2/28/2017	215-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 20,344.08	$8,206.93
3/31/2017	216-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 20,739.68	$7,811.33
3/31/2017	217-365.68	GEO	Phase II QA Testing Services	$ 272.00	$ 312.80	$ 21,052.48	$7,498.53
3/31/2017	221-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 21,419.33	$7,131.68
3/31/2017	222-365.68	GEO	Phase II QA Testing Services	$ 381.50	$ 438.73	$ 21,858.05	$6,692.95
3/31/2017	223-365.68	GEO	Phase II QA Testing Services	$ 442.00	$ 508.30	$ 22,366.35	$6,184.65
4/7/2017	225-365.68	GEO	Phase II QA Testing Services	$ 394.00	$ 453.10	$ 22,819.45	$5,731.55
4/17/2017	227-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 23,186.30	$5,364.70
4/28/2017	228-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 23,524.40	$5,026.60
5/11/2017	232-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 23,862.50	$4,688.50
5/11/2017	233-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 24,200.60	$4,350.40
5/11/2017	234-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 24,538.70	$4,012.30
5/11/2017	237.365.67	GEO	Phase II QA Testing Services	$ 337.50	$ 388.13	$ 24,926.83	$3,624.18
5/31/2017	238-365.68	GEO	Phase II QA Testing Services	$ 281.50	$ 323.73	$ 25,250.55	$3,300.45
5/31/2017	239-365.67	GEO	Phase II QA Testing Services	$ 307.50	$ 353.63	$ 25,604.18	$2,946.83
5/31/2017	240-365.67	GEO	Phase II QA Testing Services	$ 131.00	$ 150.65	$ 25,754.83	$2,796.18
6/16/2017	241-365.68	GEO	Phase II QA Testing Services	$ 394.00	$ 453.10	$ 26,207.93	$2,343.08
6/16/2017	243-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 26,574.78	$1,976.23
6/16/2017	244-365.68	GEO	Phase II QA Testing Services	$ 331.50	$ 381.23	$ 26,956.00	$1,595.00
6/16/2017	245-365.68	GEO	Phase II QA Testing Services	$ 381.50	$ 438.73	$ 27,394.73	$1,156.28

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6/16/2017	246-365.68	GEO	Phase II QA Testing Services	$ 349.00	$ 401.35	$ 27,796.08	$754.93
6/16/2017	247-365.68	GEO	Phase II QA Testing Services	$ 236.00	$ 271.40	$ 28,067.48	$483.53
6/19/2017	248-365.68	GEO	Phase II QA Testing Services	$ 109.00	$ 125.35	$ 28,192.83	$358.18
6/22/2017	249-365.68	GEO	Phase II QA Testing Services	$ 592.00	$ 680.80	$ 28,873.63	-$322.62
6/30/2017	250-365.67	GEO	Phase II QA Testing Services	$ 488.00	$ 561.20	$ 29,434.83	-$883.82
6/30/2017	251-365.67	GEO	Phase II QA Testing Services	$ 481.50	$ 553.73	$ 29,988.55	-$1,437.55
6/30/2017	252-365.67	GEO	Phase II QA Testing Services	$ 231.50	$ 266.23	$ 30,254.78	-$1,703.77
6/30/2017	253-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 30,564.13	-$2,013.12
7/10/2017	255-365.68	GEO	Phase II QA Testing Services	$ 306.00	$ 351.90	$ 30,916.03	-$2,365.02
7/10/2017	257-365.68	GEO	Phase II QA Testing Services	$ 100.00	$ 115.00	$ 31,031.03	-$2,480.02
7/14/2017	261-365.68	GEO	Phase II QA Testing Services	$ 513.00	$ 589.95	$ 31,620.98	-$3,069.97
7/27/2017	264-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 31,959.08	-$3,408.07
7/31/2017	265-365.69	GEO	Phase II QA Testing Services	$ 225.00	$ 258.75	$ 32,217.83	-$3,666.82
8/24/2017	266-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 32,555.93	-$4,004.92
8/24/2017	267-365.68	GEO	Phase II QA Testing Services	$ 613.00	$ 704.95	$ 33,260.88	-$4,709.87
8/24/2017	268-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 33,598.98	-$5,047.97
9/21/2017	281-365.68	GEO	Phase II QA Testing Services	$ 583.00	$ 670.45	$ 34,269.43	-$5,718.42
9/21/2017	282-365.68	GEO	Phase II QA Testing Services	$ 299.00	$ 343.85	$ 34,613.28	-$6,062.27
9/21/2017	283-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 34,951.38	-$6,400.37
9/27/2017	285-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 35,318.23	-$6,767.22
9/27/2017	286-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 35,685.08	-$7,134.07
9/27/2017	287-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 35,994.43	-$7,443.42
9/29/2017	288-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 36,303.78	-$7,752.77
10/17/2017	296-365.68	GEO	Phase II QA Testing Services	$ 760.00	$ 874.00	$ 37,177.78	-$8,626.77
10/17/2017	297-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 37,515.88	-$8,964.87
10/17/2017	298-365.68	GEO	Phase II QA Testing Services	$ 516.00	$ 593.40	$ 38,109.28	-$9,558.27
10/31/2017	305-365.68	GEO	Phase II QA Testing Services	$ 588.00	$ 676.20	$ 38,785.48	-$10,234.48
10/31/2017	299-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 39,152.32	-$10,601.32
10/31/2017	300-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 39,519.18	-$10,968.18
10/31/2017	306-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 39,886.03	-$11,335.03
11/24/2017	307-365.68	GEO	Phase II QA Testing Services	$ 309.50	$ 355.93	$ 40,241.95	-$11,690.95
11/24/2017	308-365.68	GEO	Phase II QA Testing Services	$ 380.00	$ 437.00	$ 40,678.95	-$12,127.95
11/24/2017	309-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 41,045.80	-$12,494.80
11/24/2017	310-365.68	GEO	Phase II QA Testing Services	$ 297.00	$ 341.55	$ 41,387.35	-$12,836.35
11/24/2017	311-365.68	GEO	Phase II QA Testing Services	$ 247.00	$ 284.05	$ 41,671.40	-$13,120.40
11/30/2017	323-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 42,067.00	-$13,516.00
11/30/2017	324-365.68	GEO	Phase II QA Testing Services	$ 344.00	$ 395.60	$ 42,462.60	-$13,911.60
12/29/2017	325-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 42,829.45	-$14,278.45
12/29/2017	326-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 43,196.30	-$14,645.30
12/29/2017	327-365.68	GEO	Phase II QA Testing Services	$ 860.00	$ 989.00	$ 44,185.30	-$15,634.30
12/29/2017	328-365.68	GEO	Phase II QA Testing Services	$ 563.00	$ 647.45	$ 44,832.75	-$16,281.75
12/29/2017	329-365.68	GEO	Phase II QA Testing Services	$ 525.50	$ 604.33	$ 45,437.07	-$16,886.07
12/29/2017	338-365.68	GEO	Phase II QA Testing Services	$ 269.00	$ 309.35	$ 45,746.42	-$17,195.42
1/31/2017	345-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 46,113.27	-$17,562.27
1/31/2017	346-365.68	GEO	Phase II QA Testing Services	$ 319.00	$ 366.85	$ 46,480.12	-$17,929.12
1/31/2017	347-365.68	GEO	Phase II QA Testing Services	$ 306.50	$ 352.48	$ 46,832.60	-$18,281.60
1/31/2017	348-365.68	GEO	Phase II QA Testing Services	$ 369.00	$ 424.35	$ 47,256.95	-$18,705.95
1/31/2017	363-365.68	GEO	Phase II QA Testing Services	$ 473.00	$ 543.95	$ 47,800.90	-$19,249.90
1/31/2017	364-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 48,139.00	-$19,588.00
1/31/2017	365-365.68	GEO	Phase II QA Testing Services	$ 563.00	$ 647.45	$ 48,786.45	-$20,235.45
1/31/2017	366-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 49,124.55	-$20,573.55
1/31/2017	367-365.68	GEO	Phase II QA Testing Services	$ 349.00	$ 401.35	$ 49,525.90	-$20,974.90
1/31/2017	368-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 49,864.00	-$21,313.00
1/31/2017	369-365.68	GEO	Phase II QA Testing Services	$ 419.00	$ 481.85	$ 50,345.85	-$21,794.85
1/31/2017	370-365.68	GEO	Phase II QA Testing Services	$ 294.00	$ 338.10	$ 50,683.95	-$22,132.95
1/31/2017	371-365.68	GEO	Phase II QA Testing Services	$ 625.50	$ 719.33	$ 51,403.27	-$22,852.27

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Date	Invoice Number	Description	Invoice Amount	Invoice amount with 15% Mark Up	Running Total Invoice Amount	Remaining Balance
						$102,718.00
04/05/16	2016-054	Ed, 2016-054 Pattrick	$ 1,200.00	$ 1,380.00	$ 1,380.00	$101,338.00
04/06/16	2016-054	3MFD, Retrace boundary points and establish vertical points. Completed. Ed, Pattrick, Gerard	$ 1,200.00	$ 1,380.00	$ 2,760.00	$99,958.00
04/11/16	2016-054	2MFD, Verification of Gambion Wall. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 4,140.00	$98,578.00
04/26/16	2016-054	2MFD, Layout of Centerline of Road "A" Sta, 2+0, 6+00, 10+00, 14+00. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 5,520.00	$97,198.00
05/10/16	2016-054	2MFD, Elevation verification of all Spillway, Storm Drain invert and pipe elevation. Vertical and Horizontal datum of trapezoidal concrete swale. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 6,900.00	$95,818.00
05/23/16	2016-054	2MHD, Verify project site survey control points; vertical and horizontal. Completed. Ed, Pattrick	$ 900.00	$ 1,035.00	$ 7,935.00	$94,783.00
05/25/16	2016-054	2MFD, Vertical verification of Oxidation Ditches. Completed. Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 9,315.00	$93,403.00
05/31/16	2016-054	2MHD, Vertical verification of Oxidation Ditch	$ 900.00	$ 1,035.00	$ 10,350.00	$92,368.00
06/01/16	2016-054	2MHD, Verify horizontal Oxidation Ditch corner	$ 900.00	$ 1,035.00	$ 11,385.00	$91,333.00
06/28/16	2016-054	2MHD, Verification of Oxidation Ditch layout	$ 900.00	$ 1,035.00	$ 12,420.00	$90,298.00
07/20/16	2016-054	2MFD, Oxidation Ditch 1 & 2, Area 4 & 2, Topo Slab 10X10 Grid Asbuilt-Asbuild of top of slab; Area 4 set, traverse, & set elevation	$ 1,200.00	$ 1,380.00	$ 13,800.00	$88,918.00
07/22/16	2016-054	2MFD, Oxidation Ditch 1 & 2, Area 4 & 2, Topo Slab 10X10 Grid Asbuilt-Asbuilt area 4 completed; Area 2 completed partially	$ 1,200.00	$ 1,380.00	$ 15,180.00	$87,538.00
07/25/16	2016-054	2MFD, Oxidation Ditch 1 & 2, Area 4 & 2, Topo Slab 10X10 Grid Asbuilt-Asbuild completed	$ 1,200.00	$ 1,380.00	$ 16,560.00	$86,158.00
07/29/16	2016-054	2MFD, Asbuilt of Oxidation Ditch 1 & 2 area 3 & 1 top of slab- grid of 10x10- Area 3 completed and portion of Area 1	$ 1,200.00	$ 1,380.00	$ 17,940.00	$84,778.00
08/01/16	2016-054.02	2MHD, Asbuilt Oxidation Ditch 1 & 2 area 1 - Top of Slab 10' X 10' interval-portion of area 1 completed.	$ 900.00	$ 1,035.00	$ 18,975.00	$83,743.00
08/08/16	2016-054.02	2MFD, Asbuilt of Oxidation Ditch 1 & 2 area 1-top of slab 10' X 10' grid-completed	$ 1,200.00	$ 1,380.00	$ 20,355.00	$82,363.00
08/13/16	2016-054.02	2MFD, Asbuilt of clarifier No. 1 by 8 section; Crew: Ed, Pat	$ 1,200.00	$ 1,380.00	$ 21,735.00	$80,983.00
09/28/16	2016-054.02	2MHD, Horizontal & Vertical check on sludge piping of Tipalas substation: work completed	$ 900.00	$ 1,035.00	$ 22,770.00	$79,948.00
10/13/16	2016-054.03	2MHD, Asbuilt of ultra violet disinfection and sludge piping to clarifier (Ed, Pattric k)	$ 900.00	$ 1,035.00	$ 23,805.00	$78,913.00
10/18/16	2016-054.03	2MHD, Asbullt of sludge pipin g various area (Ed, Pattric k)	$ 900.00	$ 1,035.00	$ 24,840.00	$77,878.00
10/21/16	2016-054.03	2MHD, As built of sludge piping various area - UV Inlet & Outlet pipe ; Secondary clarifier - Supply pipe to Oxidation Ditc h and effluent pipe elbow/pipe deflection @ sta . 1+37.39 (Ed , Pattrick)	$ 900.00	$ 1,035.00	$ 25,875.00	$76,843.00
10/28/16	2016-054.03	3MHD,Asbullt of UV inlet. clarifier 2 piping to Oxidation Ditch and process drainage- pipe force main (Ed , Raughly , Pattrick)	$ 900.00	$ 1,035.00	$ 26,910.00	$75,808.00
10/31/16	2016-054.03	2MFD, Oxidation Ditch out to secondary clarifier as built , Oxidation Ditch Inlet structure spot elevation, 30 • effluent pipe as built and Oxidation Ditch roof spot elevation . (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 28,290.00	$74,428.00
11/03/16	2016-054.04	2MFD, Asbullt of oxidation Inlet structure, elevation check on oxidation ditch Inlet pipe, oxidation outlet pipe to secondary clarifier elevation check and process dralnage pipe force main asbullt, Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 29,670.00	$73,048.00
11/16/16	2016-054.04	2MFD, Verify elevation of Influent, onslte lift station & process dralnage pipe force main, Ultraviolet Inlet pipe to secondary clarlflers, Secondary clarifying I pipe to Ultraviolet, Oxidation ditch I floor elevation- roof,	$ 1,200.00	$ 1,380.00	$ 31,050.00	$71,668.00
11/23/16	2016-054.04	2MFD, Rae/Was pump station pipe, Manifold elevation check, Force main pipe check, Oxidation ditch Inlet structure- Inlet and outlet pipe vertical elevation check, Portion of secondary clarifier 2-base and sub-base	$ 1,200.00	$ 1,380.00	$ 32,430.00	$70,288.00
11/30/16	2016-054.04	2MFD, Rechecked oxidation ditch Inlet structure piping, Effluent pipe, Force main piping Influent pipe; Onslte lift station; Process dralnage piping, Equalization overflow pipe and draln pipe, Ed, Pattrick	$ 1,200.00	$ 1,380.00	$ 33,810.00	$68,908.00
12/05/16	2016-054.05	2MHD, Second Clarifier No. 2 Sludge Pipe elevation check@ deflection and end; Scum Pump Station foundation and elevation check: Influent Pipe elevation check@	$ 900.00	$ 1,035.00	$ 34,845.00	$67,873.00
12/09/16	2016-054.05	2MFD, As-built of Sludge Piping to Clarifier 1 & 2; Scum Pump Station foundation -054.05 vertical check: 3- 12" Sludae Pioina (cf) RAS/ WAS vertical check: Re-survey	$ 1,200.00	$ 1,380.00	$ 36,225.00	$66,493.00
12/20/16	2016-054.05	2MFD, Secondary Clarifier Sludge pipe@ RAS/WAS pump station-resurvey; -054.05 Ultraviolet Inlet pipe elbow: Oxidation Ditch 1 Influent Flow: RAS/WAS pump station	$ 1,200.00	$ 1,380.00	$ 37,605.00	$65,113.00
12/21/16	2016-054.05	2MFD, RAS/WAS pump station manhole; Oxidation Ditch 1 Influent Flow-resurvey -054.05 (Crew: Ed and Pattrick)	$ 1,200.00	$ 1,380.00	$ 38,985.00	$63,733.00
01/03/17	2016-054.06	3MFD, see attachment (Ed, Pat, Raughly)	$ 1,200.00	$ 1,380.00	$ 40,365.00	$62,353.00
01/04/17	2016-054.06	2MFD, SMHvertical check-resurvey; Weir Gate Oxidation Ditch 1 & 2; RAS pipe from OXfdation Ditch 1 & 2; Recalculate elevation of Secondary Clarifier based on	$ 1,200.00	$ 1,380.00	$ 41,745.00	$60,973.00

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01/12/17	2016-054.06	2MFD, As-built of: Sludge piplng: Oxidatfon Ditch 1 Influent flow pipe 24"; 30" Secondary Clarifier 3 piping; Oxidation Ditch Influent flow slab & inlet; Secondary	$ 1,200.00	$ 1,380.00	$ 43,125.00	$59,593.00
01/13/17	2016-054.06	2MHD, As-built of: 30" Effluent pipe at Station 0+00 & Station 0+14.17; 24" pipe thimble at Influent flow control gate-Oxidation Ditch 1 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 44,160.00	$58,558.00
01/20/17	2016-054.06	2MFDt As-built 0+00 & 0+14.17 for yard piping 30" effluent pipe, resurvey; As-built 0+00, 0+06.49, 0+58.8, & 0+77 .85 for Secondary Clarifier, Resurvey (Gerard, Allan)	$ 1,200.00	$ 1,380.00	$ 45,540.00	$57,178.00
01/23/17	2016-054.06	2MHD, As-built of Secondary Clarifier No. 2 form work-vertical and horizontal check (see field book no. 1061 p. 20-21), S5.41, Sheet 320 of634 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 46,575.00	$56,143.00
01/26/17	2016-054.06	2MHD, As-built of 30" Effluent pipe at station 3+10.33 and station 3+31.20; As-built of Influent box finish slab; As-built of weir gate at Oxidation Ditch inlet structure (Ed,	$ 900.00	$ 1,035.00	$ 47,610.00	$55,108.00
01/30/17	2016-054.06	2MFD, As-built of Secondary Clarifier 2 pipe; As-built of Ultraviolet Disinfection slab (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 48,990.00	$53,728.00
12/28/16	2016-054.07	3MHD, Resurveyed Secondary Clarifier Sludge Piping at Tipalao Pump Station: Force Main piping vertical and horizontal check: Secondary Clarifier 2 base course	$ 900.00	$ 1,035.00	$ 50,025.00	$52,693.00
02/09/17	2016-054.07	2MFD, As-built of 24" pipe thimble @ Oxidation Ditch 2: Influent flow pipe: As-built of yard piping-Eq.drainpipe and Eq. overflow pipe: As-built of R.A.S. flow meter	$ 1,200.00	$ 1,380.00	$ 51,405.00	$51,313.00
02/15/17	2016-054.07	2MFD, As-built of Secondary Clarifier 1 Weir Plate; Yard piping = Influent line, On-site lift station and processd draingae pipe: Yard piping=Equalization Drain Pipe	$ 1,200.00	$ 1,380.00	$ 52,785.00	$49,933.00
02/20/17	2016-054.07	2MHD, Yard Piping - Ultra violet Supply Pipe to Secondary Clarifier No. 2 24": Ultra violet Disinfection Weir (Ed, Pattrick)	$ 900.00	$ 1,035.00	$ 53,820.00	$48,898.00
03/01/17	2016-054.08	2MFD, As built of Headworks-sub-base course (Ed, Pat)	$ 1,200.00	$ 1,380.00	$ 55,200.00	$47,518.00
03/03/17	2016-054.08	2M D, As-built of Oxidation Ditch Inlet Structure-Lower evel Plan 16" 24" and 30" pipes: As-built of Tipalao (Effluent) Pump Station force main 16" and 6" As built of	$ 1,200.00	$ 1,380.00	$ 56,580.00	$46,138.00
03/09/17	2016-054.08	2MHD, Oxidation Ditch Inlet piping 24" (resurvey); Secondary Clarifier No 1 Weir and Baffle·Manhole at Tipalao (Ed, Allan)	$ 900.00	$ 1,035.00	$ 57,615.00	$45,103.00
03/16/17	2016-054.08	2MHD, Headworks sub-grade as-built (Ed, Allan)	$ 900.00	$ 1,035.00	$ 58,650.00	$44,068.00
03/28/16	2016-054.08	2MFD, As built of Headworks top of slab form work, As-built of Secondary Clarifier 2 lander channels: Asbuit of Digester Tank Subbase course (Ed, Raughly)	$ 1,200.00	$ 1,380.00	$ 60,030.00	$42,688.00
03/31/16	2016-054.08	3MFD, Secondary Clarifier No 2 Lander Channel as-built; Horizontal as-built of Headworks-Lower Level, As-built of Aerobic Digester Sludge Digester No 1 and 2 sub	$ 1,200.00	$ 1,380.00	$ 61,410.00	$41,308.00
04/04/17	2016-054.09	3MFD, As-built of Aerobic Digester Tank 1 & 2 Top of base course: Return Activated Sludge pipe as-built at Sta. +281.38: As-built of Sludge Digester Tank pipe Co":	$ 1,200.00	$ 1,380.00	$ 62,790.00	$39,928.00
04/10/17	2016-054.09	2MFD, As-built of Aerobic Digester top of base course; As-built of Return Activated Sludge pipe at Station 2+42.65 and at Station 2+22.65: Station 0+35 and 0+72; As-	$ 1,200.00	$ 1,380.00	$ 64,170.00	$38,548.00
04/12/17	2016-054.09	2MFD, Return Activated Sludge piping: As-built of Secondary Clarifier 2 Lauder Channel: As-built of Aerobic Digester top of base course (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 65,550.00	$37,168.00
04/18/17	2016-054.09	2MHD 12" Sludge Pipe at 4+2 and Sta 4+50 from Secondary Clarifier 1 & 2: As-built of Secondary Clarifier 2 Lauder Channel top of slab	$ 900.00	$ 1,035.00	$ 66,585.00	$36,133.00
05/04/17	2016-054.10	2MFD, As-built of Hyundai Waterline Sta. 13+60 to Sta. 16+31.44; Set control stations/ bench mark; Oxidation Ditch 2 topo of slab/ form work (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 67,965.00	$34,753.00
05/10/17	2016-054.10	3MHD, Sewer line at Agat Treatment Plant (Ga'an) site relief sewer line man hole; Sewer line from SMH3 to SMH4 (Ed, Gerard, Joseph)	$ 900.00	$ 1,035.00	$ 69,000.00	$33,718.00
05/12/17	2016-054.10	3MHD, 30" sewer ine at Ga'an Sewer Treatment Plant; Head works; TOS as-built (Ed, Allan, Patrick)	$ 900.00	$ 1,035.00	$ 70,035.00	$32,683.00
05/15/17	2016-054.10	2MFD, Ga'an 30" sewer ine as-built; Headwork foundation at wet well as-built and pipe; Digestion Tank 1 and 2 foundation TOS as-built (Ed, Virgilio)	$ 1,200.00	$ 1,380.00	$ 71,415.00	$31,303.00
05/17/17	2016-054.10	2MHD, Ga'an 30" sewer line as-built; 8" sewer line between M H3 and M H4 as-built; 12" sludge pipe at 4+11.92 Secondary Clarifier B (Ed, Allan)	$ 900.00	$ 1,035.00	$ 72,450.00	$30,268.00
05/25/17	2016-054.10	2MFD, Ga'an 30" sewer line at1 +01.82 and 1 +29.82 as-built (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 73,830.00	$28,888.00
05/26/17	2016-054.10	2MFD, Sewer manhole 2, 3, 4, 6, 7; Return activated sludge piping at Sta. 0+72.53 to 1 +21.22; Sewer line between sewer manhole 2 and sewer manhole 3	$ 1,200.00	$ 1,380.00	$ 75,210.00	$27,508.00
05/30/17	2016-054.10	2MHD, As-built of sewer line between SMH3 and SMH2 and sewer line between SMH6 and SMH7 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 76,245.00	$26,473.00
06/01/17	2016-054.11	3MHD, As-built of sewer line between SMH 5 and SMH6; As-built of Return Activated Sludge Pipe (Ed, Raughly, Allan)	$ 900.00	$ 1,035.00	$ 77,280.00	$25,438.00

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06/09/17	2016-054.11	2MHD, Dewatering Centrifuge Building As-built-top of base course and location; Ga'an 30' sewer line @ Sta o+oo (Ed, Allan	$ 900.00	$ 1,035.00	$ 78,315.00	$24,403.00
06/12/17	2016-054.11	2MFD, As-built@ Ga'an 30" Sewerline; As-built Aerobic Digestion Tank no. 2; As-built Sewerline between SMH 2 and SMH 5; As-built Dewatering Centrifuge building	$ 1,200.00	$ 1,380.00	$ 79,695.00	$23,023.00
06/26/17	2016-054.11	2 MFD, As-built of 16" force main sewer pipe- Equalization tank to head works; As-built of 6" scum pump to sludge thickening line; As-built of sewer line "C" between	$ 1,200.00	$ 1,380.00	$ 81,075.00	$21,643.00
07/05/17	2016-054.12	2MFD, Aerobic Digester Influent Line 6"; Sewer line between SMH1 and SMH 2; 6" Waste Activated Sludge Pipe; Retaining Wall at Secondary Clarifier 2 (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 82,455.00	$20,263.00
07/10/17	2016-054.12	2MFD, Aerobic Digester Tank 6" Thimble page 28; Water Line- A 12" page 28; 8" Sewer Line between SMH 7 and SMH 8 page 27; 6" Waste Activated Sludge pipe*	$ 1,200.00	$ 1,380.00	$ 83,835.00	$18,883.00
07/14/17	2016-054.12	2MFD, Dewatering Centrifuge-Drilled Pier; Sewer Line between SMH 7 and SMH B; s 1,200.00 Aerobic Digester Tank 1 6" pipe thimble; Dewatering Centrifuge base course and top	$ 1,200.00	$ 1,380.00	$ 85,215.00	$17,503.00
07/18/17	2016-054.12	2MFD, Aerobic Digester-Drilled Pier- Horizontal check; Sewer line between SMH 8 and SMH 9; Dewatering Centrifuge Top of base course (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 86,595.00	$16,123.00
08/08/17	2016-054.13	2MFD, Deawtering Centrifuge Building drilled pier foundation layout; Hyundai Water Valve Vault (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 87,975.00	$14,743.00
08/25/17	2016-054.13	2MHD, Check and verify locatin of four corners of building frame work of Dewatering Centrifuge; Check elevation 32.50 around frame work of Dewatering Centrifuge	$ 900.00	$ 1,035.00	$ 89,010.00	$13,708.00
09/07/17	2016-054.14	2MFD, Aerobic Digester Drilled Pier, 1-20,27,33,39; Aerobic Digester Tank 2 6" Pipe Thimble; Headworks- top of footing; Headworks- Weir Wall, Flow Channel 2 and	$ 1,200.00	$ 1,380.00	$ 90,390.00	$12,328.00
09/15/17	2016-054.14	2 MFD, Check elevation for finish grade of Tipalao Effluent Valve Pit; Check elevation of Oxidation Ditch Supply Pipe 30"; Locate & check elevation of end section for Pipe	$ 1,200.00	$ 1,380.00	$ 91,770.00	$10,948.00
09/18/17	2016-054.14	2MFD, Fire Hydrant at Sta. 7+82.21; 30" Oxidation Ditch Supply Line; Aerobic Digester 8" riser pipe (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 93,150.00	$9,568.00
09/25/17	2016-054.14	2MHD, As-built of Administration Building drilled pier foundation; Sewer line between sewer manhole 1 and sewer manhole 2 (Ed, Allan)	$ 900.00	$ 1,035.00	$ 94,185.00	$8,533.00
09/27/17	2016-054.14	2MFD, Check horizontal location of Administration Building drilled pier foundation; Check horizontal and vertical location of Digester 1 OVF-DIP 6" Pipe (Darius, Allan)	$ 1,200.00	$ 1,380.00	$ 95,565.00	$7,153.00
10/02/17	2016-054.15	3MFD, Layout of Hyundai water line from Sta. 16+51.44 to Sta. 24+11.88, Work completed: Sta. 16+51.44 to Sta. 24+11.88 (Ed, Allan, Stephen)	$ 1,200.00	$ 1,380.00	$ 96,945.00	$5,773.00
10/04/17	2016-054.15	3MFD, Layout of stations for Hyundai water line from Sta. 16+51.44 to Sta. 24+11.88, Work completed: Sta. 16+51.44 to Sta. 22+04.71 and Sta. 23+25.56	$ 900.00	$ 1,035.00	$ 97,980.00	$4,738.00
10/05/17	2016-054.15	3MFD, Layout of station for Hyundai water line from Sta. 16+51.44 to Sta. 24+01.44, Work completed (Ed, Aaron, Stephen)	$ 900.00	$ 1,035.00	$ 99,015.00	$3,703.00
10/06/17	2016-054.15	2MFD, As-built of portion of Administration Building - drilled pier, As-built of portion of Aerobic Digester-drilled pier, Work completed (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 100,395.00	$2,323.00
10/19/17	2016-054.15	2MFD, As-built of 6" perforated drain pipe at Headworks; As-built of reflected ceiling plan - Mezzanine of Dewatering Centrifuge	$ 900.00	$ 1,035.00	$ 101,430.00	$1,288.00
11/07/17	2016-054.15	2MFD, Aerobic Digester Blower Digester Bldg. Base Course, Headworks Channel Weir Slab; RAS/WAS Flow Meter MH-Top of form work; End of trapezoidal concrete	$ 1,200.00	$ 1,380.00	$ 102,810.00	-$92.00
11/20/17	2016-054.15	2MFD, Invert elevation of sewer manhole no. 7, 8, 9 and 10 (Ed, Allan)	$ 1,200.00	$ 1,380.00	$ 104,190.00	-$1,472.00
11/27/17	2016-054.15	2MFD, Sewer line at SMH10 resurvey; Aerobic Digester Sludge thickening pipe 6"; Aerobic Digester-6" pipe thimble; Yard piping force main; process drain, lift station	$ 1,200.00	$ 1,380.00	$ 105,570.00	-$2,852.00

EXHIBIT B - WORK ZONE CAMERA INVOICES

(QSF-024G)
Goods (Standard)

GHD Inc.
☒ 2235 Mercury Way Suite 150 Santa Rosa California 95407 T 707 523 1010 F 707 527 8679

Send invoice to above address, attn.: Accounts Payable
(Show Purchase order no. and Project no.)

PO date: (mm/dd/yyyy)	04/20/2017	**Purchase order no.:**				38000925	
Project no.:	11109000	**Phase:**	10	**Task:**	DEFAULT	**Project Manager:**	BRYAN RYLEY

Vendor to provide and deliver all items set out or otherwise described below subject to the governing Terms and Conditions below. This PO expressly limits acceptance to such Terms and Conditions. Any additional or different terms proposed by Vendor are rejected unless expressly agreed to in writing by GHD Inc. ("GHD"). Show Project no. on all correspondence, invoices, and delivery papers.

(authorized GHD signature) Bryan J. Ryley (printed name of issuer) 04/20/2017 (date signed)

Shipping the goods listed on this PO constitutes acceptance of the Terms and Conditions below

Issued to (Vendor):
Work Zone Cam
650 East Crescent Avenue
Upper Saddle River, NJ 07458

Attention: Raymond Kutter
Tel: (201) 488-1111 **Fax:** ( )
Email: rkuttner@earthcam.com

Currency: U.S
Name of Client: Guam Waterworks Authority

Deliver to:
GHD Inc
865 South Marine Corps Drive, Suite 202
Tamuning, Guam 96913

Attention: Bryan Ryley
Tel: (671) 472-6792 **Fax:** (671) 477-6229
Email: bryan.ryley@ghd.com

☐ **F.O.B. destination** ☐ **F.O.B. origin**
☐ **Freight collect** ☐ **Freight prepaid**
Delivery date required: N/A
Delivery method: N/A

Terms and Conditions - Goods (Standard) GHD

1. **Definitions:** "PO" means the Purchase Order, these Terms and Conditions, and any other Exhibits listed in the PO, all of which are to be construed as one document; "Goods" shall mean all tangible property required to be furnished to GHD by Vendor under this PO; "Laws" shall mean any and all applicable statutes, laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction; "Client" shall mean the individual or entity named in the PO with whom GHD has entered into an agreement; "GHD" shall mean the party issuing the PO
2. **Conforming Goods:** Acceptance of all or any part of the Goods shall not be deemed to be a waiver of GHD's right either to cancel or return all or any portion of the Goods because of failure to conform to this PO, or by reason of defects, latent or patent, or other breach of warranty, or to make any claim for damages, including construction costs and loss of profits or other special damages incurred by GHD. Such rights shall be in addition to any other remedies provided by Laws. GHD reserves the right to refuse any Goods and to cancel all or any part of the Goods not conforming to applicable specifications, drawings, samples, or descriptions. Acceptance of any part of the Goods shall not bind GHD to accept future shipments, nor deprive it of the right to return Goods already accepted. Partial shipments are not permitted unless specifically authorized.
3. **Risk of Loss:** Unless otherwise provided in the PO, Vendor shall assume all risk of loss or damage to the Goods prior to acceptance of delivery by GHD at the point of delivery. Delivery shall not be deemed to be complete until the Goods have been actually received and accepted by GHD.
4. **Warranty:** Vendor expressly warrants that the Goods covered by this PO are of merchantable quality and satisfactory and safe for consumer use. Acceptance of this PO shall constitute an agreement upon Vendor's part to indemnify and hold GHD harmless from liability, loss, damage, and expense, including reasonable attorneys' fees, incurred or sustained by GHD by reason of the failure of the Goods to conform to such warranties.
5. **Taxes:** Vendor shall pay ~~all fees or taxes, including sales, use, consumer~~ all taxes for employment insurance, pensions, or any similar purpose, ~~and other taxes mandated by Laws~~. No liability shall accrue to GHD for any such taxes.
6. **Packing:** All Goods, wrappers, and containers must bear markings and labels required by Laws for the protection and safety of persons and property, and Vendor warrants that prices include all charges for packing, crating, and transportation to specified F.O.B. point. Vendor shall include packing list with all shipments.
7. **Payment:** Vendor shall submit an invoice for Goods furnished in a form and with such documentation as GHD may require. Payment of an invoice approved by GHD, including final payment, will be made within 30 days after GHD's receipt of an acceptable invoice. No payment made by GHD, including final payment, shall be construed as evidence of the proper furnishing of the Goods, nor of acceptance of defective or nonconforming Goods. Acceptance of final payment by Vendor shall constitute a waiver of all claims by Vendor against GHD and Client.
8. **Schedule:** Unless stated otherwise in the PO, time is of the essence for delivery of the Goods.
9. **Rights and Remedies:** The rights and remedies of the parties hereunder are cumulative, and in addition to, not in lieu of, those which the parties have at law or in equity. Waiver of a breach of any provision of this PO shall not constitute a waiver of any other or future breach of the same provision or any other provision or of the entire PO. Failure of GHD to insist upon strict performance of any provision of this PO shall not be deemed a waiver of any rights GHD may have.
10. **Governing Law:** This PO shall be governed by and construed in accordance with the laws of the state/province in which the Goods are received by GHD.
11. **Entire Agreement:** This PO constitutes the entire agreement between the parties concerning the Goods, and supersedes all prior written and oral negotiations, agreements, and representations. This PO may only be modified by a change order issued by GHD.

Line no.	Description/item no.	Quantity	Unit	Unit price	Amount
1	Work Zone Cam - 6MP Fully Hosted Service (12 months @ $325/mounth)	12	month	3,900.00	3,900.00
				Subtotal:	
				~~Tax:~~	~~3,900.00~~
				Shipping and handling:	
				Other:	
				Total:	3,900.00

cc: **Project Manager; GHD Regional Purchasing Coordinator**
Filing: **Vendor project file; GHD Equipment Manager (if applicable)**

Continuation sheet	PO date: (mm/dd/yyyy)		Purchase order no.:	
			Project no.:	

Line no.	Description/item no.	Quantity	Unit	Unit price	Amount

Work Zone Cam, LLC.

650 E. Crescent Avenue
Upper Saddle River, NJ, 07458
www.workzonecam.com
Phone: (201) 488-1111
Fax: (201) 488-1119

Invoice

WORK ZONE CAM

Date	Page
Mar 10, 2017	1
Invoice Number	
ZC0306175169	

Sold To:
Mark Pachkoski
GHD Guam
865 S Marine Corps Dr
Suite 202B '96931
GU

Ship To:
Mark Pachkoski
GHD Guam
865 S Marine Corps Dr
Suite 202B '96931
GU

Order No.	Order Date	Customer No.	Salesperson	PO Number	Ship Via	Terms
ZC0306175169	Mar 6, 2017	32539	BC			NET10

Qty. Ord.	Qty. Shp.	Item Number	Description	Unit Price	UOM	Extended Price
1.00	1.00	ZCPS02011	Work Zone Cam - 6MP Fully Hosted Service Server: Agat-Santa Rita WWTP Project: Agat-Santa Rita WWTP Location: Suite 202B GU Duration: 04/05/17 - 04/05/18	3,900.00	Ea.	3,900.00

GHD Inc. - GUA - 14
Vendor _____ PO 38000925
GL _____
Project / Phase 1110900 0/10
Subconsultant Agreement (Y) N # _____
Terms: PWP ☐ Other _____
Date: 04/13/17 Approver: BRIAN RYKER GROOM

Tax summary:
NT 0.00

Subtotal	3,900.00
Total sales tax	0.00
Total amount	3,900.00
Less payment	
Amount due	3,900.00

ALL PRICING IN U.S. DOLLARS

WORK ZONE CAM

650 E. Crescent Avenue
Upper Saddle River, NJ 07458

Contact:

Raymond Kuttner
Senior Accounting Manager
rkuttner@earthcam.com
201-403-2917 Direct
201-488-1119 Fax

PLEASE SEND WIRE/ACH PAYMENTS TO:

PNC Bank
141 Franklin Turnpike
Mahwah, NJ 07430

ABA: 031207607

ACCOUNT #: 8039896576

SWIFT: PNCCUS33

EXHIBIT C - SURVEY INVOICES

GUAM SURVEYOR, LLC
STREET: 171 CHALAN PALE RAMON HAYA RT. 1 (MARINE DRIVE), YIGO, GUAM 96929
MAIL: P.O BOX 6216, TAMUNING, GUAM 96931
P.671-637-2042/1 F.671-637-2041 M.688-0184
WWW.GUAMSURVEYOR.COM
SURVEYOR@GUAMSURVEYOR.COM

INVOICE # 2016-054.15 - 11-01-2017

To: Mr. Bryan Ryley, Construction Manager
GHD
865 South Marine Corps Drive, Suite 202
Tamuning, Guam 96913
472-6792 / 477-6229 / m: 797-3336
Bryan.Ryley@ghd.com

Project: 2016-054.15
Project Name: GWA Agat-Santa Rita WWTP Replacement Project
Village: Agat-Santa Rita **State:** Guam
Type of Survey: Construction Quality Assurance Survey
Project Status: Completed **Finan. Stat** Unpaid
Date of Invoice: 11/01/2017

Proj. #	Date:	Task	Survey description	Amount
2016-054.15	10/2/2017	87	3MFD, Layout of Hyundai water line from Sta 16+ 51.44 to Sta. 24+ 11.88; Work completed: Sta. 16+ 51.44 to Sta 24+ 11.88 (Ed, Allan, Stephen)	$ 1,200.00
2016-054.15	10/4/2017	88	3MHD, Layout of stations for Hyundai water line from Station 16 + 51.44 to Station 24 + 11.88; Work completed: Stations 16 + 51.44 to 22 + 04.71 and Stations 23 + 25.56	$ 900.00
2016-054.15	10/5/2017	89	3MHD, Layout of station for Hyundai water line from Station 16 + 51.44 to Station 24 + 01.44; Work completed (Ed, Aaron, Stephen)	$ 900.00
2016-054.15	10/16/2017	90	2MFD, As-built of portion of Administration Building- drilled pier; As-built of portion of Aerobic Digester- drilled pier; Work completed (Ed, Allan)	$ 1,200.00
2016-054.15	10/19/2017	91	2MHD, As-built of 6" perforated drain pipe at Headworks; As-built of reflected ceiling plan- Mezzanine of Dewatering Centrifuge	$ 900.00
			*Total due this invoice:	$ 5,100.00

GHD Inc. - GUA - 14
Vendor 380 GU SURV PO 38000407
GL 5710080
Project / Phase 11109000/09
Subconsultant Argement? Y N # ____
Terms: PWP ☒ Other ____
Date: 11/03/17 Approver: BRYAN T. RYLEY
JEFF GROOM
PAUL K. BARON

NOTE: **All invoices are due upon receipt. To ensure proper credit, please indicate project number and lot name (or project name) on your payment. If paying by check, make check payable to Guam Surveyor, LLC.** For your convenience, we also accept credit card payments on our website at **http://www.guamsurveyor.com**. If you need help with paying by credit card, instructions are online at **http://www.youtube.com/watch?v=h7D4E6Ptt0A** or you can give us a call at **671-637-2042** or **671-688-9868**.

By: _____
Name: Dennis S. Balagtas, P.L.S. No. 75

This Phase 09 cost will be carried forthcoming Option 1 of 2017 invoice

EXHIBIT D - EARTHCAM INVOICES

EarthCam.net
The Webcam Technology Experts

-INVOICE-

Invoice Number:
WS0207182170

Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96913

671 472-6792
671 797-3336 (Mobile)
bryan.ryley@ghd.com

Ship to: Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96913

671 472-6792
bryan.ryley@ghd.com

Invoice Date: February 12, 2018
Payment Terms:
NET 30

Make all checks payable to EarthCam Inc.
650 East Crescent Avenue, Upper Saddle River, NJ 07458

*** Please include your client ID on your check: 32539**

MANAGED SERVICES		Quantity	Price	Total
Platinum Service *Agat-Santa Rita WWTP PTZ / Agat-Santa Rita WWTP PTZ [03/09/18 - 03/09/19] Tamuning GU*	(1 year)	**1**	$6900	$6900
Robotic Camera Software Support Package *Agat-Santa Rita WWTP PTZ / Agat-Santa Rita WWTP PTZ [03/09/18 - 03/09/19] Tamuning GU*	(1 year)	**1**		$0

Thank you for choosing EarthCam!
We appreciate your purchase and look forward to supporting your project needs.

Amount Due **$6,900**

Our Accounting Department:
Raymond Kuttner (201) 403-2917
rkuttner@earthcam.com

*Date Generated: 02/12/18. This invoice is confidential. All prices are quoted in US Dollars. While EarthCam, Inc. will endeavor to meet the customer's desired delivery date, no shipment date can be scheduled until after order is accepted by EarthCam, Inc. Payment in full must precede acceptance, which may be made by cash, cleared check, Fed wire, ACH or major credit card. All sales are final. All orders and services are subject to force majeure. All services shall automatically renew for successive one (1) month periods and continue until customer shall provide thirty (30) days written notice of termination to EarthCam, Inc. Any and all liability arising out of products or services included in the order, however or whenever arising, shall not, under any and all circumstances, exceed the actual payments received by EarthCam, Inc. in connection therewith or one month's service fee, whichever is less. In no event shall EarthCam, Inc. be liable for any special, incidental or consequential damages. Lifetime camera warranty for active software subscribers. Additional parts covered under standard 1 year manufacturer warranty.

EarthCam.net
The Webcam Technology Experts

-INVOICE-

Invoice Number:
WS0825165158

Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96931

671 472-6792
671 797-3336 (Mobile)
bryan.ryley@ghd.com

Ship to: Bryan Ryley
GHD Guam
865 S Marine Corps Dr Suite 202
Tamuning, Guam 96931

671 472-6792
bryan.ryley@ghd.com

Invoice Date: August 25, 2016
Purchase Order: TBA
Payment Terms:
PREPAY

Make all checks payable to EarthCam Inc.
650 East Crescent Avenue, Upper Saddle River, NJ 07458

		Quantity	Price	Total
CAMERA SYSTEMS				
Mobile TrailerCam Lite		1	$24,995	$24,995
Mobile Trailer Handling		1	$750	$750
MANAGED SERVICES				
Platinum Service *Archive every 5 minutes*	(1 year)	1	$6,900	$6,900
Robotic Camera Software Support Package *(TrailerCam Lite)*	(1 year)	1		Included
EarthCam Consulting Services		1		Included

Thank you for choosing EarthCam!
We appreciate your purchase and look forward to supporting your project needs.

Amount Due **$32,645**

Our Accounting Department:
Raymond Kuttner **(201) 403-2917**
rkuttner@earthcam.com

GHD Inc. - GUA - 14
Vendor 280ecn **PO** _____
GL _____
Project / Phase 11109000 / 10
Subconsultant Argement? Y N # _____
Terms: PWP ☐ **Other** _____
Date: 9/28/16 **Approver:** Jeff Groom

Notes

Shipping FOB Upper Saddle River, NJ
GHD Guam Can Provide Freight Forwarder - $750 Handling Fee Will Apply

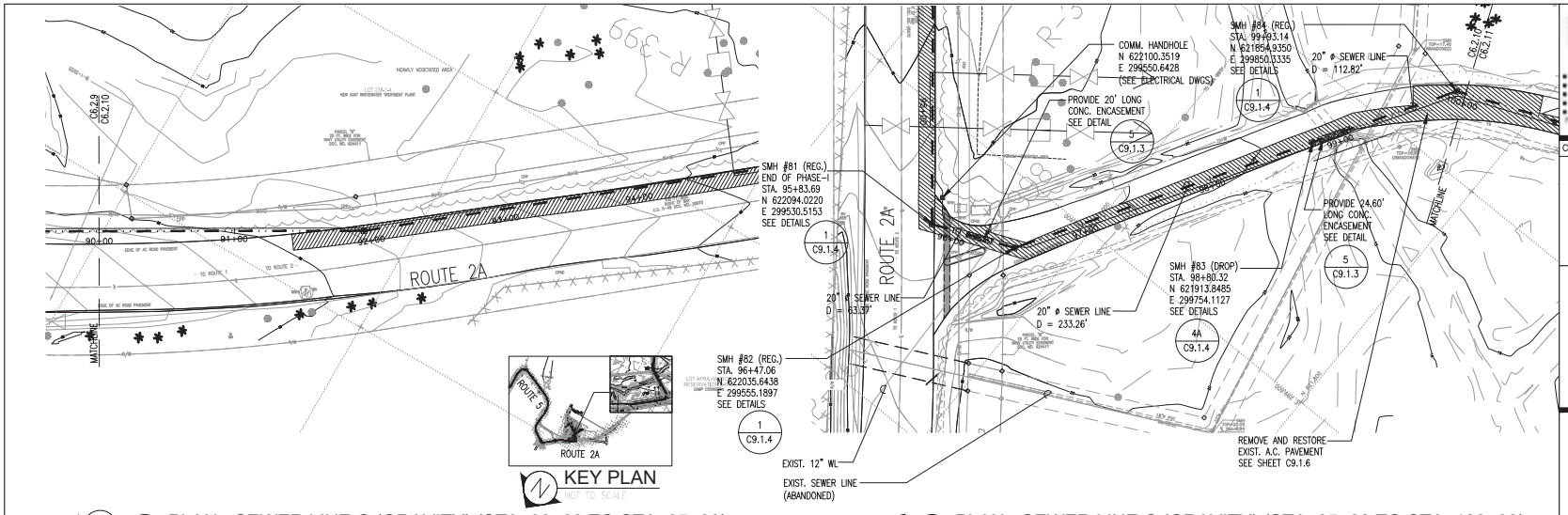
*Date Generated: 08/25/16. This invoice is confidential. All prices are quoted in US Dollars. While EarthCam, Inc. will endeavor to meet the customer's desired delivery date, no shipment date can be scheduled until after order is accepted by EarthCam, Inc. Payment in full must precede acceptance, which may be made by cash, cleared check, Fed wire, ACH or major credit card. All sales are final. All orders and services are subject to force majeure. All services shall automatically renew for successive one (1) month periods and continue until customer shall provide thirty (30) days written notice of termination to EarthCam, Inc. Any and all liability arising out of products or services included in the order, however or whenever arising, shall not, under any and all circumstances, exceed the actual payments received by EarthCam, Inc. in connection therewith or one month's service fee, whichever is less. In no event shall EarthCam, Inc. be liable for any special, incidental or consequential damages. Lifetime camera warranty for active software subscribers. Additional parts covered under standard 1 year manufacturer warranty.

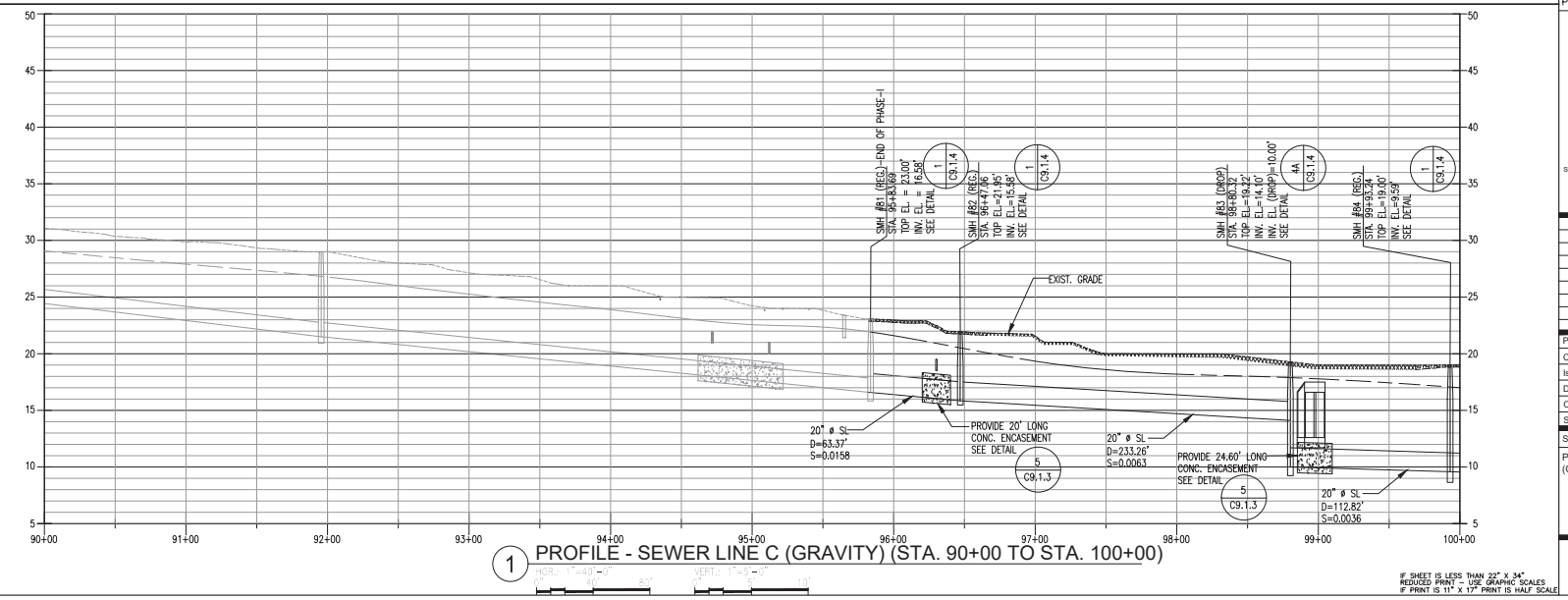
Your Account Manager: Brian Cury
brian@earthcam.com

1-800-EARTHCAM
- 1 of 1 -

650 East Crescent Avenue, Upper Saddle River, NJ 07458
201-488-1111

EXHIBIT E - BAZA GARDENS SANITARY SEWER DOCUMENTS





IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT – USE GRAPHIC SCALES
IF PRINT IS 11" X 17" PRINT IS HALF SCALE

DCA DUEÑAS · CAMACHO
ENGINEERING (CIVIL/STRUCTURAL) · CONSTRUCTION MANAGEMENT · PLANNING · ENVIRONMENTAL SERVICES · SURVEYING · DEVELOPMENT CONSULTATION · GEOGRAPHIC INFORMATION SYSTEMS

CONSULTANTS

COFFMAN ENGINEERS

TRMA
Taniguchi Ruth Makio Architects
Architecture
Planning
Interior Design

KENNETH M. REDDIHOUGH
CERTIFICATE NO. 12825 (CNMI)
EXP. 04/30/17
GUAM PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION. DATE: 9-6-2016

PROJECT TITLE

GUAM WATERWORKS AUTHORITY

BAZA GARDENS WASTEWATER CROSS-ISLAND PUMPING AND CONVEYANCE SYSTEM (PHASE-I)

SUBMITTAL: BID SET

Mark	Date	Description

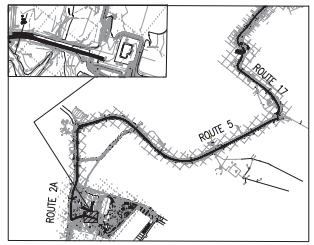
Project No.:	GG15-06
CAD Dwg File:	GG1506-C6.2.10.DWG
Issue Date:	SEPTEMBER 6, 2016
Drawn By:	JMC/HJ/CP
Checked By:	JMC/EMS
Supv. By:	EMS/KR

Sheet Title:

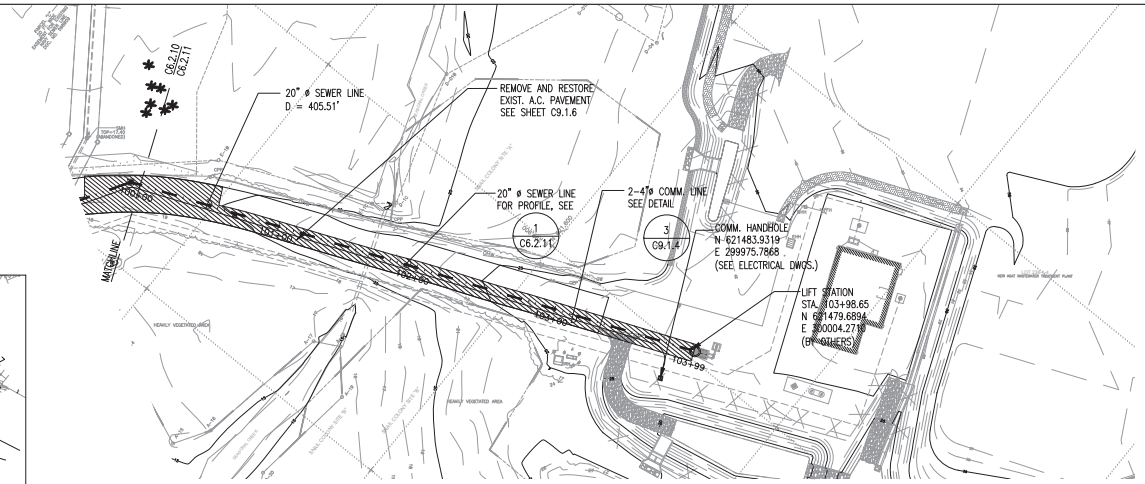
PROFILE & PLAN - SEWER LINE C (GRAVITY) (STA. 90+00 TO STA 100+00)

C6.2.10

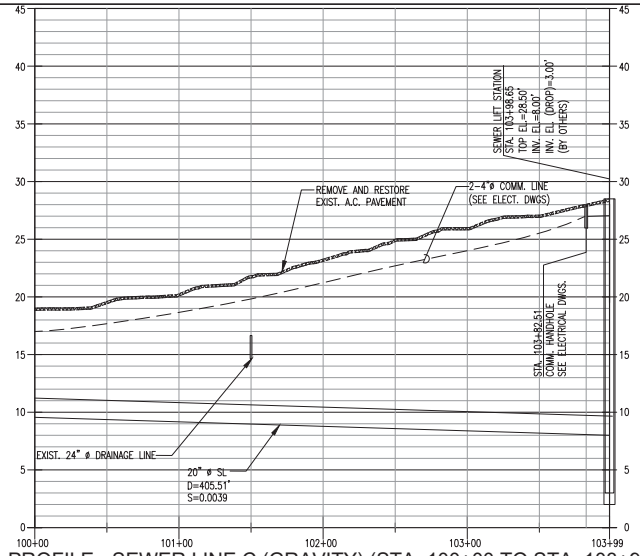
Sheet 32 of 117



KEY PLAN
NOT TO SCALE



2 PLAN - SEWER LINE C (GRAVITY) (STA. 100+00 TO STA. 103+98.65)
1" = 40'-0"



1 PROFILE - SEWER LINE C (GRAVITY) (STA. 100+00 TO STA. 103+98.65)
HOR. 1"=40'-0"
VERT. 1"=5'-0"

NOTE:

PHASE I CONTRACTORS SHALL PROVIDE GRAVITY CONNECTION TO AGAT WWTP LIFT STATION

IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT – USE GRAPHIC SCALES
IF PRINT IS 11" X 17" PRINT IS HALF SCALE

DCA
DUEÑAS · CAMACHO
■ ENGINEERING (CIVIL/STRUCTURAL)
■ CONSTRUCTION MANAGEMENT ■ PLANNING
■ ENVIRONMENTAL SERVICES ■ SURVEYING
■ DEVELOPMENT CONSULTATION
■ GEOGRAPHIC INFORMATION SYSTEMS

CONSULTANTS

COFFMAN ENGINEERS

TRMA
Taniguchi Ruth Makio Architects
Architecture
Planning
Interior Design

KENNETH M. REDDEN
CERTIFICATE NO. 12825 (CIVIL)
EXP: 04/30/17
GUAM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION. DATE: 9-6-2016

PROJECT TITLE

GUAM WATERWORKS AUTHORITY

BAZA GARDENS
WASTEWATER
CROSS-ISLAND PUMPING
AND
CONVEYANCE SYSTEM
SUBMITTAL: (PHASE-I)
BID SET

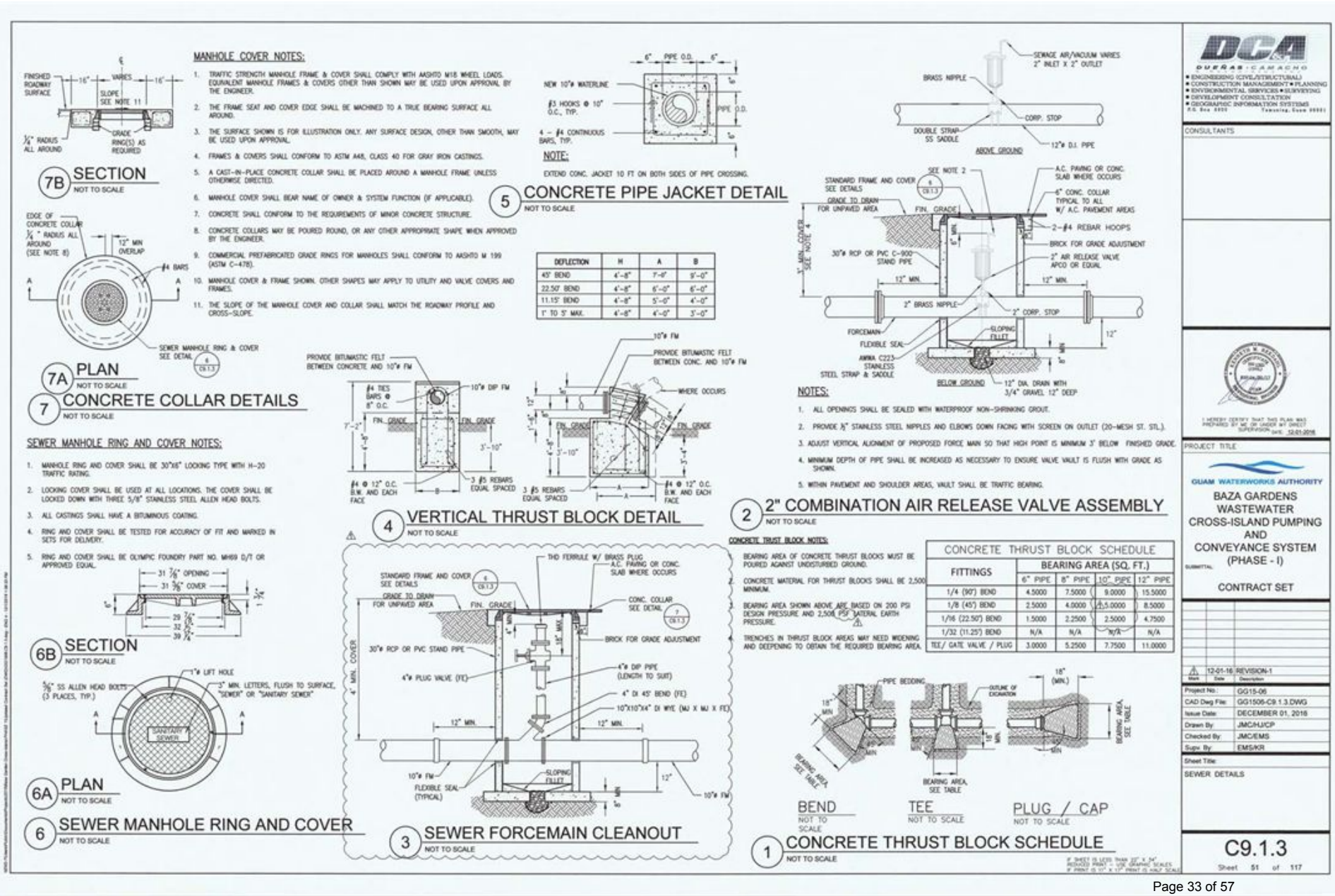
Mark	Date	Description

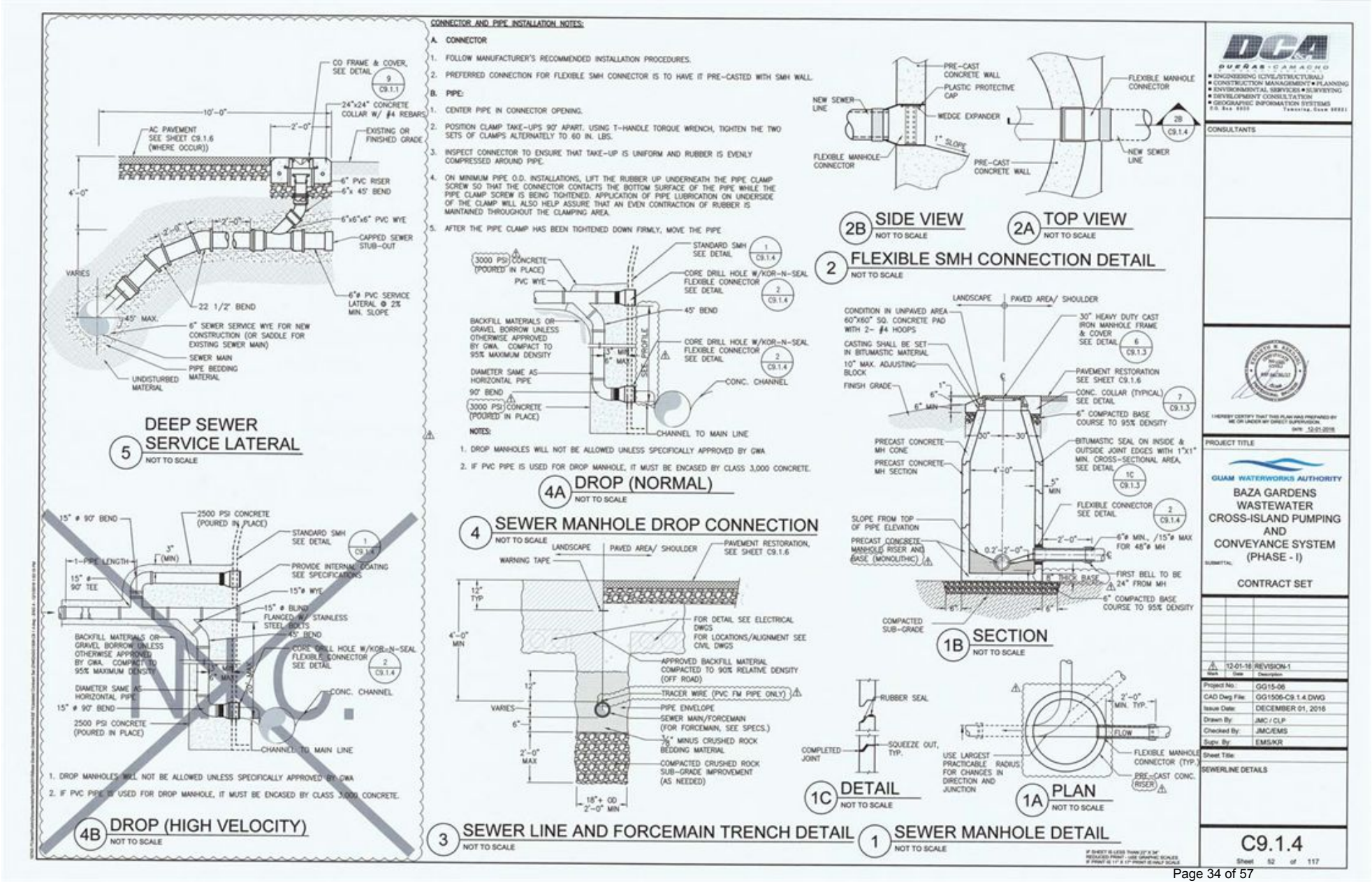
Project No.:	GG15-06
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Sheet Title:

PROFILE & PLAN - SEWER LINE C (GRAVITY) (STA. 100+00 TO STA 103+98.65)

C6.2.11
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MANHOLE COVER NOTES:
1. TRAFFIC STRENGTH MANHOLE FRAME & COVER SHALL COMPLY WITH AASHTO M18 WHEEL LOADS. EQUIVALENT MANHOLE FRAMES & COVERS OTHER THAN SHOWN MAY BE USED UPON APPROVAL BY THE ENGINEER.
2. THE FRAME SEAT AND COVER EDGE SHALL BE MACHINED TO A TRUE BEARING SURFACE ALL AROUND.
3. THE SURFACE SHOWN IS FOR ILLUSTRATION ONLY. ANY SURFACE DESIGN, OTHER THAN SMOOTH, MAY BE USED UPON APPROVAL.
4. FRAMES & COVERS SHALL CONFORM TO ASTM A48, CLASS 40 FOR GRAY IRON CASTINGS.
5. A CAST-IN-PLACE CONCRETE COLLAR SHALL BE PLACED AROUND A MANHOLE FRAME UNLESS OTHERWISE DIRECTED.
6. MANHOLE COVER SHALL BEAR NAME OF OWNER & SYSTEM FUNCTION (IF APPLICABLE).
7. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF MINOR CONCRETE STRUCTURE.
8. CONCRETE COLLARS MAY BE POURED ROUND, OR ANY OTHER APPROPRIATE SHAPE WHEN APPROVED BY THE ENGINEER.
9. COMMERCIAL PREFABRICATED GRADE RINGS FOR MANHOLES SHALL CONFORM TO AASHTO M 199 (ASTM C-478).
10. MANHOLE COVER & FRAME SHOWN. OTHER SHAPES MAY APPLY TO UTILITY AND VALVE COVERS AND FRAMES.
11. THE SLOPE OF THE MANHOLE COVER AND COLLAR SHALL MATCH THE ROADWAY PROFILE AND CROSS-SLOPE.
7B SECTION NOT TO SCALE
7A PLAN NOT TO SCALE
7 CONCRETE COLLAR DETAILS NOT TO SCALE
SEWER MANHOLE RING AND COVER NOTES:
1. MANHOLE RING AND COVER SHALL BE 30"X6" LOCKING TYPE WITH H-20 TRAFFIC RATING.
2. LOCKING COVER SHALL BE USED AT ALL LOCATIONS. THE COVER SHALL BE LOCKED DOWN WITH THREE 5/8" STAINLESS STEEL ALLEN HEAD BOLTS.
3. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.
4. RING AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND MARKED IN SETS FOR DELIVERY.
5. RING AND COVER SHALL BE OLYMPIC FOUNDRY PART NO. MH69 D/T OR APPROVED EQUAL.
6B SECTION NOT TO SCALE
6A PLAN NOT TO SCALE
6 SEWER MANHOLE RING AND COVER NOT TO SCALE
NOTE:
EXTEND CONC. JACKET 10 FT ON BOTH SIDES OF PIPE CROSSING.
5 CONCRETE PIPE JACKET DETAIL NOT TO SCALE
DEFLECTION | H | A | B
45° BEND | 4'-8" | 7'-6" | 9'-0"
22.50° BEND | 4'-8" | 6'-0" | 6'-0"
11.15° BEND | 4'-8" | 5'-0" | 4'-0"
1° TO 5° MAX. | 4'-8" | 4'-0" | 3'-0"
4 VERTICAL THRUST BLOCK DETAIL NOT TO SCALE
NOTES:
1. ALL OPENINGS SHALL BE SEALED WITH WATERPROOF NON-SHRINKING GROUT.
2. PROVIDE ¾" STAINLESS STEEL NIPPLES AND ELBOWS DOWN FACING WITH SCREEN ON OUTLET (20-MESH ST. STL.).
3. ADJUST VERTICAL ALIGNMENT OF PROPOSED FORCE MAIN SO THAT HIGH POINT IS MINIMUM 3' BELOW FINISHED GRADE.
4. MINIMUM DEPTH OF PIPE SHALL BE INCREASED AS NECESSARY TO ENSURE VALVE VAULT IS FLUSH WITH GRADE AS SHOWN.
5. WITHIN PAVEMENT AND SHOULDER AREAS, VAULT SHALL BE TRAFFIC BEARING.
2 2" COMBINATION AIR RELEASE VALVE ASSEMBLY NOT TO SCALE
CONCRETE THRUST BLOCK NOTES:
1. BEARING AREA OF CONCRETE THRUST BLOCKS MUST BE POURED AGAINST UNDISTURBED GROUND.
2. CONCRETE MATERIAL FOR THRUST BLOCKS SHALL BE 2,500 MINIMUM.
3. BEARING AREA SHOWN ABOVE ARE BASED ON 200 PSI DESIGN PRESSURE AND 2,500 PSF LATERAL EARTH PRESSURE.
4. TRENCHES IN THRUST BLOCK AREAS MAY NEED WIDENING AND DEEPENING TO OBTAIN THE REQUIRED BEARING AREA.
CONCRETE THRUST BLOCK SCHEDULE
FITTINGS | BEARING AREA (SQ. FT.) 6" PIPE | 8" PIPE | 10" PIPE | 12" PIPE
1/4 (90°) BEND | 4.5000 | 7.5000 | 9.0000 | 15.5000
1/8 (45°) BEND | 2.5000 | 4.0000 | 5.0000 | 8.5000
1/16 (22.50°) BEND | 1.5000 | 2.2500 | 2.5000 | 4.7500
1/32 (11.25°) BEND | N/A | N/A | N/A | N/A
TEE/ GATE VALVE / PLUG | 3.0000 | 5.2500 | 7.7500 | 11.0000
BEND NOT TO SCALE
TEE NOT TO SCALE
PLUG / CAP NOT TO SCALE
1 CONCRETE THRUST BLOCK SCHEDULE NOT TO SCALE
3 SEWER FORCEMAIN CLEANOUT NOT TO SCALE
DCA
CONSULTANTS
GUAM WATERWORKS AUTHORITY
BAZA GARDENS WASTEWATER CROSS-ISLAND PUMPING AND CONVEYANCE SYSTEM (PHASE - I)
CONTRACT SET
12-01-16 REVISION-1
Project No.: GG15-06
CAD Dwg File: GG1506-C9.1.3.DWG
Issue Date: DECEMBER 01, 2016
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CONNECTOR AND PIPE INSTALLATION NOTES:
A. CONNECTOR
1. FOLLOW MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. PREFERRED CONNECTION FOR FLEXIBLE SMH CONNECTOR IS TO HAVE IT PRE-CASTED WITH SMH WALL.
B. PIPE:
1. CENTER PIPE IN CONNECTOR OPENING.
2. POSITION CLAMP TAKE-UPS 90° APART. USING T-HANDLE TORQUE WRENCH, TIGHTEN THE TWO SETS OF CLAMPS ALTERNATELY TO 60 IN. LBS.
3. INSPECT CONNECTOR TO ENSURE THAT TAKE-UP IS UNIFORM AND RUBBER IS EVENLY COMPRESSED AROUND PIPE.
4. ON MINIMUM PIPE O.D. INSTALLATIONS, LIFT THE RUBBER UP UNDERNEATH THE PIPE CLAMP SCREW SO THAT THE CONNECTOR CONTACTS THE BOTTOM SURFACE OF THE PIPE WHILE THE PIPE CLAMP SCREW IS BEING TIGHTENED. APPLICATION OF PIPE LUBRICATION ON UNDERSIDE OF THE CLAMP WILL ALSO HELP ASSURE THAT AN EVEN CONTRACTION OF RUBBER IS MAINTAINED THROUGHOUT THE CLAMPING AREA.
5. AFTER THE PIPE CLAMP HAS BEEN TIGHTENED DOWN FIRMLY, MOVE THE PIPE
CO FRAME & COVER, SEE DETAIL 9 C9.1.1
24"x24" CONCRETE COLLAR W/ #4 REBARS
AC PAVEMENT SEE SHEET C9.1.6 (WHERE OCCUR))
EXISTING OR FINISHED GRADE
6" PVC RISER
6"x 45° BEND
6"x6"x6" PVC WYE
CAPPED SEWER STUB-OUT
6"ø PVC SERVICE LATERAL @ 2% MIN. SLOPE
22 1/2° BEND
45° MAX.
6" SEWER SERVICE WYE FOR NEW CONSTRUCTION (OR SADDLE FOR EXISTING SEWER MAIN)
SEWER MAIN
PIPE BEDDING MATERIAL
UNDISTURBED MATERIAL
VARIES
10'-0"
2'-0"
4'-0"
5 DEEP SEWER SERVICE LATERAL
NOT TO SCALE
15" ø 90° BEND
2500 PSI CONCRETE (POURED IN PLACE)
STANDARD SMH SEE DETAIL 1 C9.1.4
3" (MIN)
1-PIPE LENGTH
15" ø 90° TEE
PROVIDE INTERNAL COATING SEE SPECIFICATIONS
15"ø WYE
15" ø BLIND FLANGED W/ STAINLESS STEEL BOLTS
45° BEND
CORE DRILL HOLE W/KOR-N-SEAL FLEXIBLE CONNECTOR SEE DETAIL 2 C9.1.4
BACKFILL MATERIALS OR GRAVEL BORROW UNLESS OTHERWISE APPROVED BY GWA. COMPACT TO 95% MAXIMUM DENSITY
DIAMETER SAME AS HORIZONTAL PIPE
CONC. CHANNEL
CHANNEL TO MAIN LINE
1. DROP MANHOLES WILL NOT BE ALLOWED UNLESS SPECIFICALLY APPROVED BY GWA
2. IF PVC PIPE IS USED FOR DROP MANHOLE, IT MUST BE ENCASED BY CLASS 3,000 CONCRETE.
4B DROP (HIGH VELOCITY)
NOT TO SCALE
3000 PSI CONCRETE (POURED IN PLACE)
PVC WYE
STANDARD SMH SEE DETAIL 1 C9.1.4
CORE DRILL HOLE W/KOR-N-SEAL FLEXIBLE CONNECTOR SEE DETAIL 2 C9.1.4
45° BEND
BACKFILL MATERIALS OR GRAVEL BORROW UNLESS OTHERWISE APPROVED BY GWA. COMPACT TO 95% MAXIMUM DENSITY
CORE DRILL HOLE W/KOR-N-SEAL FLEXIBLE CONNECTOR SEE DETAIL 2 C9.1.4
DIAMETER SAME AS HORIZONTAL PIPE
90° BEND
3000 PSI CONCRETE (POURED IN PLACE)
CONC. CHANNEL
CHANNEL TO MAIN LINE
NOTES:
1. DROP MANHOLES WILL NOT BE ALLOWED UNLESS SPECIFICALLY APPROVED BY GWA
2. IF PVC PIPE IS USED FOR DROP MANHOLE, IT MUST BE ENCASED BY CLASS 3,000 CONCRETE.
4A DROP (NORMAL)
NOT TO SCALE
4 SEWER MANHOLE DROP CONNECTION
NOT TO SCALE
LANDSCAPE
PAVED AREA/ SHOULDER
PAVEMENT RESTORATION, SEE SHEET C9.1.6
WARNING TAPE
12" TYP
4'-0" MIN
FOR DETAIL SEE ELECTRICAL DWGS FOR LOCATIONS/ALIGNMENT SEE CIVIL DWGS
APPROVED BACKFILL MATERIAL COMPACTED TO 90% RELATIVE DENSITY (OFF ROAD)
TRACER WIRE (PVC FM PIPE ONLY)
PIPE ENVELOPE
SEWER MAIN/FORCEMAIN (FOR FORCEMAIN, SEE SPECS.)
¾" MINUS CRUSHED ROCK BEDDING MATERIAL
COMPACTED CRUSHED ROCK SUB-GRADE IMPROVEMENT (AS NEEDED)
12"
VARIES
6"
2'-0" MAX
18"+ OD
2'-0" MIN
3 SEWER LINE AND FORCEMAIN TRENCH DETAIL
NOT TO SCALE
PRE-CAST CONCRETE WALL
PLASTIC PROTECTIVE CAP
WEDGE EXPANDER
1" SLOPE
NEW SEWER LINE
FLEXIBLE MANHOLE CONNECTOR
FLEXIBLE MANHOLE CONNECTOR
2B C9.1.4
NEW SEWER LINE
PRE-CAST CONCRETE WALL
2B SIDE VIEW
NOT TO SCALE
2A TOP VIEW
NOT TO SCALE
2 FLEXIBLE SMH CONNECTION DETAIL
NOT TO SCALE
LANDSCAPE
PAVED AREA/ SHOULDER
CONDITION IN UNPAVED AREA 60"X60" SQ. CONCRETE PAD WITH 2- #4 HOOPS
30" HEAVY DUTY CAST IRON MANHOLE FRAME & COVER SEE DETAIL 6 C9.1.3
CASTING SHALL BE SET IN BITUMASTIC MATERIAL
10" MAX. ADJUSTING BLOCK
FINISH GRADE
PAVEMENT RESTORATION SEE SHEET C9.1.6
CONC. COLLAR (TYPICAL) SEE DETAIL 7 C9.1.3
6" COMPACTED BASE COURSE TO 95% DENSITY
PRECAST CONCRETE MH CONE
PRECAST CONCRETE MH SECTION
BITUMASTIC SEAL ON INSIDE & OUTSIDE JOINT EDGES WITH 1"x1" MIN. CROSS-SECTIONAL AREA, SEE DETAIL 1C C9.1.3
FLEXIBLE CONNECTOR SEE DETAIL 2 C9.1.4
SLOPE FROM TOP OF PIPE ELEVATION
PRECAST CONCRETE MANHOLE RISER AND BASE (MONOLITHIC)
6"ø MIN., /15"ø MAX FOR 48"ø MH
FIRST BELL TO BE 24" FROM MH
6" THICK BASE
6" COMPACTED BASE COURSE TO 95% DENSITY
COMPACTED SUB-GRADE
1B SECTION
NOT TO SCALE
RUBBER SEAL
SQUEEZE OUT, TYP.
COMPLETED JOINT
1C DETAIL
NOT TO SCALE
2'-0" MIN. TYP.
FLOW
FLEXIBLE MANHOLE CONNECTOR (TYP.)
PRE-CAST CONC. RISER
USE LARGEST PRACTICABLE RADIUS FOR CHANGES IN DIRECTION AND JUNCTION
1A PLAN
NOT TO SCALE
1 SEWER MANHOLE DETAIL
NOT TO SCALE
DCA
DUEÑAS · CAMACHO
ENGINEERING (CIVIL/STRUCTURAL)
CONSTRUCTION MANAGEMENT
PLANNING
ENVIRONMENTAL SERVICES
SURVEYING
DEVELOPMENT CONSULTATION
GEOGRAPHIC INFORMATION SYSTEMS
Tamuning, Guam 96921
CONSULTANTS
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.
DATE: 12-01-2016
PROJECT TITLE
GUAM WATERWORKS AUTHORITY
BAZA GARDENS WASTEWATER CROSS-ISLAND PUMPING AND CONVEYANCE SYSTEM (PHASE - I)
SUBMITTAL
CONTRACT SET
Date Work: 12-01-16
Date: Description: REVISION-1
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SEWERLINE DETAILS
C9.1.4
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SECTION 330130.13 - SEWER AND MANHOLE TESTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing of Gravity Sewer Piping:

a. Low pressure air testing.
b. Exfiltration testing.
c. Infiltration testing.

2. Testing of pressure piping.
3. Deflection testing of plastic sewer piping.
4. Testing of Manholes:

a. Vacuum testing.
b. Exfiltration testing.

B. Related Requirements:
1. Section 333400 - Sanitary Utility Sewerage Force Mains: Pipe materials and accessories normally encountered with municipal sanitary sewage force mains.

1.2 REFERENCE STANDARDS

A. ASTM International:

1. ASTM C1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.
2. ASTM D2122 - Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

B. American Water Works Association:

1. AWWA C600 - Installation of Ductile Iron Mains and Their Appurtenances.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Submit following items prior to start of testing:

1. Testing procedures.
2. List of test equipment.
3. Testing sequence schedule.

4. Provisions for disposal of flushing and test water.
5. Certification of test gage calibration.
6. Deflection mandrel drawings and calculations.

C. Test and Evaluation Reports: Indicate results of manhole and piping tests.

PART 2 - PRODUCTS

2.1 VACUUM TESTING

A. Equipment:

1. Vacuum pump.
2. Vacuum line.
3. Vacuum Tester Base:

   a. Compression band seal.
   b. Outlet port.

4. Shutoff valve.
5. Stopwatch.
6. Plugs.
7. Vacuum Gage: Calibrated to 0.1 in. Hg

2.2 EXFILTRATION TESTING

A. Equipment:

1. Plugs.
2. Pump.
3. Measuring device.

2.3 AIR TESTING

A. Equipment:

1. Air compressor.
2. Air supply line.
3. Shutoff valves.
4. Pressure regulator.
5. Pressure relief valve.
6. Stopwatch.
7. Plugs.
8. Pressure Gage: Calibrated to 0.1 psi

2.4 INFILTRATION TESTING

A. Equipment: Weirs.

2.5 HYDROSTATIC TESTING

A. Equipment:

1. Hydro pump.
2. Pressure hose.
3. Water meter.
4. Test connections.
5. Pressure relief valve.
6. Pressure Gage: Calibrated to 0.1 psi (0.69 kPa).

2.6 DEFLECTION TESTING

A. Equipment:

1. "Go, no go" mandrels.
2. Pull/retrieval ropes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that manholes and piping are ready for testing.

C. Verify that trenches are backfilled.

D. Verify that pressure piping thrust restraint system is installed.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for preparation.

B. Lamping:

1. Lamp gravity piping after flushing and cleaning.
2. Perform lamping operation by shining light at one end of each pipe section between manholes.
3. Observe light at other end.
4. Pipe not installed with uniform line and grade will be rejected.
5. Remove and reinstall rejected pipe sections.

6. Reclean and lamp until pipe section is installed to uniform line and grade.

C. Plugs:

1. Plug outlets, wye branches, and laterals.
2. Brace plugs to resist test pressures.

3.3 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Low-Pressure Air Testing:

1. Test each reach of gravity sewer piping between manholes.
2. Introduce air pressure slowly to approximately 4
3. Determine ground water elevation above spring line of piping.
4. For every foot of ground water above spring line of piping, increase starting air test pressure by 0.43 psi
5. Do not increase pressure above 10 psig
6. Allow pressure to stabilize for at least five minutes.
7. Adjust pressure to 3.5 psig or to increased test pressure as determined above when ground water is present.
8. Do not make allowance for laterals.
9. Minimum Testing Duration in Minutes per 100 feet
   a. Pipe Size 10 Inches : 1.5.
   b. Pipe Size 12 Inches : 1.8.
   c. .
10. Record drop in pressure during testing period.
11. If air pressure drops more than 1.0 psi during testing period, piping has failed.
12. If 1.0 psi air pressure drop has not occurred during testing period, piping is acceptable; discontinue testing.
13. If piping fails, test reach of piping in incremental stages until leaks are isolated, repair leaks, and retest entire reach between manholes.

C. Testing of Pressure Piping:

1. Test system according to AWWA C600 and following:

   a. Hydrostatically test each portion of pressure piping, including valved section, at 1.5 times working pressure of piping, based on elevation of lowest point in piping corrected to elevation of test gage.
   b. Conduct hydrostatic testing for at least two hours.
   c. Slowly fill with water portion of piping to be tested, expelling air from piping at high points.
   d. Install corporation cocks at high points.
   e. Close air vents and corporation cocks after air is expelled.
   f. Raise pressure to specified test pressure.
   g. Observe joints, fittings, and valves undergoing testing.

h. Remove and renew cracked pipes, joints, fittings, and valves that show visible leakage.
i. Retest.
j. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
k. Maintain pressure within plus or minus 5.0 psi of test pressure.
l. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of testing.
m. Compute maximum allowable leakage using following formula:

1) L = [SD x sqrt(P)]/C.
2) L = testing allowance, gph
3) S = length of pipe tested, feet
4) D = nominal diameter of pipe, inches
5) P = average test pressure during hydrostatic testing,.
6) C = 148,000
7) If pipe undergoing testing contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each pipe size.

2. If testing of piping indicates leakage greater than that allowed, locate source of leakage, make corrections, and retest until leakage is within acceptable limits.
3. Correct visible leaks regardless of quantity of leakage.

D. Deflection Testing of Plastic Sewer Piping:

1. Perform vertical ring deflection testing on PVC and acrylonitrile butadiene styrene sewer piping after backfilling has been in place for at least 30 days but not longer than 12 months.
2. Allowable maximum deflection for installed plastic sewer pipe is no greater than five percent of original vertical internal diameter.
3. Perform deflection testing using properly sized rigid ball or "go, no go" mandrel.
4. Furnish rigid ball or mandrel with diameter not less than 95 percent of base or average inside diameter of pipe, as determined by ASTM standard to which pipe is manufactured; measure pipe diameter in compliance with ASTM D2122.
5. Perform testing without mechanical pulling devices.
6. Locate, excavate, replace, and retest piping that exceeds allowable deflection.

E. Manhole Testing:

1. If air testing, test whenever possible prior to backfilling in order to more easily locate leaks.
2. Repair both outside and inside of joint to ensure permanent seal.
3. Test manholes with manhole frame set in place.
4. Vacuum Testing:

a. Comply with ASTM C1244
b. Plug pipe openings; securely brace plugs and pipe.
c. Inflate compression band to create seal between vacuum base and structure.
d. Connect vacuum pump to outlet port with valve open, then draw vacuum to 10 in. Hg
e. Close valve.

f. Manhole Test Duration in Seconds:

1) Diameter 4 Feet :60.

g. Record vacuum drop during test period.
h. If vacuum drop is greater than 1 in. Hg during testing period, repair and retest manhole.
i. If vacuum drop of 1 in. Hg does not occur during test period, manhole is acceptable; discontinue testing.
j. If vacuum test fails to meet 1 in. Hg drop in specified time after repair, repair and retest manhole.

5. If unsatisfactory testing results are achieved, repair manhole and retest until result meets criteria.
6. Repair visible leaks regardless of quantity of leakage.

END OF SECTION 330130.13

SECTION 330513 - MANHOLES AND STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete manholes and structures with transition to cover frame, covers, anchorage, and accessories.
2. Modular precast concrete manholes and structures with tongue-and-groove joints and transition to cover frame, covers, anchorage, and accessories.
3. Masonry manhole and structure sections with masonry transition to cover frame, covers, anchorage, and accessories.
4. Doghouse manhole connections to existing sewer lines.
5. Bedding and cover materials.
6. Pile support systems.

B. Related Requirements:

1. Section 031000 - Concrete Forming and Accessories: Erection and bracing of forms.
2. Section 032000 - Concrete Reinforcing: Execution requirements for reinforcing steel as required by this Section.
3. Section 033000 - Cast-in-Place Concrete: Concrete type for manhole and structure foundation slab construction.
4. Section 040514 - Masonry Mortaring and Grouting: Mortar and grout.
5. Section 042000 - Unit Masonry: Product requirements for clay brick units for use in manhole and structure construction.
6. Section 310513 - Soils for Earthwork: Soils for backfill in trenches.
7. Section 310516 - Aggregates for Earthwork: Aggregate for backfill in trenches.
8. Section 312316 - Excavation: Excavating for manholes, structures, and foundation slabs.
9. Section 312323 - Fill: Backfilling after manhole and structure installation.
10. Section 330130.13 - Sewer and Manhole Testing: Testing requirements for manholes.

1.2 REFERENCE STANDARDS

A. American Association of State Highway Transportation Officials:

1. AASHTO M91 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
2. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
3. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures.

C. ASTM International:

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale).
4. ASTM C55 - Standard Specification for Concrete Building Brick.
5. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
6. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
7. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
8. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
9. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data for manhole covers, component construction, features, configuration, dimensions

C. Shop Drawings:

1. Indicate structure locations and elevations.
2. Indicate sizes and elevations of piping and penetrations

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements

E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

G. Qualifications Statements:

1.4 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Comply with precast concrete manufacturer's instructions and ASTM C913 for unloading, storing, and moving precast manholes and drainage structures.

D. Storage:

1. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property.
2. Repair property damaged from materials storage.

PART 2 - PRODUCTS

2.1 MANHOLES AND STRUCTURES

A. Standard Precast Concrete Manholes:

1. Description: ASTM C 478 precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Diameter: 48 inches minimum unless otherwise indicated.
3. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
4. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section; with separate base slab or base section with integral floor.
5. Riser Sections: 4-inch minimum thickness, of length to provide depth indicated.
6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated; with top of cone of size that matches grade rings.
7. Joint Sealant: ASTM C 990 bitumen or butyl rubber.
8. Resilient Pipe Connectors: ASTM C 923 cast or fitted into manhole walls, for each pipe connection.

B. High Velocity Protection

1. Each manhole and force-main receiving structure shall be coated with an epoxy based liner to protect against high velocities and corrosion. The entire structure from the bottom to the top including rungs ,rings and channel shall be coated. The coating shall be applied after the concrete in the structures has completely cured. Acceptable coating manufactures include:
   a. Raven Lining systems
   b. Sika
   c. Approved Equal

C. Manhole Frames and Covers:

1. Description: Ferrous; 30-inch ID by 6- to 9-inch riser, with 4-inch- minimum-width flange and 31-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."
2. Material: ASTM A 48, Class 40 gray iron unless otherwise indicated.

2.2 CONCRETE

A. General: Cast-in-place concrete complying with ACI 318, ACI 350/350R and the following:

1. Cement: ASTM C 150, Type II or JIS R5210.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615, Grade 60 deformed steel.

C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.

   a. Invert Slope: 1 percent through manhole.

2. Benches: Concrete, sloped to drain into channel.

   a. Slope: 4 percent.

D. Ballast and Pipe Supports: Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615, Grade 60 deformed steel.

2.3 FRAMES AND COVERS

A. Description:

1. Construction: ASTM, Class 30B, cast iron.
2. Lid:

   a. Machined flat bearing surface.
   b. Removable.

3. Cover Design: Closed

4. Live Load Rating: H20-44
5. Sealing gasket.

2.4 RISER RINGS

A. Riser Rings:

1. 4 Inches to 6 Inches Thick:

   a. Material: Precast concrete.
   b. Comply with ASTM C478

2. Less than 4 Inches Thick:

   a. Material: Cast iron.
   b. Comply with AASHTO M306.

3. Rubber Seal Wraps:

   a. Wraps and Band Widths: Conform to ASTM C877 Type III.
   b. Cone/Riser Ring Joint: Minimum 3 inches overlap.
   c. Frame/Riser Ring Joint: 2 inches overlap.
   d. Additional Bands: Overlap upper band by 2 inches

B. Accessories:

1. Joint Sealant: Comply with ASTM C990
2. Bolts:

   a. Stainless Steel: Comply with ASTM F593.
   b. Galvanized: Comply with ASTM F1554.

2.5 ACCESSORIES

A. Foundation Slab:

1. Cast-in-place concrete as specified in Section 033000 - Cast-in-Place Concrete
2. Top Surface: Level.Indicate type of anchorage required to anchor to other structural elements.

B. Concrete: As specified in Section 033000 - Cast-in-Place Concrete

C. Grout: As specified in Section 036000 - Grout

D. Odor Control Polyethylene Manhole Insert:

1. Contractor shall supply odor reducing manhole inserts made from high density Polyethylene Copolymer material that meets ASTM Specification Designation D-1248 Class A, Category 5, Type III. Filter shall make use of non-hazardous, according to the

definition for “health hazard” and “physical hazard” provided in the OSHA Hazard Communication Law (29 CFR Part 1910), activated carbon filter media. Insert shall be manufactured to fit the manhole frame rim upon which the manhole cover rests.

2. Contractor shall supply odor reducing manhole inserts for all manholes locates along Sewerline B

3. Manufactures

   a. Parson Environmental Products
   b. Simple Solutions Dist
   c. Approved Equal

2.6 FINISHES

A. Steel Galvanizing:

1. ASTM A123
2. Hot dip galvanize after fabrication.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that items provided by other Sections of Work are properly sized and located.

C. Verify that built-in items are in proper location and are ready for roughing into Work.

D. Verify correct size of manhole and structure excavation.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers as indicated on Drawings to indicate its intended use.

C. Coordinate placement of inlet and outlet pipe or duct sleeves required by other Sections.

D. Do not install manholes and structures where Site conditions induce loads exceeding structural capacity of manholes or structures.

E. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

A. Excavation and Backfill:

1. Excavate for manholes and structures as specified in Section 312316 - Excavation and in indicated locations and depths.
2. Provide clearance around sidewalls of manhole or structure for construction operations granular backfill
3. If groundwater is encountered, prevent accumulation of water in excavations; place manhole or structure in dry trench.
4. Where possibility exists of watertight manhole or structure becoming buoyant in flooded excavation, anchor manhole or structure to avoid flotation, as approved by Architect/Engineer.

B. Foundation Slab:

C. Install manholes and structures supported at proper grade and alignment as indicated on Drawings.

D. Backfill excavations for manholes and structures as specified in Section 312316 - Excavationand312323 - Fill.

E. Form and place manhole or structure cylinder plumb and level, to correct dimensions and elevations.

F. As Work progresses, build fabricated metal items

G. Cut and fit for pipe and sleeves

H. Grout base of shaft sections to achieve slope to exit piping, trowel smooth, and contour to form continuous drainage channel

I. Paint interior with two coats of bituminous interior coating at rate of 120sq. ft. per for each coat.

J. Set cover frames and covers level to correct elevations without tipping.

K. Precast Concrete Manholes and Structures:

1. Lift precast components at lifting points designated by manufacturer.
2. When lowering manholes into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
3. Set precast structures, bearing firmly and fully on crushed stone bedding, compacted as specified in Section 312316 – Excavation and 312323 - Fill or on other support system as indicated on Drawings.
4. Assembly:

a. Assemble multi-section manholes and structures by lowering each section into excavation.
b. Install rubber gasket joints between precast sections according to manufacturer's recommendations.
c. Lower, set level, and firmly position base section before placing additional sections.

5. Remove foreign materials from joint surfaces and verify sealing materials are placed properly.
6. Maintain alignment between sections by using guide devices affixed to lower section.
7. Joint sealing materials may be installed on Site or at manufacturer's plant.
8. Verify that installed manholes meet required alignment and grade.
9. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe; fill annular spaces with mortar.
10. Cut pipe flush with interior of structure.
11. Shape inverts through manhole as indicated on Drawings.

L. Cast-in-Place Concrete Manholes and Structures:

1. Prepare crushed stone bedding or other support system as indicated on Drawings to receive base slab as specified for precast structures.
2. Erect and brace forms against movement as specified in Section 031000 - Concrete Forming and Accessories.
3. Install reinforcing steel as indicated on Drawings and as specified in Section 032000 - Concrete Reinforcing.
4. Place and cure concrete as specified in Section 033000 - Cast-in-Place Concrete.
5. Frames and Covers:

a. Set frames using mortar and masonry.
b. Install radially laid concrete brick with 1/4 inch thick vertical joints at inside perimeter.
c. Lay concrete brick in full bed of mortar and completely fill joints.
d. If more than one course of concrete brick is required, stagger vertical joints.
e. Set frame and cover 2 inches above finished grade for manholes [and structures] with covers located within unpaved areas, to allow area to be graded away from cover beginning 1 inch below top surface of frame.

M. Sanitary Manhole Drop Connections:

1. Concrete Encasement: Minimum [2] feet outside of manhole upto top of upstream pipe.
2. Form channel from pipe drop to sweep into main channel at maximum angle of 30 degrees.

N. Castings:

1. Set frames using mortar and masonry as indicated on Drawings.
2. Install radially-laid concrete brick with [1/4] inch thick vertical joints at inside perimeter.
3. Lay concrete brick in full bed of mortar and completely fill joints.
4. If more than one course of concrete brick is required, stagger vertical joints.

5. Set frame and cover [2] inches) above finished grade for manholes and other structures with covers located within unpaved areas to allow area to be graded away from cover beginning [1] inch below top surface of frame.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Test cast-in-place concrete as specified in Section 033000 - Cast-in-Place Concrete

C. Test concrete manhole and structure sections as specified in Section 330130.13 - Sewer and Manhole Testing.

D. Vertical Adjustment of Existing Manholes and Structures:
   1. If required, adjust top elevation of existing manholes and structures to finished grades as indicated on Drawings.
   2. Frames, Grates, and Covers:
      a. Carefully remove frames, grates, and covers cleaned of mortar fragments.
      b. Reset to required elevation according to requirements specified for installation of castings.
   3. Reinforcing Bars:
      a. Remove concrete without damaging existing vertical reinforcing bars if removal of existing concrete wall is required.
      b. Clean vertical bars of concrete and bend into new concrete top slab or splice to required vertical reinforcement as indicated on Drawings.
   4. Clean and apply sand-cement bonding compound on existing concrete surfaces to receive cast-in-place concrete as specified in Section 033000 - Cast-in-Place Concrete

END OF SECTION 330513

SECTION 333113 - PUBLIC SANITARY UTILITY SEWERAGE PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sanitary sewerage pipe and fittings.
2. Pipe markers.
3. Connection to existing manholes.
4. Manholes.
5. Wye branches and tees.
6. Sanitary laterals.
7. Bedding and cover materials.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C14 - Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe.
4. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
5. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
6. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
7. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
8. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
9. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3).
10. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
11. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.

12. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
13. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
14. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems.
15. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
16. ASTM D2751 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
17. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.
18. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
19. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
20. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
7. AWWA C153 - Ductile-Iron Compact Fittings.

1.3 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Notify affected utility companies at least 72hours prior to construction.

1.4 PREINSTALLATION MEETINGS

A. Section 013000 - Administrative Requirements: Requirements for preinstallation meeting.

B. Convene minimum 2 weeks prior to commencing Work of this Section.

C. Attendance Roster: Include affected utility companies and appropriate local officials.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer catalog cuts and other information indicating proposed materials, accessories, details, , and construction information.

C. Shop Drawings:

1. Indicate layout of sewer system and appurtenances
2. Show size, materials, components of system, and burial depth.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Test and Evaluation Reports: Submit reports indicating field tests made and results obtained.

F. Manufacturer Instructions:

1. Indicate special procedures required to install specified products.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Qualifications Statements:

1. Submit qualifications for manufacturer and installer.
2. Submit manufacturer's approval of installer.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record invert elevations and actual locations of pipe runs, connections , manholes and cleanouts.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

D. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 20 years' documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Store materials according to manufacturer instructions.
2. Store valves in shipping containers with labeling in place.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Provide additional protection according to manufacturer instructions.

E. Deliver and store valves in shipping containers with labeling in place.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 SANITARY SEWERAGE PIPE AND FITTINGS

A. Ductile-Iron Pipe for use at all fittings and drop structures:

B. Plastic pipe alternative may be used, refer to plans for details

1. Comply with AWWA C151
2. Minimum Pressure Class: 150
3. End Connections: Bell and spigot
4. Outside Coating:

a. Type: Asphaltic coating, minimum 2 mil uniform thickness.

5. Lining:

a. Type: Asphaltic sealcoat, minimum [1] mil uniform thickness.
b. Comply with AWWA C104.

6. Polyethylene encasement: Comply with AWWA C105.
7. Fittings:

a. Material: Ductile iron, Class 50
b. Comply with AWWA C110.
c. Lining: Cement-mortar lined according to AWWA C104 Seal coat lined and coated with bituminous paint

8. Coating:

a. Coat pipe and fittings exposed inside of structures with two coats of bituminous
b. As specified in Section 099000 - Painting and Coating.

9. Joints:

    a. Rubber gasket joint devices.
    b. Comply with AWWA C111.

C. Plastic Pipe:

1. Material: Polyvinyl chloride (PVC), Schedule 80
2. Comply with ASTM D1785.
3. Inside Nominal Diameter: 12 inches End Connections: Bell and spigot style, with solvent-sealed ends.
4. Fittings:

    a. Material: PVC.
    b. Comply with ASTM D2466.

5. Joints:

    a. Solvent welded with solvent cement conforming to ASTM D2564.
    b. Comply with ASTM D2855.

D. Plastic Pipe (alternative):

1. Material: Polyvinyl chloride (PVC).
2. Comply with ASTM D3034, SDR-35
3. Inside Nominal Diameter: 12 - 15 inches
4. End Connections: Bell and spigot style, with rubber-ring-sealed gasket joint.
5. Fittings: PVC.
6. Joints:

    a. Elastomeric gaskets.
    b. Comply with ASTM F477.

2.2 FLEXIBLE COUPLINGS

A. Description:

1. Resilient chemical-resistant elastomeric polyvinyl chloride (PVC) coupling.
2. Attachment: Two stainless-steel clamps, screws, and housings.

2.3 FLEXIBLE PIPE BOOT FOR MANHOLE PIPE ENTRANCES

A. Description:

1. Material: Ethylene propylene rubber (EPDM).
2. Comply with ASTM C923 (C923M).
3. Attachment: stainless-steel clamp and hardware.

2.4 CONCRETE ENCASEMENT AND CRADLES

A. Concrete:

1. As specified in Section 033000 - Cast-in-Place Concrete.
2. Strength: 4000 psi at 28 days.
3. Finish: Rough troweled.

2.5 MANHOLES

A. Description: As specified in Section 330513.16 - Public Manholes and Structures.

B. Description:

1. As specified in Section 330513.16 - Public Manholes and Structures.
2. Material: Precast concrete.
3. Diameter: 48 inches
4. Frames and Covers: Watertight cast iron.
5. Cover Inscription: SANITARY SEWER

2.6 MIXES

A. Grout: As specified in Section 036000 - Grouting

2.7 FINISHES

A. Galvanizing:

1. Hot-dip galvanize after fabrication.
2. Comply with ASTM A123 (A123M).

2.8 ACCESSORIES

A. Pipe Supports:

1. Metal for pipe support brackets: Galvanized structural steel, thoroughly coated with bituminous paint.

B. Pipe Markers: As specified in Section 330526 - Utility Identification.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that excavation base is ready to receive Work.

C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Correct over-excavation with coarse aggregate.

C. Remove large stones or other hard materials that could damage pipe or impede consistent backfilling or compaction.

D. Protect and support existing sewer lines, utilities, and appurtenances.

E. Utilities:

1. Maintain profiles of utilities.
2. Coordinate with other utilities to eliminate interference.
3. Notify Architect/Engineer if crossing conflicts occur.

3.3 INSTALLATION

A. Bedding:

1. Excavate pipe trench as specified in Section 312317 - Trenching.
2. Excavate to lines and grades as indicated on Drawings or as required to accommodate installation of encasement.
3. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
4. Provide sheeting and shoring as specified in Section 312317 - Trenching .
5. Placement:
    a. Place bedding material at trench bottom.
    b. Level materials in continuous layer not exceeding 6 inches compacted depth.
    c. Compact to 95 percent of maximum density.

B. Piping:

1. Install pipe, fittings, and accessories according to ASTM D2321and seal joints watertight.
2. Lay pipe to slope gradients as indicated on Drawings
3. Maximum Variation from Indicated Slope: [1/8] inch in [10] feet
4. Begin at downstream end and progress upstream.
5. Assemble and handle pipe according to manufacturer's instructions, except as may be modified on Drawings or by Construction Manager.
6. Keep pipe and fittings clean until Work has been completed and accepted by Architect/Engineer.

7. Cap open ends during periods of Work stoppage.
8. Lay bell and spigot pipe with bells upstream.

C. Manholes:

1. Install manholes as specified in Section 330513.16 - Public Manholes and Structures

D. Wye Branches and Tees:

1. Concurrent with pipe-laying operations, install wye branches and pipe tees at locations indicated on Drawings.
2. Use standard fittings of same material and joint type as sewer main.
3. Maintain minimum 5ft separation distance between wye connection and manhole.
4. Use saddle wye or tee with stainless-steel clamps for taps into existing piping.
5. Mount saddles with solvent cement or gasket and secure with metal bands.
6. Lay out holes with template, and cut holes with mechanical cutter.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Request inspection by Construction Manager prior to and immediately after placing bedding.

C. Testing:

1. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.
2. Pipe Testing:

a. Pressure Test: As specified in Section 330130.13 - Sewer and Manhole Testing.
b. Infiltration Test: As specified in Section 330130.13 - Sewer and Manhole Testing
c. Deflection Test: As specified in Section 330130.13 - Sewer and Manhole Testing

3. Compaction Testing:

a. Comply with ASTM D1557 or ASTM D698 and ASTM D6938.
b. Testing Frequency: 1 per 600 linear feet/2,000 sq. ft..

3.5 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION 330130.13

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 18 - FY2018
Relative to Approval of the 2010 Bond Proceeds Reallocation

What is the project's objective and is it necessary and urgent?
The objective of the resolution is to give GWA management the authority to reallocate unspent or unused monies from completed CIP projects funded by the 2010 bond proceeds (such as unused contingencies, or negotiated cost savings) to other CIP line items that are on-going and for which there exists a current and greater need for funding, thereby improving management's ability to encumber the fund balance.

The on-going CIP line items that would have unobligated 2010 Bond proceeds reallocated to them are PW 05-07 "Meter Replacement Program", PW 05-12 "Brigade II (Ugum Lift) BPS Upgrade", PW 05-15 "Rehabilitation of Asan Springs", PW 09-09 "Water "Reservoir Internal/External" and WW 11-03 "Baza Gardens STP Replacement".

Where is the location?
NOT APPLICABLE

How much will it cost?
The bond proceeds that will be affected by the reallocation is Eight Hundred Eighty-Six Thousand Four Hundred Thirty-One Dollars and Six Cents ($886,431.06)

When will it be completed?
The goal of reallocating the 2010 bond proceeds is to encumber all bond proceeds by December 2018.

What is the funding source?
NOT APPLICABLE

The RFP/BID responses (if applicable):
NOT APPLICABLE

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

GWA RESOLUTION NO. 18–FY2018

RELATIVE TO APPROVAL OF THE 2010 BOND PROCEEDS REALLOCATION

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities ("CCU") has plenary authority over financial, contractual and policy matters relative to the Guam Waterworks Authority ("GWA"); and

WHEREAS, the Guam Waterworks Authority ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, GWA accounting has reconciled all 2010 Bond Capital Improvements Project (CIP) accounts and have determined there are several CIP line items with a remaining balance under "Unobligated Project Cost" in the amount of Four Million Three Hundred Nine Thousand Six Hundred Thirty-Four Dollars ($4,309,634) (See Exhibit A); and

WHEREAS, GWA engineering has determined the remaining balance for CIP line items shown in the Unobligated Project Cost, with the exception of five (5) CIP line items, specifically PW 05-07 "Meter Replacement Program", PW 05-12 "Brigade II (Ugum Lift) BPS Upgrade", PW 05-15 "Rehabilitation of Asan Springs", PW 09-09 "Water "Reservoir Internal/External" and WW 11-03 "Baza Gardens STP Replacement," are generally unspent amounts resulting from negotiated cost savings or unused contingencies, and are insufficient to fund an additional capital projects specific to the CIP line item; and

WHEREAS, the five GWA CIP projects noted above have 2010 Bond funding allotments already but these projects are anticipated to require additional funding or the amounts are needed to supplement the funding sources towards construction costs; and

//

WHEREAS, GWA management seeks CCU approval to reallocate all unobligated funds from certain CIP line items as shown on Exhibit B under the "Reduction Funds (x1000)" column in the amount of Eight Hundred Eighty-Six Thousand Four Hundred Thirty-One Dollars and Six Cents ($886,431.06) to fund five CIP line items noted above which are under the "Additional Funds (x1000)" column which correspond to the CIP projects requiring additional funding or that would supplement the funding sources towards construction costs; and

WHEREAS, the reallocation of the funds noted to the five CIP line items identified is expected to expedite the 2010 Bond fund balance encumbrance given these five CIP line items involve ongoing projects or projects that are expected to be procured within calendar year 2018; and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the reallocation presented by GWA management is fair and reasonable.
3. The CCU hereby approves the 2010 bond reallocation request of all unobligated funds from CIP line items shown in Exhibit B under the "Reduction Funds (x1000)" column to be allotted to CIP line item PW 05-07, PW 05-12, PW 05-15, PW 09-09 and WW 11-03 in the amount of One Hundred Fifty Thousand Dollars ($150,000.00), Two Hundred Thousand Dollars ($200,000.00), Two Hundred Thousand Dollars ($200,000.00), One Hundred Fifty Thousand Dollars ($150,000.00) and One Hundred Eighty-Six Thousand Four Hundred Thirty-One Dollars and Six Cents ($186,431.06), respectively .
4. The CCU further hereby authorizes GWA management to seek PUC approval of the 2010 bond reallocation as presented herein.

//

//

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 27th day of February, 2018.

Certified by: Attested by:

_____ _____

JOSEPH T. DUENAS **J. GEORGE BAMBA**
Chairperson Secretary

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

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DRAFT

GUAM WATERWORKS AUTHORITY
2010 Series Bond Project Status
As of Jan. 31, 2018

SCHEDULE M

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Ground Water Disinfection	$ -	$ 500,000	$ 438,141	$ 61,859	$ 500,000	$ 0	$ 61,859
"A" Series Well Transmission Line	$ 600,000	$ 518,144	$ 474,434	$ 1,274	$ 475,709	$ 42,435.15	$ 43,710
Water Booster Pump Station	$ 500,000	$ 500,000	$ 418,844	$ 81,156	$ 500,000	$ (0)	$ 81,156
Meter Replacement Program	$ 2,500,000	$ 10,300,000	$ 10,254,220	$ 19,409	$ 10,273,628	$ 26,371.65	$ 45,780
Barrigada Tank Repair/Replacement	$ -	$ 5,450,000	$ 5,442,302	$ 7,698	$ 5,450,000	$ 0	$ 7,698
Leak Detection		$ 200,000	$ -	$ 200,000	$ 200,000	$ -	$ 200,000
Potable Water System Planning	$ 200,000	$ 200,000	$ 179,638	$ 20,362	$ 200,000	$ -	$ 20,362
Implement Ground Water Rule		$ 1,700,000	$ 1,499,464	$ 200,535	$ 1,700,000	$ 0.50	$ 200,536
Brigade II (Ugum Lift) BPS Upgrade	$ 1,200,000	$ 1,700,000	$ 135,695	$ 202,199	$ 337,895	$ 1,362,105	$ 1,564,305
Deep Well Rehabilitation	$ 548,000	$ 548,000	$ 548,000	$ -	$ 548,000	$ -	$ -
New Deep Wells at Down Hard	$ 3,773,000	$ 638,252	$ 485,743	$ -	$ 485,743	$ 152,509.31	$ 152,509
Rehabilitation of Asan Springs	$ 900,000	$ 900,000	$ 188,771	$ 152,068	$ 340,838	$ 559,162	$ 711,229
Master Meters	$ 1,600,000	$ 1,600,000	$ 1,421,267	$ 68,690	$ 1,489,957	$ 110,042.85	$ 178,733
Ugum Water Treatment Plant Intake	$ 3,670,000	$ 700,000	$ 543,615	$ 156,385	$ 700,000	$ -	$ 156,385
Water Wells	$ 2,000,000	$ -	$ -		$ -	$ -	$ -
Water Distribution System	$ 384,000	$ 3,174,748	$ 3,174,748	$ -	$ 3,174,748	$ (0)	$ (0)
Pressure Zone Realignment /	$ 3,550,000	$ -	$ -		$ -	$ -	$ -
Northern System Water Distribution	$ 2,725,000	$ -	$ -	$ -	$ -	$ -	$ -
Central Water Distribution System 2005	$ 1,200,000	$ 900,000	$ 692,926	$ 82,076	$ 775,002	$ 124,997.80	$ 207,074
Southern Water Distribution System	$ 1,800,000	$ -	$ -		$ -	$ -	$ -
Mechanical/Electrical Equipment	$ 1,360,000	$ 1,200,000	$ 1,079,495	$ 120,505	$ 1,200,000	$ (0)	$ 120,505
Water Reservoir Internal/External	$ 500,000	$ 2,000,000	$ 1,033,356	$ 476,027	$ 1,509,384	$ 490,616	$ 966,644
Water Reservoir Internal/External	$ 2,400,000	$ -	$ -		$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 11,697,000	$ 1,050,000	$ 1,050,000		$ 1,050,000	$ 0	$ 0
Distribution System Upgrades	$ 3,182,000	$ 474,160	$ 451,462	$ 22,698	$ 474,160	$ 0	$ 22,698
Ugum Water Treatment Plant Reservoir	$ 3,672,000	$ -	$ -		$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan		$ 100,000	$ 15,031	$ 63,428	$ 78,459	$ 21,541.49	$ 84,970
Production Plan / Reduce Navy Purchases		$ 100,000	$ 94,286	$ 5,714	$ 100,000	$ -	$ 5,714
Hydraulic Asessment of Tank		$ 500,000	$ 497,004	$ 2,996	$ 500,000	$ -	$ 2,996
Agana Heights & Chaot Tanks		$ 4,700,000	$ 4,327,370	$ 372,630	$ 4,700,000	$ -	$ 372,630
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 1,900,000	$ 1,750,355	$ 97,659	$ 1,848,013	$ 51,986.58	$ 149,645
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ -			$ -	$ -	$ -
Assessment of malojloj Elevetad & Yigo Elevated		$ 200,000	$ 200,000	$ -	$ 200,000	$ -	$ -
Public Water System Asser Inventory/Condition Assesment		$ 100,000	$ 96,554	$ 3,446	$ 100,000	$ -	$ 3,446
Public Water System GIS & Mapping		$ 50,000	$ 50,000	$ -	$ 50,000	$ -	$ -
		$ -			$ -	$ -	$ -
Wastewater System Planning	$ 1,500,000	$ 1,500,000	$ 1,465,858	$ 8,142	$ 1,474,000	$ 26,000.00	$ 34,142
Wastewater Vehicles	$ 235,000	$ 235,000	$ 209,795	$ 25,205	$ 235,000	$ 0	$ 25,205
NDWWTP - Chlorine Tanks	$ 250,000	$ 250,000	$ 250,000		$ 250,000	$ -	$ -
Tumon Bay Sewer Upgrades	$ 100,000	$ -	$ -		$ -	$ -	$ -
Wastewater Collection System Repl/Rehab		$ 1,105,000	$ 718,036	$ 283,287	$ 1,001,323	$ 103,676.99	$ 386,964
Facilities Plan/Design for Baza Gardens WWTP	$ 1,250,000	$ 1,250,000	$ 1,239,250	$ 10,750	$ 1,250,000	$ -	$ 10,750
Facilities Plan/Design for Agat-Santa Rita WWTP	$ 900,000	$ 899,630	$ 881,749	$ 17,881	$ 899,630	$ -	$ 17,881
Priority 1 Sewer Upgrades – Baza Gardens WWTP	$ 650,000	$ -	$ -		$ -	$ -	$ -
Baza Gardens STP Replacement	$ 3,567,000	$ 1,301,947	$ 316,686	$ 314	$ 317,000	$ 984,947	$ 985,261
Facilities Plan/Design for Umatac Merizo WWTP		$ 900,000	$ 693,161	$ 160,696	$ 853,858	$ 46,142.15	$ 206,839
Agat/Santa Rita STP Replacement	$ 2,968,000	$ 2,218,000	$ 2,217,314	$ 387	$ 2,217,701	$ 299.50	$ 686
Northern District WWTP Primary Treatment Upgrades	$ -	$ 11,750,000	$ 11,532,253	$ 211,261	$ 11,743,514	$ 6,486.06	$ 217,747
Biosolids Management Plan		$ 200,000	$ 196,414	$ 3,586	$ 200,000	$ -	$ 3,586
Agana WWTP Interim Measures	$ -	$ 11,500,000	$ 11,242,386	$ 57,614	$ 11,300,000	$ 200,000.00	$ 257,614
I&I SSES Southern		$ 800,000	$ 733,872	$ 66,129	$ 800,000	$ (0)	$ 66,128
I&I SSES Central		$ 850,000	$ 794,325	$ 55,675	$ 850,000	$ -	$ 55,675
I&I SSES Northern		$ -			$ -	$ -	$ -
Umatac Merizo Replacement		$ 250,000	$ 247,431	$ 2,569	$ 250,000	$ -	$ 2,569
Northern District WWTP Secondary Treatment Upgrades		$ 1,000,000					$ 1,000,000
		$ -					
Well Electrical Protection	$ 26,000	$ -	$ -		$ -	$ -	$ -
SCADA Pilot Project	$ 300,000	$ 61,950	$ 19,812	$ 42,138	$ 61,950	$ (0)	$ 42,138
Electrical Upgrade - Water Wells	$ 3,000,000	$ 354,227	$ 335,378	$ 18,849	$ 354,227	$ 0	$ 18,849
Electrical Upgrade - Water Booster	$ 325,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade -Water Booster	$ 350,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade - Other Water	$ 250,000	$ -			$ -	$ -	$ -
SCADA Improvements – Phase 1	$ 250,000	$ 250,000	$ 193,989	$ 56,011	$ 250,000	$ -	$ 56,011
SCADA Improvements – Phase 2	$ 1,100,000	$ 1,056,986	$ 1,027,424	$ 29,562	$ 1,056,986	$ -	$ 29,562
SCADA Improvements – Phase 3	$ 2,500,000	$ 24,956	$ 24,956	$ -	$ 24,956	$ 0	$ 0
SCADA Improvements – Phase 4	$ 850,000	$ -	$ -		$ -	$ -	$ -
		$ -					
Laboratory Modernization	$ 1,200,000	$ -	$ -		$ -	$ -	$ -
Land Survey	$ 1,500,000	$ 500,000	$ 470,590	$ 29,097	$ 499,687	$ 312.68	$ 29,410
General Plant Improvements / Water	$ 14,370,000	$ 7,241,000	$ 7,241,000	$ 0	$ 7,241,000	$ 0	$ 0
Interest Earned							$ 81,037
Total Construction Fund (2010 Series Revenue Bond)	**$ 87,402,000**	**$ 87,402,000**	**$ 78,594,399**	**$ 3,497,966**	**$ 82,092,366**	**$ 4,309,634**	**$ 8,888,637**

1.) PUC's Docket 11-01 $29,000,000.00 dated
09/19/11authorized GWA for reallocation
2) PUC's Docket 11-01 Reallocation of $23,246,000.00 dated 07/30/12
3) PUC's Dockect Reallocation dated February 2013

Exhibit A (1 of 1)

Exhibit B (1 of 1)

2010 Bond Reallocation			
CIP No.	Name	Additional Funds (x1000)	Reduction Funds (x1000)
PW 05-05	"A" Series Well Transmission Line		$ 42,435.15
PW 05-07	Meter Replacement Program	$ 150,000	
PW 05-11	Implement Ground Water Rule		$ 0.50
PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	$ 200,000	
PW 05-14	New Deep Wells at Down Hard		$ 152,509.31
PW 05-15	Rehabilitation of Asan Springs	$ 200,000	
PW 05-16	Master Meters		$ 110,042.85
PW 09-06	Central Water Distribution System 2005		$ 124,997.80
PW 09-09	Water Reservoir Internal/External	$ 150,000	
PW 12-01	Water Audit Program & Water Loss Control Plan		$ 21,541.49
PW 12-05	Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 51,986.58
WW 05-04	Wastewater System Planning		$ 26,000.00
WW 09-06	Wastewater Collection System Repl/Rehab		$ 103,676.99
WW 11-03	Baza Gardens STP Replacement	$ 186,431.06	
WW 11-04	Facilities Plan/Design for Umatac Merizo WWTP		$ 46,142.15
WW 11-08	Agat/Santa Rita STP Replacement		$ 299.50
WW 12-01	Northern District WWTP Primary Treatment Upgrades		$ 6,486.06
WW 12-03	Agana WWTP Interim Measures		$ 200,000.00
MC 05-02	Land Survey		$ 312.68
		$ 886,431.06	$ 886,431.06

$ -

GUAM WATERWORKS AUTHORITY
"Better Water, Better Lives."
Gloria B. Nelson Public Service Building| 688 Route 15 | Mangilao, Guam 96913
Tel: (671) 300-6846

Issues for Decision

Resolution No. 19- FY2018
Relative to Approval of a Contract for Construction of **Outfall Effluent Diffuser Installation** for the Upgrade of the Northern District Wastewater Treatment Plant to Secondary Treatment, GWA Project No. S-18-002-OEA, (OEA Grant OCON 676-16-02)

What is the project's objective and is it necessary and urgent?
The objective of the diffuser installation project is to comply with the current National Pollutant Discharge Elimination System permit and mitigate impacts to nearshore waters and marine biological resources. The diffuser installation is necessary to properly discharge treated effluent from the Northern District Wastewater Treatment Plant over a large mixing zone. Additionally, the diffuser installation supports increasing the performance of the WWTP to address the impacts from the impending military relocation. The installation is urgent to avoid adverse seasonal weather and allow sufficient time for construction to meet the scheduled military relocation.

Where is the location?
The ocean outfall effluent diffuser will be installed west-northwest of Tanguisson Beach, approximately 1,950 feet from the shoreline into the ocean at 140 feet below the ocean surface. It will be attached to the existing deep ocean outfall pipe.

How much will it cost?
GWA Management seeks CCU approval for the proposed bid price of _____ Million _____ Dollars ($_____). With a ten percent (10%) contingency of _____ ($_____), the total authorized funding amount requested is _____ Million _____Dollars ($_____).

When will it be completed?
The anticipated completion of the construction activities by the contractor is August 2018, however this is dependent on weather and sea conditions.

What is the funding source?
Funding for the diffuser project is from Department of Defense, Office of Economic Adjustment (OEA) General Assistance Grant for water and wastewater improvements in support of the relocation of U.S. Marines and their dependents to Guam OEA Award No. OCON676-16-02, dated August 26, 2016.

The RFP/BID responses (if applicable):
____ firms registered for and picked up the bidding documents
____ firms submitted bids
_____ is recommended as the lowest priced, responsive and responsible bidder.

DRAFT

CONSOLIDATED COMMISSION ON UTILITIES
Guam Power Authority | Guam Waterworks Authority
P.O. Box 2977 Hagatna, Guam 96932 | (671)649-3002 | guamccu.org

RESOLUTION NO. 19–FY2018

RELATIVE TO APPROVAL OF CONTRACT FOR CONSTRUCTION OF OUTFALL EFFLUENT DIFFUSER INSTALLATION FOR THE UPGRADE OF THE NORTHERN DISTRICT WASTEWATER TREATMENT PLANT TO SECONDARY TREATMENT, GWA PROJECT NO. S18-002-OEA (OEA GRANT OCO N676-16-02)

WHEREAS, under 12 G.C.A. § 14105, the Consolidated Commission on Utilities ("CCU") has plenary authority over financial, contractual and policy matters relative to the Guam Waterworks Authority ("GWA"); and

WHEREAS, the Guam Waterworks Authority ("GWA") is a Guam Public Corporation established and existing under the laws of Guam; and

WHEREAS, the U.S. Department of Defense, Office of Economic Adjustment awarded to GWA a General Assistance Grant (OEA Award No. OCON676-16-02) for community investment August 26, 2016 for $21,000,000, of which funding for the outfall effluent diffuser is included; and

WHEREAS, the General Assistance Grant is to be used for water and wastewater improvements in support of the relocation of U.S. Marines and their dependents to Guam; and

WHEREAS, the report "Final Guam Water and Wastewater Assessment Report in Support of the Economic Adjustment Committee Implementation Plan," (NAVFAC, Department of the Navy, February 2015) has recommended the design and construction of NDWWTP treatment upgrades to comply with current National Pollutant Discharge Elimination System permit and mitigate impacts to wastewater utilities, nearshore waters, and marine biological resources; and

WHEREAS, installation of the Ocean Outfall Effluent Diffuser was recommended in the report; and

WHEREAS, GWA has advertised an Invitation for Bid IFB-01-ENG-2018 dated January 16, 2018, soliciting bid proposals from experienced, responsible, and responsive bidders to construct and install the ocean outfall effluent diffuser; and

WHEREAS, the Pre-Bid Conference was attended by six (6) interested construction firms and of those five (5) firms picked up the appropriate bid documents, from which GWA received bid submittals from _____ (__) firms of the six (6) firms before the bid submittal deadline (See EXHIBIT A – Abstract of Bids); and

WHEREAS, GWA Engineering and the Program Manager (PM/CM) analyzed all bid proposals received on February 23, 2018 and determined that _____, who submitted the lowest bid as being the responsive and responsible bidder and met all the bid requirements set forth by GWA (See EXHIBIT B – Recommendation Memorandum); and

WHEREAS, GWA Management finds the _____ bid proposal of _____Million _____ Dollars ($_____) to be acceptable (See EXHIBIT C – Bid Proposal); and

WHEREAS, GWA Management is seeking approval to enter into contract with _____ for IFB-01-ENG-2018 in the amount of _____ Million _____ Dollars ($_____), and

WHEREAS, the funding source for the construction project will be from the OEA General Assistance Grant (OCON676-16-02); and

NOW BE IT THEREFORE RESOLVED, the Consolidated Commission on Utilities does hereby approve the following:

1. The recitals set forth above hereby constitute the findings of the CCU.
2. The CCU finds that the terms of the bid proposal submitted by _____ are fair and reasonable.

3. The CCU hereby authorizes the management of GWA to accept the bid from _____ attached hereto as EXHIBIT C, and which is also incorporated into this Resolution in its entirety.
4. The CCU hereby authorizes the management of GWA to execute an Agreement with _____ in the amount of _____Million _____ Dollars.
5. The CCU hereby authorizes the funding source for this project to be described above.
6. The CCU hereby authorizes the funding total of _____ Million _____ Dollars ($_____), along with a ten percent (10%) contingency of _____ ($_____), bringing the total requested funding amount to _____ Million _____ Dollars.

RESOLVED, that the Chairman certified and the Board Secretary attests to the adoption of this Resolution.

DULY AND REGULARLY ADOPTED, this 27th day of February, 2018.

Certified by:

_____
JOSEPH T. DUENAS
Chairperson

Attested by:

_____
J. GEORGE BAMBA
Secretary

DRAFT

SECRETARY'S CERTIFICATE

I, J. George Bamba, Board Secretary of the Consolidated Commission on Utilities as evidenced by my signature above do hereby certify as follows:

The foregoing is a full, true and accurate copy of the resolution duly adopted at a regular meeting by the members of the Guam Consolidated Commission on Utilities, duly and legally held at a place properly noticed and advertised at which meeting a quorum was present and the members who were present voted as follows:

AYES: _____

NAYS: _____

ABSTENTIONS: _____

ABSENT: _____

DRAFT

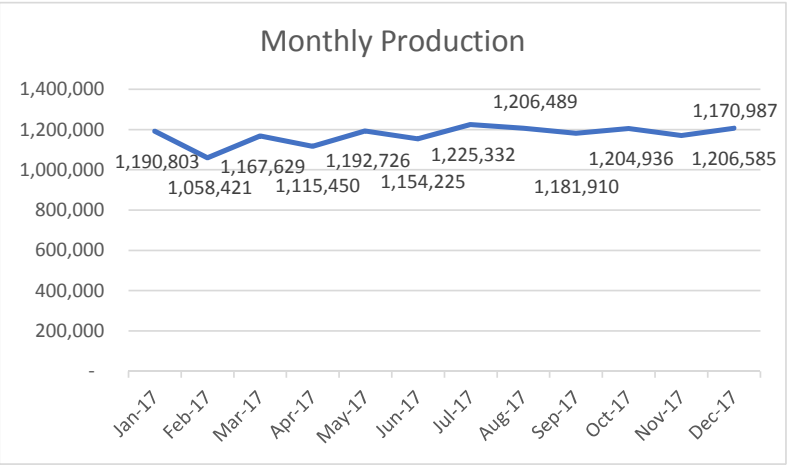
GUAM WATERWORKS AUTHORITY

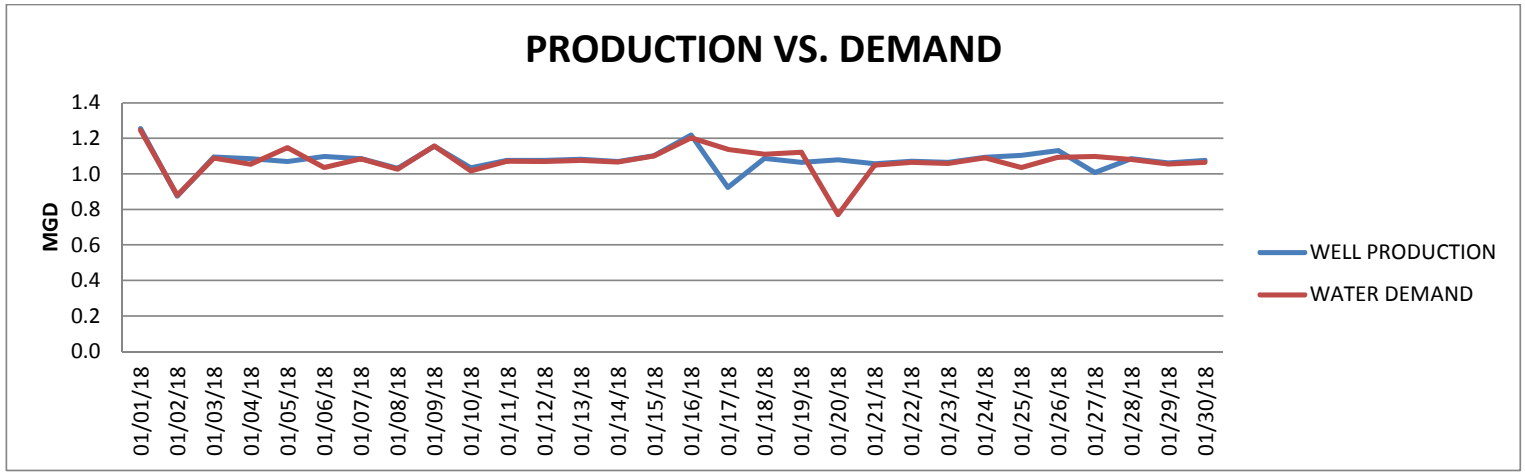
General Manager's Report
GWA Work Session, February 20, 2018

Operations Update

Production

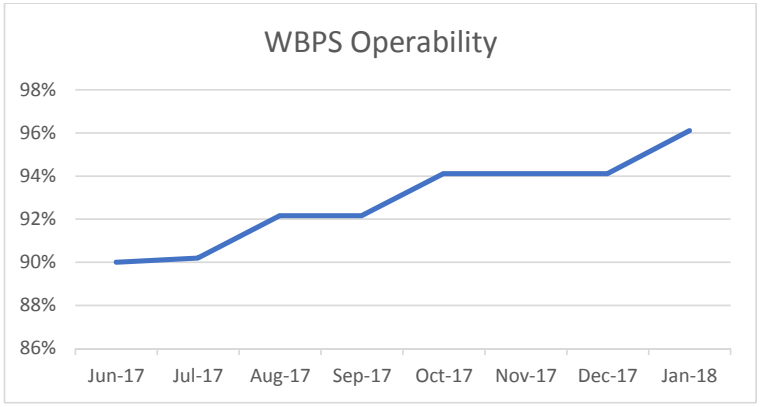
Monthly Production Summary - January 2018				
Deep Wells				34.7 MGD
	Active wells =	96	of 120	
	Avg days in operation =	28.54	days	
	Total Production =	1,076,807	Kgals	
Springs				0.00 MGD
	Avg days in operation =	0	days	*placed on standby
	Total Production =	0	Kgals	
Ugum Surface Water Plant				2.0 MGD
	Avg days in operation =	30	days	
	Total Production =	62,600	Kgals	*data pending
Tumon Maui Well				1.02 MGD
	Avg days in operation =	30	days	
	Total Production =	31,580	Kgals	*data pending
		1,170,987	Kgals	37.8 MGD

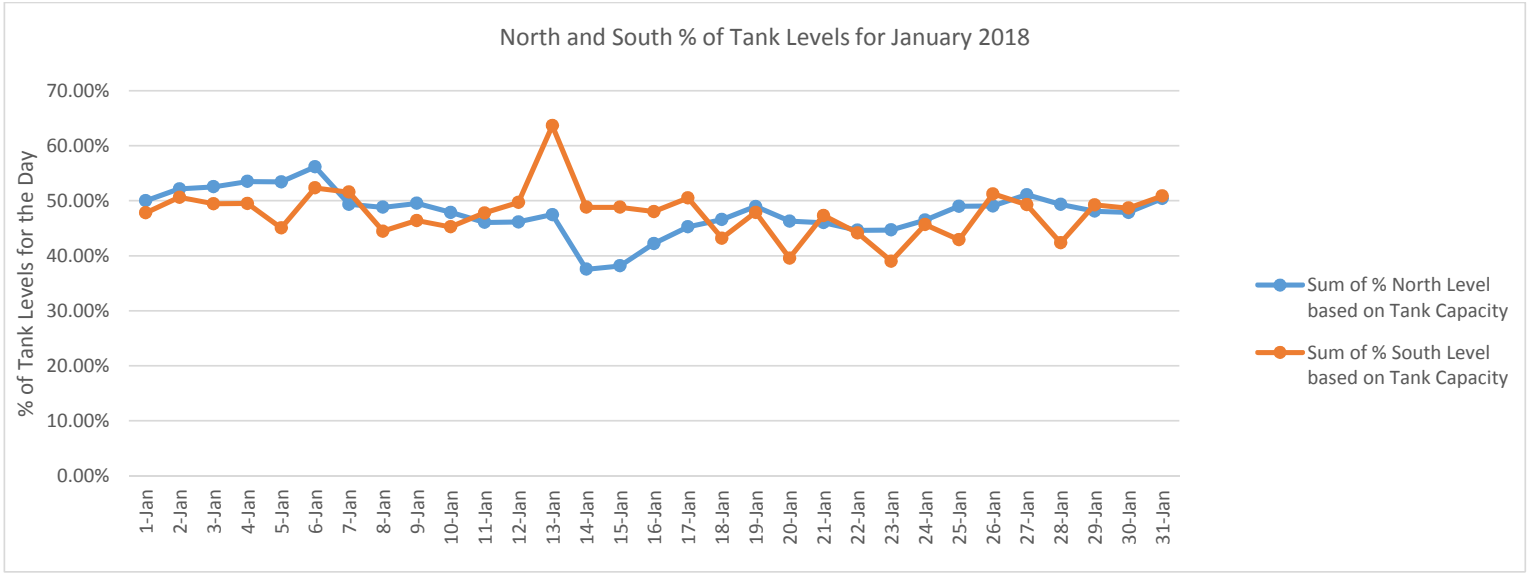




Distribution

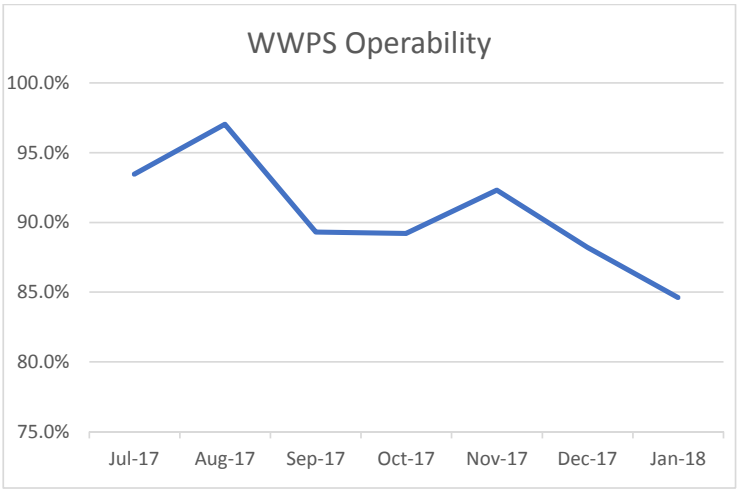
Monthly Distribution Summary - January 2018					
Water Booster Pump Stations					
	District	No. of Stations	Total Pumps	Pumps Operating	% Operationa
	Northern	11	21	20	95.2%
	Central	7	15	14	93.3%
	Southern	7	15	15	100.0%
		25	51	49	96.1%





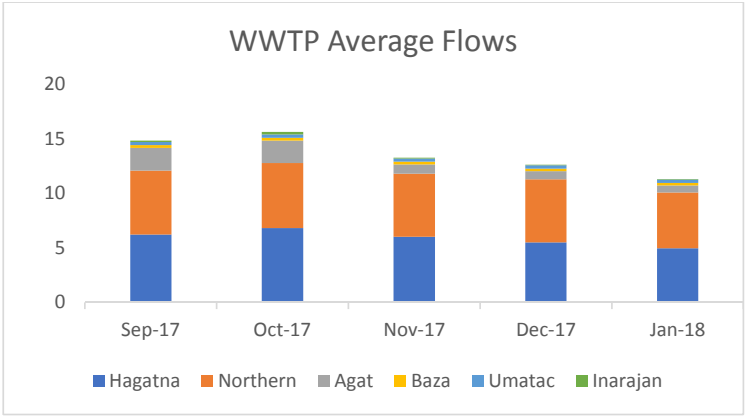
Wastewater Collections

Monthly Collections Summary -January 2018					
Wastewater Pump Stations					
	District	No. of Stations	Total Pumps	Pumps Operating	% Operational
	Northern	22	52	46	88.5%
	Central	29	63	56	88.9%
	Southern	27	54	41	75.9%
		78	169	143	84.6%

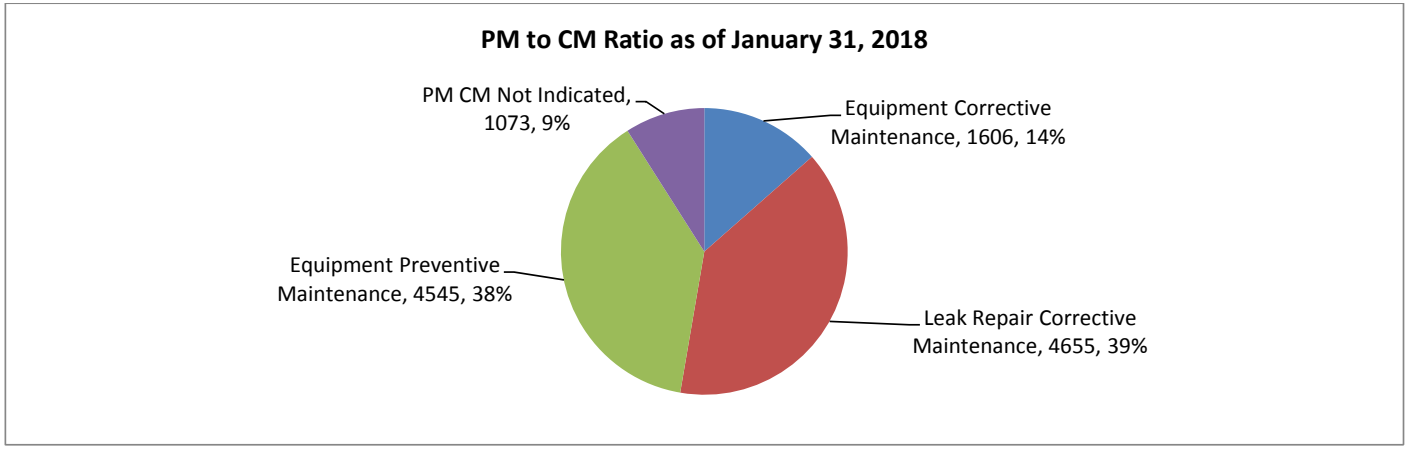


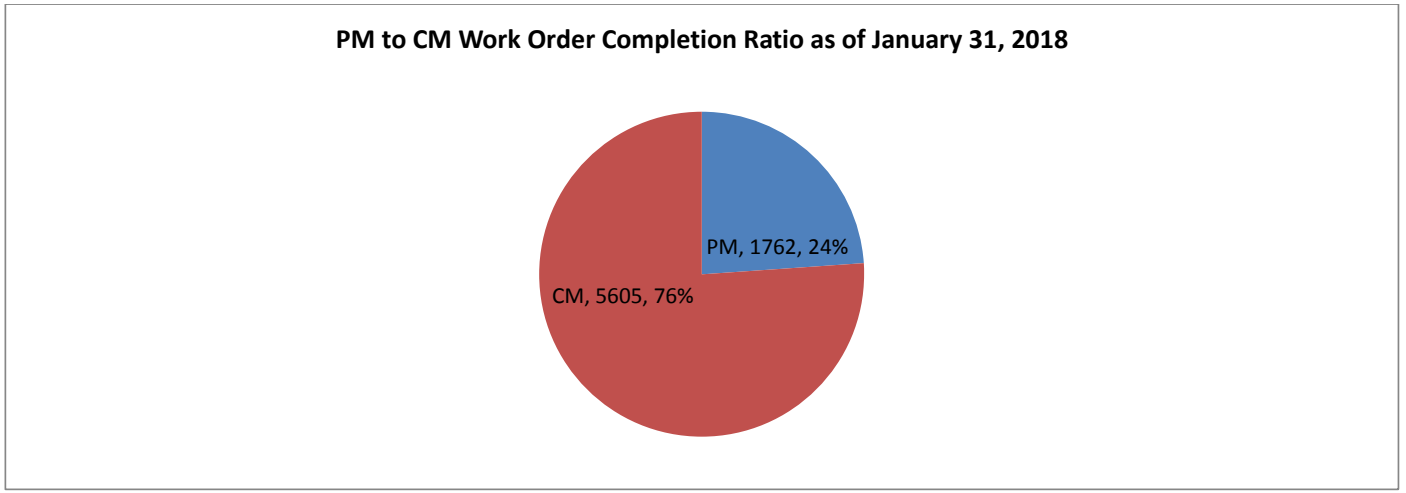
Wastewater Treatment

Monthly Wastewater Treatment Summary - January 2018				
WW Treatment Plants - Flows				
	Facility	**Avg. Daily Flows**	**Sludge (lbs)**	**Sludge Disp. ($)**
	Hagatna	4.96	373,140	$ 33,583
	Northern	5.1	1,227,040	$ 110,434
	Agat	0.64		
	Baza	0.25		
	Umatac	0.30		
	Inarajan	0.05		
		11.3	1,600,180	$ 144,016



Asset Management





Operational Issues

- 25 additional trades helpers started work this month:
    - Production –
    - Distribution –
    - WW Collection –
    - WW Treatment -
- GWA Employees continue to apply for and take computer-based certification testing conducted as a joint effort between GEPA, GWA, UOG and the Western Pacific Subsection of AWWA. So far, over 40 individuals have participated in the certification testing at various certification levels, with 10 receiving passing scores.
- Deployment of new light and medium duty fleet this month

Production & Distribution

- Leak repair
    - backlog has been significantly cleared; less than 60 pending repairs
    - pending IFB for leak repair services
    - pending for advanced remote leak detection services pending
- General Counsel working on letter to chlorine supply vendor regarding maintenance of minimum inventory levels per our contract.
- Ugum WTP – assessment of existing SCADA system completed; report and recommendations pending.
- GAC Treatment Systems for wells affected by PFOS
    - NAS-1
        - Permanent modifications to NAS-1 GAC Treatment System pending – confirmed for summer break;
        - Replacement Carbon being ordered
    - A-23/A-25:
        - existing GAC canisters for re-use have been isolated from the system and are being cleaned;
        - GWA evaluating potential to re-program DOI grant funding to expedite this work.
    - GIAA System: GIAA advised to provide replacement GAC
- 2018 Pump/Motor order – released on February 16, 2018
- GWA Crane Repair –parts have arrived, installation completed but error codes persist; vendor consulting manufacturers technician.

Wastewater Collection & Treatment

- CCTV:
  - Crews completed approximately 3 miles in January; work schedule impacted by smoke testing and inspections for I&I affecting Barrigada/Mangilao area, and maintenance of critical lines serving Route 16 SPS
  - Planning and Ops have initiated conversion of older (2012) CCTV data for compatibility with current condition assessment protocols
- Pump station facility maintenance efforts to begin shortly
- FOG Program
  - Comments received from US EPA, Program Manual being finalized
  - 2nd Residential Collection Program being coordinated for Central service area
- Agana WWTP outfall pump repairs being prioritized
- Northern District WWTP drying beds and digesters being cleared to facilitate design work for plant upgrades

Meters

COMPLETED FIELD ACTIVITY JAN THRU JAN 2018 (POSTED IN CIS)	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	TOTAL:	JAN 2018 COMPLETED FIELD ACTIVITIES (IN PROCESS) TO BE POSTED IN CIS
GWA - Test Meter	30	9	9	371	745	87	393	743	1000	1007	434	378	750	5956	368
GWA - Meter Exchange	393	179	220	276	482	353	501	807	1526	1039	452	259	239	6726	222
GWA - Verify Zero Report	30	124	114	94	96	402	261	199	550	89	82	169	356	2566	10
GWA - Verify Low Usage	0	0	0	2	37	36	196	488	657	202	127	612	858	3215	173
TOTAL:	453	312	343	743	1360	878	1351	2237	3733	2337	1095	1418	2203	18463	773

# OF METERS TESTED AS PER METER TEST FACILITY REPORTS:	345	350	144	252	305	210	302	397	1013	1130	927	704	721	6800	
# OF BACKBILLINGS APPLIED AS PER FINANCE REPORTS:	0	0	0	20	122	84	29	111	219	80	77	4	136	882	$ 594,860.44

# OF FIELD CREW PERFORMING CHANGE OUTS:	19	10	13	9	21	21	14	24	35	28	28 *	28 *	5
# OF ADMIN STAFF TO CREATE AND POST FIELD ACTIVITIES IN CIS:	7	4	5	6	9	9	10	13	15	15	13	13	8
# OF SUPPLY STAFF TO ISSUE MATERIALS AND PROGRAM NEW METERS:	2	2	2	2	2	2	2	2	2	2	2	2	2
# OF TEST FACILITY PERSONNEL TESTING METERS:	2	2	2	3	3	3	3	3	3	3	3	3	3
# OF ACCOUNTANTS CALCULATING BACK BILLS:	0	0	0	2	3	2	2	3	3	2	2	2	2
TOTAL:	30	18	22	22	38	37	31	45	58	50	48	48	20

*Project overtime on hold Nov 18, 2017 thru Dec 16, 2017. During this period, 4 personnel performed work on this project during the regular work day with a majority of the work completed during Nov and Dec month occuring before and after the OT moratorium.

Marbo (Andy-South) Wells – Status

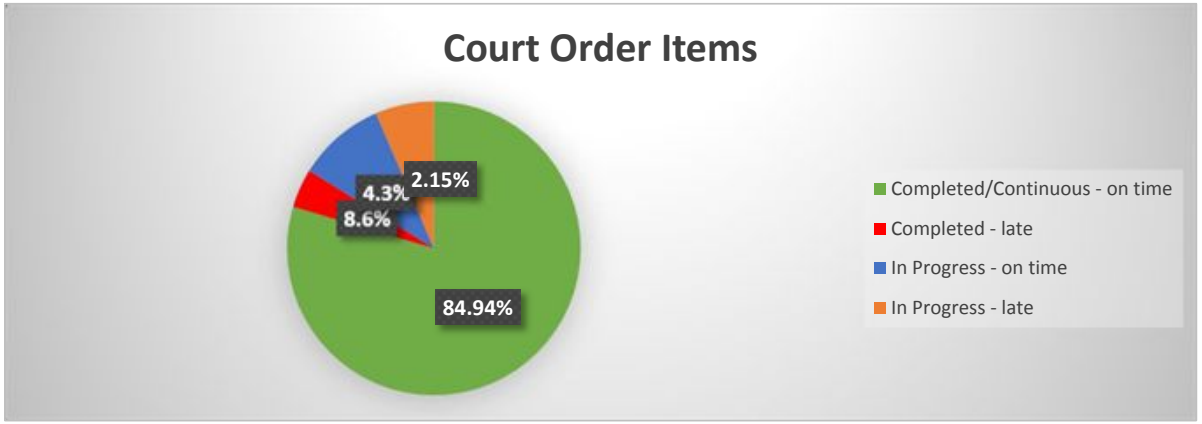
- Governor's Counsel provided recommended modifications to re-conveyance document to GSA
- GSA has not accepted the proposed changes
- GWA waiting for feedback from GSA

One Guam Update

- Tumon Maui Well:
  - GWA's Consultant B& C are working to develop a plan to address the Leaks from the vent shaft. GWA will determine the course of action to remedy the problem.
- Santa Rosa Tank:
  - MOU for Santa Rosa Tank – in progress. Changes are being made to the location of the valves.
  - B&C did a presentation on the modelling results on the appropriate levels for the tanks to ensure that neither party will be negatively impacted.
- Agat Santa Rita WWTP:
  - For the in-kind, Cynthia Blas is waiting on the final the response from NBG PWD on the easement will be transferred to GWA. The letter will be finalized on 2/16/18.
  - The DOD's Real Estate office determined that the value of the easement is $16,700. The in-kind contribution needs to match that amount.
- Distribution Systems:
  - GWA continues to work with DOD to resolve wastewater line issues in the Leon Guerrero area.
- DOD determined that they will not be able to connect to the new sewer line. However, they are interested in looking at future projects for further collaboration.

Court Order

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	80	1	9	3	98.9%



Status Information

- 1 item delayed
  - Meters
- Final Date to complete all Court Order items is December 31, 2020.
- Overflow or Bypass events reported to USEPA:
  - Jan. 26, 2018, Bishop Olano St., Santa Rita – Rocks, Rags, etc. (Non-FOG)
  - Jan. 30, 2018, East Obrien Dr., Hagåtña - Gravel and FOG
  - Feb. 4, 2018, Astumbo Lift Station 1, Dededo - Rag caught in pump impeller.

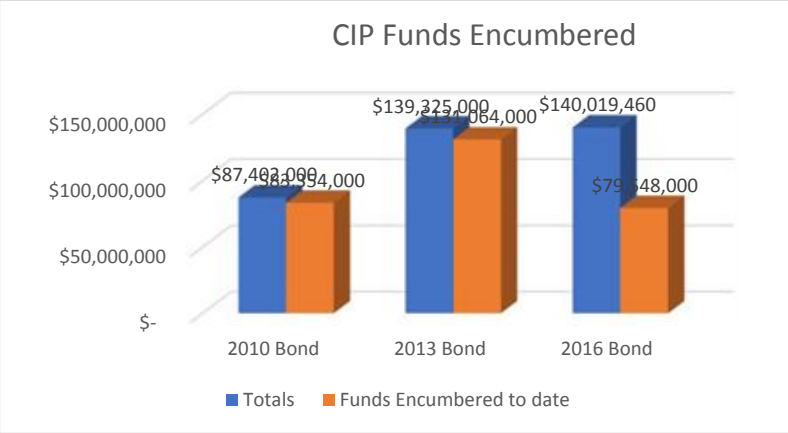
CIP Summary

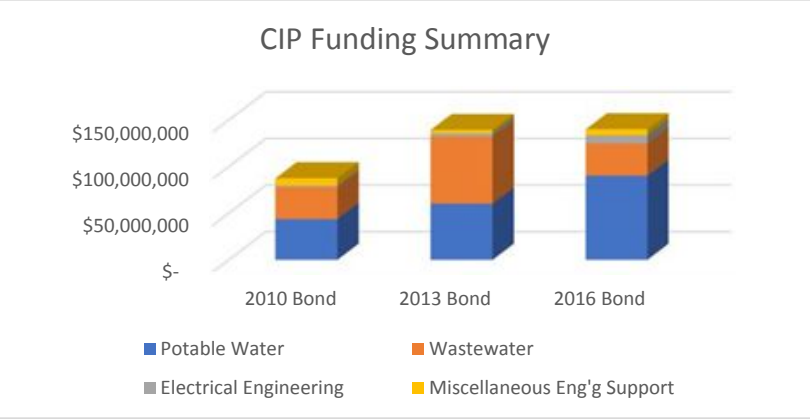
CIP Summary - Project Encumbrance

	2010 Bond		2013 Bond		2016 Bond			
	Funded	Complete	Funded	Complete	Funded	Complete	Total CIP Projects	%
Potable Water	28	17	21	7	20	0	35	49%
Wastewater	16	13	7	3	8	1	22	31%
Electrical Engineering	5	5	6	1	5	0	10	14%
Miscellaneous Eng'g Support	2	0	3	1	4	1	4	6%
Totals	51	35	37	12	37	2	71	100%
% of Total CIP by Fund Source	72%		52%		52%			

CIP Summary - Project Amounts

	2010 Bond		2013 Bond		2016 Bond			
	Funded	%	Funded	%	Funded	%	Total CIP Projects	%
Potable Water	$ 41,903,305	48%	$ 58,317,117	42%	$ 64,647,830	46%	$ 164,868,252	45%
Wastewater	$ 36,009,577	41%	$ 73,837,883	53%	$ 60,227,170	43%	$ 170,074,630	46%
Electrical Engineering	$ 1,748,118	2%	$ 3,395,000	2%	$ 8,750,000	6%	$ 13,893,118	4%
Miscellaneous Eng'g Support	$ 7,741,000	9%	$ 3,775,000	3%	$ 6,394,460	5%	$ 17,910,460	5%
Totals	$ 87,402,000	100%	$ 139,325,000	100%	$ 140,019,460	100%	$ 366,746,460	100%
Funds Encumbered to date	$ 83,354,000	95%	$ 131,064,000	94%	$ 79,548,000	57%		
% of Total CIP Funding	23.8%		38.0%		38.2%			

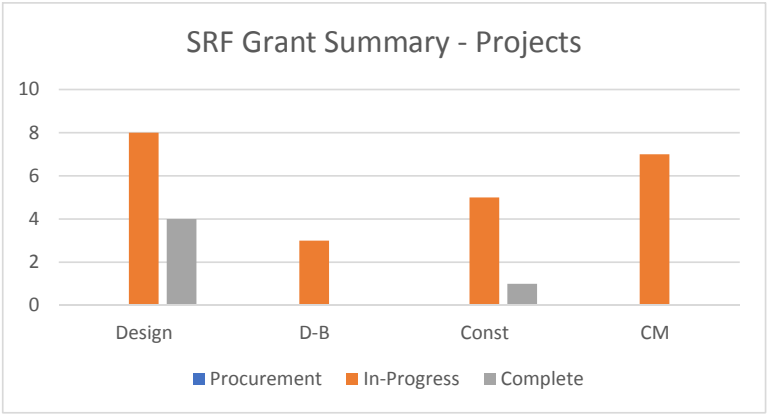




SRF Grant Summary

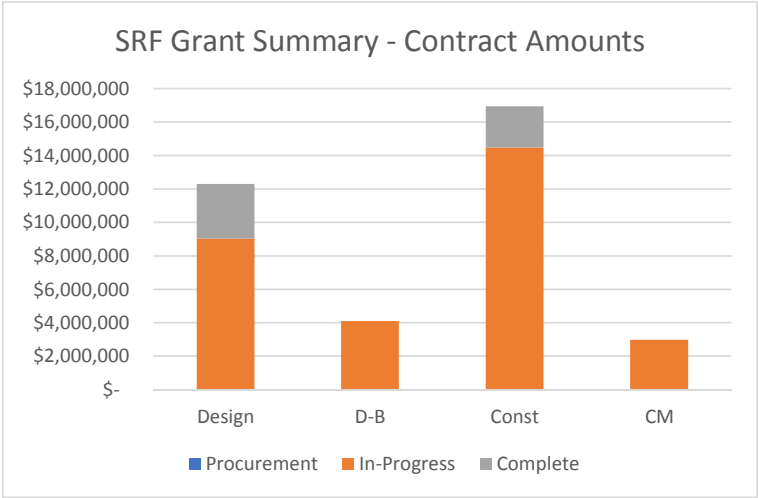
SRF Grant Summary - Projects

	Procurement	In-Progress	Complete	Totals	%
Design	0	8	4	12	43%
D-B	0	3	0	3	11%
Const	0	5	1	6	21%
CM	0	7	0	7	25%
Totals	0	23	5	28	
%	0%	82%	18%		



SRF Grant Summary - Contract Amounts

	Procurement	In-Progress	Complete	Totals	%
Design	$ -	$ 9,025,796	$ 3,279,629	$ 12,305,425	34%
D-B	$ -	$ 4,096,694		$ 4,096,694	11%
Const	$ -	$ 14,480,091	$ 2,470,658	$ 16,950,749	47%
CM	$ -	$ 2,977,793	$ -	$ 2,977,793	8%
Totals	$ -	$ 30,580,374	$ 5,750,287	$ 36,330,661	
%	0%	84%	16%		



OEA Grant Summary

- NDWWTP Upgrades
  - Technical memoranda / design workshops for solids processes expected in March
  - USEPA NEPA Document preparation on-going; 30% Design Submittal is next major milestone
- Outfall Diffuser:
  - IFB has been issued (1/16/18);
  - Pre-bid meeting 1/26/18;
  - Bids due 2/23/18 (extended)
- Sewer Line Interceptor Design-Build
  - Multi-Step IFB has been issued.
  - Technical Proposal Due 3/8/18
  - Price Proposal Due 4/12/18
- NGLA Observation wells – Design work on-going

Action Item	Date (Target)	Date (Actual)	Status	Remarks
Project Funds Available	July-16	AUG-30-16	Completed	
Land Acquisition	Jan-17	Jan-17 (Compensation Pending)	Pending	Survey complete, appraisals complete – under review
Procure PM/CM Firm	Jan-17	Jan-17 (NTP Issued Feb 10th)	Completed	
Procure Design Firm	Jul-17		Completed	Contract issued; kickoff pending
Design -- 30/60/90/Final -- Review	Jun-18		On-target	Project design schedule under review by PM/CM
NEPA Analysis and Determination	Feb-17		Delayed	USEPA work on-going; procurement of contractor completed
Procure Construction Firm	Dec-18		On-target	
Construction Complete/Commence Operations	Nov-21		On-target	
Sewer line connection from MCB to GWA infrastructure	Jul-19		On-target	
MCB Initial Operating Capability	Jul-22		On-target	

Land Acquisition Summary

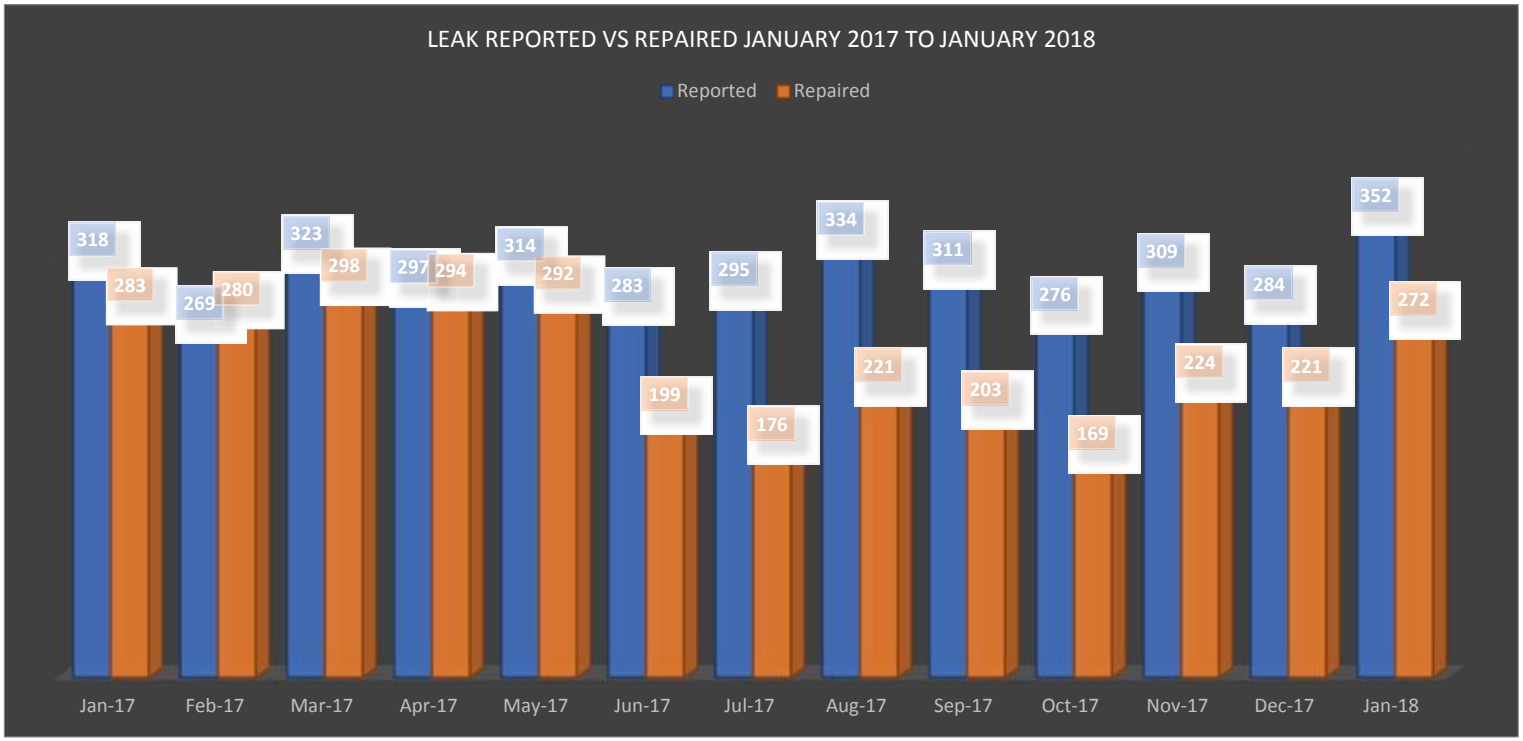
GWA Facility	Location	Gov. or Private Property	Land Acquisition Status
Tanks	Ugum	Private	TGE to draft Letter of Decision for private property owners 11/09/17
	Astumbo	Gov't. - CLTC	GWA and DLM working together on Land Registration process. Pending Notification of surrounding lot owner information from DLM
	Piti	Private	Letter of Intent sent out to private property owners on 01/29/2018
Expansion of the Northern District Wastewater Treatment Plant (NDWWTP)	Dededo	Gov't - GALC	Funding Approval Request Sent to Finance 11/30/17; Title & Escrow Open 12/28/17
Deep Well	A-12	Private	Property ownership vested in GWA 10/16/17
	AG-12	Dept. of Agriculture/Manhita Farms	DCA to submit revised Land Registration map to DLM for review and comments 01/16/18
	Y-8	Gov't. - CLTC	Parceling Map submitted to Governor's Office for signature on 01/31/2018
Booster Pump Station	Agfayan	Private	GWA started land acquisition inquiry process on 11/18/16; 2nd follow up Letter of Intent sent out 11/16/17; 2nd LOI Letter returned (unclaimed) 12/7/17; 2nd follow up Letter of Intent sent out to 12/29/17
Sewer Pump Stations	Property adjacent to Southern Link	Private	GWA started acquisition process on 12/23/2016. Property ownership vested in GWA 08/11/2017

NRW – Update

- Water Audit update on-going
  - Production rates are being reviewed for accuracy and refined
  - Unmetered, Authorized uses are being quantified
  - Meter and billing inaccuracies are being reviewed and refined

Leak Repair Summary




LEAK REPORTED VS REPAIRED JANUARY 2017 TO JANUARY 2018
Reported
Repaired
318
283
269
280
323
298
297
294
314
292
283
199
295
176
334
221
311
203
276
169
309
224
284
221
352
272
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18



Assumptions:

1. Leak rate = 4 gpm
2. Cost per kgal = $4.00

2011 Court Order Performance Report Card / Dashboard as of 01/30/2018

GUAM WATERWORKS AUTHORITY

Court Order Performance Report Card

	Items	On-time Items Completed/Continuous	Items Delayed	Completed Late	Items on Schedule	Performance %
Court order total	93	80	1	9	3	98.9%

Legend in detail section below.

Fill Color	Meaning
Lime green	Done/Completed
Yellow	On Schedule
Blue	Behind Schedule
Violet	Completed Behind Schedule
Yellow Green	Ongoing and Continuous

2011 Court Order Performance Report Card / Dashboard as of 01/30/2018

Name	SO #	No	Project	GWA SO Timeline	Due to EPA	Status
Northern District WWTP Primary Treatment Upgrades.	2	1	Interim Primary Treatment Improvements Complete	09/30/2012	@EPA	**Done** Construction completed 12/13/2012
	3(a)	2	Interim Effluent to meet Table 1	09/30/2012 monitoring started	@EPA	**Done** Table 1 compliance beginning January 9, 2013.
	3(a)(1)	3	PE Review (Application for 7.5 MGD pending)	3 months after compliance with 3(a)	@EPA	3(a)(1) Application to increase to 7.5 MGD Approved 08/13/2017
	3(a)(2)	4	(Application for 9 MGD)	3 months after compliance with 3(a)(1)	TBD	Not considered necessary because of OEA Upgrade of NDWWTP
	3(c)	5	Effluent monitoring (calendar-year quarter)	**Completed**	@EPA	**Done. Full year completed 01/08/2012**
	4(a)	6	Sludge & Biosolids Management Plan	12/31/2011	@EPA	**Done.** Biosolids to Landfill EPA Approval 08/17/2014
	4(a)	7	Adequate stabilization and dewatering	9/30/2012	@EPA	**Done.** By Design-Build contract.
	4(b)	8	Biosolids Management, Quarterly Report	Quarterly Report	@EPA	Routine Monitoring Report, **Repeats Quarterly**
	4(c)	9	Biosolids Management, repair & replace facilities	09/30/2012	@EPA	**Done** Construction Complete 12/13/2012. Biosolids to Landfill
	4(d)	10	Biosolids Management, implement plan	9/30/2012	@EPA	**Done** - Biosolids to Landfill
Agaña WWTP Interim Measures.	5	11	Primary Treatment Plant Upgrades	06/30/2013	@EPA	**Done.** CEPT is operational and in final tune-up stages.
	5(a)	12	Scope and schedule	09/30/2011	@EPA	
	5(b)	13	Septage Handling Complete	06/30/2013	@EPA	**Done.** Septage Receiving is completed at the NDWWTP (location option) reported 06/26/2013.
	5(b) 1	14	Septage handling design contract signed	12/31/2011	@EPA	
	5(b) 2	15	Septage handling construction notice to proceed	06/30/2012	@EPA	
	5(c)	16	Grit and FOG Complete	06/30/2013	@EPA	Phase III CEPT is in operations.)
	5(c) 1	17	Grit and FOG design contract signed	12/31/2011	@EPA	**Done** Grit and FOG reported 06/06/2013
	5(c) 2	18	Grit and FOG construction notice to proceed	06/30/2012	@EPA	**Done** Submitted 11/17/2011
	5(d)	19	Repair Solids handling	11/17/2011	@EPA	**Done** O & M Plan reported 05/31/2012
	5(e)	20	O & M Plan	05/31/2013	@EPA	
	5(f)	21	Effluent monitoring (calendar-year quarter)	**Completed**	@EPA	**Done. Full year completed 01/08/2012**
	6	22	Prevent Effluent Back Surge	06/30/2013	@EPA	**Done** Old outfall decommissioned (plugged) 06/25/2013 **Done** Old outfall
	6	23	Effluent Back Surge Plan	12/30/2011	@EPA	decommissioned (plugged) 06/25/2013
I&I SSES	7	24	Collection System SSES and I/I evaluation	**Done**.	@EPA	**Done**.
SSES Work Plan	8	25	Work Plan	180 days	@EPA	**Done** Reported 08/13/2012
	8(a)	26	Flow and rainfall data	N/A	@EPA	**Done** Reported 04/25/2013
	8(b)	27	I/I Southern	540 days	@EPA	**Done** Reported 04/25/2013
	8(c)	28	I/I Central	900 days	@EPA	**Done** Reported 04/28/2014
	8(d)	29	SSES Southern	540 days	@EPA	**Done** Reported 04/30/2013 – update 04/29.2016
	8(e)	30	SSES Central	900 days 09/15/2015 EPA Disap. Ltr.	@EPA	**Done** – Completed June 2, 2017
	8(e) 2	31	SSES Central Report	09/15/2015 EPA Disapproval Letter	@EPA	**Done** – Completed June 2, 2017
Agat / Santa Rita,	9(a)	32	By Pass Report	60 days	@EPA	**Done** Reported 01/04/2012
	9(b)	33	Flow Meter	180 days	@EPA	**Done** Reported 07/26/2012
	9(c)1,2,3	34	Report evaluating near term measures	180 days response sent 09/29/2014	@EPA	**Done** Reported 05/07/2012 GWA response 09/292014.
	9(d)	35	Implement near term measures d - Disinfection	03/23/2016	@EPA	**EPA specifications of 9(c), 9(d) and 9(f) on 09/24/2015.**
	9(e)	36	Implement near term measures e – sludge mgmt.	03/23/2016	@EPA	
	9(f)	37	Implement near term measures f – 75% Bypass Red.	03/23/2016	@EPA	
	10	38	System Evaluation	12/31/2013 response sent 09/29/2014	@EPA	CO **Done** Reported 12/28/2013 GWA response 09/29/2014.- update 04/29/2016
	11	39	System Upgrades	03/14/2017 Plant became operational.	@EPA	New Agat WWTP on line 03/14/2017
	11(a)	40	System Upgrades design	06/30/2014-NTP 10/13/2014	@EPA	CCU approval 08/26/2014. NTP was issued on 10/13/2014
	11(b)	41	System Upgrades notice to proceed	06/30/2015-NTP 10/02/2015	@EPA	NTP Ph.1 issued 10/02/2015 - NTP Ph.2 due 01/04/2016
Baza Gardens	12(a)	42	Interim Measures Evaluation (Independent PE)	180 days	@EPA	**Done** Reported 05/07/2012, PMO task
	12(b)	43	Interim Measures Complete	540 days	@EPA	**Done** Reported 05/01/2013 PMO task
	12(c)	44	Evaluation Bio Solids Report	180 days	@EPA	**Done**-EPA Approval 08/28/2014
	12(d)	45	Complete Bio Solids	360 days	@EPA	**Done** Reported 03/21/2013
	13	46	System Evaluation	04/30/2014	@EPA	**Done** Reported 04/30/2014 GWA response 10/02/2014
	14	47	System Upgrades	04/31/2018	@EPA	Critical path, need to complete I&I/SSES
	14(a)	48	System Upgrades, Design Starts	10/31/2015 NTP DCA 02/05/2016	@EPA	Linked to new Agat WWTP NTP DCA 02/05/2016
	14(b)	49	System Upgrades, Construction Starts	10/31/2016	@EPA	Linked to new Agat WWTP

2011 Court Order Performance Report Card / Dashboard as of 01/30/2018

Name	SO #	No	Project	GWA SO Timeline	Due to EPA	Status
Umatac-Merizo	15	50	Complete Evaluation	12/31/2013	@EPA	CO 15 **Done** Reported 12/31/2013 -- Critical path, completed I&I/SSES
	16	51	System Upgrades	12/31/2018	@EPA	Design Build contract executed 06/29/2017
	16(a)	52	System Upgrades, Design Starts	06/30/2016	@EPA	Design Build contract executed 06/29/2017
	16(b)	53	System Upgrades, Notice to Proceed	06/30/2017	@EPA	NTP Issued 06/30/2017
Sewer Cleaning	17	54	Sewer Cleaning (in annual and quarterly reports)	2017-2022 Preliminary Goal set.	@EPA	2017-2022 Preliminary Goal set.
Hot Spot Plan	18	55	Hot Spot Plan	EPA Revision letter o9/08/2015	@EPA	Last Revision submitted 10/23/2015 GWA WW Ops
CCTV	19	56	CCTV (in annual and quarterly reports)	2017-2022 Preliminary Goal set.--- Entire System Every5 years	@EPA	2017-2022 Preliminary Goal set.--- Entire System Every5 years
Sewer Hook-Up	20	57	Sewer Hook-Up	In Operation	@EPA	**Done –** available on GWA web site or at GWA Customer Service
Groundwater Chlorination	21	58	Groundwater Chlorination	540 days	@EPA	**Done** Reported 04/29/2013
Chlorine Residual Monitors	22	59	Plan	180 days	@EPA	**Done** Reported 09/94/2012
	22(a)	60	High Risk Wells	540 days	@EPA	**Done** Reported 05/02/2013
	22(b)	61	Moderate Risk Wells	2 years	@EPA	**Done** Reported 07/31/2013
	22(c)	62	All Other Wells	Completed 07/31/2017	@EPA	Completed 07/31/2017
Water Metering	23(a)	63	Plan & schedule	180 days	@EPA	**Done** Reported 05/08/2012
	23(a)	64	All connections are metered and mapped	2 years	@EPA	10/31/2016 Substantially complete-- **2** Sensus, **0** Metron left
	23(b)	65	Plan repair & maintain	180 days	@EPA	**Done** GWA Test facility operational 06/28/2013
Ugum Surface Water Treatment Plant	24	66	Construction complete	One year	@EPA	**Done** Reported 11/09/2012
	24	67	PE Inspection	60 days before start-up	@EPA	**Done** EPA Approval 08/26/2014
	25	68	PE Performance Operation Assessment	60 days before start-up	@EPA	**Done** EPA Approval 08/26/2014
	26	69	O&M Plan and Procedures	90 days before start-up	@EPA	**Done** Reported 08/10/2012 EPA Approval 08/17/2014
	27	70	Plant compliance	365 days	@EPA	**Done** Reported 02/07/2013
Sinajana Water Transmission Line	28(a)	71	Existing Construction Complete	180 days	@EPA	**Done** Reported 12/23/2011
	28(b)	72	Hydraulic Evaluation	180 days	@EPA	**Done** EPA No Further Comment 08/26/2014
	28(c)	73	Construction Complete (2 tanks)	540 days from 11/21/2013	@EPA	**GEPA Delays** Tank Constr. Completed August 2015: **In Service July 2016.**
	28(d) 1	74	Monitoring Plan	90 days prior	@EPA	**Done** Reported 09/07/2012
	28(d) 1	75	Implement- Monitoring Plan	For one year after start up	@EPA	GWA Compliance
	28(d) 2	76	Monitoring Plan	180 days prior	@EPA	**Done** EPA Approval 08/26/2014
	28(e)	77	Implement- Monitoring Plan	For one year after start up	@EPA	**Start 09/01/2015 – end 08/31/2016**
Storage Tank/Reservoir Rehabilitation and Replacement Program.	29(a) 1	78	Plan hydraulic analysis	90 days	@EPA	**Done** Reported 11/09/2012
	29(a) 2	79	Hydraulic analysis	540 days	@EPA	**Done** EPA No Further Comment 08/26/2014
	29(b) 1	80	Plan minimize service interruptions	90 days after approval	@EPA	**Done** EPA approval 08/26/2014
	29(b) 2	81	Tank inspection schedule	540 days	@EPA	**Done** EPA approval 08/26/2014
	29(b) 3	82	Complete Barrigada (1 @ 2 MG tank)	540 days	@EPA	**Done**
	29(b) 4	83	Assess additional 7 tanks	5 years (11/10/2016)	@EPA	**Done** DCA contract task
	29(b) 5	84	RRRR 7 additional tanks	5 years (11/10/2016)	@EPA	**Done** PMO executed procurement
	29(b) 6 i	85	RRRR 10 additional tanks	7 years (11/10/3018)	@EPA	**Ongoing** - Completed the hydraulic analysis
	29(b) 6 ii	86	RRRR remaining	12/31/2020	@EPA	
	29(c)	87	In Quarterly / Annual Report	Quarterly / Annual Report	@EPA	GWA Compliance **Repeats Quarterly**
Section III REPORTING REQUIREMENTS	31(a)(1)	88	Quarterly Report	Jan., April, July, Sept. Continuous	@EPA	Due by the 30th of the specified months
	31(a)(2)	89	Reports on Non Compliance	Within 30 days from determination of delay	@EPA	As determined by GWA
	31(b)	90	SSO and Bypass Report	Jan., April, July, Sept. Continuous	@EPA	Due by the 30th of the specified months
	31(c)	91	Annual Report	January each year	@EPA	Included with 31(a) each Year
Section IV NOTICES	35	92	CO contacts		@EPA	GWA Compliance report 06/29/2016
	36	93	Formal notices of change in CO contacts	Whenever specified staffing changes	@EPA	GWA Compliance report 06/29/2016

GUAM WATERWORKS AUTHORITY

Suite 200, Gloria B. Nelson Public Service Building, 688 Rt. 15. Mangilao, GU 96913-6203

Corrective Action Plan (CAP) (Approved 10/21/2014) Quarterly/Annual Update Report

Guam Waterworks Authority Sanitary Survey Significant Deficiencies for the Water System

Prepared By: Paul Kemp, Vangie Lujan and John Riegel **Update**: January 23, 2018

NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

Preface to the Corrective Action Plan

Reporting

Formal updates of the status of management of the Corrective Action Plan will be submitted on a regular basis to Region 9, USEPA.

The reports will be delivered on a quarterly basis beginning at the end of the next calendar-year quarter following the approval date of this Corrective Action Plan. Reporting will continue on a schedule by mutual agreement between GWA and Region 9 USEPA.

The vehicle to be used for this reporting will be an update of this document.

For Court Order updates/reporting, see the Court Order Submittals.

1. Sources—Lack of routine maintenance (both corrective and preventative of sources).

- Potential bacteriological and/or chemical contamination of source
- Many wells found to have leaking pipes and valves

Recommendation:

- Lack of adequate site security—missing or damaged fencing and signs of vandalism (graffiti) on structures should be repaired or replaced.
- Begin routine and corrective maintenance of all wellhead appurtenances and well facilities—meters, valves, pumps, air relief valves, piping pressure gauges, etc.

Remove unnecessary items (old lines, gauges, meters, etc.)

Action Plan:
GWA is implementing new O&M SOPs, programs and systems on an on-going basis.

Proposed Action Item Schedule	Task Description
As of 06/25/2013.	55 new SOP's Implemented (assisted by CDM, EPA Grant)
Drafts and planed	CDM continues work, particularly on Asset Management
Average one a month by 06/30/2014	Complete new SOP's and implement
Semi-annually beginning 01/2014	**Training on SOP's Repeats Continuously, Managed for GWA by Ann Borja Supported by CDM Smith funded by EPA SRF.**
Updates (Reporting per Preface)	**Supported by CDM Smith funded by EPA SRF CMMS Is being implemented.**

GUAM WATERWORKS AUTHORITY

Suite 200, Gloria B. Nelson Public Service Building, 688 Rt. 15. Mangilao, GU 96913-6203

Corrective Action Plan (CAP) (Approved 10/21/2014) Quarterly/Annual Update Report

Guam Waterworks Authority Sanitary Survey Significant Deficiencies for the Water System

Prepared By: Paul Kemp, Vangie Lujan and John Riegel **Update**: January 23, 2018

NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

2.

Sources—No Wellhead Protection Plan

Many wells are located in close proximity to potential sources of fecal and other sources of contamination, and no wellhead protection plan in place for GWA wells.

- Potential bacteriological and/or chemical contamination of source
- Wells located near potential sources of contamination

Recommendation:

- Possible sewage source upstream (Talofofo Falls Park) - Should notify owner/operators of need to notify Ugum WTP if there is a spill or discharge
- Recreational activities on the Ugum River at the intake site which currently allow people in close proximity to the intake structure should be evaluated.

Action Plan:

GWA will build from the existing 1992 Guam Law, Ch. 7 section 7130 of the Water Resource Development and Operating Regulations (GEPA) entitled "Well Head Protection for Public Water Supply Well". BC to develop a plan to improve monitoring of the wellhead. Plan to be in accordance with existing Guam EPA Wellhead Protection.

Proposed Action Item Schedule	Task Description
05/30/2013	First Draft for GWA review
06/03/2014	First Draft submitted to USEPA
06/29/2015.	Final Submitted to USEPA; EA Engineering Science and Technology, Inc..
	Complete

3. Sources Ugum— Diesel fuel storage tank containment located near intake for Ugum Water Treatment Plant (WTP) is undersized;

Diesel fuel storage tank containment located near intake for Ugum Water Treatment Plant (WTP) is undersized; spill could contaminate the Ugum River. Potential chemical contamination of source

- Diesel fuel storage tank containment area at the intake was visibly undersized and was designed to discharge to the ground where it could flow downhill to the Ugum River

Comment: This item was incorrectly evaluated.

Tank is dual walled construction. Containment is adequate.

Proposed Action Item Schedule	Task Description
	Provide documentation verifying dual wall construction.
05/08/2013	Verification sent to EPA – Complete

4. Sources Well— Some wells have cracks and other openings in the well pads, well casings and improperly sealed sanitary seals.

Some wells have cracks and other openings in the well pads, well casings and improperly sealed sanitary seals. These are direct openings for contamination to enter wells. Potential bacteriological or chemical contamination of source.

- Cracks in well pads and well casings and improperly sealed sanitary seals
- Lack of well pads at some locations

Action Plan:

Initiate repair. Document completion of repair. Engage consultant for independent confirmation of repair work and production of report.

Proposed Action Item Schedule	Task Description
12/1/2013	Initiate repair work
2/1/2013	Engage consultant Brown and Caldwell
4/30/2013	Complete repair work
5/5/2013	Draft report to GWA
6/6/2013	Report sent to USEPA - Complete

GUAM WATERWORKS AUTHORITY

Suite 200, Gloria B. Nelson Public Service Building, 688 Rt. 15. Mangilao, GU 96913-6203

Corrective Action Plan (CAP) (Approved 10/21/2014) Quarterly/Annual Update Report

Guam Waterworks Authority Sanitary Survey Significant Deficiencies for the Water System

Prepared By: Paul Kemp, Vangie Lujan and John Riegel **Update**: January 23, 2018

NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

5. Sources Well— Missing screens on well casing vents.

Potential contamination of source.

- Missing screens on well casing vents

Action Plan:
Initiate repair. Document completion of repair. Engage consultant for independent confirmation of repair work and production of report.

Proposed Action Item Schedule	Task Description
12/1/2013	Initiate repair work
2/1/2013	Engage consultant Brown and Caldwell
4/30/2013	Complete repair work
5/5/2013	Draft report to GWA
6/6/2013	Report to USEPA
5/13/2013	Report sent to USEPA - Complete

6. Sources Well— Wells have bypass lines that were routed into the ground and off-site without an air gap.

Wells have bypass lines that were routed into the ground and off-site without an air gap. Potential contamination of source.
Many wells found to have bypass lines that were routed into the ground and off-site without an air gap

Action Plan:
Initiate repair. Document completion of repair. Engage consultant for independent confirmation of repair work and production of report.

Proposed Action Item Schedule	Task Description
12/1/2013	Initiate repair work
2/1/2013	Engage consultant Brown and Caldwell
4/30/2013	Complete repair work
5/5/2013	Draft report to GWA
6/6/2013	Report to USEPA
5/23/2013	Report sent to USEPA - Complete

7. Sources Spring--Lack of operating flow meter at spring source makes operation (including chlorine dosing) problematic.

Difficulty in ensuring adequate chlorination/disinfection

Recommendation:
Remove heavy vegetative growth around the clear well structure.
Implement routine and corrective maintenance at all spring appurtenances—meters, valves, pumps, piping, pressure gauges, etc.

Action Plan:
Initiate repair. Document completion of repair.

Proposed Action Item Schedule	Task Description
12/1/2013	Initiate repair work
4/30/2013	Complete repair work
6/6/2013	Report to USEPA
5/23/2013	Report sent to USEPA - Complete

8. Sources Spring-- Santa Rita Spring Box (Clear Well) –

– Gaps between corrugated metal roof and clear well walls allow entry by animals, birds and reptiles. Allow bacteriological contamination to enter source.

Action Plan:
Initiate repair. Document completion of repair.

Proposed Action Item Schedule	Task Description
05/08/2013	Reported to USEPA - Complete

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

9. Treatment-- Lack of operations and maintenance (Ugum, Santa Rita Spring)

Recommendation:

- Implement routine and corrective maintenance at all spring appurtenances—meters, valves, pumps, piping, pressure gauges, etc.

Ugum training on O&M will be regular refresher classes on annual basis.

Action Plan:

Proposed Action Item Schedule	Task Description
Santa Rita Spring (Ground Water)	
05/08/2013	Santa Rita Spring O&M training was completed an has been sent to USEPA.
05/08/2013	O&M is now under Production Section.
05/31/2014 etc.	Santa Rita Spring O&M training will have annual refreshers.
Ugum Surface Water Treatment Plant	
11/19-23/2012	Latest Training by Siemens/Smithbridge
07/23/2013	Additional Specialized training on coagulation optimization for membranes
08/01/2013	Training certification sent to USEPA
07/01/2014 and thereafter.	**O&M training will have annual refreshers.**
Completed under Court Order	See Court Order Section II C 26 Ugum SOP's - Complete

10. Treatment-- Lack of operating turbidimeter at Santa Rita Spring source.

Action Plan:
Initiate repair. Document completion of repair.

Proposed Action Item Schedule	Task Description
05/08/2013	Verification submitted to USEPA - Complete

11. Treatment-- Plant operators do not regularly conduct jar tests and do not optimize precursor removal at Ugum WTP.

Action Plan:
Prepare Bid or Change Order for TOC. Prepare documentation of training. Provide copies of regular reporting.

Proposed Action Item Schedule	Task Description
5/15/2013	Prepare change order for installation of TOC and appurtenances. Smithbridge
08/12/2013	Completed installation of on-site TOC analyzer.
08/15/2013	Completed training of operators on site TOC analyzer.
07/23/2013	Additional Specialized training on coagulation optimization for membranes
08/01/2013	Training certification sent to USEPA – Complete

12. Treatment-- Inadequate turbidity monitoring and reporting at Ugum

Action Plan:
Address re-programming SCADA. Provide copies of daily submittals sent to GEPA and monthly submittals, and send example reports to USEPA as documentation.

Proposed Action Item Schedule	Task Description
06/06/2013	Send documentation of conformance to USEPA
05/30/2013	Sent documentation of conformance to USEPA - Complete

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

13. Treatment-- At least one well (D-5) did not have a chlorination system in place	
Action Plan: Explain that D-5 well is not a point of entry into the potable distribution system issue.	
Proposed Action Item Schedule	**Task Description**
6/6/2013	Report to USEPA
05/31/2013	Report sent to USEPA - Complete

14. Treatment Well-- At least one well, the well log indicated chlorine gas had run out in the past (April 29, 2012) Inadequate chlorination/disinfection could result in exposure to bacteriological contamination.	
Action Plan: GWA to provide the log sheets. This finding is a result of an incorrect assessment	
Proposed Action Item Schedule	**Task Description**
6/6/2013	GWA to send USEPA the log sheet – interpretation was incorrect.
05/31/2013	Sent to USEPA - Complete

15. Water Storage-- Severe internal/external rust and corrosion including roofs, roof vents, walls, base and other welds, anchors allows contaminants to enter tanks. Recommendation: GWA should properly maintain facilities and grounds (remove overgrown vegetation, take away garbage, repair security breaches, etc.	
Action Plan: This is a Court Order project. Work performed will be in accordance with the 2011 court order.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	See CO Section II C Paragraph 29, Quarterly and Annual Reports

16. Water Storage-- Bolts, many completely rusted through, compromise structural stability of tanks. Recommendation: Potential for tank failure	
Action Plan: This is a Court Order project. Work performed will be in accordance with the 2011 court order Paragraph 29.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	See CO Section II C Paragraph 29, Quarterly and Annual Reports

17. Water Storage-- Inadequate Site Security (holes in fences, missing gates) and unlocked hatches allow easy access to tanks (as demonstrated by vandalism at many tanks). Potential for access by public and consequent contamination.	
Action Plan: This is a Court Order project. Work performed will be in accordance with the 2011 court order Paragraph 29. GWA will correct on tanks undergoing major repairs.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	See CO Section II C Paragraph 29, Quarterly and Annual Reports

18. Water Storage-- Leaking tanks. Recommendation: Could allow contamination to enter.	
Action Plan: This is a Court Ordered project. Work performed will be in accordance with the 2011 court order Paragraph 29.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	See CO Section II C Paragraph 29, Quarterly and Annual Reports

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

19. Water Storage-- Flooded, uncovered and unsecured valve vaults Could allow contamination to enter.	
Action Plan: This is a Court Ordered project. Work performed will be in accordance with the 2011 court order Paragraph 29. GWA will correct on tanks undergoing major repairs.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	See CO Section II C Paragraph 29, Quarterly and Annual Reports- Complete

20. Water Storage-- No screen or flapper on the storage tanks' overflows. Potential for access by public and consequent contamination.	
Action Plan: This is a Court Order project. Work performed will be in accordance with the 2011 court order Paragraph 29. GWA will correct on tanks undergoing major repairs.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	See CO Section II C Paragraph 29, Quarterly and Annual Reports - Complete

21. Water Storage-- Ladders not locked, allow easy potential access by vandals.	
Action Plan: This is a Court Order project. Work performed will be in accordance with the 2011 court order Paragraph 29. GWA will correct on tanks undergoing major repairs.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	Repairs Complete

22. Water Storage-- Ladders severely corroded or no cage will prevent adequate maintenance	
Action Plan: This is a Court Order project. Work performed will be in accordance with the 2011 court order Paragraph 29.	
Proposed Action Item Schedule	**Task Description**
In Progress – Court Order.	Repairs Complete

23. Distribution System-- Inadequate cross connection control program exists within GWA. Potential for backflow/backpressure and contamination.	
Action Plan: Engage consultant to develop how GWA can plan for backflow prevention program. Create report documenting procedures for implementing a program.	
Proposed Action Item Schedule	**Task Description**
02/01/2013	Engage consultant Brown and Caldwell
05/05/2013	Submit draft plan for GWA review
06/05/2013	Submitted draft plan to USEPA
NTP issued.	Draft Detailed Cross-Connection Control Plan by PMO Work Order.
Pending CCU approval	GWA recruiting positions to man and execute this project..
Included in Plan	Detailed Cross-Connection Control Plan Technical Memo Completed
Updates (Reporting per Preface)	**Final plan in final review at GWA for submittal to USEPA.**

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

24. Distribution System-- Undersized water lines impact water pressure and water quality and contribute to potential cross-connections.
Potential for backflow/backpressure and contamination.

Action Plan:
Engage consultant to develop how GWA can plan for small diameter pipeline replacement program. Create report documenting procedures for implementing a program.

Proposed Action Item Schedule	Task Description
02/01/2013	Engage consultant Brown and Caldwell
05/05/2013	Submit draft plan for GWA review
06/05/2013	Submitted draft plan to USEPA
10/01/2013	Approved Plan/CIP for line replacement.
12/31/2013	Submit Approved Plan/CIP for line replacement to PUC.
04/30/2014	Approved of Plan/CIP for line replacement by PUC.
07/01/2014	Begin line replacement program for small diameter pipelines.
01/01/2024	Complete small diameter pipeline replacement.
Updates (Reporting per Preface)	See GWA CIP at < http://guamwaterworks.org/wp-content/uploads/2016/02/GWA-CIP-2015-to-2020-CCU-102715-final-ver.pdf >.

25. Pumps-- No pump controls at many of the booster pump stations; lack of maintenance. Leaking seals in pumps and valves results in intermittent service and supply, lower reliability and decreased pressure.
Recommendation:
Implement routine and corrective maintenance at all spring appurtenances—meters, valves, pumps, piping, pressure gauges, etc.

Action Plan:
Initiate repair. Engage consultant for independent analysis and condition assessment of booster pumping stations. Consultant to develop schedule and cost estimates for implementing upgrades of booster pumping stations. Consultant to prepare a report for rehabilitation program.

Proposed Action Item Schedule	Task Description
12/01/2012	Initiate immediate repairs
02/01/2013	Engage consultant Brown and Caldwell
02/26/2013	5-year CIP approved by CCU
04/30/2013	Complete immediate repairs
05/05/2013	Submit draft report to GWA for review
09/06/2013	Submitted draft report to USEPA for approval
03/30/2014	Final plan for booster station repairs.
Updates (Reporting per Preface)	See GWA CIP at < http://guamwaterworks.org/wp-content/uploads/2016/02/GWA-CIP-2015-to-2020-CCU-102715-final-ver.pdf >.

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

26. Pumps-- Lack of adequate backup pumps. Flooding of booster pump stations.
Results in intermittent service and supply, lower reliability and decreased pressure

Action Plan:
Initiate repair. Engage consultant for independent analysis and condition assessment of booster pumping stations. Consultant to develop schedule and cost estimates for implementing upgrades of booster pumping stations. Consultant to prepare a report for rehabilitation program.

Proposed Action Item Schedule	Task Description
12/01/2012	Initiate immediate repairs
02/01/2013	Engage consultant Brown and Caldwell
02/26/2013	5-year CIP approved by CCU
04/30/2013	Complete immediate repairs
05/05/2013	Submit draft report to GWA for review
09/06/2013	Submitted draft report to USEPA for approval
03/30/2014	Final plan for booster station repairs.
Updates (Reporting per Preface)	See GWA CIP at < http://guamwaterworks.org/wp-content/uploads/2016/02/GWA-CIP-2015-to-2020-CCU-102715-final-ver.pdf >.

27. Pumps-- No controls on well pumps or booster pumps.
Results in intermittent service and supply, lower reliability and decreased pressure.

Action Plan:
Initiate repair. Engage consultant for independent analysis and condition assessment of booster pumping stations. Consultant to develop schedule and cost estimates for implementing upgrades of booster pumping stations. Consultant to prepare a report for rehabilitation program.

Proposed Action Item Schedule	Task Description
12/01/2012	Initiate immediate repairs
02/01/2013	Engage consultant Brown and Caldwell
02/26/2013	5-year CIP approved by CCU
04/30/2013	Complete immediate repairs
05/05/2013	Submit draft report to GWA for review
09/06/2013	Submitted draft report to USEPA for approval
03/30/2014	Final plan for booster station repairs.
Updates (Reporting per Preface)	See GWA CIP at < http://guamwaterworks.org/wp-content/uploads/2016/02/GWA-CIP-2015-to-2020-CCU-102715-final-ver.pdf >.

28. Pumps-- Leaking pump seals, valves, lines, and highly rusted piping.
Results in intermittent service and supply, lower reliability and decreased pressure.

Action Plan:
Initiate repair. Engage consultant for independent analysis and condition assessment of booster pumping stations. Consultant to develop schedule and cost estimates for implementing upgrades of booster pumping stations. Consultant to prepare a report for rehabilitation program.

Proposed Action Item Schedule	Task Description
12/01/2012	Initiate immediate repairs
02/01/2013	Engage consultant Brown and Caldwell
02/26/2013	5-year CIP approved by CCU
04/30/2013	Complete immediate repairs
05/05/2013	Submit draft report to GWA for review
09/06/2013	Submitted draft report to USEPA for approval
Maintenance work in progress	Begin program for booster station repairs, copy to USEPA
Updates (Reporting per Preface)	See GWA CIP at < http://guamwaterworks.org/wp-content/uploads/2016/02/GWA-CIP-2015-to-2020-CCU-102715-final-ver.pdf >.

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

29. Water Quality-- Inadequate monitoring and reporting – Ugum WTP and Santa Rita Spring (turbidity and chlorine residual) exceedances (violations) may be going undetected and unreported.
Recommendation:
Continue to improve utility-wide communications to address previous lack of complete communication between departments.

Action Plan:
GWA has made this KPI and it is managed via weekly reports

Proposed Action Item Schedule	Task Description
06/06/2013	GWA to submit weekly report documentation to USEPA.
05/30/2013	GWA submitted documentation to USEPA. Complete

30. SDWA Compliance-- Lead and Copper Rule monitoring overdue.

Action Plan:
GWA has implemented the required LCR monitoring and will proceed to complete and continue as required by the rule without waiting for GEPA to approve the schedule and process. If GEPA ever decides to participate, GWA will make additions that are requested.

Proposed Action Item Schedule	Task Description
12/04/2012	Routine Procedure started.
06/14/2013	Round 1 completed with all sample results below both Pb and Cu action levels.
12/31/2013	Completed second Round of Monitoring
01/31/2014.	Lab results verify GWA is in compliance. - Complete

31. SDWA Compliance-- Unaddressed Stage 2 Disinfection/Disinfectant Byproducts rule (DBP) Rule MCL Violations, required public notification.

Action Plan:
Continue to report in CCR and add quarterly mailings to Central (GU0000003) and or Southern (GU0000001) System customers. GWA to await schedule for Navy water compliance schedule from Fena Reservoir for Central (GU0000003).

Proposed Action Item Schedule	Task Description
05/20/2013	Southern (GU0000001) System is now compliant with Stage 2 DBP Rule
05/20/2013	Central (GU0000003) System is compliant with Stage 2 DBP Rule in all areas except one small part of Agat. Mailings to all Central Customers will continue until clear.
06/06/2013	Initiated quarterly mailings to affected customers. [Central (GU0000003)]
Consecutive System Management	GWA continues to reduce purchases of water from the Fena SWTP which has made the difference in the Central (GU0000003) System.
Navy Water is now in compliance	DBP exceedance Central (GU0000003) System has ended with changes in the Navy Fena Surface Water Treatment Plant's operations, achieving compliance with the Stage 2 DBP Rule.
Quarterly mailings are discontinued.	Complete

32. Administration-- No formal, comprehensive training program for operators and other personnel.
Can result in inappropriate or inadequate operation and negative impacts on water quality.

Action Plan:
GWA to complete an annual Workforce Development Report

Proposed Action Item Schedule	Task Description
01/16/2014	First Annual Workforce Development (Training) Report.
Regular Training Scheduled	**Adapted dependent on subject matter. Assisted by PMO.**
Updates (Reporting per Preface)	**See Comprehensive management Plan 08/27/2013**

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

33. Administration-- Hydraulic model is neither complete nor accurate enough to make operational or design decisions. Results in poor design and operational decisions impacting water quality.	
Action Plan: This is a Court Ordered project. Work performed will be in accordance with the 2011 court order Paragraph 29(a)(2).	
Proposed Action Item Schedule	**Task Description**
05/03/2013	Submitted Hydraulic Model report to USEPA under CO 29(a)(2). Complete

34. Administration-- No preventative maintenance programs for most operational areas. Many system components in varying levels of disrepair or failure put system at risk for contamination.	
Action Plan: GWA is working with USEPA and CDM to improve Asset Management	
Proposed Action Item Schedule	**Task Description**
In Progress	GWA/CDM-Smith Asset Management program
Continuously updated	**GWA/CDM-Smith Asset Management program – CMMS being implemented**

35. Administration-- Data are collected, but do not have the capacity to analyze the information to assist with operational decisions. Lack of understanding and use of operational data can result in poor system operations and consequent risk for contamination or failure.	
Action Plan: GWA will improve data collection and assessment function – SOP's and Training are in planning stages.	
Proposed Action Item Schedule	**Task Description**
2013	New SOP's and Training
2013 through 2018	Five year development plan for staff capacity for data retrieval and analysis.
Evolved, data collection upgraded.	**Required staff positions created**
Updates (Reporting per Preface)	**Creation of Management analyst positions is completed.**

36. Administration-- Lack of Standard Operating Procedures ("SOPs").	
Action Plan: GWA will conduct SOP training	
Proposed Action Item Schedule	**Task Description**
As of 06/25/2013.	55 new SOP's Implemented (assisted by CDM, EPA Grant)
Drafts and planed	CDM continues work, particularly on Asset Management
Average one a month my 06/30/2014	Complete new SOP's and implement
09/06/2013	Reported status to USEPA
Semi-annual - Continuous	**Training on SOP's**
Updates (Reporting per Preface)	**Supported by CDM Smith funded by EPA SRF**

37. Operator Compliance-- No proper operator certification for system type. Inadequately trained operators do not perform process control adequately, which impacts finished water quality.	
Action Plan: GWA disputes the described deficiency. **GWA has always been in compliance.**	
Proposed Action Item Schedule	**Task Description**
06/06/2013	Submit Certification information USEPA.
05/24/2013	Certification information sent to USEPA - Complete

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NEIC Work Product No. VP0989E01 GWA Sanitary Survey Significant Deficiency Items:

38. Operator Compliance-- Plant operators do not regularly conduct jar tests.
Inadequately trained operators do not perform process control adequately, which impacts finished water quality.

Proposed Action Item Schedule	Task Description
5/15/2013	Prepare change order for installation of TOC and appurtenances. Smithbridge
08/12/2013	Completed installation of on site TOC analyzer.
08/15/2013	Completed training of operators on site TOC analyzer.
07/23/2013	Additional Specialized training on coagulation optimization for membranes
08/01/2013	Training certification sent to USEPA - Complete

39. Operator Compliance-- Plant operators and engineering staff did not understand the correlation between ineffective coagulant dosing.
Inadequately trained operators do not perform process control adequately, which impacts finished water quality.

Proposed Action Item Schedule	Task Description
5/15/2013	Prepare change order for installation of TOC and appurtenances. Smithbridge
08/12/2013	Completed installation of on site TOC analyzer.
08/15/2013	Completed training of operators on site TOC analyzer.
07/23/2013	Additional Specialized training on coagulation optimization for membranes
08/01/2013	Training certification sent to USEPA - Complete

40. Operator Compliance-- No level 4 Operator is actually located on site at the Ugum WTP, as required.
Violation of Guam Operator Certification requirement.

Action Plan:
Level 4 operators are not required at Ugum, Current status requires only Level 3 operators. **GWA has always been in compliance.**

Proposed Action Item Schedule	Task Description
06/06/2013	Submit Certification information USEPA.
05/24/2013	Certification information sent to USEPA - Complete

Status Summary: as of January 30, 2018

Corrective Action Plan Legend	Fill Color	No. of Items
Information and/or future steps	**No Fill**	
Completed – no further action-or pending EPA approval	Green	**35**
Court Order Managed items (some are completed- the others are on schedule)	Blue	**9**
On Schedule or Continuous (Long Term Commitment/Reporting)	Orange	**12**

GWA Utility Services Division
Monthly Status Report
Month ending January 27, 2018

UTILITY SERVICES DIVISION UNITS & ACTIVITIES:	WEEKLY AVERAGE DEC 2017	DEC 2017 MONTHLY TOTAL	WEEK ENDING: 1/6/2018	WEEK ENDING: 1/13/2018	WEEK ENDING: 1/20/2018	WEEK ENDING: 1/27/2018	WEEKLY AVERAGE JAN 2018	JAN 2018 MONTHLY TOTAL
Collections Unit								
I. Number of accounts cut for nonpayment:	16	65	8	69	29	69	44	175
II. Number of accounts restored for nonpayment:	20	81	9	34	36	47	32	126
III. Number of No water reports responded to:	3	10	2	1	1	2	2	6
IV. Number of Secure/Unsecure valve reports responded to:	3	10	1	2	1	4	2	8
V. Number of Verify reads responded to:	1	4	3	1	1	2	2	7
VI. Number of new pay plans negotiated for **active** accounts :	159	634	16	181	160	195	138	552
VII. Number of active pay plans negotiated and ongoing :	1742		1656	1790	1874	1991	1828	
VIII. Number of **inactive** accounts with a payment arrangement:	6		4	4	4	4	4	
IX. Number of broken payment plans:	69	275	102	47	76	78	76	303
Customer Service Unit								
I. Service Delivery Points:								
a. GBN Public Service Building – Fadian								
i. Total Customers Assisted :	219	874	239	209	240	273	240	961
ii. Total Abandoned Requests :	23	90	25	18	13	15	18	71
ii. Average Wait Time:	12 minutes		14minutes	9 minutes	10 minutes	12 minutes	11 minutes	
iii. Average Service Time:	15 minutes		11 minutes	14 minutes	10 minutes	14 minutes	12 minutes	
iv. Breakdown by request type:								
1. Apply for water	48	192	41	43	42	56	46	182
2. Restore water cut for non paymen	8	32	4	5	7	15	8	31
3. Terminate Water	14	54	11	11	9	15	12	46
4. Copy of Bill	30	119	44	28	36	28	34	136
5. Billing Dispute	61	242	59	61	58	73	63	251
6. Billing Dispute follow up	4	17	9	3	4	7	6	23
7. General Questions & Other	30	121	30	30	32	43	34	135
8. Report a water leak	1	4	5	2	3	1	3	11
9. Report water theft	0	0	0	0	0	0	0	0
10. Payment Arrangement	25	101	38	28	49	35	38	150

GWA Utility Services Division
Monthly Status Report
Month ending January 27, 2018

UTILITY SERVICES DIVISION UNITS & ACTIVITIES:	WEEKLY AVERAGE DEC 2017	DEC 2017 MONTHLY TOTAL	WEEK ENDING: 1/6/2018	WEEK ENDING: 1/13/2018	WEEK ENDING: 1/20/2018	WEEK ENDING: 1/27/2018	WEEKLY AVERAGE JAN 2018	JAN 2018 MONTHLY TOTAL
b. Julale Satellite Office – Hagatna								
i. Total Customers Assisted :	228	911	225	258	219	235	234	937
ii. Total Abandoned Requests :	9	36	16	23	13	12	16	64
ii. Average Wait Time:	7 minutes		10 minutes	7 minutes	6 minutes	8 minutes	8 minutes	
iii. Average Service Time:	11 minutes		10 minutes	9 minutes	8 minutes	12 minutes	10 minutes	
iv. Breakdown by request type:								
1. Apply for water	40	159	32	44	43	51	43	170
2. Restore water cut for non paymen	2	7	4	3	5	6	5	18
3. Terminate Water	16	62	16	22	15	25	20	78
4. Copy of Bill	43	172	46	61	64	51	56	222
5. Billing Dispute	65	259	63	59	45	46	53	213
6. Billing Dispute follow up	4	17	4	5	1	2	3	12
7. General Questions & Other	29	114	36	34	15	34	30	119
8. Report a water leak	1	4	1	4	0	3	2	8
9. Report water theft	1	2	0	0	0	0	0	0
10. Payment Arrangement	31	124	26	33	35	28	31	122
c. Upper Tumon Satellite Office – Upper Tumon								
i. Total Customers Assisted :	307	1229	275	312	304	335	307	1226
ii. Total Abandoned Requests :	9	34	5	5	13	11	9	34
ii. Average Wait Time:	11 minutes		5 minutes	5 minutes	7 minutes	8 minutes	6 minutes	
iii. Average Service Time:	10 minutes		10 minutes	12 minutes	10 minutes	12 minutes	11 minutes	
iv. Breakdown by request type:								
1. Apply for water	66	262	53	61	57	84	64	255
2. Restore water cut for non paymen	6	22	4	15	7	20	12	46
3. Terminate Water	26	103	23	20	24	26	23	93
4. Copy of Bill	72	289	58	62	70	63	63	253
5. Billing Dispute	74	297	62	73	74	71	70	280
6. Billing Dispute follow up	4	15	5	5	3	2	4	15
7. General Questions & Other	28	111	26	34	24	34	30	118
8. Report a water leak	3	13	3	2	3	6	4	14
9. Report water theft	0	1	0	0	0	0	0	0
10. Payment Arrangement	32	129	35	41	45	31	38	152

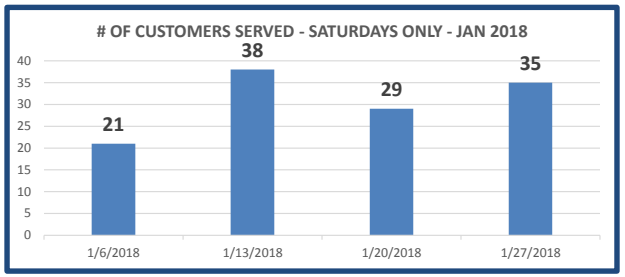
GWA Utility Services Division
Monthly Status Report
Month ending January 27, 2018

UTILITY SERVICES DIVISION UNITS & ACTIVITIES:	WEEKLY AVERAGE DEC 2017	DEC 2017 MONTHLY TOTAL	WEEK ENDING: 1/6/2018	WEEK ENDING: 1/13/2018	WEEK ENDING: 1/20/2018	WEEK ENDING: 1/27/2018	WEEKLY AVERAGE JAN 2018	JAN 2018 MONTHLY TOTAL
II. Customer Call Center								
a. Calls Recieved :	990	3961	1350	1162	1187	1291	1248	4990
b. Calls Immediately Answered :	629	2514	772	743	692	829	759	3036
c. Calls Abandoned	37	149	54	50	36	41	45	181
d. Calls Handled by Voice mail:	328	1313	602	386	459	419	467	1866
e. Average duration of calls answered:	4 minutes		5 minutes	4 minutes	6 minutes	5 minutes	4 minutes	
III. Customer Emails:								
a. Emails Recieved :								
i. customers@guamwaterworks.org	42	166	38	63	34	43	45	178
Breakdown by request type (email):								
1. Apply for water	2	7	2	1	1	5	2	9
2. Terminate Water	2	8	2	0	1	2	1	5
3. Copy of Bill	2	7	1	6	2	1	3	10
4. Billing Dispute & follow up	11	42	7	10	7	9	8	33
5. General Questions & Other	18	70	16	35	8	13	18	72
6. Report a water leak	3	13	6	1	4	3	4	14
7. Report water theft	0	0	0	0	0	0	0	0
8. Online services inquiry	5	19	4	10	11	10	9	35
ii. realtors@guamwaterworks.org	1	3	0	0	0	0	0	0
b. Emails Replied (both):	22	86	32	23	23	40	30	118

		1/6/2018	1/13/2018	1/20/2018	1/27/2018	
IV. Saturday Services: 9AM TO 1PM ONLY	27	21	38	29	35	31
a. VISITS: Breakdown by request type:						
1. Apply for water	6	2	4	8	3	4
2. Restore water cut for non payment	0	0	2	0	2	1
3. Terminate Water	2	3	2	1	1	2
4. Copy of Bill	7	5	12	10	10	9
5. Billing Dispute	5	2	9	5	8	6
6. Billing Dispute follow up	1	1	0	0	0	0
7. General Questions & Other	1	4	2	2	5	3
8. Report a water leak	1	0	0	0	0	0
9. Report water theft	0	0	0	0	0	0
10. Payment Arrangement	5	4	7	3	6	5

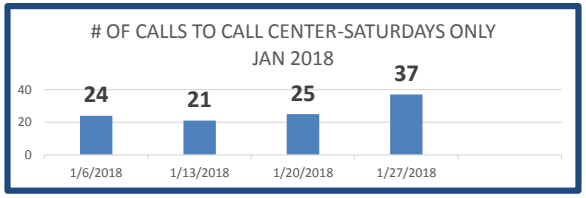
GWA Utility Services Division
Monthly Status Report
Month ending January 27, 2018

UTILITY SERVICES DIVISION UNITS & ACTIVITIES:	WEEKLY AVERAGE DEC 2017	DEC 2017 MONTHLY TOTAL	WEEK ENDING: 1/6/2018	WEEK ENDING: 1/13/2018	WEEK ENDING: 1/20/2018	WEEK ENDING: 1/27/2018	WEEKLY AVERAGE JAN 2018	JAN 2018 MONTHLY TOTAL



b. CALLS TO CALL CENTER (Saturday services only):

1/6/2018	1/13/2018	1/20/2018	1/27/2018
24	21	25	37



Dispute Resolution & Document Control

I. Dispute Resolution:								
a. Number of disputed accounts resolved:	11	44	11	9	3	11	9	34
b. Number of disputed accounts under review:	179	716	179	179	179	179	179	716
II. Document Control:								
a. Number of field activities posted :	475	1899	409	452	384	297	386	1542
b. Number of field activities pending:	677	2707	489	589	487	438	501	2003

Disconnect/Reconnect Unit

I. Number of field activities received:	242	967	250	240	225	251	242	966
II. Number of field activities completed:	260	1040	240	284	236	262	256	1022
III.Number of field activities pending field action:	2	9	4	3	2	1	3	10

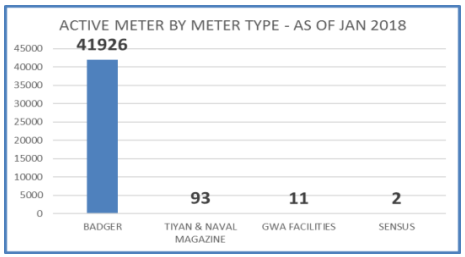
GWA Utility Services Division
Monthly Status Report
Month ending January 27, 2018

UTILITY SERVICES DIVISION UNITS & ACTIVITIES:	WEEKLY AVERAGE DEC 2017	DEC 2017 MONTHLY TOTAL	WEEK ENDING: 1/6/2018	WEEK ENDING: 1/13/2018	WEEK ENDING: 1/20/2018	WEEK ENDING: 1/27/2018	WEEKLY AVERAGE JAN 2018	JAN 2018 MONTHLY TOTAL
Meter Reading Unit								
I. Number of meters read:								
a. Electronically Read Meters:	10462	41847	7926	7479	9272	13273	9488	37950
b. Manually Read Meters:	38	153	30	23	26	46	31	125
II. Unread meters (Meters scheduled to be read but not read):	62	248	40	48	43	101	58	232
III. Number of data logs received:	37	147	30	37	26	28	30	121
IV. Number of data logs retrieved:	40	161	44	28	30	39	35	141
V. Number of data logs pending field action:	12	47	8	15	11	6	10	40
VI. Communication Errors/Reprogramming requests received (from CSU):	2	9	2	2	2	0	2	6
VII. Number of estimated readings (for the week):	51	202	24	38	37	78	44	177
a. Reasons for Estimations:								
i. Cant locate meter:	1	5	1	1	0	1	1	3
ii. Temporary Obstruction	2	8	5	0	0	0	1	5
iii. Vicious Dog	2	8	2	4	1	0	2	7
iv. Flooded meter	2	8	1	0	1	2	1	4
v. Corrective action requested (database corrections needed)	2	8	13	6	2	0	5	21
vi. Possible changed out meter:	12	46	16	10	6	15	12	47
vii. Communication/Programming error (code 92's):	3	10	3	2	3	7	4	15
viii. Other:	8	31	4	5	4	4	4	17
ix. Leaks detected on customer's private line:	1284	5134	1016	1029	1154	1485	1171	4684
x. Reverse Flow Detected	30	118	16	26	5	75	31	122
xi. No Usages Detected	324	1297	228	192	300	404	281	1124
xii. Tamper Code	15	60	7	17	10	15	12	49
VII. Electronic Read Percentage: (for the week):	99%	99%	99%	98%	99%	99%	99%	99%
Revenue Protection Unit								
I. Number of Inactive Still Consuming Reports rec'd & investigated:	1	2	1	1	1	2	1	5
II.Number of Illegal Connection reports rec'd & investigated:	2	6	0	4	1	1	2	6

III. Meter Replacement Project – Post 2010 Metron Farnier & Sensus Status Report (as of Jan 27 2018):

METER TYPE	COUNT
SENSUS	2
METRON FARNIER	0
	2

a. Account & Meter Type Count :



GUAM WATERWORKS AUTHORITY

Engineering Monthly Report
February 2018

Prepared By:
Thomas Cruz, P.E. Chief Engineer

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A. Summary Table of 2010, 2013 and 2016 Bond

Potable Water

CIP #	CIP Description	2010 Bond Allotment	% encumbered	% available	2013 Bond Allotment	% encumbered	% available	2016 Bond Allotment	% encumbered	% available
PW 05-01	Ground Water Disinfection	$ 500,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
PW 05-03	Santa Rita Springs Booster Pump Rehab Phase II	$ -	N/A	N/A	$ 100,000.00	100.00%	0.00%	$ -	N/A	N/A
PW-05-05	"A Series Well Transmission Line	$ 518,143.96	100.00%	0.00%	$ 400,000.00	100.00%	0.00%	$ -	N/A	N/A
PW 05-06	Water Booster Pump Station	$ 500,000.00	100.00%	0.00%	$ 1,861,000.00	99.49%	0.51%	$ 4,139,000.00	0.00%	100.00%
PW 05-07	Meter Replacement Program	$ 10,300,000.00	99.84%	0.16%	$ 999,000.00	99.75%	0.25%	$ 4,501,000.00	3.33%	96.67%
PW 05-08	Barrigada Tank Repair/Replacement	$ 5,450,000.00	99.92%	0.08%	$ 4,987,000.00	99.32%	0.68%	$ 1,013,000.00	0.00%	100.00%
PW 05-09	Leak Detection	$ 200,000.00	100.06%	-0.06%	$ 20,000.00	96.25%	3.75%	$ 1,180,000.00	0.00%	100.00%
PW 05-10	Potable Water System Planning	$ 200,000.00	100.00%	0.00%	$ 624,000.00	100.00%	0.00%	$ 2,276,000.00	20.93%	79.07%
PW 05-11	Implement Ground Water Rule	$ 1,700,000.00	100.00%	0.00%	$ 1,000,000.00	100.00%	0.00%	$ -	N/A	N/A
PW 05-12	Brigade II (Ugum Lift) BPS Upgrade	$ 1,700,000.00	18.03%	81.97%	$ -	N/A	N/A	$ -	N/A	N/A
PW 05-13	Deep Well Rehabilitation	$ 548,000.00	100.00%	0.00%	$ 200,000.00	100.00%	0.00%	$ 250,000.00	0.00%	100.00%
PW 05-14	New Deep Wells at Dow n Hard	$ 638,252.85	76.11%	23.89%	$ 810,000.00	0.00%	100.00%	$ 1,190,000.00	0.00%	100.00%
PW 05-15	Rehabilitation of Asan Springs	$ 900,000.00	37.87%	62.13%	$ -	N/A	N/A	$ -	N/A	N/A
PW 05-16	Master Meters	$ 1,600,000.00	99.44%	0.56%	$ 784,000.00	99.88%	0.12%	$ 3,616,000.00	4.19%	95.81%
PW 09-01	Ugum Water Treatment Plant Intake	$ 700,000.00	99.47%	0.53%	$ 982,000.00	100.00%	0.00%	$ 18,000.00	0.00%	100.00%
PW 09-02	Water Wells	$ -	N/A	N/A	$ 4,200,000.00	46.77%	53.23%	$ 2,500,000.00	13.60%	86.40%
PW 09-03	Water Distribution System	$ 3,174,748.00	100.00%	0.00%	$ 11,151,000.00	87.97%	4.85%	$ 49,000.00	0.00%	100.00%
PW 09-04	Pressure Zone Realignment	$ -	N/A	N/A	$ 431,000.00	99.95%	0.05%	$ 1,141,000.00	58.58%	37.04%
PW 09-06	Central Water Distribution System 2005	$ 900,000.00	91.67%	8.33%	$ -	N/A	N/A	$ -	N/A	N/A
PW 09-08	Mechanical/Electrical Equipment	$ 1,200,000.00	100.00%	0.00%	$ 430,000.00	99.60%	0.40%	$ 100,000.00	0.00%	100.00%
PW 09-09	Water Reservoir Internal/External	$ 2,000,000.00	73.20%	24.53%	$ -	N/A	N/A	$ -	N/A	N/A
PW 09-10	Water Reservoir Internal/External	$ -	N/A	N/A	$ -	N/A	N/A	$ 800,000.00	0.00%	100.00%
PW 09-11	Water System Reservoirs 2005 Improvements	$ 1,050,000.00	100.00%	0.00%	$ 13,878,000.00	99.99%	0.01%	$ 28,350,000.00	36.77%	54.41%
PW 11-01	Distribution System Upgrades	$ 474,159.85	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
PW 11-02	Ugum Water Treatment Plant Reservoir	$ -	N/A	N/A	$ 90,000.00	0.00%	100.00%	$ -	N/A	N/A
PW 12-01	Water Audit Program & Water Loss Control Plan	$ 100,000.00	78.46%	21.54%	$ -	N/A	N/A	$ 1,000,000.00	0.00%	100.00%
PW 12-02	Production Plan / Reduce Navy Purchases	$ 100,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
PW 12-03	Hydraulic Assessment of Tanks	$ 500,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
PW 12-04	Agana Heights & Chaot Tanks	$ 4,700,000.00	100.00%	0.00%	$ 3,280,000.00	40.52%	59.48%	$ 1,220,000.00	40.98%	59.02%
PW 12-05	Tank Major Repair Yigo #1, Mangilao #2, Astumbo#1	$ 1,900,000.00	95.16%	4.84%	$ 11,605,000.00	99.99%	0.01%	$ 1,895,000.00	96.15%	3.85%
PW 12-06	Tank Replacement Piti & Hyundai	$ -	N/A	N/A	$ -	N/A	N/A	$ 7,409,830.00	98.52%	1.48%
PW 12-07	Assessment of Malojloj Elevated & Yigo Elevated	$ 200,000.00	100.00%	0.00%	$ 485,117.00	100.00%	0.00%	$ -	N/A	N/A
PW 12-08	Public Water System Asset Inventory/ Condition Assessment	$ 100,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
PW 12-09	Public Water System GIS & Mapping	$ 50,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
PW 14-01	Fire Hydrant Replacement Program	$ -	N/A	N/A	$ -	N/A	N/A	$ 2,000,000.00	0.00%	100.00%
		$ 41,903,304.66			$ 58,317,117.00			$ 64,647,830.00		

Wastewater

CIP #	CIP Description	2010 Bond Allotment	% encumbered	% available	2013 Bond Allotment	% encumbered	% available	2016 Bond Allotment	% encumbered	% available
WW 05-04	Wastew ater System Planning	$ 1,500,000.00	100.00%	0.00%	$ 651,000.00	100.00%	0.00%	$ 349,000.00	89.68%	9.15%
WW 05-05	Wastew ater Vehicles	$ 235,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 05-07	NDWWTP - Chlorine Tanks	$ 250,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 09-01	Lift station upgrades	$ -	N/A	N/A	$ 946,000.00	84.08%	0.06%	$ 2,404,000.00	12.21%	66.99%
WW 09-06	Wastew ater Collection System Repl/ Rehabilitation	$ 1,105,000.00	99.93%	0.07%	$ 780,000.00	97.55%	2.45%	$ 2,920,000.00	0.00%	92.30%
WW 09-08	Facilities Plan/Design for Baza Gardens WWTP	$ 1,250,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 09-10	Facilities Plan/Design for Agat-Santa Rita WWTP	$ 899,630.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 11-03	Baza Gardens STP Replacement	$ 1,301,947.00	24.27%	11.57%	$ 3,114,883.00	99.97%	0.03%	$ 29,400,170.00	99.31%	0.69%
WW 11-04	Facilities Plan/Design for Umatac-Merizo WWTP	$ 900,000.00	100.00%	0.00%	$ 473,000.00	100.00%	0.00%	$ 527,000.00	47.44%	52.56%
WW 11-08	Agat/Santa Rita STP Replacement	$ 2,218,000.00	99.91%	0.09%	$ 67,200,000.00	99.43%	0.57%	$ 3,000,000.00	48.72%	51.28%
WW 12-01	Northern District WWTP Primary Treatment Upgrade	$ 11,750,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 12-02	Biosolids Management Plan	$ 200,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 12-03	Agana WWTP Interim Measures	$ 11,500,000.00	100.00%	0.00%	$ 673,000.00	100.00%	0.00%	$ 827,000.00	0.00%	90.22%
WW 12-04	I&I SSES Southern	$ 800,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 12-05	I&I SSES Central	$ 850,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
WW 12-06	I&I SSES Northern	$ -	N/A	N/A	$ -	N/A	N/A	$ -	N/A	N/A
WW 12 -07	Umatac Merizo Replacement	$ 250,000.00	100.00%	0.00%	$ -	N/A	N/A	$ 20,800,000.00	99.26%	0.74%
WW 12-08	Wastew ater System GIS & Mapping	$ -	N/A	N/A	$ -	N/A	N/A	$ -	N/A	N/A
WW 12-09	Wastew ater Facility Back Up Pow er	$ -	N/A	N/A	$ -	N/A	N/A	$ -	N/A	N/A
WW 12-10	Wastew ater System Asset Inventory	$ -	N/A	N/A	$ -	N/A	N/A	$ -	N/A	N/A
WW 17-01	Wastew ater Sew er System Expansion									
WW 17-02	Northern District WWTP Secondary Treatment Upgrade	$ 1,000,000.00	0.00%	100.00%						
		$ 36,009,577.00			$ 73,837,883.00			$ 60,227,170.00		

Electrical Engineering Support

CIP #	CIP Description	2010 Bond Allotment	% encumbered	% available	2013 Bond Allotment	% encumbered	% available	2016 Bond Allotment	% encumbered	% available
EE 05-02	SCADA Pilot Project	$ 61,950.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
EE 09-01	Wastewater Pumping Station Electrical Upgrade	$ -	N/A	N/A	$ 620,000.00	16.13%	83.87%	$ 100,000.00	0.00%	100.00%
EE 09-02	Electrical Upgrade - Water Wells	$ 354,226.63	100.00%	0.00%	$ 1,500,000.00	100.00%	0.00%	$ 650,000.00	76.92%	23.08%
EE 09-03	Electrical Upgrade - Water Booster	$ -	N/A	N/A	$ 2,000.00	0.00%	100.00%	$ 323,000.00	0.00%	100.00%
EE 09-04	Electrical Upgrade - Water Booster	$ -	N/A	N/A	$ 200,000.00	0.49%	99.51%	$ -	N/A	N/A
EE 09-05	Electrical Upgrade - Other Water	$ -	N/A	N/A	$ 150,000.00	40.47%	59.53%	$ -	N/A	N/A
EE 09-06	SCADA Improvements - Phase I	$ 250,000.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
EE 09-07	SCADA Improvements - Phase 2	$ 1,056,986.00	100.00%	0.00%	$ -	N/A	N/A	$ -	N/A	N/A
EE 09-08	SCADA Improvements - Phase 3	$ 24,955.71	100.00%	0.00%	$ 923,000.00	99.93%	0.07%	$ 1,177,000.00	61.46%	38.54%
EE 09-09	SCADA Improvements - Phase 4	$ -	N/A	N/A	$ -	N/A	N/A	$ 6,500,000.00	0.00%	93.08%
		$ 1,748,118.34			$ 3,395,000.00			$ 8,750,000.00		

Miscellaneous Engineering Support

CIP #	CIP Description	2010 Bond Allotment	% encumbered	% available	2013 Bond Allotment	% encumbered	% available	2016 Bond Allotment	% encumbered	% available
MC 05-01	Laboratory Modernization	$ -	N/A	N/A	$ 1,173,000.00	100.00%	0.00%	$ 1,127,000.00	100.00%	0.00%
MC 05-02	Land Survey	$ 500,000.00	99.94%	0.06%	$ 2,000.00	0.00%	100.00%	$ 1,998,000.00	63.09%	36.91%
MC 09-01	General Plant Improvements	$ 7,241,000.00	99.58%	0.42%	$ 2,600,000.00	84.10%	15.90%	$ 2,769,460.00	53.83%	37.19%
MC 15-01	Information Technology Intergration Improvements							$ 500,000.00	40.70%	59.30%
		$ 7,741,000.00			$ 3,775,000.00			$ 6,394,460.00		

	2010 Bond Allotment	2013 Bond Allotment	2016 Bond Allotment
CIP Water	$ 41,903,304.66	$ 58,317,117.00	$ 64,647,830.00
CIP Wastewater	$ 36,009,577.00	$ 73,837,883.00	$ 60,227,170.00
CIP Electrical	$ 1,748,118.34	$ 3,395,000.00	$ 8,750,000.00
CIP Miscellaneous	$ 7,741,000.00	$ 3,775,000.00	$ 6,394,460.00
	$ 87,402,000.00	$ 139,325,000.00	$ 140,019,460.00

Bond Fund	Construction Fund Amount ($M)	Estimated # of months fund available for use		Total Funds encumbered to date ($M)	% of fund used	Rate of Spending: ($M) per year
2005	$82.930	82	*	$82.930	100.00%	12.14
2010	$87.402	85	**	$83.354	95.37%	11.77
2013	$139.325	48	**	$131.064	94.07%	32.77
2015	$140.019	18		$79.548	56.81%	53.03
	* - End date November 2013 via CCU Resolution 06-FY2014					
	** - Includes month of January 2018					

B. Projects Procurement

Percentage Key:

100%	Approved by GM
99%	Signature required from either Accounting/Legal/GM
98%	Processing engineering service or construction contract (with legal)
95%	Request for CCU approval (GM/engineering)
90%	A/E fee negotiation or contractor bid evaluation (engineering)
80%	Selected A/E or Conducted bid opening (engineering)
70%	Advertised RFP/IFB (engineering)
60%	RFP/IFB Package under legal review
50%	RFP/IFB Package completed (engineering)
Less than 50%	Project Scope of work development in progress

- Red text anywhere indicates a change from the last report.

BOX KEY FOR PROCUREMENT:

(Type of Procurement) (Relevant CIP NO. or Funding Source)	**(Project Title)**	
(Percentage complete for procurement)	**Activities/Notes:** (see percentage key above)	**Consultant** (listed when selected)
Project Description	Summary of project description	

BID PACKAGE PW 09-02	**New Well Construction**	
<50% Complete	**Activities/Notes:** GWA engineering continuing discussion with Dept. of Agriculture and lessee on options of acquisition of property for well site at AG-10. Internal GWA discussions underway for survey and appraisal services.	
Project Description:	The project is to construct three new production wells for GWA as well as installation of a water main to connect the new production wells to the Ysengsong Reservoirs.	

RFP PW 09-02	**New Well Construction (Construction Management)**	
<50% Complete	**Activities/Notes:** SOW being developed	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the construction of up to three (3) new production wells for GWA. GWA plans to increase source water production to improve system redundancy that allows for operating the water production wells more effectively. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.	

BID PACKAGE PW 12-04, PW 12-06 AND PW 09-11	**Central Tank Phase I (Chaot #2, Tumon #2, Hyundai) Construction**	
100% Complete	**Activities/Notes:** Contract fully executed. NTP issued February 8, 2018.	
Project Description:	The work performed under this project procurement shall consist of Construction of three water reservoirs; 0.5MG Chaot #2, 1MG Tumon #2 (Nissan) and 1MG Hyundai. Some piping work off site from the reservoir is also required to ensure the reservoirs function optimally.	

BID PACKAGE PW 14-01	**Fire Hydrant Replacement Phase I**	
<50% Complete	**Activities/Notes:** Bid package being prepared.	
Project Description:	The work performed under this project consist of replacing all know dry barrel fire hydrants down to the lateral as well as any defective wet barrel fire hydrant. Where necessary the gate valve for the fire hydrant may also be replaced.	

RFP WW 09-01	**Yigo SPS Flood Protection and Rehabilitation Design**	
90% Complete	**Activities/Notes:** GWA waiting for draft SOW and fee proposal from AECOM.	
Project Description:	The work performed under this project procurement shall consist of a design services to implement storm water mitigation measures to protect the facility during extreme weather as well as rehabilitate the facility to provide better redundancy and operate efficiently.	

RFP PW 09-11	**Northern and Southern Tank Phase I (Santa Rosa, Sinifa, Santa Rita) Construction Management**	
98% Complete	**Activities/Notes:** Contract with firm for signature. Once received contract to be transmitted for fund certification and GM execution.	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the construction of three water reservoirs; 1MG Santa Rosa, 1MG Sinifa and 1MG Santa Rita. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.	

BID PACKAGE PW 09-03, PW 09-04 AND PW 09-11	**Northern Tank Phase I (Santa Rosa) Construction**	
<50% Complete	**Activities/Notes:** GWA will issue only a bid for Santa Rosa Tank and off-site improvements first.	
Project Description:	The work performed under this project procurement shall consist of Construction of a 1MG Santa Rosa reservoir and booster pump station. Some piping work off site from the reservoir is also required to ensure the reservoirs function optimally.	

BID PACKAGE EE 09-08, EE 09-09	**SCADA Phase A1 Construction**	
70% Complete	**Activities/Notes:** IFB advertised 1/30/18, Pre-bid conference completed. Bid opening 3/28/18.	
Project Description:	The work performed under this project procurement shall consist of Construction of SCADA ready instrumentation at several water and waste water facilities throughout he island.	

RFP EE 09-08, EE 09-09	**SCADA Phase A1 Construction Management**	
70% Complete	**Activities/Notes:** RFP advertised 1/26/18. Proposals due 2/23/18.	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the construction of all SCADA ready instrumentation at the various facilities through Guam. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.	

RFP PW 09-04, PW 09-11	**Design Services for the Project Pressure Zone Realignment and Tank Repair/Replacement**	
70% Complete	**Activities/Notes:** RFP advertised 2/2/18. Proposals due 2/23/18.	
Project Description:	The work performed under this project procurement shall consist of design services for the remaining GWA reservoirs that required major repairs or replacement. The design will also address the required pressure zone realignment throughout the island so as to improve the distribution system functionality. .	

BOX KEY FOR PROJECT:

(Type of Project) (Relevant CIP NO.)	**(Project Title)** **(Contractor or consultant)**	**Start Date:** (month and year)
(Percentage complete for project)	**Activities/Notes:** (brief description of activity)	**Completion Date:** (month and year)
(Court Order Paragraph No.)	(Project type)	
Project Description	Project Description Narrative	

C. CIP Water Section

INSPECTION CIP PW 05-02	**Inspection & Maintenance Repairs to GWA Island-Wide Steel Water Tank Reservoirs Phase 2 (DCA)**	**Start Date:** April 2010
80% Complete	**Activities/Notes:** Still waiting for Quotes for tank bypass/take down for Umatac #1 and Pigua. Working on plan for Kaiser, Windward and Agat #1 take down. WBP2 Controls working property now which allows Agat Umatac Tank to be taken down.	**Completion Date:** Anticipate December 2021
CO 38C	Engineering inspection services	
Project Description:	The Court Order requires GWA to inspect all active and in some cases inactive water reservoirs. The inspection results will allow GWA to determine if a reservoir requires repair or replacement.	

DESIGN CIP PW 05-12	**Brigade II BPS Upgrade** **(EM Chen)**	**Start Date:** April 2012
100% complete (Basis of Design) 30% (Design)	**Activities/Notes:** GWA received 30% design, review comments to be transmitted to designer within two week time.	**Completion Date:** Due to property acquisition issues GWA anticipate May 2018
N/A	Engineering design services	
Project Description:	The design project is intended to assess system water supply feed from the north as well as Ugum WTP and the water demands downstream from the Brigade BPS so as to reconfigure the piping into the BPS and resize the pumps to me system head requirements.	

DESIGN / BUILD CIP PW 12-04	**Reservoirs 2005 Improvements,** **Chaot & Agana Heights Reservoirs** **(GSI Construction)**	**Start Date:** April 2013
100% Complete	**Activities/Notes:** All required work from GSI complete.	**Completion Date:** Due to delays from contractor new anticipate completion is November 2017
CO 38B	Design/Construction services	

Project Description:	The project is to replace the existing 1.0MG steel reservoirs with 0.5MG concrete tanks at the Chaot and Agana Heights reservoir locations. The contractor shall also link certain A-series wells to the reservoir via SCADA.

DESIGN CIP PW 12-05	**Yigo and Astumbo 2MG Tank Design Project (Lyons)**	**Start Date:** September 2013
99% complete	**Activities/Notes:** Design firm to provide RFI support during the construction.	**Completion Date:** January 2016
CO 9 (b)(4)	Engineering design services	
Project Description:	Develop the construction documents for two (2) 2.0 million-gallon (MG) nominal capacity concrete reservoirs in the Yigo service zones and one (1) 2.0 MG reservoir in the Astumbo service area. The design services will consist of preparation of plans, specifications, and estimates (PS&E), including Basis of Design, design calculations, construction schedule, topographical survey, property mapping, geotechnical engineering, cultural resource inventory and evaluation of historic resources, hazardous materials survey, construction documents, design drawings in Auto CAD (latest version), and relevant permits. Other services will include construction bid support service, meetings, and response to request for interpretation/information during construction. The consultant is required to incorporate and modify existing GWA concrete reservoir specifications to meet the project objective.	

DESIGN PW 09-11	**Northern and Southern Guam Reservoir Design** **(TG Engineers)**	**Start Date:** May 2015
60% Complete	**Activities/Notes:** Santa Rosa – 100% design in hand. Santa Rita – 100% design in hand. Inarajan – Land procurement second site related to new BPS's still on-going. Sinifa – 100% design in hand. Ugum – GWA still in discussion with re-evaluation and discussion with property owner of alternative property on-going.	**Completion Date:** Update: Due to property acquisitions issues for Piti and Tumon #1, design completion 6 months after property issue resolved.
CO 29 (b)(4)	Engineering design services	
Project Description:	The design services will consist of preparation of plans, specifications, and estimates (PS&E), which includes Basis of Design, design calculations, hydraulic modeling (EPANET), computational fluid dynamic modeling (CFD), construction schedule, topographical survey, property research, property mapping, geotechnical engineering, cultural resource inventory and evaluation of historic resources, hazardous materials survey, construction documents, design drawings in Auto CAD, relevant permit, construction bid support service, and response to request for interpretation/information during construction. The tank locations are Ugum, Santa Rita, Santa Rosa, Inarajan and Sinifa.	

DESIGN PW 12-04	**Central Guam Reservoirs Design (GHD Inc.)**	**Start Date:** May 2015
65% Complete	**Activities/Notes:** Chaot #2 – Chaot off-site work part of base bid. Contract with finance for fund cert. Chaot Tank work expected to be Change Order in once funding available. Tumon #2 – Tumon tank part of base bid. Contract with finance for fund cert. Hyundai – Hyundai tank part of base bid. Contract with Finance for fund cert. Piti – GWA still evaluating alternative solutions to storage needs in Piti area. Manenggon – Geotech work complete. 60% design near complete. Tumon #1 – GWA working on land issues.	**Completion Date:** Update: Due to property acquisitions issues for Piti and Tumon #1, design completion 6 months after property issue resolved.
CO 29 (b)(4)	Engineering design services	
Project Description:	The design services will consist of preparation of plans, specifications, and estimates (PS&E), which includes Basis of Design, design calculations, hydraulic modeling (EPANET), computational fluid dynamic modeling (CFD), construction schedule, topographical survey, property research, property mapping, geotechnical engineering, cultural resource inventory and evaluation of historic resources, hazardous materials survey, construction documents, design drawings in Auto CAD, relevant permit, construction bid support service, and response to request for interpretation/information during construction The tank locations are Hyundai, Pulantat, Chaot #2, Tumon #2, Piti and Tumon #1.	

CONSTRUCTION PW 09-03	**Line Replacement Phase IV (Giant Construction)**	**Start Date:** 02/14/16
75% Complete	**Activities/Notes:** Contractor working in Santa Rita (Santa Rosa Subd.) and Asumption, Piti. Sstill working on ROW/easement issue along Famha Rd.	**Completion Date:** 12/30/18 per Change Order.
	Construction Services	
Project Description:	The project is intended for a contractor to replace existing water lines that have been found by operations to be leaking and/or are causing service delivery to less than what GWA is required to provide. The project will replace water mains and ten known locations throughout the island and there is a component within the bid where line replacement work for unknown locations is accounted for.	

DESIGN PW 05-15	**Asan Spring Rehabilitation Design (HDR)**	**Start Date:** August 24, 2016
30% Complete	**Activities/Notes:** GWA received 30% design, review comments to be transmitted to designer within two week time.	**Completion Date:** Due to delays from the Park Services related to property access the anticipated completion of the design is May 2018.

	Engineering design services	
Project Description:	- Perform site visits and condition assessment for site conditions to determine demolition and rehabilitation requirement, process equipment condition, structural condition, and electrical system. Site condition assessment shall include all disciplines to execute the project. - Review and validate the current property boundary information to confirm the available space for the project development. - Perform an environmental impact study and prepare all required permits as needed. - Perform an archeological and historical resources study to identify potential impact to the project, prepare all required permits as needed. - Coordinate with Guam Historic Resources Division State Historic Preservation Office (SHPO) on historical resources study. Prepare all necessary reports and documents as required by SHPO. - Coordinate with Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR) on vegetation clearance. Prepare all necessary reports and documents required by DAWR. - Identify the existing and projected service area, period of design. - Identify and recommend conceptual water treatment system. - Perform a Class 4 engineering cost estimate according to the American Association of Cost Engineers (AACE) International Cost Estimate Classification System for construction fee. Cost must include all disciplines, permit, construction and administration that are necessary to execute the project. All costs will be in current dollars and escalated to the estimated midpoint of construction.	

CONSTRUCTION PW 09-11, PW 12-05	**Yigo/Astumbo Tank Construction (Pernix)**	**Start Date:** 12/1/16
55% Complete	**Activities/Notes:** Yigo #1 core walls complete and contractor working on pretension cable and shotcrete concrete. Yigo #2 core wall on-going. Astumbo #1 preparing main foundation.	**Completion Date:** 02/06/18
	Construction Services	
Project Description:	This project will involve construction of two (2) 2MG concrete tanks and Booster Pump Station at the Yigo site and a one (1) 2MG concrete tank at the Astumbo site. Work will involve new pipe line, valves, electrical controls, pumps and motors, site drainage, paving, generator for the BPS, SCADA, etc.	

CONSTRUCTION MANAGEMENT PW 09-11, PW 12-05	**Yigo/Astumbo Tank Construction Management (GHD)**	**Start Date:** December 2016
50% complete	**Activities/Notes:** Processing submittals and on-site inspection	**Completion Date:** February 2018
N/A	Construction Management services	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the demolition of existing steel elevate and ground tanks as well as the construction of	

	the 2MG concrete tanks at the Yigo tank location and Astumbo tank location. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.

CONSTRUCTION MANAGEMENT PW 12-04-11, PW 12-06 AND PW 09-11	**Central Tank Phase I (Chaot #2, Tumon #2, Hyundai) Construction Management (TG Engineers, PC)**	**Start Date:** December 2017
0% complete	**Activities/Notes:** Establishing project communications protocol, initiating project schedule review.	**Completion Date:** February 2019
N/A	Construction Management services	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the construction of three water reservoirs; 0.5MG Chaot #2, 1MG Tumon #2 (Nissan) and 1MG Hyundai. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.	

D. CIP Wastewater Section

DESIGN WW 11-08	**Agat-Santa Rita WWTP Replacement (DCA)**	**Start Date:** October 2014
99% Complete	**Activities/Notes:** Design complete. Services during construction on-going through Nov 2017. Change Order extend design services during construction with finance.	**Completion Date:** Nov. 2015 (design); April 2018 (construction)
CO 11	Engineering design services	
Project Description:	The engineering design consultant is required to design a new wastewater treatment facility that will meet secondary treatment limits. The new facilities will incorporate provisions for redundancy to improve reliability and facilitate operations and maintenance activities at the existing facility	

INSPECTION 2010 BOND WW 12-05 2010 BOND WW 05-04 2013 BOND WW 05-04	**SSES Central Sewer System (HDR)**	**Start Date:** November 2014
99% Complete	**Activities/Notes:** GWA still awaiting final report from HDR.	**Completion Date:** January 2018
CO 8 (c)	Engineering Inspection Services	
Project Description:	Work specifically required includes data analysis, development of hydraulic modeling, and development of an SSES fieldwork plan, manhole inspections, smoke testing, CCTV inspection and preparation of a Project Report.	

CONSTRUCTION MANAGEMENT WW 11-08	**Agat Santa Rita WWTP CM (GHD)**	**Start Date:** November 2014
100% (PH 1) 100% Complete (PH 2, Part 1) 80% Complete (PH 2, Part B)	**Activities/Notes:** Typical CM inspections on-going. Change order required to continue services through April 2018.	**Completion Date:** December 2017, projected through April 2018
CO 11	Construction Management services	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the construction of the Agat Santa Rita WWTP Phase II project. GWA plans to replace the existing wastewater treatment plant for a new plant that can meets permit limits. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.	

CONSTRUCTION WW 11-08	**Agat Santa Rita WWTP Phase II (Sumitomo Construction)**	**Start Date:** January 2016
Part 1 of Phase II- 100% Complete Part 2 of Phase II- 80% complete	**Activities/Notes:** Contractor still working on headworks, aerobic digester, equalization basin, admin and maintenance buildings.	**Completion Date:** Phase A: 03/15/17 Phase B: 12/31/17 will not be met, April 2018 projected
CO 11	Construction services	
Project Description:	This project includes construction of the head works, clarifier, oxidation ditches and UV disinfection and administration facilities. Rehabilitation work at the existing WWTP will also occur to ensure the wastewater can be pumped to the new plant. The new plant will also tie into the Tipalao SPS.	

DESIGN WW 09-08, WW11-03	**Baza Gardens Cross Island Sewer Design (DCA)**	**Start Date:** 02/05/16
99% Complete	**Activities/Notes:** DCA providing engineering services during construction.	**Completion Date:** 04/30/18(this completion date will have to be extended.)
CO 11	Engineering design services	
Project Description:	The intent of this project for an engineering firm to prepare design drawings and specification for a sewer conveyance from the Baza Garden WWTP to the new Agat Santa-Rite WWTP. The design will take into account growth in the Baza Gardens/Talofofo areas as wells as new connection along the Route 17 route.	

DESIGN WW 09-06	**Bayside SPS Improvements Design (EMPSCO)**	**Start Date:** July 29, 2016
99% Complete	**Activities/Notes:** Due to change in design Army Corp of Engineers permit viewed as not necessary. GWA received 100% design and under review.	**Completion Date:** Due to issue with ACOE anticipate December 2017 for

	GWA working on Change order to address snail and archeological report that was not part of original scope.	design only.
	Engineering design services	
Project Description:	The intent of this project for an engineering firm to prepare design drawings and specification to upgrade the Bayside Sewer Pump Station given the facility is in major disrepair and the adjacent river is eroding away the access road to the facility which is causing maintenance challenges.	

CONSTRUCTION WW 09-08, WW 11-03	**Baza Gardens Cross Island Road Sewer Conveyance Construction Phase I (BME and Sons)**	**Start Date:** October 2016
60% Complete	**Activities/Notes:** New SPS, force main and gravity line installation along Route 17 on-going.	**Completion Date:** Phase I: 03/01/18 (this completion date will have to be extended.)
	Construction services	
Project Description:	The work performed under this project consist of construction of 14,714' of gravity main, 2,767' of force main and sewer pump station #3 next to the Aplacho River in Santa Rita.	

CONSTRUCTION MANAGEMENT WW 09-08 WW 11-03	**Baza Gardens Cross Island Road Sewer Conveyance (Construction Management) (SSFM)**	**Start Date:** December 5, 2016
55% Complete	**Activities/Notes:** Field inspection, project coordination and invoice review on-gong.	**Completion Date:** April 2018 (this completion date will have to be extended.)
	Construction Management services	
Project Description:	The work performed under this project shall consist of Construction Management and Inspection Services for the construction of gravity main, force mains and sewer pump station as well as an equalization basin at the Baza Garden WWTP.	

CONSTRUCTION WW 09-08, WW 11-03	**Baza Gardens Cross Island Road Sewer Conveyance Construction Phase II (BME and Sons)**	**Start Date:** March 2017
60% Complete	**Activities/Notes:** New SPS, force main and gravity line installation along Route 17 on-going.	**Completion Date:** Phase II: 03/16/18 (this completion date will have to be extended.)
	Construction services	
Project Description:	The work performed under this project consist of construction of 1,767' of gravity main, 14,400' of force mains and sewer pump station #2 along Route 17.	

CONSTRUCTION WW 09-08, WW 11-03	**Baza Gardens Cross Island Road Sewer Conveyance Construction Phase III (Sumitomo Construction)**	**Start Date:** June 2017
20% Complete	**Activities/Notes:** Pipeline construction on Route 17 on going. contractor working on wet well at Baza Gardens WWTP.	**Completion Date:** Phase III: 03/16/18 (this completion date will have to be extended.)
	Construction services	
Project Description:	The work performed under this project consist of construction of, but not limited to, 10,481' of force mains and sewer pump station at existing WWTP, equalization tanks, stand-by generator, improved headworks, grit removal system, and associated equipment.	

CONSTRUCTION WW 11-04	**Umatac Merizo WWTP Design Build Improvements Project (CoreTech)**	**Start Date:** June 2017
5% Complete	**Activities/Notes:** Initial design work on-going. Coordination with operation for field survey on-going.	**Completion Date:** December 31, 2018
	Construction services	
Project Description:	The project is intended to improve the aeration basin, construct a new sewer pump station, regrade the overland field, construct a new effluent storage tank and disinfection facility. The overland percolation basin will undergo regarding work to ensure appropriate distribution of effluent through the whole basin.	

CONSTRUCTION MANAGEMENT WW 11-04	**Umatac Merizo WWTP Design Build Improvements Project (SSFM Inc)**	**Start Date:** September 7, 2017
5%	**Activities/Notes:** Establishing communication links with project management team and contractor.	**Completion Date:** December 31, 2018
	Construction Management services	
Project Description:	The work performed under this project procurement shall consist of Construction Management and Inspection Services for the improvements works at the aeration basin, new sewer pump station, overland field improvements, effluent storage tank. The overall goal of the Construction Manager (CM) is to manage the entire construction process so that the project can be delivered efficiently and professionally.	

E. CIP Engineering Support

DESIGN EE 09-08	**SCADA System for Water and Wastewater Facilities Phase A-1 (AECOM)**	**Start Date:** June 2015
100% complete	**Activities/Notes:** Final design in hand. AECOM to provide assistance during bidding process.	**Completion Date:** November 2017 - Design

		January 2019 - (Bid and Construction Support)
N/A	Engineering design services	
Project Description:	The A/E firm will design an integrated, robust and secure Supervisory Control and Data Acquisition (SCADA) system for GWA's water and wastewater systems, and to provide support services during bid and construction. The 22 sites will consist of a combination of water facilities such as production wells, reservoirs, booster pump station and wastewater sites include sewer treatment plants and sewer pump stations. Executed by approved change orders, number of sites in original design scope has changed from 22 sites to 19 sites and design of High Water Alarm for 20 critical sewer pump stations has been added. Scope also includes bid and construction support of the design-build project of GPWA SCADA EMS project.	

DESIGN MC 05-01	**New GWA Lab Design Project (Laguana Architects)**	**Start Date:** June 2015
100% complete	**Activities/Notes:** Design complete however services continue into construction phase.	**Completion Date:** February 2016
N/A	Engineering design services	
Project Description:	The design firm is required to review all laboratory activities GWA's lab staff conduct for water and wastewater analysis after which they are to develop design drawing and specification to be bid out for construction. The design firm shall also take into account power and water needs to ensure the facility is self-sufficient.	

CONSTRUCTION MC 05-01	**New GWA Lab Construction (Mega United Construction)**	**Start Date:** NTP issued August 18, 2016
99% Complete	**Activities/Notes:** Punch list items and permanent communication installation remaining. Facility is being used by lab personnel.	**Completion Date:** Early March 2018.
	Construction services	
Project Description:	The project will involve construction of a new building at the GWA Upper Tumon compound to house the laboratory section. The facility will include office, laboratory and storage space for the lab employees. The facility will also include a back-up generator.	

F. GIS Section

MAPPING MC 05-02	**Island Wide Survey- (Duenas, Camacho & Ass.)**	**Start Date:** December 2007
94% complete	**Activities/Notes:** Task #12 map submitted to DLM for final approval. Task #13 awaiting GM approval for NTP. Task #14 work on-going.	**Completion Date:** New anticipated complete is April 2018.
	Survey services	
Project Description:	The contracted land surveyor is required to conduct title research,	

	property valuation and mapping of property boundaries where GWA facilities are located but the lot is not registered under GWA's name.

MAPPING MC 05-02	**Island Wide Survey PH II -** **(Duenas, Camacho & Ass.)**	**Start Date:** August 30, 2017
35% complete	**Activities/Notes:** First 25 parcels completed by surveyor submitted to DLM for review. Surveyor conducting field work for 15 additional parcels.	**Completion Date:** December 2018
	Survey services	
Project Description:	The work performed under this project procurement shall consist of a professional land surveyor conducting field work to mark corners of existing government properties as a means of severing out portions of the larger property to be deeded to GWA. Surveyor shall also prepare all necessary maps and documents for recording at DLM	

G. Permits Section

PERMITS
MONTHLY REPORT 2017

	2018						
Description	Jan	Feb					
Building Permit	11	9					
Occupancy Permit	3	10					
New Installation	14	8					
Sewer Application	15	14					
Sewer Inspection	0	1					
Private Utility Acceptance	0	0					
Relocation of Water Meter	0	0					
Tapping-Water	1	1					
Tapping-Sewer	0	1					
Clearance-Water	3	2					
Clearance-Sewer	3	2					
Highway Encroachment	0	4					
Verification of Utilities	4	4					
Fire Flow Test	0	0					
Schedule Water Outage	0	1					

H. SRF Project Status Report

- Projects listed below that are noted to be in the procurement phase will follow the "Percentage Key" below.

Percentage Key:

100%	Approved by GM
99%	Signature required from either Accounting/Legal/GM
98%	Processing engineering service or construction contract (with legal)
95%	Request for CCU approval (GM/engineering)
90%	A/E fee negotiation or contractor bid evaluation (engineering)
80%	Selected A/E or Conducted bid opening (engineering)
70%	Advertised RFP/IFB (engineering)
60%	RFP/IFB Package under legal review
50%	RFP/IFB Package completed (engineering)
Less than 50%	Project Scope of work development in progress

- Red text anywhere indicates a change from the last report.
- Cells highlighted in green indicate contract amount certified and project active.

	Project	Project Description	Project Manager	Phase		Start Date (NTP Issued)	Anticipated Completion Date	Contract Amount (+) change orders	Contractor	Status as of 02/16/18
1	Northern District SSES & I/I Study	Sanitary sewer system evaluation study (SSES) and inflow and infiltration (I/I) study designed to evaluate high I/I areas within the Northern sewer basin with the goal of identifying projects to eliminate them.	J. Davis	Design	1	10/10/2014	2/29/2016	$ 792,979.97	Stanley	100% Complete.
				Construction				*The project does not involve construction.*		
				Const. Mgmt						
2	Southern SSES Rehabilitation (Agat-Santa Rita-Umatac-Merizo)	Rehabilitation of segments of sewer lines in Umatac, Merizo, Agat, and Santa Rita where the Sanitary Sewer Evaluation Study recommends rehabilitation.	Brown & Caldwell	Design				*The design was previously completed under bond funding.*		
				Construction	1	10/30/2015	2/28/2017	$ 1,170,583.82	Reliable Builders	CIPP work quality issues discovered in May 2017, within warranty period. RBI completed CCTV of defects on 10/21. RBI is working on permits and utility clearances. Considering release of payment and retainage as incentive to accelerate repairs. Still holding the performance bond.
				Const. Mgmt	1	11/10/2015	3/30/2017	$ 226,980.23	TG Engineers	Submitted CO for final contract amount. Will close as soon as approved by the GM.
3	Asan-Adelup-Hagatna RT1 Sewer Line Rehabilitation and Replacement	Rehabilitation of sewer lines from the War in the Pacific Asan Park to the Governor's Complex in Adelup. This line is asbestos concrete that is dilapidated and some areas have disintegrated crowns.	Brown & Caldwell	Design	2	12/11/2015	3/30/2017 for Design requirements	$ 1,780,210.00	HDR	Design complete however HDR reorganizing bid for multi-award. Expecting completion in the next week.
				Construction		10/16/2016	6/30/2019			Procurement 75%. No bids submitted for Route 1 Phase I. Contractor comments/responses to reasons for lack of bids be sent to GWA for review GWA expected to rebid asap.
				Const. Mgmt		6/30/2017	6/30/2019			Procurement 90%. CM scope and fee proposal received 6/23 ($698K); due to canceling of bid GWA will repackaging bid therefore scope and fee will need to be refined.
4	RT2 Agat War in the Pacific Sewer Line Rehabilitation and Replacement	Rehabilitation of a large segment of sewer line fronting the War in the Pacific Park in Agat that has collapsed.	Brown & Caldwell	Design	3	11/17/2015	3/30/2017 for Design requirements	$ 316,681.00	SSFM	SSFM providing services during bidding process as well as construction phase.
				Construction	6	8/31/2017	10/1/2018	$ 4,554,451.00		Currently constructing precast manholes at staging yard. Withholding payment until contractor can demonstrate Davis-Bacon compliance.
				Const. Mgmt	8	9/19/2017	10/1/2018	$ 584,725.00		CM reviewing and commenting on submittals.

5	Brown & Caldwell Project Management	Brown & Caldwell to provide program management services and support.	T. Cruz	Design	4	3/24/2015	2/28/2019	$ 1,819,850.00	B&C	Project underway.
				Construction				*The project does not involve construction.*		
				Const. Mgmt						
6	Wastewater, Water and Source Water System Master Plan Upgrade	Update of the existing water and wastewater master plan while factoring in military integration and secondary treatment plant options.	Brown & Caldwell	Design	5	7/6/2015	01/30/2018 (revised due to financial workshop)	$ 2,623,300.00	B&C	GWA received Draft final (7 sets) on 02/16/18. CCU to be given chance to review and comment before GWA puts WRMP Update out to public.
				Construction				*The project does not involve construction.*		
				Const. Mgmt						
7	Groundwater Wells Rehabilitation (F-3, A-2, A-7, A-12, D-5)	Rehabilitation of existing deep wells and/or in cases where pipe column needs replacing, wells will be re-drilled. The deep wells to be rehabilitated are A-2, A-7, A-12, D-5, & F-3.	Brown & Caldwell	Design	6	5/27/2016	2/28/2018 (for design only)	$ 1,758,247.00	AECOM	AECOM proceeding toward Final RFC design, with the aim of submitting final deliverables by 2/28/2018. A-12: Design rate of 200 gpm (45.5 ft drawdown). D-05: Design rate of 125 gpm (39 ft drawdown). A-02: Design rate of 250 gpm (34.6 ft drawdown). F-03: Design rate of 200 gpm (1.5 ft drawdown).
				Construction		3/23/2017	4/30/2018			
				Const. Mgmt		3/23/2017	4/30/2018			
8	Tumon Sewer Hot Spots	Investigation, evaluation, and repair of possible solutions, to long plaguing issues where sewer overflows are known to occur in Tumon San Vitores.	Brown & Caldwell	Design	7	6/24/2016	10/30/2017 for design only	$ 572,089.00	TG Engineers	TGE submitted 100%; working to rearrange bid schedule before bidding and responding to GEPA comments.
				Construction		3/23/2017	3/22/2018			
				Const. Mgmt		3/23/2017	3/22/2018			

9	Critical Sewer Pump Stations (7 stations)	Rehabilitation of various components of 7 pump stations that were identified to by the CDM design team: Macheche, Ypaopao, Astumbo 1, Fujita, Santa Ana, Southern Link, and Route 1.	CDM	Design				*The design will be incorporated into the design/build package.*		
			J. Davis	Design/Build	1	8/8/2016	3/30/2018	$ 1,531,456.33	ProPacific	-Route 16 Pump Stations- Structural Evaluation done. Waiting for the report from the Structural Engineer. Additional cost and time extension is anticipated. Upcoming change orders: - Fujita Pump Station- Request for additional painting (Additive) and Macheche PS- Wet well coating below water surface eliminated. (Deductive) - Santa Ana PS- Installation of break-away fittings for the new submersible pumps . Additional cost and time extension is anticipated - Route 16 PS & Fujita PS - Monorail and Hoist Support Load Testing - Southern Link Pump Station - Provision of Roll up door. Contractor to provide cost.
				Const. Mgmt	2	9/9/2016	3/30/2018	$ 299,519.00	Stanley	CM work ongoing. GWA working on Change Order proposal to extend contract to match constructions activities.
10	Sewer Pump Station High Water Alarm Systems (20 stations)	This project will design and installed telemetry equipment/SCADA type alarms that will alert when pump station failure occurs.	C. Yam	Design				*The design will be incorporated into the design/build package.*		
				Design	8	8/12/2016	02/30/2017	$ 183,171.00	AECOM	Design complete
				Construction	5	4/5/2017	9/30/2017	$ 1,444,888.00	Pacific Rim	Project complete
				Const. Mgmt	3	02/30/2017	9/30/2017	$ 195,269.00	EMSPCO	CM work complete
11	Sewer Pump Station Backup Power (2 stations)	Construction of the housing and installation of new generators for the Casimero pump station (Mongmong) and the Namo pump station (Yona central).	B. Cruz	Design				*The design will be incorporated into the design/build package.*		
				Design/Build	2	6/24/2016	9/30/2017	$ 362,692.53	ProPacific	Change order approved for a zero-cost time extension Aug to Sept 26th. Final payment held due to ProPacific not conforming to the Davis Bacon Act.
				Const. Mgmt				*B. Cruz is the construction manager.*		
12	RT4 Relief Sewer Line Rehabilitation and Replacement	Rehabilitation of sewer lines that are located from Agana McDonalds to Marine Drive that have been known to overflow due to structural issues.	Brown & Caldwell	Design	9	3/1/2016	4/22/2017	$ 794,000.00	AECOM	· AECOM to provided services during bidding process.
				Construction		4/23/2017	12/31/2018			Procurement 70%, GWA working to rebid with work sepearetd by open cut and CIPP. Awaiting for package fr om designers.
				Const. Mgmt		4/23/2017	12/31/2018	$ 647,000.00		Procurement 90%, EMPSCO submitted revised fee ($647K). B&C recommending renegotiating given the plans to reorganize the bid package.

13	Groundwater Wells Rehabilitation (D-3, D-17, D-18, D-22, M-9)	Rehabilitation of existing deep wells and/or in cases where pipe column needs replacing will be re-drilled. D-3, D-17, D-18, D-22, and M-9.	Brown & Caldwell	Design				*The design was previously completed under bond funding.*		
				Construction	2	8/19/2016	3/30/2018	$ 6,120,353.44	Pacific Rim	Operating Permit with GEPA as of 1/3; Ok'd to connect to system for tests. Expected any time once datum plate on well head installed. Punch lists ongoing; current issue with injector nozzle being oversized, and potentially VFDs and booster pumps undersized. Waiting on new injector nozzles to test on system. D-03: [250 gpm design] Currently achieving 75 gpm. Discussing proposal from contractor and exploring other options. Initial checkout of chlorine system and alarms completed 1/10. D-17: [200 gpm] Initial checkout completed 1/2; test connection to distribution system unsuccessful with current setup. D-18: [300 gpm] Initial checkout completed 1/3; test connection to distribution system unsuccessful with current setup. D-22: [100 gpm] Initial checkout completed 1/4; test connection to distribution system postponed. M-09: [Rehab 150 gpm] Well shutdown, pump pulled 1/26. Waiting on new cable for motor; no ETA yet. VFD training expected when an operational well available; ETA to be determined. Flatbed truck and rig tools at PRC yard and verified by GWA; to be delivered soon. Rig ETA 23 February with training to follow first week of March. CO#8 with Finance; EA continuing to negotiate other costs, including D-03.
				Const. Mgmt	4	3/22/2016	3/30/2018	$ 943,361.24	EA	Work in progress. Continuing to work with EOR and GWA on RFIs/PCOs. CO#3 ($119k) approved; discussion ongoing for CO#4 to extend CM contract needed; EA working to finalize cost proposal.
14	Southern SSES Sewer Rehabilitation (Baza Gardens-Talofofo)	Rehabilitation of segments of sewer lines in Windward Hills, Talofofo area where the Sanitary Sewer Evaluation Study recommends rehabilitation.	Brown & Caldwell	Design				*The design was previously completed under bond funding.*		
				Construction	3	8/2/2016	7/2/2017	$ 1,189,815.00	ProPacific	Contractor attempting to remove debris in line MH5678 – MH5679. Also needs to work on additional CIPP defects in line MH5680 – MH5681. Contractor notified of possible termination for default if there is no improvement in performance. Accruing potential Liquidated Damages against contractor (over $200,000 so far).
				Const. Mgmt	5	7/29/2016	5/28/2017	$ 347,945.93	EMPSCO	· CM on notice to minimize management costs. CM will need CM CO #4 in order to pay for work after October 31. Continuing to negotiate with CM to bring down costs.
15	Tamuning Sewer Hot Spots	Sewer rehabilitation for lines at Winner Apartments, Segund Leon Guerrero, and behind Guam Premium Outlets.	Brown & Caldwell	Design	10	9/9/2016	10/31/2017 (for design only)	$ 663,629.00	TG Engineers	TGE submitted 100%, working to rearrange bid schedule before bidding and responding to GEPA comments. Submitted letter and easement maps; New Plaza Market Owners response expected any day.
				Construction		4/29/2017	4/30/2018			
				Const. Mgmt		4/29/2017	4/30/2018			

16	Talofofo Sewer Pump Stations (4 stations)	Design and construction of 4 sewer lift stations in the Talofofo village where sewer lines are installed but never completed.	J. Davis	Design (for Talofofo and Chalan Pago PS)	11	8/17/2016	11/30/2017	$ 477,999.50	EMPSCO	Talafofo Pump Station- GWA Engineering & Designer agreed to revise the bid schedule based on per project site location. Project execution maybe awarded based on availability of funds and project priorities. Estimated cost approximately 2.8 M plus 12% contingency . GWA still waiting for GEPA 's review and comments for the plans of Talafofo Pump Station Final Design of Chalan Pago Pump Station project under review by GWA.
				Construction		4/29/2017	4/30/2018			
				Const. Mgmt		4/29/2017	4/30/2018			
17	Chalan Pago Sewer Pump Station	Design and construction of sewer lift stations and gravity lines in Scott Laguana, Santa Cruz Street Chalan Pago.	J. Davis	Design		8/17/2016	11/30/2017	*The design will be included with the Talofofo Pump Station design project.*		
				Construction		4/29/2017	4/30/2018			
				Const. Mgmt		4/29/2017	4/30/2018			
18	Water Hydraulic Model (SCADA ready instruments to update Model)	Design and construction of instrumentation at key water sites in the Barrigada service area necessary to update GWA Water hydraulic model.	Barbara Cruz	Design	12	8/3/2016	3/15/2017	$ 523,268.00	GHD	Design complete.
				Construction		2/1/2017	12/30/2019			Funding for construction project to be from FY18 grant that is still pending.
				Const. Mgmt		2/1/2017	12/30/2019			
19	Macheche Hill Sewer Rehabilitation/ Replacement	Rehabilitation of sewer lines on Macheche road. Segments of this sewer line has collapsed recently and is consider a high priority.	J. Davis	Design-Build	3	8/29/2016	3/30/2018	$ 2,202,545.47	Giant Const.	All construction work is complete. Pending As-Built drawings.
				Const. Mgmt	6	9/16/2016	3/30/2018	$ 379,994.38	Am Orient	CM addressing close out activities with contractor.
20	Asan-Adelup-Hagatna Rt. 1 Sewer Line Rehabilitation and Replacement Emergency Repairs	Rehabilitation of sewer line in Asan that collapsed and which is current fitted with a temporary pumping system.	Brown & Caldwell	Design				Design cost covered under 3A above.		
				Construction	4	3/8/2017	12/30/2017	$ 2,470,658.00		Work at both sites complete. Punch list mostly complete. Waiting on as-builts. Still working through CO#3; having issues coming to an agreement on costs. Meeting again this week to discuss latest cost request.
				Const. Mgmt	7	1/24/2017	12/30/2017	covered under 3A		Working with PRC on invoices and negotiating CO#3 with contractor. Submitted CO#3 for CM services for HDR. No cost CO; funding will come from Construction Services budget, at $46,732. CO with Finance.

DASHBOARD

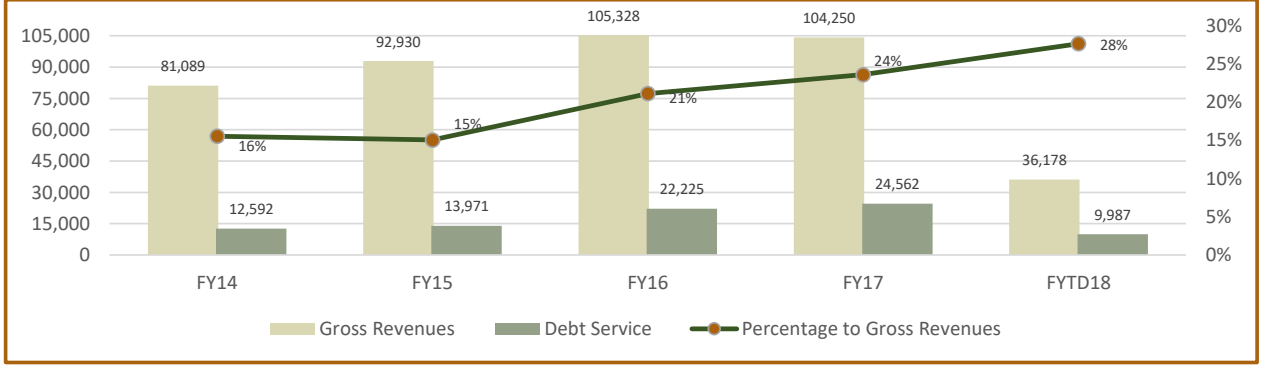
FYTD January 2018 Budget vs Actual ($000)

Category	Description	Budget FYTD18	Actual FYTD18	Variance
Rate Based Revenues	Water	$23,766	$22,913	($853)
	Wastewater	13,287	13,131	(156)
	Total	37,053	36,044	(1,009)
Operations & Maintenance	Salaries & Benefits	8,838	7,744	(1,094)
	Power	4,232	4,649	417
	Water Purchases	2,884	2,846	(39)
	A&G	4,289	3,129	(1,160)
	Contractual	1,493	1,340	(153)
	Total	$28,174	$26,134	($2,040)

Key Financial Ratios ($000)

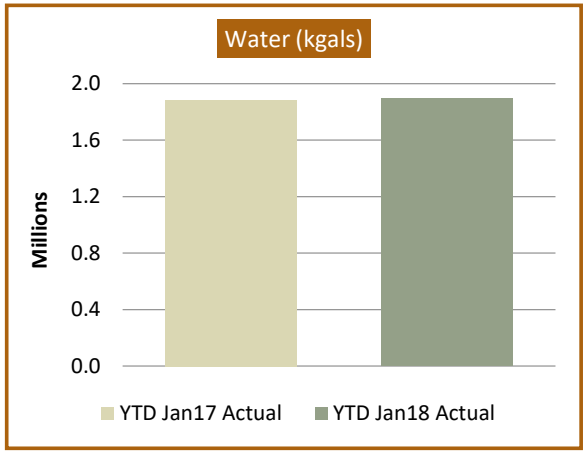
Category	FY18	FY17
Accounts Payable $$/Days	$4,960 / 53 days	$5,390 / 59 days
Accounts Receivable $$/Days	$16,676 / 68 days	$15,451 / 51 days
Days Cash On Hand	172 days	184 days
Annual Debt Service (Revenue Bonds)	$29,961	$24,563
Debt Service Coverage (Bond/PUC)	1.65 / 2.02	1.99 / 2.44

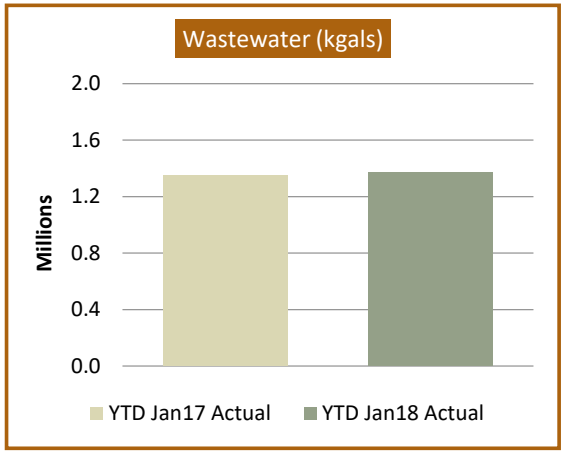
Debt as a Percent to Gross Revenue

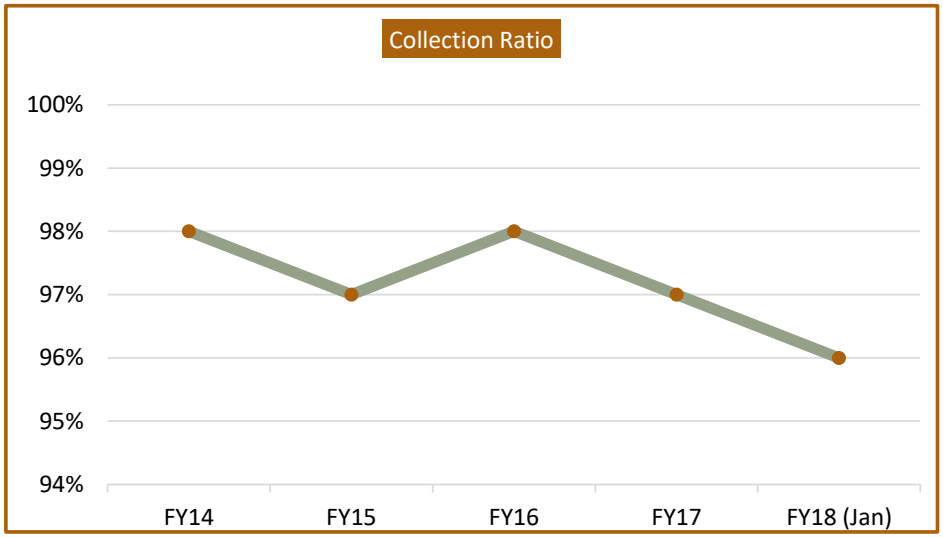


(1) Gross Revenues excludes SDC
(2) Debt Service Excludes Cap I

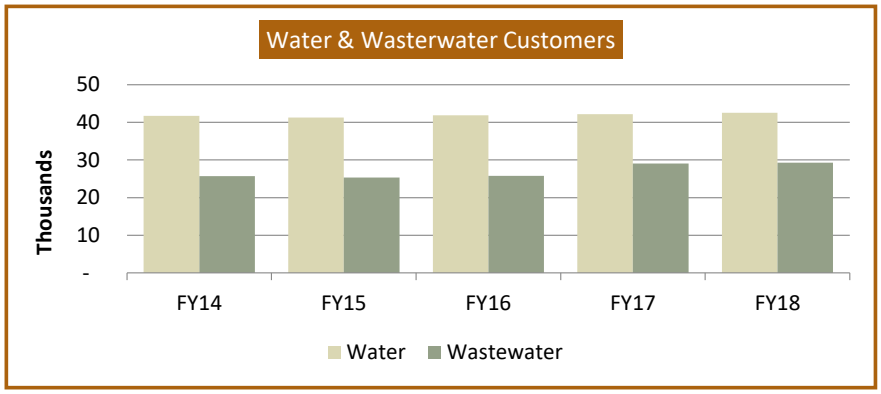
Water & Wastewater Analytics

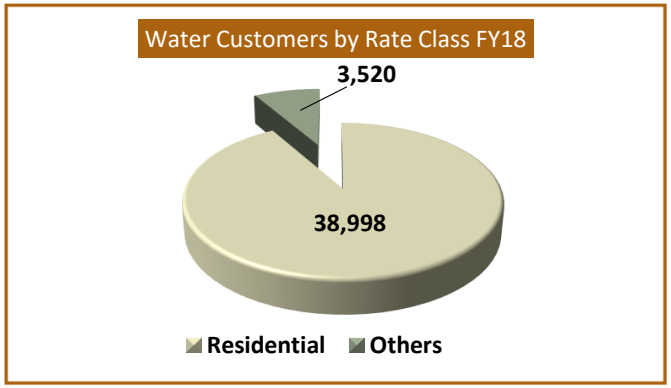


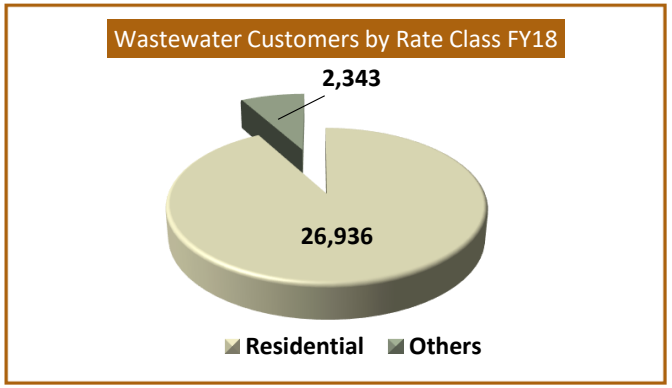


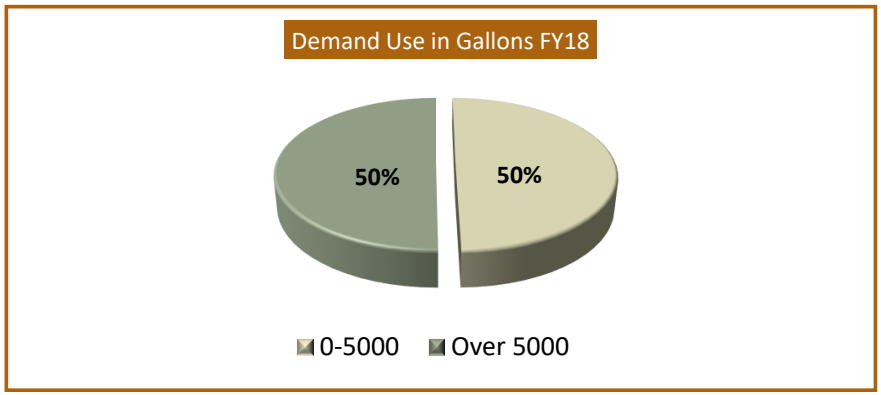


Water & Wastewater Customers





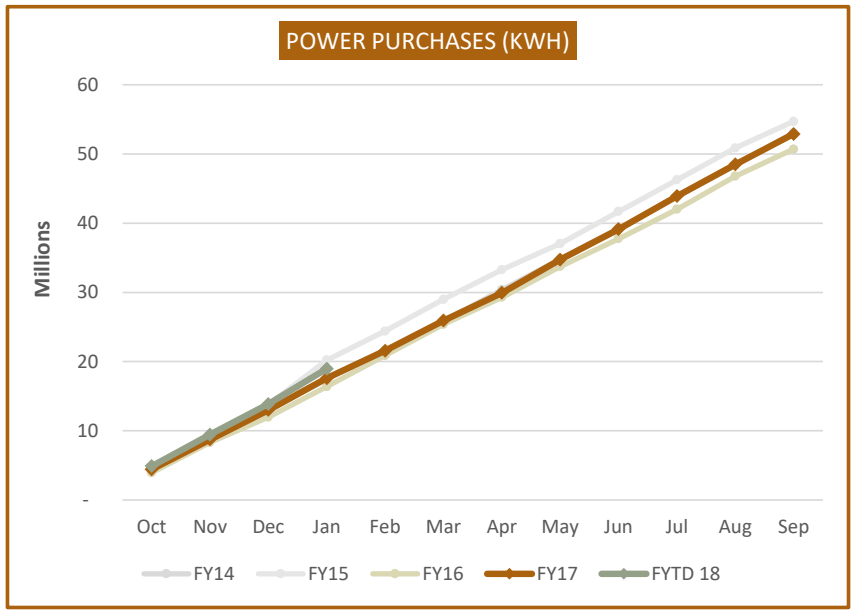


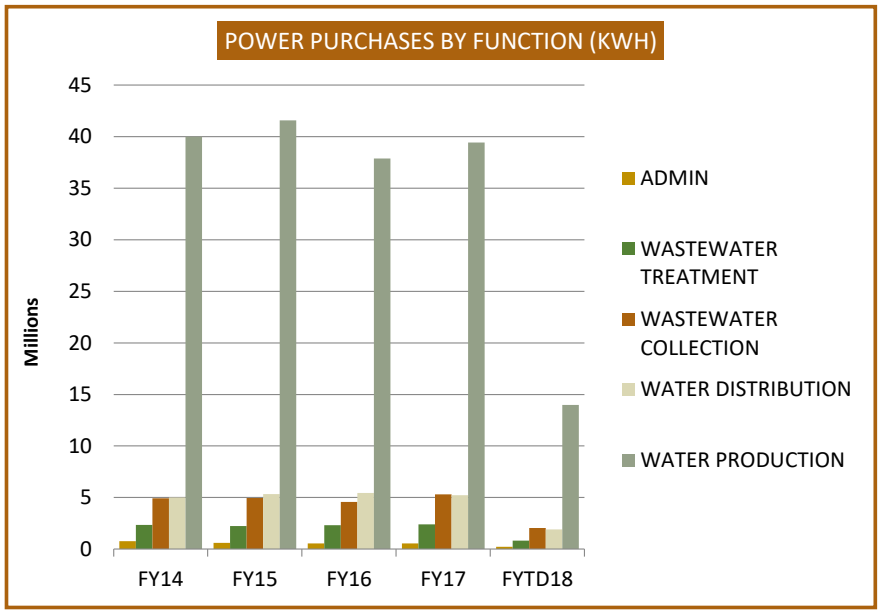


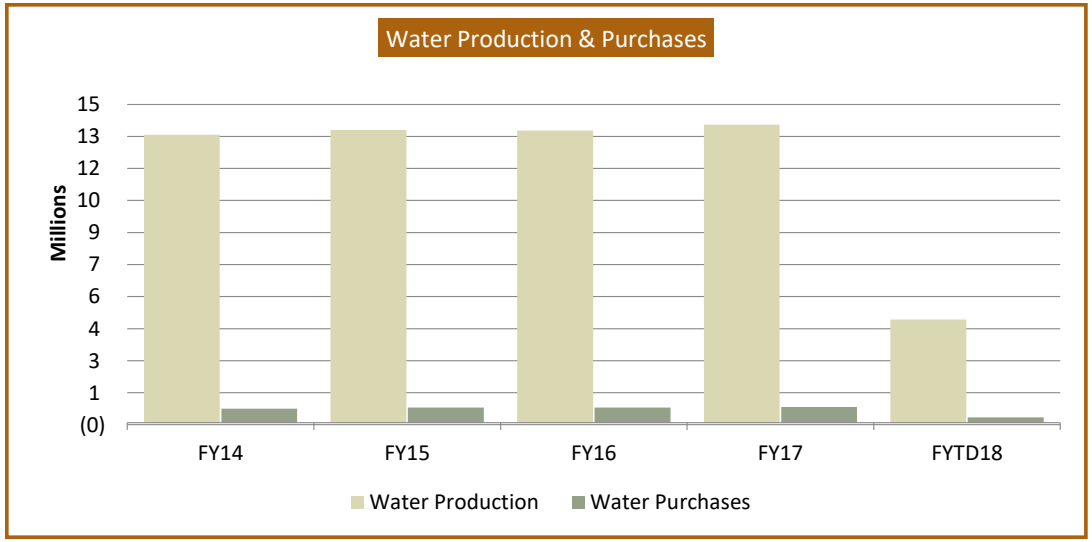
Top Ten Largest Water and Wastewater Customers – January 2018

Water			Wastewater		
Customer Name	FYTD18 Revenues	% of Total	Customer Name	FYTD18 Revenues	% of Total
1) MDI GUAM CORPORATION/LEOPALACE	$470,203	2.05%	1) AIR FORCE DOD	$1,158,536	8.83%
2) PACIFIC ISLANDS CLUB	378,673	1.65%	2) NAVY DOD	789,931	6.02%
3) HOTELS OF THE MARIANAS INC	337,091	1.47%	3) HOTELS OF THE MARIANAS INC	360,504	2.75%
4) HYATT	319,130	1.39%	4) HYATT	341,713	2.60%
5) HOTEL NIKKO GUAM	302,236	1.32%	5) HOTEL NIKKO GUAM	323,063	2.46%
6) GUAM REEF HOTEL INC	285,451	1.25%	6) GUAM REEF HOTEL INC	305,535	2.33%
7) SHERATON LAGUNA GUAM RESORT	263,178	1.15%	7) SHERATON LAGUNA GUAM RESORT	281,611	2.15%
8) MDI GUAM CORPORATION/WESTIN	218,024	0.95%	8) MDI GUAM CORPORATION/WESTIN	233,107	1.78%
9) TANOTA DEVELOPMENT LLC	212,245	0.93%	9) TANOTA DEVELOPMENT LLC	227,754	1.74%
10) OUTRIGGER GUAM RESORT	209,533	0.91%	10) OUTRIGGER GUAM RESORT	224,490	1.71%
Total	**$2,995,764**	**13.07%**	**Total**	**$4,246,244**	**32.35%**

Power, Water Purchases and Water Production

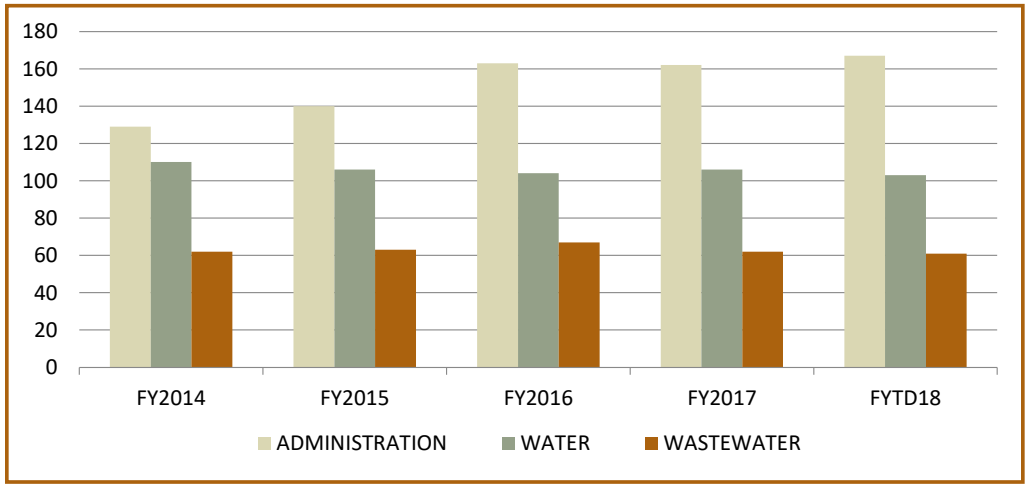




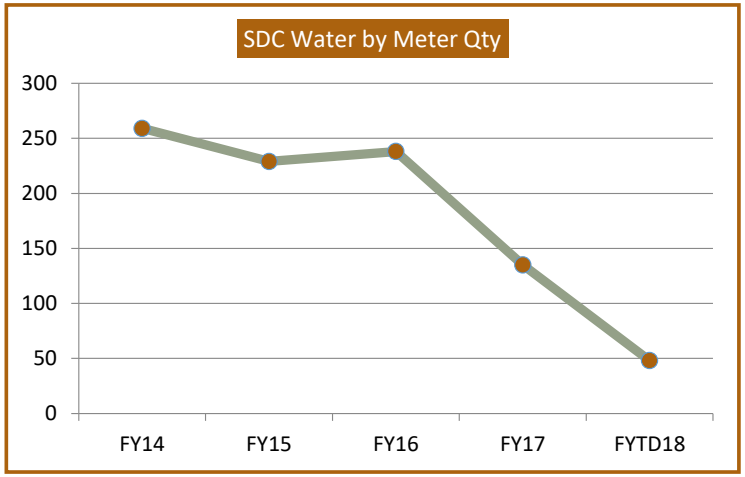


FTE by Major Division

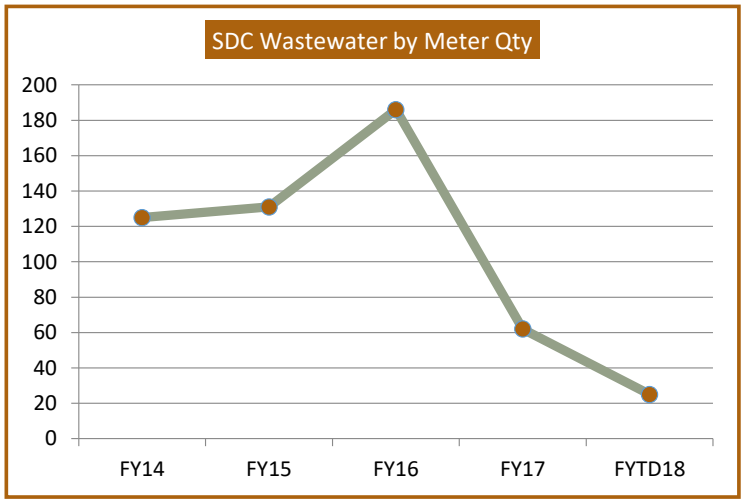
DIVISION	FY2014	FY2015	FY2016	FY2017	FYTD18
ADMINISTRATION	129	140	163	162	167
WATER	110	106	104	106	103
WASTEWATER	62	63	67	62	61
TOTAL NUMBER OF STAFF	301	309	334	330	331
Gross Salaries & Wages ($000)	15,532	15,805	16,442	17,210	5,811
Water Customers	41,702	41,274	41,858	42,181	42,518
Staff to Customers Ratio	0.72%	0.75%	0.80%	0.78%	0.78%



SDC Water & Wastewater (Meter Quantity)



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	248	220	239	129	42
1	5	5	7	2	1
1 1/2	1	1	1	1	3
2	3	2	4	2	2
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Water	259	229	252	135	48



Actual Meter Sizes (Inches)	FY 2014	FY 2015	FY 2016	FY 2017	FYTD18
5/8 x 3/4	115	124	179	58	19
1	4	3	2	-	1
1 1/2	1	1	1	1	3
2	3	2	3	2	2
3	1	-	1	-	-
4	-	1	-	-	-
6	-	-	-	1	-
8	1	-	-	-	-
10	-	-	-	-	-
Total SDC by Wastewater	125	131	186	62	25

GUAM WATERWORKS AUTHORITY
JANUARY 31, 2018
FINANCIAL AND RELATED REPORTS
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GUAM WATERWORKS AUTHORITY
Balance Sheet
January 31, 2018

SCHEDULE A

ASSETS	Unaudited January 31, 2018	Unaudited September 30, 2017	Increase (Decrease)
Current Assets:			
Cash:			
Unrestricted (Schedule G)	3,301,196	4,873,275	(1,572,079)
Restricted Funds (Schedule G)	67,311,563	65,124,400	2,187,163
Accounts Receivable Trade, Net of Allowance for Doubtful Receivables of $12,847,445 at Jan 31, 2018 and $12,619,034 at Sep 30, 2017	16,675,949	15,450,733	1,225,216
Other Receivable	4,894,597	8,433,446	(3,538,849)
Materials & Supplies Inventory, Net of Allowance for Obsolescence of $457,370 at Jan 31, 2018 and Sep 30, 2017	2,127,929	2,166,557	(38,629)
Total Current Assets	94,311,233	96,048,411	(1,737,178)
Property, Plant and Equipment			
Utility plant in service:			
Water system	328,128,709	327,484,191	644,517
Wastewater system	286,418,021	286,394,940	23,082
Non-utility property	19,282,203	18,938,255	343,948
Total property	633,828,934	632,817,387	1,011,547
Less Accumulated Depreciation	(292,156,280)	(286,043,580)	(6,112,700)
Land	1,163,298	1,110,998	52,300
Construction Work in Progress	132,774,252	111,695,887	21,078,366
Property, Plant and Equipment, net	475,610,204	459,580,691	16,029,513
Other noncurrent assets			
Restricted cash (Schedule G)	218,026,315	236,550,002	(18,523,687)
Investments (Schedule G)	40,534,905	41,042,038	(507,134)
Other Prepaid Expenses	487,518	551,128	(63,610)
Total other noncurrent assets	259,048,738	278,143,169	(19,094,431)
TOTAL ASSETS	828,970,175	833,772,271	(4,802,096)
Deferred outflows of resources:			
Debt defeasance loss on refunding	11,124,478	1,695,981	9,428,498
Deferred outflows from pension	3,222,202	3,414,242	(192,040)
Total Assets and Deferred Outflows of Resources	**843,316,856**	**838,882,494**	**4,434,362**
LIABILITIES AND NET ASSETS			
Current Liabilities:			
Current maturities of long-term debt			
-Series 2010 Bond	-	1,655,000	(1,655,000)
-Series 2014 Refunding	3,475,000	3,385,000	90,000
-Notes Payable	3,038,469	2,873,988	164,481
Accounts Payable -Trade	4,960,010	5,390,256	(430,246)
Interest Payable	5,197,610	6,656,499	(1,458,889)
Accrued Payroll and Employee Benefits	1,869,929	2,604,471	(734,542)
Accrued Annual Leave	1,729,291	1,729,291	-
Current portion of employee annual leave	567,057	567,057	-
Contractors' Payable	7,813,984	13,950,287	(6,136,303)
Customer and Other Deposits	2,075,441	2,087,207	(11,767)
Total Current Liabilities	30,726,790	40,899,057	(10,172,267)
Long Term Debt, less current maturities			
Series 2010 Revenue Bond	-	112,870,000	(112,870,000)
Series 2013 Revenue Bond	172,630,000	172,630,000	-
Series 2014 Refunding	72,520,000	72,610,000	(90,000)
Series 2016 Revenue Bond	143,310,000	143,310,000	-
Series 2017 Refunding Bond	107,660,000	-	107,660,000
Unamortized Discount - 2010/2013 Series Bonds	(1,321,718)	(3,206,276)	1,884,558
Unamortized Premium - 2014/2016/2017 Series Bonds	34,002,001	22,067,669	11,934,332
Notes Payable	4,560,309	5,697,499	(1,137,190)
Unfunded Ret Liability (GASB 67/68)	38,195,938	38,195,938	-
Employee Annual Leave, Less Current Portion	783,992	783,992	-
TOTAL LIABILITIES	603,067,313	605,857,879	(2,790,566)
Net Assets	**240,249,543**	**233,024,615**	**7,224,928**
Total Liabilities and Net Assets	**843,316,856**	**838,882,494**	**4,434,362**

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative Budget vs. Actual for the period ending January 31, 2018

SCHEDULE B

	Month to Date			Variance
	Budget January-18	Encumbered January-18	Actual (Unaudited) January-18	Increase / (Decrease)
OPERATING REVENUES				
Water Revenues	5,743,160		5,810,437	67,277
Wastewater Revenues	3,228,257		3,273,365	45,107
Legislative Surcharge	291,896		296,936	5,040
Other Revenues	57,638		26,724	(30,914)
System Development Charge	46,136		47,669	1,533
Total Operating Revenues	9,367,087		9,455,130	88,043
OPERATING AND MAINTENANCE EXPENSES				
Water Purchases	721,113		757,801	36,688
Power Purchases	1,057,997		1,237,130	179,133
Total Utility Costs	1,779,110		1,994,931	215,821
Salaries and Wages	1,625,056		1,518,692	(106,364)
Pension and Benefits	584,558		510,368	(74,190)
Total Salaries and Benefits	2,209,614		2,029,060	(180,554)
Capitalized Labor and Benefits	(208,333)		(208,333)	0
Net Salaries and Benefits	2,001,281		1,820,727	(180,554)
Administrative and General Expenses				
Sludge removal	174,514	-	141,826	(32,688)
Chemicals	229,997	18,565	242,974	31,542
Materials & Supplies	237,400	32,843	179,328	(25,230)
Transportation	61,370	17,243	53,871	9,743
Communications	16,182	4,758	15,334	3,910
Claims	17,600	-	25,547	7,947
Insurance	97,757	-	77,181	(20,576)
Training & Travel	21,814	-	38,568	16,754
Advertising	13,910	2,918	1,990	(9,003)
Miscellaneous	115,515	1,550	81,003	(32,963)
Total Administrative and General Expense	986,059	77,876	857,622	(50,562)
Regulatory Expense	29,086	-	27,902	(1,184)
Bad Debts Provision	57,103	-	57,096	(6)
Depreciation Expense	1,528,175	-	1,528,175	0
Contractual Expense				
Audit & Computer Maint.	78,630	27,869	39,373	(11,389)
Building rental	37,955	-	34,791	(3,164)
Equipment rental	57,375	10,267	84,789	37,681
Legal	4,167	-	600	(3,567)
Laboratory	64,752	34,567	10,654	(19,530)
Other	130,363	6,667	162,352	38,656
Total Contractual Expense	373,241	79,370	332,560	38,688
Retiree Supp. Annuities and health care costs	240,008		236,940	(3,068)
Contribution to Government of Guam	49,500		49,833	333
Total Retiree Benefits	289,508		286,774	(2,735)
Total Operating Expenses	7,043,563	157,245	6,905,787	19,469
Earnings (Loss) from Operations	2,323,524	(157,245)	2,549,343	68,574
Interest Income-2010/13/14/16 Series Bond	15,727		191,783	176,056
Interest Income-Other Funds	2,935		29,503	26,569
Interest Income-SDC	2,414		2,175	(239)
Interest Expense- 2010/13/14/16 Series Bond	(2,625,587)		(2,158,666)	466,921
Interest Expense- ST BOG	(33,288)		(39,394)	(6,106)
Federal Expenditures	(51,332)		(34,665)	16,667
Loss on Asset Disposal	-		-	-
AFUDC	625,000		625,000	-
Amortization of Discount, Premium and Issuance Costs	(61,861)		(77,542)	(15,681)
Loss on Defeasance Bond05 Refunding	(15,218)		(12,444)	2,775
Deferred outflows from pension	(105,281)		(48,010)	57,271
Prior Year Adjustment	-		-	-
Total non-operating revenues (expenses)	(2,246,492)	-	(1,522,260)	724,232
Net Income (Loss) before capital contributions	77,032	(157,245)	1,027,084	792,806
Capital Contributions				
Grants from US Government	873,108		2,102,130	1,229,022
Grants from GovGuam & Others	-		79,781	79,781
Other Contributions	-		-	-
Total Capital Contributions	873,108	-	2,181,911	1,308,802
Change in Net Assets	950,140	(157,245)	3,208,994	2,101,609
Debt Service Calculation				
Earnings From Operations	2,323,524		2,549,343	
System Development Charge	(46,136)		(47,669)	
Retiree COLA	49,500		49,833	
Interest/Investment Income	2,935		29,503	
Depreciation	1,528,175		1,528,175	
Balance Available for Debt Service per Section 6.12	3,857,998		4,109,186	
Working Capital Reserve Available for Debt Service	935,321		935,321	
Transfer to Working Capital- Debt Service Reserve	(150,000)		-	
Transfer to Working Capital- O&M Reserve	(266,667)		-	
Balance Available for Debt Service inclusive of reserves	4,376,652		5,044,507	
Debt Service				
Principal	433,333		433,333	
Interest	2,063,402		2,063,402	
Total	2,496,736		2,496,736	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.55		1.65	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	1.75		2.02	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited) **SCHEDULE C**
Comparative for the period ending January 31, 2018 and 2017

	Month to Date		Variance
	Actual (Unaudited) January-18	Actual (Unaudited) January-17	Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	5,810,437	5,331,404	479,033
Wastewater Revenues	3,273,365	3,099,528	173,837
Legislative Surcharge	296,936	267,269	29,667
Other Revenues	26,724	36,293	(9,569)
System Development Charge	47,669	72,662	(24,993)
Total Operating Revenues	9,455,130	8,807,155	647,975
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	757,801	609,094	148,707
Power Purchases	1,237,130	1,006,355	230,775
Total Utility Costs	1,994,931	1,615,449	379,482
Salaries and Wages	1,518,692	1,413,608	105,083
Pension and Benefits	510,368	477,546	32,823
Total Salaries and Benefits	2,029,060	1,891,154	137,906
Capitalized Labor and Benefits	(208,333)	(262,516)	54,183
Net Salaries and Benefits	1,820,727	1,628,638	192,089
Administrative and General Expenses			
Sludge removal	141,826	140,487	1,340
Chemicals	242,974	174,001	68,973
Materials & Supplies	179,328	128,788	50,540
Transportation	53,871	53,744	127
Communications	15,334	10,884	4,450
Claims	25,547	22,151	3,396
Insurance	77,181	90,603	(13,422)
Training & Travel	38,568	23,055	15,514
Advertising	1,990	8,988	(6,998)
Miscellaneous	81,003	71,997	9,006
Total Administrative and General Expense	857,622	724,696	132,925
Regulatory Expense	27,902	24,134	3,768
Bad Debts Provision	57,096	109,700	(52,604)
Depreciation Expense	1,528,175	1,402,038	126,137
Contractual Expense			
Audit & Computer Maint.	39,373	76,901	(37,528)
Building rental	34,791	36,557	(1,765)
Equipment rental	84,789	59,374	25,415
Legal	600	414	186
Laboratory	10,654	10,627	28
Other	162,352	156,747	5,605
Total Contractual Expense	332,560	340,619	(8,059)
Retiree Supp. Annuities and health care costs	236,940	231,895	5,045
Contribution to Government of Guam	49,833	49,500	333
Total Retiree Benefits	286,774	281,395	5,378
Total Operating Expenses	6,905,787	6,126,670	779,116
Earnings (Loss) from Operations	2,549,343	2,680,485	(131,142)
Interest Income-2010/13/14/16 Series Bond	191,783	65,354	126,428
Interest Income-Other Funds	29,503	10,032	19,472
Interest Income-SDC	2,175	1,060	1,115
Interest Expense- 2010/13/14/16 Series Bond	(2,158,666)	(2,220,744)	62,077
Interest Expense- ST BOG	(39,394)	(43,736)	4,342
Federal Expenditures	(34,665)	(42,501)	7,836
Loss on Asset Disposal	-	(81,105)	81,105
AFUDC	625,000	1,172,241	(547,241)
Amortization of Discount, Premium and Issuance Costs	(77,542)	61,861	(139,403)
Loss on Defeasance Bond05 Refunding	(12,444)	(15,218)	2,775
Deferred outflows from pension	(48,010)	(104,481)	56,471
Prior Year Adjustment	-	(26,756)	26,756
Total non-operating revenues (expenses)	(1,522,260)	(1,223,993)	(298,267)
Net Income (Loss) before capital contributions	1,027,084	1,456,492	(429,408)
Capital Contributions			
Grants from US Government	2,102,130	1,815,921	286,209
Grants from GovGuam & Others	79,781	1,664	78,116
Other Contributions	-	-	-
Total Capital Contributions	2,181,911	1,817,586	364,325
Change in Net Assets	3,208,994	3,274,078	(65,083)
Debt Service Calculation			
Earnings From Operations	2,549,343	2,680,485	
System Development Charge	(47,669)	(72,662)	
Retiree COLA	49,833	49,500	
Interest/Investment Income	29,503	10,032	
Depreciation	1,528,175	1,402,038	
Balance Available for Debt Service per Section 6.12	4,109,186	4,069,392	
Working Capital Reserve Available for Debt Service	935,321	932,134	
Transfer to Working Capital- Debt Service Reserve	-	-	
Transfer to Working Capital- O&M Reserve	-	-	
Balance Available for Debt Service inclusive of reserves	5,044,507	5,001,527	
Debt Service			
Principal	433,333	420,000	
Interest	2,063,402	1,626,858	
Total	2,496,736	2,046,858	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.65	1.99	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	2.02	2.44	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative Budget vs. Actual for the period ending January 31, 2018

SCHEDULE D

	Year to Date			Variance
	Budget January-18	Encumbered January-18	Actual (Unaudited) January-18	Increase / (Decrease)
OPERATING REVENUES				
Water Revenues	22,972,640		22,156,341	(816,299)
Wastewater Revenues	12,913,029		12,774,185	(138,845)
Legislative Surcharge	1,167,584		1,113,659	(53,925)
Other Revenues	230,552		133,504	(97,048)
System Development Charge	184,543		382,250	197,707
Total Operating Revenues	37,468,349		36,559,939	(908,410)
OPERATING AND MAINTENANCE EXPENSES				
Water Purchases	2,884,453		2,845,650	(38,803)
Power Purchases	4,231,988		4,649,102	417,115
Total Utility Costs	7,116,440		7,494,752	378,312
Salaries and Wages	6,500,224		5,810,805	(689,419)
Pension and Benefits	2,338,233		1,933,535	(404,698)
Total Salaries and Benefits	8,838,457		7,744,341	(1,094,116)
Capitalized Labor and Benefits	(833,333)		(833,333)	0
Net Salaries and Benefits	8,005,124		6,911,008	(1,094,116)
Administrative and General Expenses				
Sludge removal	698,056	-	505,267	(192,788)
Chemicals	819,987	222,778	740,263	143,053
Materials & Supplies	1,111,599	394,112	680,372	(37,115)
Transportation	209,482	206,911	127,742	125,172
Communications	64,728	57,098	60,187	52,557
Claims	44,400	9,000	21,781	(13,619)
Insurance	419,026	-	303,621	(115,405)
Training & Travel	87,257	13,315	53,048	(20,893)
Advertising	55,640	35,010	22,335	1,705
Miscellaneous	462,062	18,600	317,479	(125,983)
Total Administrative and General Expense	3,972,237	956,824	2,832,096	(183,317)
Regulatory Expense	88,345	-	68,709	(19,636)
Bad Debts Provision	228,410	-	228,390	(20)
Depreciation Expense	6,112,699	-	6,112,700	1
Contractual Expense				
Audit & Computer Maint.	329,521	86,100	274,970	31,549
Building rental	151,820	-	143,638	(8,182)
Equipment rental	229,498	123,200	311,476	205,178
Legal	16,667	-	2,400	(14,267)
Laboratory	244,006	414,810	171,639	342,443
Other	521,452	80,000	436,330	(5,122)
Total Contractual Expense	1,492,965	704,110	1,340,454	551,599
Retiree Supp. Annuities and health care costs	960,033		946,790	(13,243)
Contribution to Government of Guam	198,000		199,333	1,333
Total Retiree Benefits	1,158,033	-	1,146,124	(11,910)
Total Operating Expenses	28,174,253	1,660,934	26,134,233	(379,087)
Earnings (Loss) from Operations	9,294,096	(1,660,934)	10,425,706	(529,324)
Interest Income-2010/13/14/16 Series Bond	62,906		656,571	593,665
Interest Income-Other Funds	11,739		101,502	89,763
Interest Income-SDC	9,657		27,711	18,053
Interest Expense- 2010/13/14/16 Series Bond	(10,502,349)		(8,791,740)	1,710,609
Interest Expense- ST BOG	(133,153)		(143,866)	(10,713)
Federal Expenditures	(205,329)		(152,952)	52,377
Loss on Asset Disposal	-		-	-
AFUDC	2,500,000		2,500,000	-
Amortization of Discount, Premium and Issuance Costs	(247,443)		108,040	355,483
Loss on Defeasance Bond05 Refunding	(60,874)		(49,774)	11,099
Deferred outflows from pension	(421,122)		(192,040)	229,083
Prior Year Adjustment	-		22,201	22,201
Total non-operating revenues (expenses)	(8,985,967)	-	(5,914,348)	3,071,619
Net Income (Loss) before capital contributions	308,129	(1,660,934)	4,511,358	2,542,295
Capital Contributions				
Grants from US Government	3,492,433		2,633,789	(858,643)
Grants from GovGuam & Others	-		79,781	79,781
Other Contributions	-		-	-
Total Capital Contributions	3,492,433	-	2,713,570	(778,863)
Change in Net Assets	3,800,561	(1,660,934)	7,224,928	1,763,433
Debt Service Calculation				
Earnings From Operations	9,294,096		10,425,706	
System Development Charge	(184,543)		(382,250)	
Retiree COLA	198,000		199,333	
Interest/Investment Income	11,739		101,502	
Depreciation	6,112,699		6,112,700	
Balance Available for Debt Service per Section 6.12	15,431,990		16,456,991	
Working Capital Reserve Available for Debt Service	3,741,284		3,728,537	
Transfer to Working Capital- Debt Service Reserve	(600,000)		-	
Transfer to Working Capital- O&M Reserve	(1,066,667)		-	
Balance Available for Debt Service inclusive of reserves	17,506,608		20,185,528	
Debt Service				
Principal	1,733,333		1,733,333	
Interest	8,253,609		8,253,609	
Total	9,986,942		9,986,942	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.55		1.65	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	1.75		2.02	

GUAM WATERWORKS AUTHORITY
Statement of Operations and Retained Earnings (Unaudited)
Comparative for the period ending January 31, 2018 and 2017

SCHEDULE E

	Year to Date ACTUAL (Unaudited) January-18	Year to Date ACTUAL (Unaudited) January-17	Variance Increase / (Decrease)
OPERATING REVENUES			
Water Revenues	22,156,341	21,325,614	830,727
Wastewater Revenues	12,774,185	12,398,111	376,074
Legislative Surcharge	1,113,659	1,069,075	44,584
Other Revenues	133,504	145,171	(11,668)
System Development Charge	382,250	290,649	91,601
Total Operating Revenues	36,559,939	35,228,620	1,331,318
OPERATING AND MAINTENANCE EXPENSES			
Water Purchases	2,845,650	2,436,375	409,275
Power Purchases	4,649,102	4,025,421	623,682
Total Utility Costs	7,494,752	6,461,796	1,032,957
Salaries and Wages	5,810,805	5,654,434	156,371
Pension and Benefits	1,933,535	1,910,183	23,353
Total Salaries and Benefits	7,744,341	7,564,617	179,724
Capitalized Labor and Benefits	(833,333)	(1,050,063)	216,730
Net Salaries and Benefits	6,911,008	6,514,554	396,454
Administrative and General Expenses			
Sludge removal	505,267	561,947	(56,680)
Chemicals	740,263	696,004	44,258
Materials & Supplies	680,372	515,151	165,221
Transportation	127,742	214,978	(87,235)
Communications	60,187	43,535	16,651
Claims	21,781	88,604	(66,823)
Insurance	303,621	362,411	(58,790)
Training & Travel	53,048	92,218	(39,170)
Advertising	22,335	35,951	(13,616)
Miscellaneous	317,479	287,986	29,493
Total Administrative and General Expense	2,832,096	2,898,785	(66,689)
Regulatory Expense	68,709	96,538	(27,829)
Bad Debts Provision	228,390	438,799	(210,409)
Depreciation Expense	6,112,700	5,608,152	504,548
Contractual Expense			
Audit & Computer Maint.	274,970	307,604	(32,634)
Building rental	143,638	146,226	(2,588)
Equipment rental	311,476	237,496	73,981
Legal	2,400	1,656	744
Laboratory	171,639	42,506	129,133
Other	436,330	626,989	(190,658)
Total Contractual Expense	1,340,454	1,362,476	(22,022)
Retiree Supp. Annuities and health care costs	946,790	927,582	19,209
Contribution to Government of Guam	199,333	198,000	1,333
Total Retiree Benefits	1,146,124	1,125,582	20,542
Total Operating Expenses	26,134,233	24,506,681	1,627,552
Earnings (Loss) from Operations	10,425,706	10,721,940	(296,234)
Interest Income-2010/13/14/16 Series Bond	656,571	261,417	395,154
Interest Income-Other Funds	101,502	40,127	61,374
Interest Income-SDC	27,711	4,239	23,471
Interest Expense- 2010/13/14/16 Series Bond	(8,791,740)	(8,882,975)	91,235
Interest Expense- ST BOG	(143,866)	(174,945)	31,079
Federal Expenditures	(152,952)	(170,006)	17,054
Loss on Asset Disposal	-	(324,418)	324,418
AFUDC	2,500,000	4,688,964	(2,188,964)
Amortization of Discount, Premium and Issuance Costs	108,040	247,443	(139,403)
Loss on Defeasance Bond05 Refunding	(49,774)	(60,874)	11,099
Deferred outflows from pension	(192,040)	(417,923)	225,883
Prior Year Adjustment	22,201	(107,023)	129,223
Total non-operating revenues (expenses)	(5,914,348)	(4,895,973)	(1,018,376)
Net Income (Loss) before capital contributions	4,511,358	5,825,967	(1,314,609)
Capital Contributions			
Grants from US Government	2,633,789	7,263,686	(4,629,897)
Grants from GovGuam & Others	79,781	6,657	73,123
Other Contributions	-	-	-
Total Capital Contributions	2,713,570	7,270,343	(4,556,773)
Change in Net Assets	7,224,928	13,096,310	(5,871,383)
Debt Service Calculation			
Earnings From Operations	10,425,706	10,721,940	
System Development Charge	(382,250)	(290,649)	
Retiree COLA	199,333	198,000	
Interest/Investment Income	101,502	40,127	
Depreciation	6,112,700	5,608,152	
Balance Available for Debt Service per Section 6.12	16,456,991	16,277,570	
Working Capital Reserve Available for Debt Service	3,728,537	3,728,537	
Transfer to Working Capital- Debt Service Reserve	-	-	
Transfer to Working Capital- O&M Reserve	-	-	
Balance Available for Debt Service inclusive of reserves	20,185,528	20,006,106	
Debt Service			
Principal	1,733,333	1,680,000	
Interest	8,253,609	6,507,434	
Total	9,986,942	8,187,434	
Debt Service Coverage (1.25X)- per Section 6.12 (Indenture)	1.65	1.99	
Debt Service Coverage (1.75X) inclusive of reserves (PUC)	2.02	2.44	

SCHEDULE F

Bond Compliance		**($$$) Per Indenture**	**As of 1/31/18 ($$$) Bond 2013/2014/2016/2017**
• Operation and Maintenance Fund-BOG	*Equivalent to 55 days of the annual O&M budget less depreciation*	$10.5M	$10.5M
• Bond Reserve Fund - US Bank	*Fully funded- Principal and Interest (Bond Series 2013, 2014 Refunding 2016 and 2017 Refunding)*	$34.9M	$34.9M
• Operation, Maintenance, Renewal and Replacement Reserve Fund-BOG Trust	*Equivalent to 1/4 of the annual O&M budget & CIP budget to be funded in 5 years ($2M/year)*	$17.4M	$17.4M
• Capital Improvement Fund	*Balance remaining in the Revenue Fund after the foregoing deposits*	$3.9K	$5.6K
• Capitalized Interest Fund			$2.9K

GUAM WATERWORKS AUTHORITY
Restricted and Unrestricted Cash Summary
FY 2018

SCHEDULE G

Description	Unaudited January 31, 2018	Unaudited September 30, 2017	Increase (Decrease)
UNRESTRICTED			
Change Fund	2,000	2,000	0
Petty Cash	5,000	5,000	0
BOG - General Fund	3,264,157	4,836,236	(1,572,079)
BOG - PRN Payroll	30,039	30,039	0
Sub-total Unrestricted	3,301,196	4,873,275	(1,572,079)
RESTRICTED			
BOG - On Line Payment	-	-	0
BOG - Sweep Account	-	-	0
Bank of Hawaii	80,447	133,931	(53,485)
ANZ Bank	-	-	0
First Hawaiian Bank	8,139	10,261	(2,122)
Bank Pacific	22,440	15,825	6,615
Community First FCU	5,153	3,448	1,705
BOG - Customer Refunds	1,841,492	1,831,426	10,066
Bank Pacific - Surcharge	601,836	278,142	323,694
Bank Pacific - Escrow Deposit	666,222	666,140	82
BOG Emergency Reserve Fund	6,124	6,122	2
BOG - Revenue Trust	69,709	201,614	(131,905)
BOG Revenue Trust Fund	7,945,816	7,782,227	163,589
BOG Capital Improvement Fund-Bond	5,598	5,598	0
BOG Capital Improvement Revenue Fund	1,351,928	-	1,351,928
BOG-O & M Reserve	13,548,868	13,516,540	32,328
BOG-Debt Service Reserve	11,244,664	11,217,733	26,931
BOG-CAPEX Reserve	15,498,322	15,462,869	35,453
BOG Sewer Hookup Revolving Fund	64,341	63,590	751
BOG Subord. Sec. Fund	859,233	859,233	0
BOG Operation and Maintenance Fund	3,083,482	3,083,482	0
	56,903,815	55,138,182	1,765,633
BOG - SDC Deposit	3,157,748	1,486,219	1,671,530
BOG - SDC CDs	7,250,000	8,500,000	(1,250,000)
Total Restricted	67,311,563	65,124,400	2,187,163
Reserve Funds			
BOG Series 05 OMRRRF Fund	17,423,213	17,423,213	-
BOG Series 13 Construction Fund	64,149,060	74,461,765	(10,312,706)
BOG Series 14 Refunding Construction Fund	762,683	771,281	(8,598)
BOG Series 16 Construction Fund	126,752,323	132,811,449	(6,059,126)
BOG Series 16 Cap Int Fund	2,975	1,782,982	(1,780,008)
BOG Series 17 Refunding Construction Fund	8,888,638	9,299,311	(410,674)
BOG Series 17 Refunding COI Fund	47,424	-	47,424
Total Restricted - Held by Trustee	218,026,315	236,550,002	(18,523,687)
USB Series 2013 Debt Service Fund	787,869	2,336,754	(1,548,885)
USB Series 2013 Debt Service Reserve Fund	12,031,688	12,031,688	-
USB Series 2014 Refunding Debt Service Fund	2,344,001	1,796,559	547,442
USB Series 2014 Refunding Debt Service Reserve Fund	7,758,497	7,707,602	50,895
USB Series 2016 Debt Service Fund	598,108	130	597,978
USB Series 2016 Debt Service Reserve Fund	7,594,584	7,582,725	11,859
USB Series 2010 Debt Service Fund	1,377,700	2,020,121	(642,421)
USB Series 2017 Refunding Debt Service Reserve Fund	7,566,460	7,566,460	-
USB Series 2017 Debt Service Fund	475,997	-	475,997
Total Investments	40,534,905	41,042,038	(507,134)
Total Restricted and Unrestricted Cash	329,173,979	347,589,716	(18,415,737)

SCHEDULE H

Guam Waterworks Authority
Statement of Cash Flows (Unaudited)
FY 2018

	YTD Jan-18
Increase (decrease) in cash	
Cash flows from operating activities:	
Cash received from trade and others	34,758,036
Cash payments to suppliers/contractors for goods and services	(12,111,215)
Cash payments to employees for services	(8,400,300)
Net cash provided by operating activities	14,246,521
Cash flows from capital and related financing activities:	
Contributed capital received (grants)	6,483,193
Acquisition of utility plant	(25,778,516)
Repayment of Long Term Debt	6,953,891
Interest expense	(11,478,777)
Net cash provided by (used in) capital and related financing activities	(23,820,209)
Cash flows from investing activities:	
Transfers from (to) restricted fund	7,215,826
Interest income received	785,783
Net cash provided by investing activities	8,001,609
Net increase (decrease) in cash	(1,572,079)
Unrestricted cash at beginning of the period	4,873,275
Unrestricted cash at end of period	3,301,196
Reconciliation of operating loss to net cash provided by operating activities:	
Operating Income (loss)	12,072,015
Adjustments to reconcile to net cash provided by operating activities:	
Depreciation expense	6,112,700
Other Expense/income	420,430
(Increase) decrease in assets:	
Accounts receivable	(1,790,137)
Materials and supplies inventory	38,628
Other Assets	63,610
Increase (decrease) in liabilities:	
Accounts payable, Contractors, Retention & Escrow Deposit	(1,924,417)
Accrued payroll	(734,541)
Customer deposits	(11,767)
Net cash provided by operating activities	14,246,521

Guam Waterworks Authority
Accounts Receivable - Government
As of January 31, 2018

SCHEDULE I

			AGING				
Customer Name	**No of Accounts**	**Current Balance**	**31-60 days**	**61-90 days**	**91-120 days**	**Over 120 days**	**Outstanding Bal.**
GUAM INT'L AIRPORT AUTHORITY	10	47,433	37,492	38,570	31,237	161,181	315,913
GUAM POWER AUTHORITY	25	19,293	15,880	17,450	598	142,291	195,510
GUAM MEMORIAL HOSPITAL AUTHORITY	2	38,031	32,516	37,847	-	-	108,394
PORT AUTHORITY OF GUAM	1	54,109	34,514	-	-	-	88,623
GUAM COMMUNITY COLLEGE	3	8,994	9,307	5,159	-	-	23,459
UNIVERSITY OF GUAM	2	9,009	-	-	-	-	9,009
GUAM HOUSING & URBAN RENEWAL AUTHORITY	4	1,140	-	-	-	92	1,232
GUAM HOUSING CORPORATION	1	30	-	-	-	-	30
AUTONOMOUS AGENCIES	**48**	**178,039**	**129,709**	**99,025**	**31,834**	**303,564**	**742,171**
DEPT OF EDUCATION	51	213,202	219,782	38,880	12,658	117,414	601,934
DEPT OF PARKS & RECREATION	20	33,313	28,007	27,726	193,110	167,584	449,741
DEPT OF CORRECTIONS	8	167,613	53	-	-	-	167,667
DEPT OF PUBLIC HEALTH & SOCIAL SERVICES	5	1,351	1,058	626	454	103,673	107,162
DEPT OF CHAMORRO AFFAIRS	2	4,057	3,589	2,409	-	-	10,055
MAYORS' COUNCIL OF GUAM	40	9,867	113	12	-	-	9,991
DEPT OF MENTAL HEALTH AND SUBTANCE	2	8,977	-	-	-	-	8,977
GUAM FIRE DEPARTMENT	8	6,361	-	-	-	-	6,361
DEPT OF YOUTH AFFAIRS	4	1,291	25	25	154	3,847	5,342
OFFICE OF THE GOVERNOR	2	4,769	-	-	-	-	4,769
DEPT OF AGRICULTURE	7	4,217	-	-	-	-	4,217
DEPT OF PUBLIC WORKS	9	3,622	-	-	-	-	3,622
SANCTUARY INC	1	3,001	-	-	-	-	3,001
DEPT OF ADMINISTRATION	2	676	161	146	137	598	1,718
GUAM POLICE DEPARTMENT	2	1,037	-	-	-	-	1,037
GHURA-AGAFU GUMAS PARK	1	42	26	38	28	803	937
DIVISION OF SENIOR CITIZENS, DPH&SS	2	355	139	151	61	-	705
GUAM PUBLIC LIBRARY	3	134	-	-	-	-	134
GUAM VETERANS AFFAIRS OFFICE	1	127	-	-	-	-	127
GUAM LEGISLATURE	2	109	-	-	-	-	109
GUAM ENERGY OFFICE	1	79	-	-	-	-	79
MERIZO MAYOR	1	28	25	-	-	-	52
THE OFFICE OF THE DEDEDO MAYOR	1	44	-	-	-	-	44
GUAM SOLID WASTE AUTHORITY	1	23	-	-	-	-	23
LINE AGENCIES	**176**	**464,294**	**252,977**	**70,013**	**206,603**	**393,918**	**1,387,804**
TOTAL January 31, 2018	**224**	**642,333**	**382,686**	**169,037**	**238,437**	**697,482**	**2,129,976**
TOTAL September 30, 2017	**253**	**715,578**	**442,522**	**169,120**	**72,476**	**396,347**	**1,796,043**
% INCREASE/ (DECREASE)	**-11%**	**-10%**	**-14%**	**0%**	**229%**	**76%**	**19%**

GUAM WATERWORKS AUTHORITY
2013 Series Bond Project Status
As of January 31, 2018

SCHEDULE J

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Santa Rita Springs Booster Pump Rehab Phase II	$ 100,000	$ 100,000	$ 61,482	$ 38,518	$ 100,000	$ -	$ 38,518
"A" Series Well Transmission Line	$ 400,000	$ 400,000	$ 314,479	$ 55,367	$ 369,846	$ 30,154	$ 85,521
Water Booster Pump Station	$ 6,000,000	$ 1,861,000	$ 1,656,428	$ 23,536	$ 1,679,964	$ 181,036	$ 204,572
Meter Replacement Program		$ 999,000	$ 996,532	$ -	$ 996,532	$ 2,468	$ 2,468
Barrigada Tank Repair/Replacement	$ 6,000,000	$ 4,987,000	$ 4,924,959	$ 62,041	$ 4,987,000	$ 0	$ 62,041
Leak Detection	$ 100,000	$ 20,000	$ 16,916	$ -	$ 16,916	$ 3,084	$ 3,084
Potable Water System Planning	$ 800,000	$ 624,000	$ 598,825	$ 25,175	$ 624,000	$ -	$ 25,175
Implement Ground Water Rule	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ -	$ 1,000,000	$ -	$ -
Deep Well Rehabilitation	$ 800,000	$ 200,000	$ 189,930	$ 10,071	$ 200,000	$ (0)	$ 10,070
New Deep Wells at Down Hard	$ 2,000,000	$ 810,000			$ -	$ 810,000	$ 810,000
Master Meters	$ 4,000,000	$ 784,000	$ 531,188	$ 180,872	$ 712,060	$ 71,940	$ 252,812
Ugum Water Treatment Plant Intake	$ 1,000,000	$ 982,000	$ 578,858	$ 280,943	$ 859,801	$ 122,199	$ 403,142
Water Wells	$ 4,200,000	$ 4,200,000	$ 2,284,474	$ 745,555	$ 3,030,029	$ 1,169,971	$ 1,915,527
Water Distribution System	$ 12,000,000	$ 11,151,000	$ 4,946,582	$ 4,908,934	$ 9,855,516	$ 1,295,484	$ 6,204,418
Pressure Zone Realignment /	$ 1,000,000	$ 431,000	$ 336,036	$ 1,074	$ 337,110	$ 93,890	$ 94,964
Mechanical/Electrical Equipment	$ 430,000	$ 430,000	$ 328,686	$ 98,112	$ 426,798	$ 3,202	$ 101,314
Water Reservoir Internal/External	$ 800,000	$ -			$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 21,000,000	$ 13,878,000	$ 10,597,654	$ 3,280,346	$ 13,878,000	$ (0)	$ 3,280,346
Ugum Water Treatment Plant Reservoir	$ 7,000,000	$ 90,000			$ -	$ 90,000	$ 90,000
Agana Heights & Chaot Tanks	$ 4,500,000	$ 3,280,000	$ 233,265	$ 1,097,022	$ 1,330,287	$ 1,949,713	$ 3,046,735
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 13,500,000	$ 11,605,000	$ 1,167,648	$ 10,437,352	$ 11,605,000	$ 0	$ 10,437,353
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 8,000,000	$ -			$ -	$ -	$ -
Assessment of maloiloi Elevetad & Yigo Elevated	$ 500,000	$ 485,117	$ 461,813	$ 23,304	$ 485,117	$ -	$ 23,304
Fire Hydrant Replacement Program	$ -	$ -			$ -	$ -	$ -
		$ -					
Wastewater System Planning	$ 800,000	$ 651,000	$ 550,480	$ 100,520	$ 651,000	$ (0)	$ 100,520
Lift Station Upgrades	$ 5,000,000	$ 946,000	$ 562,785	$ 363	$ 563,149	$ 382,852	$ 383,215
Wastewater Collection System Repl/Rehab	$ 6,500,000	$ 780,000	$ 476,682	$ 168,631	$ 645,314	$ 134,687	$ 303,318
Baza Gardens STP Replacement		$ 3,114,883	$ 969,594	$ 2,145,275	$ 3,114,869	$ 15	$ 2,145,290
Facilities Plan/Design for Umatac-Merizo WWTP		$ 473,000	$ 335,000	$ 36,699	$ 371,699	$ 101,301	$ 138,000
Agat/Santa Rita STP Replacement	$ 19,000,000	$ 67,200,000	$ 36,744,222	$ 30,455,778	$ 67,200,000	$ 0	$ 30,455,778
Agana WWTP Interim Measures		$ 673,000	$ 548,597	$ 124,403	$ 673,000	$ (0)	$ 124,403
Umatac Merizo Replacement	$ 2,000,000	$ -			$ -	$ -	$ -
		$ -					
Wastewater Pump Station Electrical Upgrade	$ 620,000	$ 620,000	$ 91,348	$ 8,513	$ 99,861	$ 520,139	$ 528,652
Electrical Upgrade - Water Wells	$ 1,500,000	$ 1,500,000	$ 1,480,769	$ 19,230	$ 1,500,000	$ 0	$ 19,231
Electrical Upgrade - Water Booster	$ 325,000	$ 2,000			$ -	$ 2,000	$ 2,000
Electrical Upgrade -Water Booster	$ 350,000	$ 200,000	$ 977	$ -	$ 977	$ 199,023	$ 199,023
Electrical Upgrade - Other Water	$ 250,000	$ 150,000	$ 60,700	$ -	$ 60,700	$ 89,300	$ 89,300
SCADA Improvements – Phase 3	$ 1,850,000	$ 923,000	$ 427,949	$ 294,410	$ 722,359	$ 200,641	$ 495,051
SCADA Improvements – Phase 4	$ 500,000	$ -			$ -	$ -	$ -
		$ -					$ -
Laboratory Modernization	$ 1,500,000	$ 1,173,000	$ 1,155,875	$ 15,590	$ 1,171,465	$ 1,535	$ 17,125
Land Survey	$ 2,000,000	$ 2,000	$ 1,038	$ 15	$ 1,053	$ 948	$ 963
General Plant Improvements / Water	$ 2,000,000	$ 2,600,000	$ 1,265,043	$ 1,176,695	$ 2,441,737	$ 158,263	$ 1,334,957
Allowance for COI							$ 275,005
Interest Earned							$ 445,868
Total Construction Fund (2013 Series Revenue Bond)	**$ 139,325,000**	**$ 139,325,000**	**$ 75,896,813**	**$ 55,814,344**	**$ 131,711,157**	**$ 7,613,843**	**$ 64,149,059**

PUC's Docket 14-04 dated February 25, 2014

GUAM WATERWORKS AUTHORITY
2014 Series Refunded Bond Project Status
As of January 31, 2018

SCHEDULE K

PROJECT NAME	ORIGINAL APPROVED PROJECT	ADJUSTED PROJECT COST	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	20% PUC AS OF 01/31/18	Construction fund balance AS OF 01/31/18
Agana Treatment Plant	$ 10,475,000	$ 11,065,512	$ 11,065,512	$ -	$ 11,065,512	$ (0)	$ 2,095,000	$ (0)
								$ -
Agana Outfall	$ 5,030,000	$ 10,127,198	$ 10,127,198	$ -	$ 10,127,198	$ 0	$ 1,006,000	$ 0
								$ -
								$ -
Northern District (Outfall)	$ 4,700,000	$ 10,251,423	$ 10,251,423	$ -	$ 10,251,423	$ 0	$ 940,000	$ 0
Northern District WWTP Upgrade		$ 173,681	$ 173,681		$ 173,681	$ -		$ -
Northern Treatment Plant		$ -	$ -		$ -	$ -		$ -
Baza Gardens Wastewater Treatment Plant	$ 500,000	$ 297,177	$ 297,177	$ -	$ 297,177	$ (0)	$ 100,000	$ (0)
Interim Disinfection Facilities	$ 581,000	$ 3,437,311	$ 3,408,599	$ 28,712	$ 3,437,311	$ (0)	$ 116,200	$ 28,712
						$ -		$ -
Electrical Protection	$ 1,000,000	$ 1,512,483	$ 1,512,483	$ -	$ 1,512,483	$ (0)	$ 200,000	$ (0)
Well Vulnerability Reduction	$ 600,000	$ 185,522	$ 185,522	$ -	$ 185,522	$ 0	$ 120,000	$ 0
Old Agat Wastewater Collection (I/I Reductic	$ 2,155,000	$ 1,931,659	$ 1,931,659	$ -	$ 1,931,659	$ (0)	$ 431,000	$ (0)
				$ -		$ -		$ -
Chaot WW Pump Station/Collection System	$ 410,000	$ 399,120	$ 399,120	$ -	$ 399,120	$ -	$ 82,000	$ -
Lift Station Upgrades	$ 230,000	$ 149,895	$ 149,895	$ -	$ 149,895	$ 0	$ 46,000	$ 0
Collection Line Upgrades	$ 200,000	$ 62,755	$ 62,755	$ -	$ 62,755	$ 0	$ 40,000	$ 0
"A" Well Transmission Line	$ 2,413,000	$ 3,833,175	$ 3,790,888	$ 42,287	$ 3,833,175	$ (0)	$ 482,600	$ 42,287
					$ -	$ -		$ -
Santa Rita Springs - Booster Pump Rehab.	$ 648,000	$ 306,841	$ 306,841	$ -	$ 306,841	$ (0)	$ 129,600	$ (0)
						$ -	$ -	$ -
Fena Bypass Transmission line		$ 160,913	$ 160,913	$ -	$ 160,913	$ (0)	$ -	$ (0)
Storage Additions	$ 950,000	$ -			$ -	$ -	$ 190,000	$ -
Booster Station Upgrades	$ 390,000	$ 66,734	$ 66,734	$ -	$ 66,734	$ -	$ 78,000	$ -
Mangilao Tank Repair	$ 800,000	$ 398,367	$ 397,933	$ 434	$ 398,367	$ (0)	$ 160,000	$ 434
Ugum Tank Replacement	$ 2,500,000	$ -			$ -	$ -	$ 500,000	$ -
Ugum WTPlant Refurbishment ($1.724,970EPA)		$ 6,588,473	$ 6,531,525	$ 56,949	$ 6,588,473	$ (0)		$ 56,948
Barrigada Tank Repair/Replacement	$ 3,000,000	$ 65,019	$ 65,019	$ -	$ 65,019	$ 0	$ 600,000	$ 0
						$ -		$ -
Water Reservoir Condition Assessment		$ 1,250,000	$ 1,249,227	$ 772	$ 1,250,000	$ 0	$ -	$ 773
EarthTech Well Buyout	$ 5,000,000	$ 5,975,000	$ 5,975,000	$ -	$ 5,975,000	$ -	$ 1,000,000	$ -
Water Wastewater Master Plan	$ 4,900,000	$ 4,881,308	$ 4,881,308	$ -	$ 4,881,308	$ 0	$ 980,000	$ 0
Laboratory Modernization	$ 800,000	$ 135,055	$ 135,055	$ -	$ 135,055	$ 0	$ 160,000	$ 0
Land Survey	$ 800,000	$ 577,836	$ 576,134	$ 1,702	$ 577,836	$ 0	$ 160,000	$ 1,702
Ground Water Disinfection		$ -				$ -		$ -
GWUDI Study		$ 262,234	$ 260,430	$ 1,804	$ 262,234	$ -		$ 1,804
						$ -		$ -
Contingency	$ 12,276,023	$ 154	$ -	$ -	$ -	$ -		$ 732
						$ -		$ -
						$ -		$ -
						$ -		$ -
						$ -		$ -
						$ -		$ -
Vehicles	$ 1,100,000	$ 1,280,000	$ 2,130,305	$ (850,305)	$ 1,280,000	$ -	$ 220,000	$ -
Generation Equipment	$ 700,000	$ 880,000	$ 2,712	$ 877,288	$ 880,000	$ 0		$ 27,033
Leak Detection/Line Replacement	$ 8,200,000	$ 5,988,494	$ 5,988,494	$ -	$ 5,988,494	$ -	$ 1,640,000	$ -
						$ -		$ -
						$ -		$ -
Automated Meter Reading	$ 12,572,063	$ 17,468,359	$ 16,870,522	$ 537,157	$ 17,468,359	$ 0	$ 2,514,413	$ 597,837
Total Construction Fund (2014 Series Refu	$ 82,930,086	$ 89,711,698	$ 88,891,990	$ 758,873	$ 89,711,543	$ 1	$ 13,990,813	$ 758,263
Interest Earned	$ 6,781,612	$ (0)				$ (0)		$ 4,421
Total Project Cost Funding	**$ 89,711,698**	**$ 89,711,698**	**88,891,990**	**$ 758,873.38**	**$ 89,711,543**	**$ 1**	**$ 13,990,813**	**$ 762,683**

GUAM WATERWORKS AUTHORITY
2016 Series Bond Project Status
As of January 31, 2018

SCHEDULE L

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Water Booster Pump Station	$ 4,139,000	$ 4,139,000			$ -	$ 4,139,000	$ 4,139,000
Meter Replacement Program	$ 4,501,000	$ 4,501,000		$ 150,000	$ 150,000	$ 4,351,000	$ 4,501,000
Barrigada Tank Repair/Replacement	$ 1,013,000	$ 1,013,000		$ -	$ -	$ 1,013,000	$ 1,013,000
Leak Detection	$ 1,180,000	$ 1,180,000		$ -	$ -	$ 1,180,000	$ 1,180,000
Potable Water System Planning	$ 2,276,000	$ 2,276,000	$ 159,105	$ 261,340	$ 420,445	$ 1,855,555	$ 2,116,895
Deep Well Rehabilitation	$ 250,000	$ 250,000		$ 110,013	$ 110,013	$ 139,987	$ 250,000
New Deep Wells at Down Hard	$ 1,190,000	$ 1,190,000			$ -	$ 1,190,000	$ 1,190,000
Master Meters	$ 3,616,000	$ 3,616,000		$ 39,340	$ 39,340	$ 3,576,660	$ 3,616,000
Ugum Water Treatment Plant Intake	$ 18,000	$ 18,000			$ -	$ 18,000	$ 18,000
Water Wells	$ 2,500,000	$ 2,500,000			$ -	$ 2,500,000	$ 2,500,000
Water Distribution System	$ 2,049,000	$ 49,000			$ -	$ 49,000	$ 49,000
Pressure Zone Realignment /	$ 1,141,000	$ 1,141,000		$ 668,355	$ 668,355	$ 472,645	$ 1,141,000
Mechanical/Electrical Equipment	$ 100,000	$ 100,000			$ -	$ 100,000	$ 100,000
Water Reservoir Internal/External	$ 800,000	$ 800,000			$ -	$ 800,000	$ 800,000
Water System Reservoirs 2005 Improvements	$ 42,350,000	$ 28,350,000	$ 1,820,465	$ 8,635,484	$ 10,455,949	$ 17,894,051	$ 26,529,535
Ugum Water Treatment Plant Reservoir	$ 6,410,000	$ -			$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan	$ 1,000,000	$ 1,000,000				$ 1,000,000	$ 1,000,000
Agana Heights & Chaot Tanks	$ 1,220,000	$ 1,220,000		$ 500,000	$ 500,000	$ 720,000	$ 1,220,000
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 1,895,000	$ 1,895,000		$ 1,822,133	$ 1,822,133	$ 72,867	$ 1,895,000
Tank Major Repair Yigo#1 Mangilao#2 Agat#2	$ 10,500,000	$ 7,409,830		$ 7,300,000	$ 7,300,000	$ 109,830	$ 7,409,830
Fire Hydrant Replacement Program	$ 2,000,000	$ 2,000,000			$ -	$ 2,000,000	$ 2,000,000
						$ -	
Wastewater System Planning	$ 349,000	$ 349,000	$ 30,708	$ 263,223	$ 293,931	$ 55,069	$ 318,292
Lift Station Upgrades	$ 2,404,000	$ 2,404,000	$ 64,755	$ 166,039	$ 230,794	$ 2,173,206	$ 2,339,245
Wastewater Collection System Repl/Rehab	$ 2,920,000	$ 2,920,000		$ 224,923	$ 224,923	$ 2,695,077	$ 2,920,000
Baza Gardens STP Replacement	$ 16,700,000	$ 29,400,170	$ 7,244,707	$ 21,874,943	$ 29,119,650	$ 280,520	$ 22,155,463
Facilities Plan/Design for Umatac-Merizo WWTP	$ 527,000	$ 527,000	$ 190,947	$ 59,839	$ 250,786	$ 276,214	$ 336,053
Agat/Santa Rita STP Replacement	$ 3,000,000	$ 3,000,000	$ 510,092	$ 607,248	$ 1,117,339	$ 1,882,661	$ 2,489,908
Agana WWTP Interim Measures	$ 827,000	$ 827,000			$ -	$ 827,000	$ 827,000
Umatac Merizo Replacement	$ 8,000,000	$ 20,800,000	$ 2,301,795	$ 18,295,086	$ 20,596,882	$ 203,118	$ 18,498,205
						$ -	
Wastewater Pump Station Electrical Upgrade	$ 100,000	$ 100,000			$ -	$ 100,000	$ 100,000
Electrical Upgrade - Water Wells	$ 650,000	$ 650,000			$ -	$ 650,000	$ 650,000
Electrical Upgrade - Water Booster	$ 323,000	$ 323,000			$ -	$ 323,000	$ 323,000
SCADA Improvements – Phase 3	$ 1,177,000	$ 1,177,000	$ 18,000	$ 599,497	$ 617,497	$ 559,503	$ 1,159,000
SCADA Improvements – Phase 4	$ 6,500,000	$ 6,500,000			$ -	$ 6,500,000	$ 6,500,000
						$ -	
Laboratory Modernization	$ 1,127,000	$ 1,127,000	$ 1,127,000	$ -	$ 1,127,000	$ -	$ -
Land Survey	$ 1,998,000	$ 1,998,000	$ 14,147	$ 1,246,376	$ 1,260,524	$ 737,476	$ 1,983,853
General Plant Improvements / Water	$ 2,769,463	$ 2,769,463	$ 231,546	$ 1,143,966	$ 1,375,512	$ 1,393,951	$ 2,537,917
Information Technology Integration Improvements	$ 500,000	$ 500,000	$ 244,068	$ -		$ 500,000	$ 255,932
Interest Earned		$ -					$ 690,196
		$ -					
Total Construction Fund (2016 Series Revenue Bond)	**$ 140,019,463**	**$ 140,019,463**	**$ 13,957,336**	**$ 63,967,804**	**$ 77,681,072**	**$ 62,338,391**	**$ 126,752,323**

GUAM WATERWORKS AUTHORITY
2010 Series Bond Project Status
As of January 31, 2018

SCHEDULE M

PROJECT NAME	ORIGINAL APPROVED PROJECT COST	Adjusted Project Cost	EXPENDITURES AS OF 01/31/18	OUTSTANDING ENCUMBRANCES	TOTAL EXPENDITURES AND ENCUMBRANCES	UNOBLIGATED PROJECT COST	Construction fund balance AS OF 01/31/18
Ground Water Disinfection	$ -	$ 500,000	$ 438,141	$ 61,859	$ 500,000	$ 0	$ 61,859
"A" Series Well Transmission Line	$ 600,000	$ 518,144	$ 474,434	$ 1,274	$ 475,709	$ 42,435	$ 43,710
Water Booster Pump Station	$ 500,000	$ 500,000	$ 418,844	$ 81,156	$ 500,000	$ (0)	$ 81,156
Meter Replacement Program	$ 2,500,000	$ 10,300,000	$ 10,254,220	$ 19,409	$ 10,273,628	$ 26,372	$ 45,780
Barrigada Tank Repair/Replacement	$ -	$ 5,450,000	$ 5,442,302	$ 7,698	$ 5,450,000	$ 0	$ 7,698
Leak Detection		$ 200,000	$ -	$ 200,000	$ 200,000	$ -	$ 200,000
Potable Water System Planning	$ 200,000	$ 200,000	$ 179,638	$ 20,362	$ 200,000	$ -	$ 20,362
Implement Ground Water Rule		$ 1,700,000	$ 1,499,464	$ 200,535	$ 1,700,000	$ 1	$ 200,536
Brigade II (Ugum Lift) BPS Upgrade	$ 1,200,000	$ 1,700,000	$ 135,695	$ 202,199	$ 337,895	$ 1,362,105	$ 1,564,305
Deep Well Rehabilitation	$ 548,000	$ 548,000	$ 548,000	$ -	$ 548,000	$ -	$ -
New Deep Wells at Down Hard	$ 3,773,000	$ 638,252	$ 485,743	$ -	$ 485,743	$ 152,509	$ 152,509
Rehabilitation of Asan Springs	$ 900,000	$ 900,000	$ 188,771	$ 152,068	$ 340,838	$ 559,162	$ 711,229
Master Meters	$ 1,600,000	$ 1,600,000	$ 1,421,267	$ 68,690	$ 1,489,957	$ 110,043	$ 178,733
Ugum Water Treatment Plant Intake	$ 3,670,000	$ 700,000	$ 543,615	$ 156,385	$ 700,000	$ -	$ 156,385
Water Wells	$ 2,000,000	$ -	$ -		$ -	$ -	$ -
Water Distribution System	$ 384,000	$ 3,174,748	$ 3,174,748	$ -	$ 3,174,748	$ (0)	$ (0)
Pressure Zone Realignment /	$ 3,550,000	$ -	$ -		$ -	$ -	$ -
Northern System Water Distribution	$ 2,725,000	$ -	$ -	$ -	$ -	$ -	$ -
Central Water Distribution System 2005	$ 1,200,000	$ 900,000	$ 692,926	$ 82,076	$ 775,002	$ 124,998	$ 207,074
Southern Water Distribution System	$ 1,800,000	$ -	$ -		$ -	$ -	$ -
Mechanical/Electrical Equipment	$ 1,360,000	$ 1,200,000	$ 1,079,495	$ 120,505	$ 1,200,000	$ (0)	$ 120,505
Water Reservoir Internal/External	$ 500,000	$ 2,000,000	$ 1,033,356	$ 476,027	$ 1,509,384	$ 490,616	$ 966,644
Water Reservoir Internal/External	$ 2,400,000	$ -	$ -		$ -	$ -	$ -
Water System Reservoirs 2005 Improvements	$ 11,697,000	$ 1,050,000	$ 1,050,000		$ 1,050,000	$ 0	$ 0
Distribution System Upgrades	$ 3,182,000	$ 474,160	$ 451,462	$ 22,698	$ 474,160	$ 0	$ 22,698
Ugum Water Treatment Plant Reservoir	$ 3,672,000	$ -	$ -		$ -	$ -	$ -
Water Audit Program & Water Loss Control Plan		$ 100,000	$ 15,031	$ 63,428	$ 78,459	$ 21,541	$ 84,970
Production Plan / Reduce Navy Purchases		$ 100,000	$ 94,286	$ 5,714	$ 100,000	$ -	$ 5,714
Hydraulic Asessment of Tank		$ 500,000	$ 497,004	$ 2,996	$ 500,000	$ -	$ 2,996
Agana Heights & Chaot Tanks		$ 4,700,000	$ 4,327,370	$ 372,630	$ 4,700,000	$ -	$ 372,630
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ 1,900,000	$ 1,750,355	$ 97,659	$ 1,848,013	$ 51,987	$ 149,645
Tank Major Repair Yigo#1 Mangilao#2 Agat#2		$ -			$ -	$ -	$ -
Assessment of malojloj Elevetad & Yigo Elevated		$ 200,000	$ 200,000	$ -	$ 200,000	$ -	$ -
Public Water System Asser Inventory/Condition Assesment		$ 100,000	$ 96,554	$ 3,446	$ 100,000	$ -	$ 3,446
Public Water System GIS & Mapping		$ 50,000	$ 50,000	$ -	$ 50,000	$ -	$ -
		$ -			$ -	$ -	$ -
Wastewater System Planning	$ 1,500,000	$ 1,500,000	$ 1,465,858	$ 8,142	$ 1,474,000	$ 26,000	$ 34,142
Wastewater Vehicles	$ 235,000	$ 235,000	$ 209,795	$ 25,205	$ 235,000	$ 0	$ 25,205
NDWWTP - Chlorine Tanks	$ 250,000	$ 250,000	$ 250,000		$ 250,000	$ -	$ -
Tumon Bay Sewer Upgrades	$ 100,000	$ -	$ -		$ -	$ -	$ -
Wastewater Collection System Repl/Rehab		$ 1,105,000	$ 718,036	$ 283,287	$ 1,001,323	$ 103,677	$ 386,964
Facilities Plan/Design for Baza Gardens WWTP	$ 1,250,000	$ 1,250,000	$ 1,239,250	$ 10,750	$ 1,250,000	$ -	$ 10,750
Facilities Plan/Design for Agat-Santa Rita WWTP	$ 900,000	$ 899,630	$ 881,749	$ 17,881	$ 899,630	$ -	$ 17,881
Priority 1 Sewer Upgrades – Baza Gardens WWTP	$ 650,000	$ -	$ -		$ -	$ -	$ -
Baza Gardens STP Replacement	$ 3,567,000	$ 1,301,947	$ 316,686	$ 314	$ 317,000	$ 984,947	$ 985,261
Facilities Plan/Design for Umatac Merizo WWTP		$ 900,000	$ 693,161	$ 160,696	$ 853,858	$ 46,142	$ 206,839
Agat/Santa Rita STP Replacement	$ 2,968,000	$ 2,218,000	$ 2,217,314	$ 387	$ 2,217,701	$ 300	$ 686
Northern District WWTP Primary Treatment Upgrades	$ -	$ 11,750,000	$ 11,532,253	$ 211,261	$ 11,743,514	$ 6,486	$ 217,747
Biosolids Management Plan		$ 200,000	$ 196,414	$ 3,586	$ 200,000	$ -	$ 3,586
Agana WWTP Interim Measures	$ -	$ 11,500,000	$ 11,242,386	$ 57,614	$ 11,300,000	$ 200,000	$ 257,614
I&I SSES Southern		$ 800,000	$ 733,872	$ 66,129	$ 800,000	$ (0)	$ 66,128
I&I SSES Central		$ 850,000	$ 794,325	$ 55,675	$ 850,000	$ -	$ 55,675
I&I SSES Northern		$ -			$ -	$ -	$ -
Umatac Merizo Replacement		$ 250,000	$ 247,431	$ 2,569	$ 250,000	$ -	$ 2,569
Northern District WWTP Secondary Treatment Upgrades		$ 1,000,000					$ 1,000,000
		$ -					
Well Electrical Protection	$ 26,000	$ -	$ -		$ -	$ -	$ -
SCADA Pilot Project	$ 300,000	$ 61,950	$ 19,812	$ 42,138	$ 61,950	$ (0)	$ 42,138
Electrical Upgrade - Water Wells	$ 3,000,000	$ 354,227	$ 335,378	$ 18,849	$ 354,227	$ 0	$ 18,849
Electrical Upgrade - Water Booster	$ 325,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade -Water Booster	$ 350,000	$ -	$ -		$ -	$ -	$ -
Electrical Upgrade - Other Water	$ 250,000	$ -			$ -	$ -	$ -
SCADA Improvements – Phase 1	$ 250,000	$ 250,000	$ 193,989	$ 56,011	$ 250,000	$ -	$ 56,011
SCADA Improvements – Phase 2	$ 1,100,000	$ 1,056,986	$ 1,027,424	$ 29,562	$ 1,056,986	$ -	$ 29,562
SCADA Improvements – Phase 3	$ 2,500,000	$ 24,956	$ 24,956	$ -	$ 24,956	$ 0	$ 0
SCADA Improvements – Phase 4	$ 850,000	$ -	$ -		$ -	$ -	$ -
		$ -					
Laboratory Modernization	$ 1,200,000	$ -	$ -		$ -	$ -	$ -
Land Survey	$ 1,500,000	$ 500,000	$ 470,590	$ 29,097	$ 499,687	$ 313	$ 29,410
General Plant Improvements / Water	$ 14,370,000	$ 7,241,000	$ 7,241,000	$ 0	$ 7,241,000	$ 0	$ 0
Interest Earned							$ 81,037
Total Construction Fund (2010 Series Revenue Bond)	**$ 87,402,000**	**$ 87,402,000**	**$ 78,594,399**	**$ 3,497,966**	**$ 82,092,366**	**$ 4,309,634**	**$ 8,888,637**

1.) PUC's Docket 11-01 $29,000,000.00 dated
09/19/11authorized GWA for reallocation
2) PUC's Docket 11-01 Reallocation of $23,246,000.00 dated 07/30/12
3) PUC's Dockect Reallocation dated February 2013

GUAM WATERWORKS AUTHORITY
Schedule of Series 2013, 2014 Refunding, 2016 and 2017 Refunding Bond Bank Accounts
As of January 31, 2018

SCHEDULE N

	1/31/2018
BANK OF GUAM	
BOG - Revenue Account	7,945,816
BOG - Operations and Maintenance Reserve	3,083,482
BOG - Operations, Maintenance, Renewal and Replacement Reserve Fund	17,423,213
BOG - Capital Improvement Fund	1,357,526
BOG - O & M Reserve	13,548,868
BOG - Debt Service Reserve	11,244,664
BOG - CAPEX Reserve	15,498,322
Total BOG Bank Account Balance	**70,101,891**
Series 2013 Bond:	
BOG - Construction Fund	64,149,060
USB - Debt Service Fund	787,869
USB - Debt Service Reserve Fund	12,031,688
Total Series 2013 Bond Bank Balance	**76,968,617**
Series 2014 Refunding Bond:	
BOG - Construction Fund	762,683
USB - Debt Service Fund	2,344,001
USB - Debt Service Reserve Fund	7,758,497
Total Series 2014 Refunding Bond Bank Balance	**10,865,181**
Series 2016 Bond:	
BOG - Construction Account	126,752,323
BOG - Capitalized Interest Fund	2,975
USB - Debt Service Fund	598,108
USB - Debt Service Reserve Fund	7,594,584
Total Series 2016 Bond Bank Balance	**134,947,990**
Series 2017 Refunding Bond:	
BOG - Construction Account	8,888,638
BOG - Cost of Issuance Fund	47,424
USB - Debt Service Fund	1,853,697
USB - Debt Service Reserve Fund	7,566,460
Total Series 2017 Refunding Bond Bank Balance	**18,356,219**

GUAM WATERWORKS AUTHORITY

Guam Waterworks Authority

VEHICLE FLEET STATUS

2/9/2018

EQUIPMENT STATUS				
Description	Number of Equipment	Number of Equipment Available	Number of Equipment Not Available	Percentage
Backhoe	5	2	3	40%
Bobcat	1	1	0	100%
Boom Truck	2	0	2	0%
Crane	2	0	2	0%
Dump Truck	3	2	1	67%
Flat Bed	1	0	1	0%
Forklift	7	6	1	86%
Fuel Tanker	1	1	0	100%
Heavy Duty	3	0	3	0%
Light	150	102	48	68%
Mini Backhoe	4	1	3	25%
Pumper Truck	1	1	0	100%
Sludge Truck	4	3	1	75%
Tow	1	0	1	0%
Tractor	2	2	0	100%
Trailer	12	8	4	67%
Trencher	1	1	0	100%
Vaccon	1	1	0	100%
Vacuum Truck	3	3	0	100%
Water Buffalo	2	2	0	100%
Water Tanker	5	3	2	60%
Total	211	139	72	

SUMMARY						
Operational	Operational w/Rprs Pending	In Shop-Accident Repairs	In Shop-Assessment Pending	In Shop-Repairs Pending	In Shop-Vendor Repairs	Recommend Survey
2	0	0	0	1	0	2
1	0	0	0	0	0	0
0	0	0	0	2	0	0
0	0	0	0	0	1	1
1	1	0	0	1	0	0
0	0	0	0	0	0	1
6	0	0	0	0	0	1
1	0	0	0	0	0	0
0	0	0	0	0	2	1
99	3	1	7	5	6	29
1	0	0	1	2	0	0
0	1	0	0	0	0	0
3	0	0	0	0	1	0
0	0	0	0	0	0	1
2	0	0	0	0	0	0
8	0	0	0	1	1	2
1	0	0	0	0	0	0
1	0	0	0	0	0	0
3	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	1	0	1
134	5	1	8	13	11	39

Guam Waterworks Authority	Date: 2/9/2018 Time:

REVIEWS			
TOTAL PUMPS INSTALLED	51	OVERAL AVERAGE	96%
TOTAL PUMPS OPERATIONAL	49	% OF OPERATING PUMPS	96%
TOTAL BOOSTER PUMP STATIONS	25		

GUAM WATERWORKS AUTHORITY

WATER DISTRIBUTION FACILITIES REPORT

Northern District

NO:	FACILITY	PUMP HORSEPOWER	NO OF INSTALLED PUMPS	NO OF OPERATIONAL PUMPS	PUMP AVAILABILITY %	GENERATOR OPERATIONAL FAULT	ATS MANUAL/AUTO	PUMP UNIT REMARKS	WORK ORDER NO:	VALVES, ELECTRICAL,STRUCTURAL REMARKS	WORK ORDER NO:	ESTIMATED REPAIR DATE	PUMP AND MOTOR INVENTORY
1	Gayinero	20	2	2	100%	OP	A						
2	Mataguac	25	2	2	100%	OP	A						
3	Santa Rosa	15	2	2	100%	OP	A						
4	Hyundai	40	2	1	50%	OP	A	Pump # 1 requires pump and motor. Station to undergo renovation during reservoir project.					
5	Access	60	2	2	100%	OP	A						
6	Chln. Palauan	5	2	2	100%	N/A							
7	Nimitz Hill	7.5	2	2	100%	N/A							
8	Adawag	1.5	2	2	100%	N/A							
9	Pale Kiren	1	1	1	100%	N/A							
10	Ulloa/Untalan	1	2	2	100%	OP	A						
11	Latte Heights	15	2	2	100%	OP	A						
	TOTAL = 11		**21**	**20**	**95%**								
pump availability =no of operational pumps/no of pumps*100%													

Central District

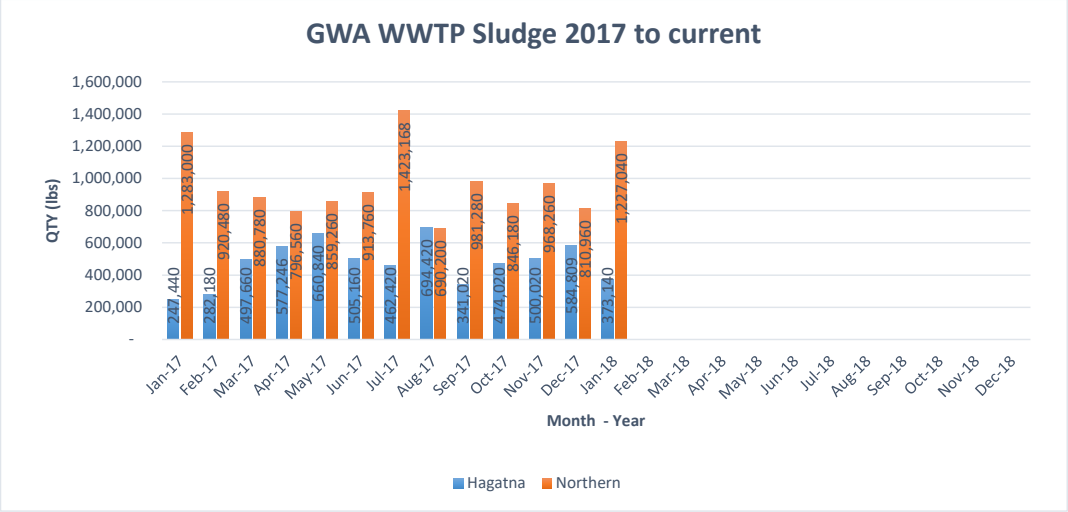
NO:	FACILITY	PUMP HORSEPOWER	NO OF INSTALLED PUMPS	NO OF OPERATIONAL PUMPS	PUMP AVAILABILITY %	GENERATOR OPERATIONAL FAULT	ATS MANUAL/AUTO	PUMP UNIT REMARKS	WORK ORDER NO:	VALVES, ELECTRICAL,STRUCTURAL REMARKS	WORK ORDER NO:	ESTIMATED REPAIR DATE	UPDATES
1	Pago	150 / 100	3	2	67%	0P	A	Pump 2 leaking at seal, pump operational, work ongoing.					
2	Brigade	60	3	3	100%	OP	A						
3	Windward Hills	200 / 75	3	3	100%	OP	A						
4	Santa Rita Springs	40	2	2	100%	OP	A						
5	Santa Ana (Lower)	25	2	2	100%	N/A						CIP required for new unit and electrical for generator	
6	Camacho	1	1	1	100%	N/A						CIP required for new unit and electrical for generator	
7	Tenorio	1.5	1	1	100%	N/A						CIP required for new unit and electrical for generator	
	Total=7		**15**	**14**	**93%**								
pump availability =no of operational pumps/no of pumps*100%													

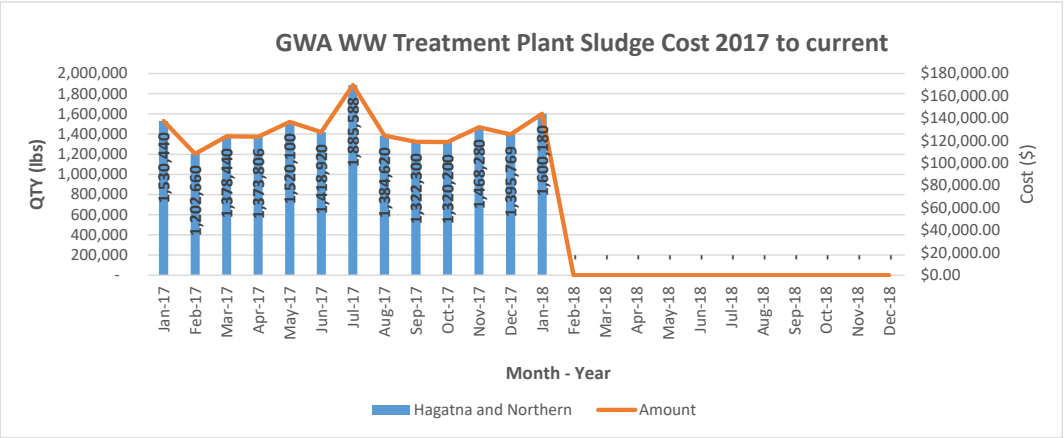
Southern District

NO:	FACILITY	PUMP HORSEPOWER	NO OF INSTALLED PUMPS	NO OF OPERATIONAL PUMPS	PUMP AVAILABILITY %	GENERATOR OPERATIONAL FAULT	ATS MANUAL/AUTO	PUMP UNIT REMARKS	WORK ORDER NO:	VALVES, ELECTRICAL,STRUCTURAL REMARKS	WORK ORDER NO:	ESTIMATED REPAIR DATE	UPDATES
1	Malojloj Line	125 / 50	3	3	100%	OP	A						
2	Geus	25	2	2	100%	OP	A						
3	Pigua	7.5	2	2	100%	N/A							
4	Toguan	25	2	2	100%	OP	A						
5	WBP-2	25	2	2	100%	OP	A						
6	WBP-1	5	2	2	100%	OP	A						
7	Malojloj Elevated	15	2	2	100%	OP	A						
	Total=7		**15**	**15**	**100%**								
pump availability =no of operational pumps/no of pumps*100%													

	Hagatna		Northern		Hagatna and Northern	
2017	Qty	Amount	Qty	Amount	Qty	Amount
Month- Yr	lbs	$	lbs	$	lbs	$
Jan-17	247,440	$22,269.60	1,283,000	$115,470.00	1,530,440	$137,739.60
Feb-17	282,180	$25,396.20	920,480	$82,843.20	1,202,660	$108,239.40
Mar-17	497,660	$44,789.40	880,780	$79,270.20	1,378,440	$124,059.60
Apr-17	577,246	$51,952.14	796,560	$71,690.40	1,373,806	$123,642.54
May-17	660,840	$59,475.60	859,260	$77,333.40	1,520,100	$136,809.00
Jun-17	505,160	$45,464.40	913,760	$82,238.40	1,418,920	$127,702.80
Jul-17	462,420	$41,617.80	1,423,168	$128,085.12	1,885,588	$169,702.92
Aug-17	694,420	$62,497.80	690,200	$62,118.00	1,384,620	$124,615.80
Sep-17	341,020	$30,691.80	981,280	$88,315.20	1,322,300	$119,007.00
Oct-17	474,020	$42,661.80	846,180	$76,156.20	1,320,200	$118,818.00
Nov-17	500,020	$45,001.80	968,260	$87,143.40	1,468,280	$132,145.20
Dec-17	584,809	$52,632.81	810,960	$72,986.40	1,395,769	$125,619.21
Grand Total	5827235	$524,451.15	11373888	$1,023,649.92	17201123	$1,548,101.07

	Hagatna		Northern		Hagatna and Northern	
2018	Qty	Amount	Qty	Amount	Qty	Amount
Month- Yr	lbs	$	lbs	$	lbs	$
Jan-18	373,140	$33,582.60	1,227,040	$110,433.60	1,600,180	$144,016.20
Feb-18		$0.00		$0.00	-	$0.00
Mar-18		$0.00		$0.00	-	$0.00
Apr-18		$0.00		$0.00	-	$0.00
May-18		$0.00		$0.00	-	$0.00
Jun-18		$0.00		$0.00	-	$0.00
Jul-18		$0.00		$0.00	-	$0.00
Aug-18		$0.00		$0.00	-	$0.00
Sep-18		$0.00		$0.00	-	$0.00
Oct-18		$0.00		$0.00	-	$0.00
Nov-18		$0.00		$0.00	-	$0.00
Dec-18		$0.00		$0.00	-	$0.00
Grand Total	373140	$33,582.60	1227040	$110,433.60	1600180	$144,016.20


GWA WWTP Sludge 2017 to current
QTY (lbs)
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
247,440
1,283,000
282,180
920,480
497,660
880,780
577,246
796,560
660,840
859,260
505,160
913,760
462,420
1,423,168
694,420
690,200
341,020
981,280
474,020
846,180
500,020
968,260
584,809
810,960
373,240
1,227,040
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Month - Year
Hagatna
Northern

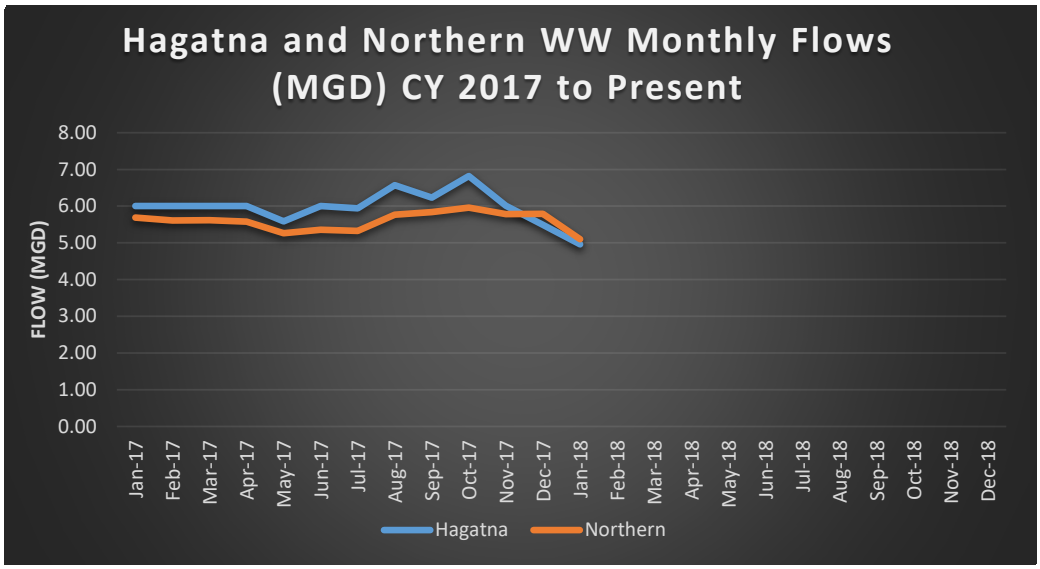

GWA WW Treatment Plant Sludge Cost 2017 to current
QTY (lbs)
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
Cost ($)
$180,000.00
$160,000.00
$140,000.00
$120,000.00
$100,000.00
$80,000.00
$60,000.00
$40,000.00
$20,000.00
$0.00
1,530,440
1,202,660
1,378,440
1,373,806
1,520,100
1,418,920
1,885,589
1,384,620
1,322,300
1,320,200
1,468,280
1,395,769
1,600,180
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Month - Year
Hagatna and Northern
Amount

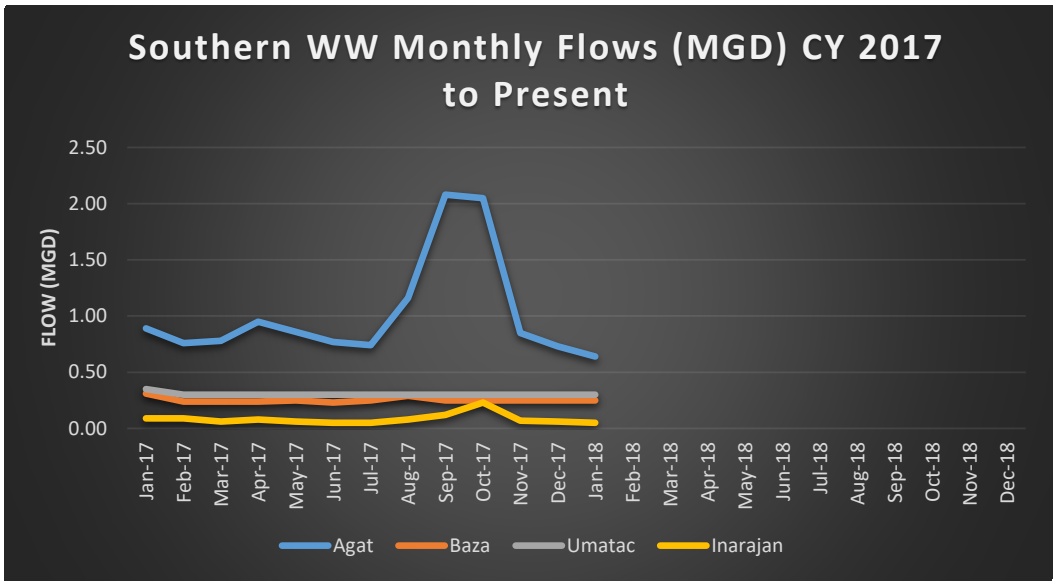
Wastewater Treatment Plant Average Monthy Flows Million Gallons Per Day

2017	Hagatna	Northern	Agat	Baza	Umatac	Inarajan
Jan-17	6.00	5.69	0.89	0.31	0.35	0.09
Feb-17	6.00	5.61	0.76	0.24	0.30	0.09
Mar-17	6.00	5.62	0.78	0.24	0.30	0.06
Apr-17	6.00	5.58	0.95	0.24	0.30	0.08
May-17	5.59	5.26	0.86	0.25	0.30	0.06
Jun-17	6.00	5.36	0.77	0.23	0.30	0.05
Jul-17	5.94	5.33	0.74	0.25	0.30	0.05
Aug-17	6.57	5.77	1.16	0.29	0.30	0.08
Sep-17	6.23	5.84	2.08	0.25	0.30	0.12
Oct-17	6.82	5.96	2.05	0.25	0.30	0.23
Nov-17	6.01	5.78	0.85	0.25	0.30	0.07
Dec-17	5.49	5.79	0.73	0.25	0.30	0.06
2017 Average MGD	**6.05**	**5.63**	**1.05**	**0.25**	**0.30**	**0.09**
2017 Total MGY	2,210	2,056	384	93	111	32

2018	Hagatna	Northern	Agat	Baza	Umatac	Inarajan
Jan-18	4.96	5.10	0.64	0.25	0.30	0.05
Feb-18						
Mar-18						
Apr-18						
May-18						
Jun-18						
Jul-18						
Aug-18						
Sep-18						
Oct-18						
Nov-18						
Dec-18						
2018 Average MGD	**4.96**	**5.10**	**0.64**	**0.25**	**0.30**	**0.05**
2018 Total MGY	1,810	1,862	234	91	110	18

GWA WWT Flow Report 2013 to Present, prepared by kcog/df, 2/13/2018





GWA WWT Flow Report 2013 to Present, prepared by kcog/df, 2/13/2018

GUAM WATERWORKS AUTHORITY

WASTEWATER COLLECTION REPORT

MONTHLY REPORT

JANUARY 2018



CCTV INSPECTIONS AND SEWER CLEANING

Jan. 01 - 07	Team #1	Team #2	Vendor	Total
Feet Scheduled	3,267	3267	0	6534
Feet Completed	1359	0	0	1359
	41.6%	0%	0%	21%

Jan. 08 - 14	Team #1	Team #2	Vendor	Total
Feet Scheduled	3,267	3,267	0	6,534
Feet Completed	0	0	0	0
	0%	0%	0%	0%

Jan. 15 - 21	Team #1	Team #2	Vendor	Total
Feet Scheduled	3,267	3,267	0	6,534
Feet Completed	4,276.8	0	0	4,276.8
	131%	0%	0%	65%

Jan. 22 - 28	Team #1	Team #2	Vendor	Total
Feet Scheduled	3,267	3,267	0	6,534
Feet Completed	8,235.8	0	0	8,235.8
	252%	0%	0%	126%

Jan. 29- 31	Team #1	Team #2	Vendor	Total
Feet Scheduled	3,267	0	0	3,267
Feet Completed	1,250	0	0	1,250
	0%	0%	0%	0%

TOTAL FEET SCHEDULED: 26,136

TOTAL FEET COMPLETED: 15,122

TOTAL MILES SCHEDULED FOR THE MONTH: 5.0

TOTAL MILES COMPLETD FOR THE MONTH: 2.9

* Jan.08-14 Smoke test and manhole inspection was done at Mangilao area by DYA to Mayors office

*Jan. 15-21 Assisted in the cleaning of Route 16 inlet line.

PUMPING STATION TROUBLE CALLS

Jan. 01 - 07	CREATED	COMPLETED	PENDING
NORTHERN	2	2	0
CENTRAL	3	3	0
SOUTHERN	2	2	0
TOTAL	7	7	0

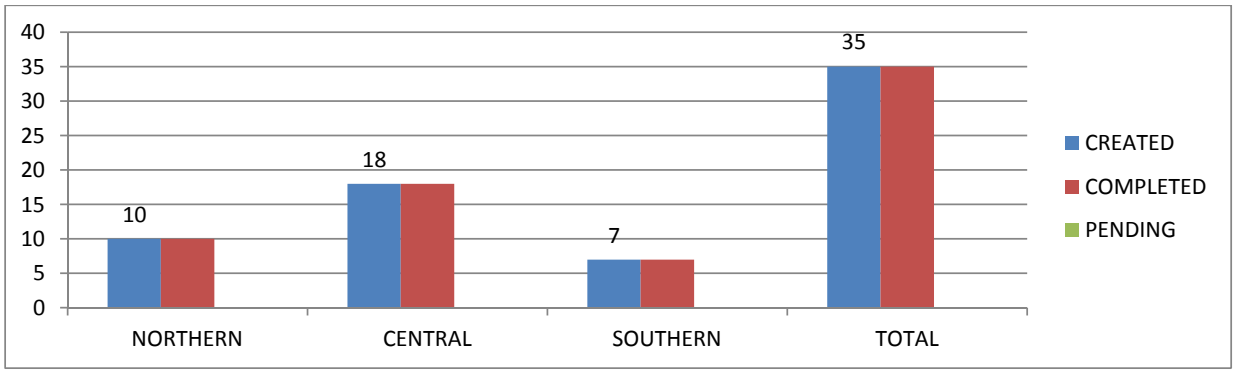
Jan. 08 - 14	CREATED	COMPLETED	PENDING
NORTHERN	4	4	0
CENTRAL	2	2	0
SOUTHERN	0	0	0
TOTAL	6	6	0

Jan. 15 - 21	CREATED	COMPLETED	PENDING
NORTHERN	1	1	0
CENTRAL	9	9	0
SOUTHERN	1	1	0
TOTAL	11	11	0

Jan. 22 - 28	CREATED	COMPLETED	PENDING
NORTHERN	2	2	0
CENTRAL	2	2	0
SOUTHERN	2	2	0
TOTAL	6	6	0

Jan. 29- 31	CREATED	COMPLETED	PENDING
NORTHERN	0	0	0
CENTRAL	2	2	0
SOUTHERN	2	2	0
TOTAL	4	4	0

	CREATED	COMPLETED	PENDING
NORTHERN	10	10	0
CENTRAL	18	18	0
SOUTHERN	7	7	0
TOTAL	35	35	0



MAINTENANCE PREVENTIVE AND CORRECTIVE CALL OUTS

Jan. 01 - 07	PREVENTIVE	CORRECTIVE
NORTHERN	0	4
CENTRAL	0	1
SOUTHERN	0	3
TOTAL	0	8

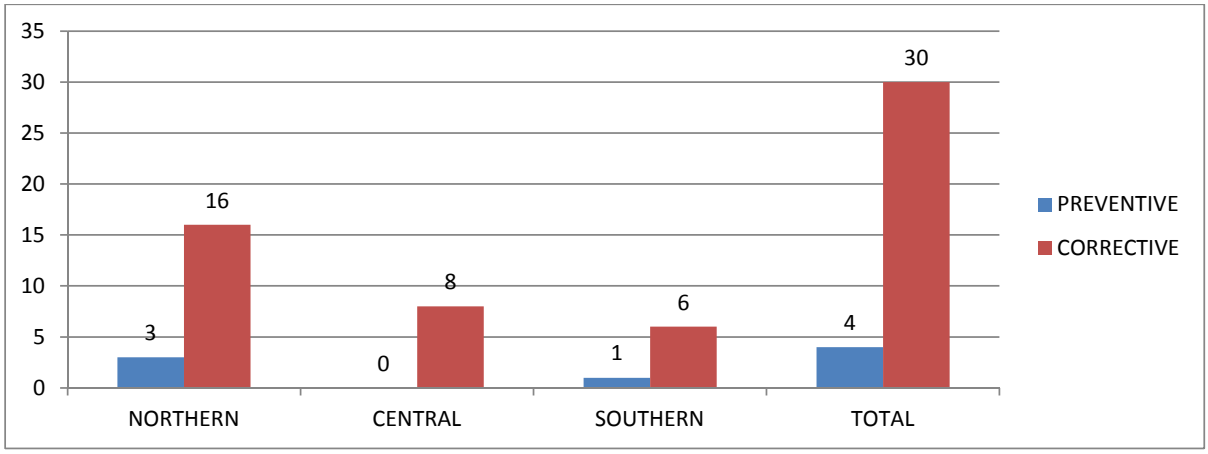
Jan. 08 - 14	PREVENTIVE	CORRECTIVE
NORTHERN	0	3
CENTRAL	0	2
SOUTHERN	0	0
TOTAL	0	5

Jan. 15 - 21	PREVENTIVE	CORRECTIVE
NORTHERN	1	2
CENTRAL	0	2
SOUTHERN	0	0
TOTAL	1	4

Jan. 22 - 28	PREVENTIVE	CORRECTIVE
NORTHERN	1	3
CENTRAL	0	3
SOUTHERN	0	1
TOTAL	1	7

Jan. 29- 31	PREVENTIVE	CORRECTIVE
NORTHERN	1	4
CENTRAL	0	0
SOUTHERN	1	2
TOTAL	2	6

	PREVENTIVE	CORRECTIVE
NORTHERN	3	16
CENTRAL	0	8
SOUTHERN	1	6
TOTAL	4	30



BASE PAY VS OVERTIME

	BASE PAY	OVERTIME	OVERTIME %
PUMPING STATION	$46,097.60	$15,037.99	33%
MAINTENANCE	$30.070.40	$596.44	2%
COURT ORDER UNIT	$22,748.80	$6,129.65	27%
TOTALS	$98,916.80	$21,764.08	

