

**NON-CHAPTER 343 DOCUMENT  
PUBLICATION FORM  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL**

**Project Name:** Lihue Aerated Solids Contact Tank Improvement

**Applicable Law:** 36 CFR Part 800

**Type of Document:** National Historic Preservation Act Section 106

**Island:** Kauai

**District:** Kalapaki Ahupua'a, Puna District

**TMK:** (4) 3-5-001:030

**Permits Required:** N/A

**Applicant or Proposing Agency:**

*(Address, Contact Person, Telephone, E-mail)*

State of Hawaii, Department of Health, Environmental Management Division, Wastewater Branch  
2827 Waimano Home Road, Rm. 207

Pearl City, HI 96782

Contact and Phone: Domciely Oda, (808) 586-4294, [Domciely.Oda@doh.hawaii.gov](mailto:Domciely.Oda@doh.hawaii.gov)

**Approving Agency or Accepting Authority:**

*(Address, Contact Person, Telephone, E-mail)*

State of Hawaii, Department of Health, Environmental Management Division, Wastewater Branch  
2827 Waimano Home Road, Rm. 207

Pearl City, HI 96782

Contact and Phone: Domciely Oda, (808) 586-4294, [Domciely.Oda@doh.hawaii.gov](mailto:Domciely.Oda@doh.hawaii.gov)

**Consultant:**

*(Address, Contact Person, Telephone, E-mail)*

Brown and Caldwell

737 Bishop Street, Suite 3000

Honolulu, HI 96813

Contact and Phone: Joshua Schwartzlow, (808) 203-2672, [jschwartzlow@brwncald.com](mailto:jschwartzlow@brwncald.com)

**Status: Comments due no later than November 7, 2024 to:**

Attn: Domciely Oda

Department of Health, Wastewater Branch

2827 Waimano Home Road, Rm. 207

Pearl City, HI 96782

Email: [wwb@doh.hawaii.gov](mailto:wwb@doh.hawaii.gov)

**Project Summary:**

(Summarize proposed action and purpose/need in less than 200 words in the space below):

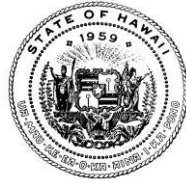
The Department of Health (DOH) initiated Section 106 of the NHPA consultation with the State Historic Preservation Division (SHPD) in accordance with 36 CFR Part 800. In 1990, the U.S. Environmental Protection Agency (EPA) designated the DOH to act on EPA's behalf, pursuant to 36 CFR §800.2 (c) (4), when initiating Section 106 of the NHPA process in connection with projects funded under the Hawai'i Clean Water State Revolving Fund (CWSRF). The DOH is providing funding under the CWSRF to the County of Kauai for the Lihue Aerated Solids Contact Tank Improvement. The proposed project will utilize federal

funding and is considered an undertaking, as defined by Section 106 of the NHPA, 54 U.S.C. §306101 et seq., and 36 CFR Part 800.

The undertaking consists of upgrading the aerated solids contact tank at the Līhu'e Wastewater Treatment Plant (WWTP) to improve service reliability within the Līhu'e area. The modifications to the aerated solids contact tank include replacing the existing diffusers, air piping, and effluent baffles with new equipment. The improvements also include the installation of new instrumentation and control valves. All equipment will be replaced or installed in a similar footprint to the existing equipment. All construction activities will be within the Līhu'e WWTP parcel (TMK (4) 3-5-001:030).

The DOH has engaged SHPD to determine the presence of potential sites of historic importance within the vicinity of the project area as well as the potential impact of the project on such sites, if present.

JOSH GREEN, M.D.  
GOVERNOR OF HAWAII  
KE KIA'AINA O KA MOKU'AINA 'O HAWAII



KENNETH S. FINK, MD, MGA, MPH  
DIRECTOR OF HEALTH  
KA LUNA HO'OKELE

**STATE OF HAWAII**  
**DEPARTMENT OF HEALTH**  
**KA 'OIHANA OLAKINO**  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

In reply, please refer to:  
File:

September 17, 2024

59-31 S106 ltr (initial) SHPD.docx

Alan S. Downer, PhD, Administrator  
State of Hawai'i, Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kamokila Boulevard, Rm. 555  
Kapolei, HI 96707  
Submitted via: SHPD HICRIS

Dear Dr. Downer:

Subject: National Historic Preservation Act (NHPA)  
Request to Initiate Section 106 Consultation  
Lihue Aerated Solids Contact Tank Improvement  
Clean Water State Revolving Fund (CWSRF) Project No. C150059-31  
Kalapaki Ahupua'a, Puna District, Island of Kaua'i, Hawai'i  
TMK: (4) 3-5-001:030  
State Historic Preservation Division (SHPD) Project No. 2024PR00799

On behalf of the Environmental Protection Agency (EPA), the State of Hawai'i Department of Health (DOH) requests to initiate Section 106 consultation with the State Historic Preservation Officer (SHPO) for the proposed Lihue Aerated Solids Contact Tank Improvement project located in Kalapaki Ahupua'a, Puna District, Island of Kaua'i, Hawai'i.

The proposed project may be eligible to utilize federal funding that is administered by the DOH through CWSRF and will be considered a federal action and undertaking, as defined by Section 106 of the NHPA of 1966 (as amended 2014), Title 54 of the United States Code (54 USC) Section 306108, and Title 36 of the Code of Federal Regulations (36 CFR) Part 800.

The EPA has authorized the DOH to act on behalf of the EPA regarding NHPA Section 106 notification and consultation. This letter is to request to initiate the Section 106 consultation process with the SHPO and State Historic Preservation Division (SHPD) in accordance with 36 CFR, Section 800.3.

The DOH may provide funding under the CWSRF to the County of Kaua'i (COK), Department of Public Works for the Lihue Aerated Solids Contact Tank Improvement project.

### **Overview of Undertaking**

The project would upgrade the aerated solids contact tank at the Lihue Wastewater Treatment Plant (WWTP) to improve service reliability within the Lihue area. The modifications to the aerated solids contact tank include replacing the existing diffusers, air piping, and effluent baffles with new equipment. The improvements also include the installation of new

instrumentation and control valves. All equipment will be replaced or installed in a similar footprint to the existing equipment. All construction activities will be within the Līhu'e WWTP parcel (TMK (4) 3-5-001:030). See *Attachment A* for the draft drawings of the proposed work.

### **Area of Potential Effect (APE)**

The proposed APE is approximately 0.43-acre portion of the 5-acre Līhu'e WWTP parcel (TMK (4) 3-5-001:030) and includes all construction access and staging areas. Construction activities will involve trench excavation, air piping installation, duct bank installation, backfilling, and returning the surface to the original grade. The excavation for the pipe will be approximately 4-feet deep, 3-feet wide, and 48-linear feet long. The excavation of the duct bank will be approximately 4-feet deep, 2-feet wide, and 108-linear feet long.

See *Attachment B and C* for the APE Map and site photos.

### **Cultural, Historical, and Archaeological Background**

The project area is in the Līhu'e neighborhood of Kaua'i in the moku (traditional Hawaiian District) of Puna, and the ahupua'a (traditional land division) of Kalapakī. The ahupua'a of Kalapakī is a very old land division that was permanently inhabited and intensively used in Pre-Contact Hawai'i. The coastal zones were the locus for permanent habitation and numerous trails. There were fishponds at Kalapakī, and intensive agriculture within the valley floodplain of Nāwiliwili River. The dryland areas contained native forest and were cultivated with crops of wauke, sweet potatoes, and gourds. Many features of the landscape are described in legends and historic documents. With the emergence of the sugar industry in the 1800s, Līhu'e became the central city of the island with the construction of sugar plantations and a large sugar mill.

Topography in the project area is slightly sloped with elevations ranging from 125 to 130 feet above mean sea level. The project area is approximately 0.6 miles inland from the coastline. The soils within the APE consist of Līhu'e silty clay, 0-8% slope, Līhu'e silty clay, 25-40% slope, eroded, and Līhu'e gravelly silty clay, 0-8% slope. Based on as-built research, the treatment plant has been subjected to major development with various projects in 1981, 1997, 2002, and 2019.

### **Previous Archaeological Research**

Eight studies have taken place in the vicinity of the proposed undertaking. In 1980, personnel of Archaeological Research Center Hawaii, Inc. completed preliminary archaeological monitoring of two parcels in Ninini Point area, Kalapakī, Puna. Both parcels were examined for archaeological remains and/or historic remains, but none were found.

An archaeological survey was completed in a portion of coastal land in Kalapakī (Stride and Hammatt, 1988). No archaeological sites were identified.

McMahon (2005) conducted a Historic Preservation Review for the Kauai Development LLC/KD Golf Ownership LLC, for the following TMKs: (4) 3-5-01:27, (4) 3-5-01:165, (4) 3-5-01:168,

(4) 3-5-01:169, (4) 3-5-01:170, (4) 3-5-01:171, (4) 3-5-01:172, and (4) 3-5-01:173. There were no historic properties present because intensive cultivation has altered the land and an archaeological assessment found no historic properties.

Altizer and Hammatt (2014) completed an archaeological inventory survey report for the Nawiliwili-Ahukini Bike Path Project. The report found a total of 15 historic properties within the project area, including two habitation terraces, an activity area, and a possible burial mound. The historic properties identified as part of this survey are located along the coastline of Ninini and Ahukini Point, which is over 1,000 feet from the Līhu'e WWTP property.

An archaeological inventory survey was conducted for Island Helicopters Kaua'i, Inc. for a proposed administration and customer service building. Previous records have indicated a survey was conducted for the Līhu'e airport improvements in 2006 (Barnes et al 2006), which shows the project area has been developed and paved for airport use. Based on the previous land disturbance and lack of historic properties in the surrounding area, there are no historic properties in the area (Naone, 2015).

### **Summary of Historic Properties in the Vicinity of the APE**

To the COK's knowledge, there is one historic property located within the APE. According to as-built research the Aerated Solids Contact Tank was constructed and put into service in 1966. Based on the definition of a historic property in HRS 6E-2, the Aerated Solid Contact Tank qualifies as a historic property.

The Aerated Solids Contact Tank is not registered on the Hawai'i Register of Historic Places, nor in the National Registers of Historic Places. It does not appear that the Aerated Solids Contact Tank is a significant historic property.

The COK conducted archival research of the Environmental Review Program database of environmental assessments (EAs) and the environmental impact statements (EISs) to identify historic properties within or adjacent to the project area. The COK reviewed EAs and EISs which included documents pertaining to the Līhu'e Airport (State of Hawaii, Department of Transportation, Airport Division, 2018), Nawiliwili-Ahukini Bike Path (State of Hawaii, Department of Transportation, Highways Division, 2017), Nawiliwili Harbor (State of Hawaii, Department of Transportation, Harbor Division, 2017), and Līhu'e WWTP (County of Kauai, Department of Public Works, Division of Wastewater Management, 2007). The COK determined that although there were some significant historic properties identified within the adjacent parcels none of them are located near the Līhu'e WWTP and will not be impacted by the project.

The COK also asserts that the ground surface within Līhu'e WWTP is no longer original. Significant construction activities were completed at this facility in 1981, 1997, 2002, and 2019 which has subjected the property to major development. The ground has been previously disturbed to the extent that no subsurface archaeological sites are likely to exist. The extent of previous surface and subsurface disturbances suggests that no intact buried archaeological material is likely to be encountered during ground disturbances associated with this project.

## Consultations

Section 106 consultation letters have also been sent to Native Hawaiian organizations, consulting parties, and/or interested persons that might attach significance to this area and have invited them to participate in the process. The mailing list is provided in *Attachment D*.

We welcome any comments that you may have on this project's proposed improvements.

We are particularly interested in any information you may have on the historic and cultural sites that have been recorded in the area. In addition, if you are acquainted with any persons or organizations that are knowledgeable about the proposed project area or any descendants with ancestral, lineal, or cultural ties to, cultural knowledge or concerns for, and/or cultural or religious attachment to the proposed project area, then we would appreciate receiving their names and contact information.

We would appreciate a written response within thirty (30) calendar days from receipt of this letter. Please address any written comments to email: [Domciely.Oda@doh.hawaii.gov](mailto:Domciely.Oda@doh.hawaii.gov) or the following address:

Attn: Domciely Oda  
Department of Health, Wastewater Branch  
2827 Waimano Home Road, Room 207  
Pearl City, HI 96782

Should you have any questions, please contact Domciely Oda at (808) 586-4294.

Sincerely,



JONATHAN NAGATO, P.E., CHIEF  
Wastewater Branch

## Attachments

DO/CH:jn

c: Donald Fujimoto (via email [dfujimoto@kauai.gov](mailto:dfujimoto@kauai.gov))  
Troy Tanigawa (via email [TTanigawa@kauai.gov](mailto:TTanigawa@kauai.gov))  
Donn Kakuda (via email [dkakuda@kauai.gov](mailto:dkakuda@kauai.gov))  
Chane Hayashida (via email [chane.hayashida@doh.hawaii.gov](mailto:chane.hayashida@doh.hawaii.gov))  
Domciely Oda (via email [domciely.oda@doh.hawaii.gov](mailto:domciely.oda@doh.hawaii.gov))  
Stephanie Chin (via email [skchin@BrwnCald.com](mailto:skchin@BrwnCald.com))  
Joshua Schwartzlow (via email [JSchwartzlow@BrwnCald.com](mailto:JSchwartzlow@BrwnCald.com))

**Attachment A**

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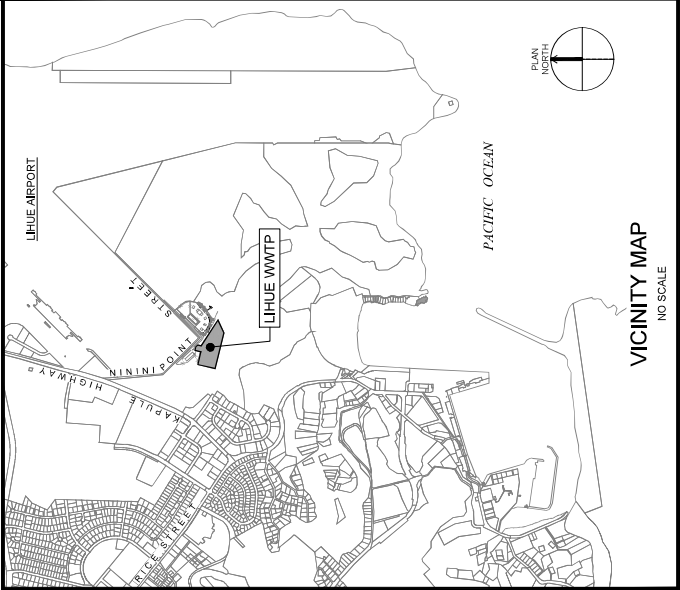
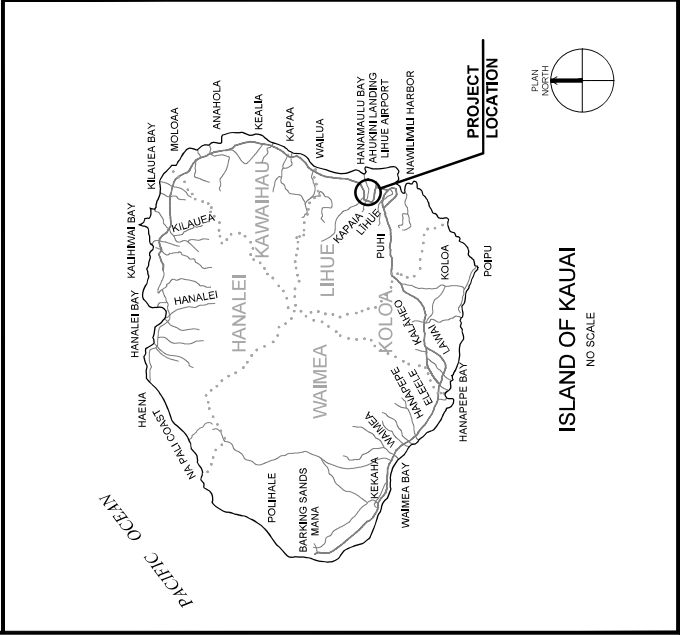
# LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

TMK: 3-5-001:030

LIHUE, KAUAI, HAWAII  
 DIVISION OF WASTEWATER MANAGEMENT  
 DEPARTMENT OF PUBLIC WORKS  
 COUNTY OF KAUAI

PREPARED BY:  
 BROWN AND CALDWELL  
 737 BISHOP STREET, SUITE 3000  
 PACIFIC GUARDIAN CENTER - MAUKA TOWER  
 HONOLULU, HI 96813-4020

## LOCATION MAPS



## APPROVALS

COUNTY ENGINEER DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI	DATE
CHIEF WASTEWATER MANAGEMENT DIVISION DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI	DATE



**INDEX OF DRAWINGS**

SHEET	DWG NO.	DESCRIPTION
<b>GENERAL</b>		
1	T001	TITLE, LOCATION AND VICINITY MAPS
2	G001	INDEX OF DRAWINGS
3	G002	ABBREVIATIONS
4	G003	GENERAL CONSTRUCTION NOTES
5	G004	CONSTRUCTION NOTES
6	G005	LOCATION MAP
<b>CIVIL</b>		
7	C001	EROSION CONTROL BMP NOTES
8	C002	YARD RIPPING PLAN AND CIVIL DETAIL
9	C003	AIR SUPPLY PIPE PROFILE
10	C004	EROSION AND SEDIMENT CONTROL PLAN
<b>STRUCTURAL</b>		
11	S001	GENERAL NOTES AND TYPICAL DETAILS
<b>P&amp;ID</b>		
12	P001	LEGEND AND SYMBOLS
13	P101	AERATED SOLIDS CONTACT TANK - 1
14	P102	AERATED SOLIDS CONTACT TANK - 2
<b>MECHANICAL</b>		
15	M001	STANDARD SYMBOLS AND NOTES
16	M002	MISCELLANEOUS DETAILS
17	M101	SOLIDS CONTACT TANKS DEMOLITION PLAN
18	M102	SOLIDS CONTACT TANKS GROUND LEVEL PLAN
<b>ELECTRICAL</b>		
19	E001	ELECTRICAL LEGEND - 1
20	E002	ELECTRICAL LEGEND - 2
21	E003	ELECTRICAL NOTES AND ABBREVIATIONS
22	E004	ELECTRICAL DETAILS - 1
23	E005	ELECTRICAL DETAILS - 2
24	E101	PARTIAL ELECTRICAL SITE PLAN
25	E201	BLOWER ROOM POWER AND CONTROL
26	E202	AERATED SOLIDS CONTACT TANKS POWER AND CONTROL PLAN
27	E401	ONE LINE DIAGRAM
28	E402	PANEL SCHEDULE
29	E403	CIRCUIT SCHEDULE
<b>INSTRUMENTATION</b>		
30	I001	LEGEND AND SYMBOLS
31	I101	IOC ELEVATION
32	I102	IOC POWER DISTRIBUTION
33	I103	IOC NETWORK DIAGRAM
34	I104	DIGITAL INPUT MODULE 1A
35	I105	DIGITAL INPUT MODULE 1B
36	I106	ANALOG INPUT MODULE 2A
37	I107	DIGITAL INPUT MODULE 2B
38	I108	ANALOG INPUT MODULE 1A
39	I109	ANALOG INPUT MODULE 1B
40	I110	ANALOG INPUT MODULE 1C
41	I111	ANALOG INPUT MODULE 2A
42	I112	ANALOG INPUT MODULE 2B
43	I113	ANALOG INPUT MODULE 2C
44	I114	ANALOG INPUT MODULE 3A
45	I115	ANALOG INPUT MODULE 3B
46	I116	ANALOG INPUT MODULE 3C
47	I117	ANALOG OUTPUT MODULE 1A
48	I118	ANALOG OUTPUT MODULE 1B

TMK: 3-5-007.030


DRAWING: 5001

SHEET: 2

OF: 48

AT FULL SIZE IF NOT ONE  
INCH SCALE (FOOTPRINTS)

ONE INCH



THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.

Robert D. Ball

DATE: 4/30/2025  
PREPARED DATE OF THE DRAWING:

PROJECT	COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT	DATE	DATE
ITEM	<b>LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT</b>	REVISION	DATE
BY	BY	DATE	DATE

INDEX OF DRAWINGS

LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

DESIGNED BY: J.SCHWARTZLOW  
DRAWN BY: YANJUDA  
CHECKED BY: BEBALL  
SECTION HEAD: SECTION HEAD: DATE:

ABBREVIATIONS

Table with multiple columns containing abbreviations and their corresponding full names. Columns include: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.

PROJECT: COUNTY OF KAUII DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT. LIIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT. APPROVED BY: J. SCHWARTZLOFF. DRAWN BY: Y. YANDRA.



**GENERAL CONSTRUCTION NOTES**

1. THE CONTRACTOR SHALL PERFORM APPLICABLE CONSTRUCTION WORK IN ACCORDANCE WITH THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION DATED SEPTEMBER 1984 AS AMENDED, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION DATED SEPTEMBER 1986 OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF KAUAI, AS AMENDED, AND THE HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION DATED SEPTEMBER 1986 OF THE DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION, STATE OF HAWAII, AS AMENDED.
2. FROM UNDERGROUND UTILITY LINES AND/OR STRUCTURES KNOWN TO EXIST BY THE ENGINEER OR DISCOVERED DURING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF ALL UTILITIES AND STRUCTURES AND SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INTERFERENCE CLEARANCES AND ONLY WITH THE APPROVAL OF THE OFFICER-IN-CHARGE.
3. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL NOTIFY ALL APPLICABLE AGENCIES AND AGENCIES WITH JURISDICTION OVER THE PROJECT AREA, THE DEPARTMENT OF PUBLIC WORKS, AND THE DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION, OF THE PROJECT LOCATION AND SHALL PAY FOR ALL CHARGES TO AID MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
4. EXISTING CONDITIONS AND DIMENSIONS SHOWN ON THE PLANS ARE APPROXIMATE AND OBTAINED FROM RECORD DRAWINGS. PROSPECTIVE CONTRACTORS SHALL VISIT THE PROJECT LOCATION AND VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE SUBMITTING BID. REASONABLE MODIFICATIONS TO INDICATED DIMENSIONS AND ARRANGEMENTS TO SUIT ACTUAL JOB CONDITIONS SHALL NOT CONSTITUTE BASIS FOR REQUESTING OF ADDITIONAL FUNDS FROM THE COUNTY.
5. PRIOR TO ORDERING MATERIALS AND EQUIPMENT, THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, MATERIALS, SIZES AND DIMENSIONS IN WRITING PRIOR TO PROCUREMENT. THE OFFICER-IN-CHARGE OF ALL DISCREPANCIES IN WRITING PRIOR TO PROCUREMENT.
6. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCY BETWEEN THE EXISTING CONDITION AS SHOWN ON THE DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE OFFICER-IN-CHARGE FOR CLARIFICATION. CONTRACTOR SHALL NOT PROCEED WITH ANY FURTHER WORK UNTIL WRITTEN NOTIFICATION IS RECEIVED FROM THE OFFICER-IN-CHARGE. OTHERWISE THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY COST INVOLVED IN CORRECTION OF CONSTRUCTION COMPLETED DUE TO SUCH DISCREPANCIES.
7. ALL WORK CALLED FOR ON THE PLANS AND NOT ITEMIZED IN THE BID SCHEDULE AND ALL WORK NOT CALLED FOR BUT REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT, SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE CONTRACTOR'S BID PRICE.
8. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL OR BETTER CONDITION ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENT, LANDSCAPING, STRUCTURES, UTILITIES, ETC. UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL, DEMOLITION AND RESTORATION OF EXISTING ITEMS SHALL BE INCIDENTAL AND INCLUDED WITHIN THE CONTRACTOR'S BID PRICE.
9. PAYMENT FOR RESTORATION OF PAVEMENT AND OTHER CONCRETE STRUCTURES WILL NOT BE MADE DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE IN THE VARIOUS ITEMS OF THE BID.
10. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR WILL PREPARE AND CERTIFY TO THE COUNTY ENGINEER AND THE DEPARTMENT OF PUBLIC WORKS, THE RECORD CONSTRUCTION PLANS. THE CONTRACTOR SHALL CERTIFY THAT THE RECORD CONSTRUCTION PLANS, THE OWNER'S LICENSED DESIGN ENGINEER WILL CERTIFY THAT ALL OF THE CHANGES SHOWN ON THE AS-BUILT DRAWINGS HAVE BEEN APPROVED BY THE DESIGN ENGINEER AND MEET MINIMUM STANDARDS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ORIGINAL APPROVED CONSTRUCTION PLANS. THE DEPARTMENT OF PUBLIC WORKS SHALL REVIEW AND APPROVE THE AS-BUILT DRAWINGS. THE CONTRACTOR SHALL SUBMIT THE FINAL AS-BUILT PLANS PRIOR TO THE CERTIFICATION BY THE OWNER'S ENGINEER, INCLUDING BUT NOT LIMITED TO HAVING A LAND SURVEYOR LICENSED IN THE STATE OF HAWAII CONFIRM AND CERTIFY THE FINAL LOCATION AND ELEVATIONS.
11. NON-COMPLIANCE TO ANY OF THE CONTRACT REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S NON-COMPLIANCE SHALL BE BILLED TO THE CONTRACTOR.
12. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS, AND RULES, AND SHALL BE RESPONSIBLE FOR MAINTAINING THE QUALITY AND FOR WORKER PROTECTION. FURTHERMORE, VIOLATORS SHALL BE SUBJECT TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
13. ALL EXISTING UTILITIES, SERVICE LINES, SUPPLY LINES AND COMMUNICATION LINES SHALL BE PROTECTED AND PRESERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING FACILITIES IS REQUIRED FOR THE CONTRACTOR'S CONVENIENCE. INTERRUPTION OF SERVICE SHALL BE KEPT TO A MINIMUM AND SHALL BE DONE AT THE CONTRACTOR'S EXPENSE AND ONLY WITH THE APPROVAL OF THE OFFICER-IN-CHARGE.
14. THE CONTRACTOR SHALL SECURE ALL NECESSARY LICENSES, PERMITS, APPROVALS, AND CLEARANCES AND SHALL PAY ALL APPLICATIONS, LICENSES, PERMITS, AND INSPECTION FEES REQUIRED FOR THE WORK AND SHALL GIVE ALL NOTICES NECESSARY FOR AND INCIDENTAL TO THE PROPER AND LAWFUL EXECUTION OF THE WORK.

15. THE CONTRACTOR SHALL PROVIDE TEMPORARY SECURITY COVERS OVER ANY AND ALL OPENINGS CREATED AS A CONSEQUENCE OF THE PROJECT WORK. THE COVERINGS SHALL BE ADEQUATE TO PROTECT ALL NECESSARY EQUIPMENT FROM WEATHER. SECURITY COVERS SHALL BE PROVIDED WHENEVER THE CONTRACTOR IS AWAY FROM THE PROJECT SITE AND/OR AT THE DIRECTION OF THE OFFICER-IN-CHARGE.
16. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SCHEDULE, IDENTIFYING START AND FINISH OF EACH MAJOR TASK, INCLUDING OUTAGES. THE WORK SHALL BE SEQUENCED TO MINIMIZE INTERRUPTION OF SERVICE. SUBMIT SCHEDULE TO THE OFFICER-IN-CHARGE PRIOR TO START OF WORK. OUTAGES SHALL BE APPROVED BY THE OFFICER-IN-CHARGE.
17. THE CONTRACTOR SHALL CONDUCT OPERATIONS SO AS TO OFFER THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO THE PLANT OPERATORS AND SHALL HAVE UNDER CONSTRUCTION NO GREATER LENGTH OR AMOUNT OF WORK THAT HE CAN EXECUTE PROPERLY WITH DUE REGARD TO THE RIGHTS OF THE PLANT OPERATORS.
18. THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE OFFICER-IN-CHARGE BEFORE COMMENCING ANY WORK.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME AND/OR NIGHT WORK PAYMENTS FOR THE COUNTY'S STAFF AND INSPECTION PERSONNEL INCLUDING TRAVEL AND MEALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME TO BE PERFORMED, OR DIRECTS THE CONTRACTOR TO WORK ADDITIONAL SHIFTS OR OVERTIME FOR COUNTY'S CONVENIENCE.
20. IF SYSTEM CONDITIONS REQUIRE NON-EMERGENCY NIGHTTIME WORK DURING THE BREEDING SEASON (OCTOBER THROUGH MARCH), USE OF LIGHTING SHALL BE RESTRICTED BETWEEN 9:00 P.M. TO 4:30 A.M. IF LIGHTING OF THE WORK AREAS IS REQUIRED IN SUCH SITUATION, ALL LIGHTS SHALL BE SHIELDED (MINIMUM LIGHT SPILL TOWARDS THE SKY) AND DIRECTED DOWNWARDS TO THE MAXIMUM EXTENT PRACTICABLE. MINIMUM REQUIREMENTS FOR LIGHTING BY DESIGN SHALL BE OBSERVED AND AVOIDED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CONTRACTOR BY THE CONTRACTOR ON HOW TO HANDLE ANY RETRIEVED DOWNED BIRDS OR NENE AND SHALL HAVE APPROPRIATE EQUIPMENT AS APPROVED BY SAVE OUR SHEARWATERS (SOS) ON SITE TO HOLD AND TRANSPORT ANY RETRIEVED BIRDS OR NENE TO AN SOS FACILITY. THIS REQUIREMENT DOES NOT ALLOW LIGHTING AS MAY BE RESTRICTED BY OTHER GOVERNMENT AGENCIES.
21. PRIOR TO STARTING ANY EXCAVATION ACTIVITIES, THE CONTRACTOR SHALL CONTACT THE HAWAII ONE CALL CENTER AT 1-866-422-7287.
22. PRIOR TO INSTALLATION OF ANY NEW SEWER LINES, DRAIN LINES, MANHOLES, AND STRUCTURES THAT WILL BE TRANSFERRED TO THE COUNTY OR REQUIRED FOR THE SUBMISSION OF THE PROPERTY, THE CONTRACTOR SHALL HAVE ALL IMPROVEMENTS (MAINS, PIPES, APPURTENANCES AND STRUCTURES) SURVEYED AND STAKED OUT BY A LICENSED PROFESSIONAL LAND SURVEYOR AND THE CONTRACTOR SHALL EXPOSE, VERIFY AND BACKFILL EXISTING UNDERGROUND UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL PROVIDE THE LICENSED SURVEYOR CUT SHEET AND TRENCH INFORMATION TO THE PUBLIC WORKS ENGINEERING CONSTRUCTION ENGINEER FOR REVIEW AND APPROVAL BEFORE MOVING FORWARD WITH INSTALLATION VIA THE SUBMITTAL REVIEW PROCESS.
23. SHOULD HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS, OR MOUNDS, OR REMAINS SUCH AS ARTIFACTS BURIALS, CONCENTRATION OF SHELL OR CHARCOAL BE ENCOUNTERED DURING THE CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DISTURBANCE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE STATE HISTORIC PRESERVATION DIVISION (808-243-6169), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE, IF NECESSARY.
24. PURSUANT TO CHAPTER 86 OF THE HAWAIIAN STATUTES, ALL CONTRACTORS SHALL EXERCISE EXTREME CARE AND DUE DILIGENCE TO PREVENT ANY AND ALL UNLAWFULLY DISCOVERED HISTORIC STRUCTURES OR REMAINS FROM BEING MOVED OR ANY ACTIVITY IN THE IMMEDIATE AREA THAT COULD DAMAGE THE REMAINS OR THE POTENTIAL HISTORIC SITE SHALL CEASE AND THE DEPARTMENT OF LAND AND NATURAL RESOURCES' HISTORIC PRESERVATION DIVISION (TELEPHONE 808-243-6169). THE APPROPRIATE MEDICAL OFFICER, CORONER, AND THE POLICE DEPARTMENT (TELEPHONE 808-244-6400), SHALL BE CONTACTED.

<p>ONE INCH EQUALS 40 FEET</p>	<p>AT FULL SIZE IF NOT ONE INDICATED OTHERWISE</p>	<p>REVISION DATE BY APPROVED</p>	<p>DATE BY APPROVED</p>	<p>DATE BY APPROVED</p>	<p>DATE BY APPROVED</p>
<p>COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT</p>					
<p><b>LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT</b></p>					
<p>GENERAL CONSTRUCTION NOTES</p>					
<p>DESIGNED BY: J.SCHWARTZLOW DRAWN BY: YANODA CHECKED BY: BEALL SECTION NO.: REVISION NO.:</p>					
<p>THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.</p> <p><i>Robert J. Ball</i> PROFESSIONAL ENGINEER LICENSE NO. 10000 DATE: 4/30/2026 EXPIRES: 4/30/2028</p>					

TMK-3-5-001-030

DRAWING 5003

SHEET

### TEMPORARY CONTRACTOR OPERATIONS AND STAGING AREA NOTES

- COORDINATE AND CONFIRM LOCATION AND SIZE OF TEMPORARY CONTRACTOR OPERATIONS AND STAGING AREA (COSA) WITH OFFICER-IN-CHARGE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANING AND REMOVAL OF ALL SPILL AND DEBRIS GENERATED BY CONTRACTOR WORK AND OPERATIONS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO: OIL, GREASE, AND DRINK PIPES, STORM DRAIN STRUCTURES (CATCH BASINS, MANHOLES, DRAIN INLETS, ETC), AND ON PUBLIC AND PRIVATE ROADWAYS, THE CONTRACTOR AGREES TO REIMBURSE THE COUNTY FOR ALL COSTS EXPENDED IN PERFORMANCE OF THE ABOVE WORK IF REQUIRED OR ANY FINES IMPOSED FOR VIOLATION OF ANY COUNTY ORDINANCES, STATE LAWS, OR FEDERAL REGULATIONS, OR MADE NECESSARY BY NON-PERFORMANCE BY THE CONTRACTOR.
- IN ACCORDANCE WITH THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 89-1, "SOLID WASTE MANAGEMENT CONTROL," DEMOLITION AND CONSTRUCTION WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 89-1, AND THE CONTRACTOR SHALL INFORM THE OFFICER-IN-CHARGE OF THE LOCATION(S) OF DISPOSAL SITE(S) FOR THE EXCESS MATERIAL AND COSA FOR THE PROJECT. THE DISPOSAL SITE SHALL COMPLY WITH REVISED ORDINANCES OF THE COUNTY. THE CONTRACTOR SHALL PAY FOR ALL DISPOSAL FEES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES, AND REGULAR, UNTRAVELED INTERFACES OF UNPAVED AREAS AND PAVEMENTS.
- THE CONTRACTOR SHALL MINIMIZE THE QUANTITY OF CONSTRUCTION MATERIAL STORED IN THE COSA.
- UPON COMPLETION OF THE PROJECT, THE EXCESS MATERIAL AT THE COSA SHALL BE REMOVED AND THE SITE SHALL BE RESTORED TO ITS ORIGINAL OR BETTER CONDITIONS.
- ELEVATED PLATFORMS MAY BE INSTALLED IN THE COSA FOR SOME MATERIALS SO THAT THEY ARE LOCATED ABOVE AND OUT OF STORM WATER RUNOFF.

### DEMOLITION NOTES

- NO BLASTING SHALL BE PERMITTED ON THIS PROJECT.
- WHERE DEMOLITION IS ADJACENT TO EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHORING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES FROM DAMAGE.
- THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO THE EXISTING WALLS, VAULTS, BUILDING UTILITIES AND STRUCTURES OUTSIDE OF THE LIMITS OF DEMOLITION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED TO EQUAL OR BETTER, THAN EXISTING CONDITIONS BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

### PUBLIC HEALTH, SAFETY AND CONVENIENCE NOTES


- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- THE CONTRACTOR, AT HIS/HER OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST, NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNAGE, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES, AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO TITLE 11, ADMINISTRATIVE RULES, CHAPTER 89-1, HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 89-1, HAWAII COMMUNITY NOISE CONTROL, FOR KAUAI, IN WHICH MAXIMUM ALLOWABLE NOISE LEVELS HAVE BEEN SET. IF THE CONSTRUCTION ACTIVITIES FOR THIS PROJECT WILL EXCEED THE ALLOWABLE NOISE LEVELS, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PERMIT FROM THE DIRECTOR OF THE DEPARTMENT OF PUBLIC HEALTH. THE CONTRACTOR SHALL COMPLY WITH CHAPTER 46 AND TITLE 11, HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46 AND THE PROCEDURES FOR OBTAINING A PERMIT FOR CONSTRUCTION ACTIVITIES.

### ENVIRONMENTAL CONTROL NOTES


- THE GENERAL CONTRACTOR OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:
  - STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
  - DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

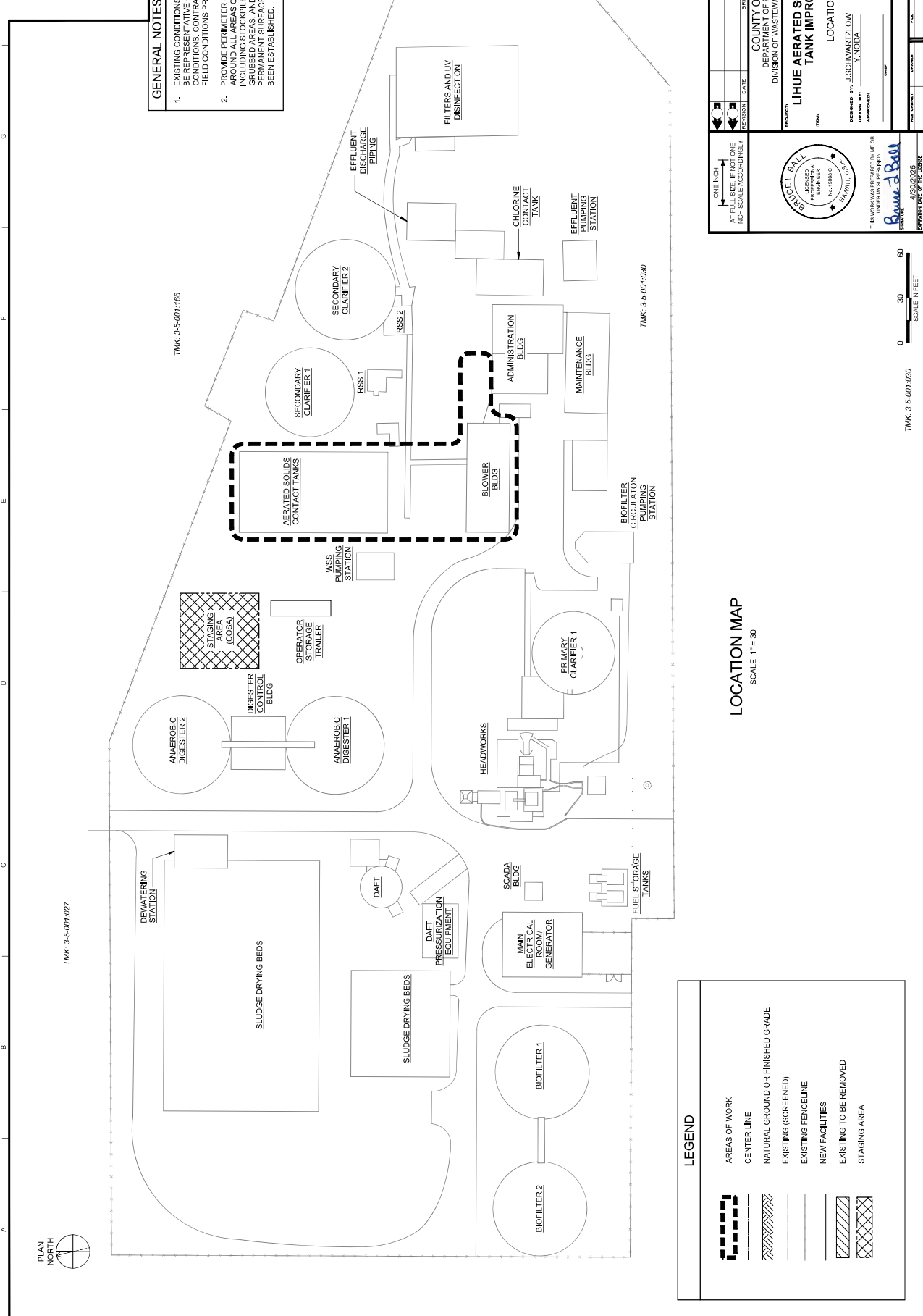
IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54), BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. THE CONTRACTOR SHALL INFORM THE OFFICER-IN-CHARGE OF HEALTH, CLEAN WATER BRANCH AT THE HAWAII DEPARTMENT OF HEALTH, 1600 KALANIANAʻOHALA DRIVE, HONOLULU, HAWAII 96820, OF THE PROJECT'S LOCATION, THE OWNER/DEVELOPER/CONTRACTOR'S RESPONSIBILITY FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.
- IN ACCORDANCE WITH CHAPTER 11-60-1, AIR POLLUTION CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EFFECTIVE DUST CONTROL MEASURES ARE PROVIDED TO MINIMIZE OR PREVENT ANY VISIBLE DUST EMISSION CAUSED BY THE CONSTRUCTION WORK FROM IMPACTING THE SURROUNDING AREAS INCLUDING THE OFF-SITE ROADWAYS USED TO ENTER/EXIT THE PROJECT SITE.
- IN ACCORDANCE WITH CHAPTER 11-58, SOLID WASTE MANAGEMENT CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE DEMOLITION WASTE AND CONSTRUCTION WASTE, GENERATED BY THE PROJECT ARE DISPOSED OF IN A MANNER OR AT A SITE APPROVED BY THE STATE DEPARTMENT OF HEALTH. DISPOSAL OF ANY OF THESE WASTES BY BURNING IS PROHIBITED.
- BMPs SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PREVENT DAMAGE BY SEDIMENTATION, EROSION OR DUST TO STREAMS, WATERCOURSES, NATURAL AREAS, AND THE PROPERTY OF OTHERS.

0 100' 200' 300' 400' 500' 600' 700' 800' 900' 1000'

ONE INCH AT FULL SIZE IF NOT ONE IND. SCALE-PROPORTIONALLY	REVISION	DATE	BY	APPROVED
	COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT			
<b>LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT</b>				
CONSTRUCTION NOTES				
DESIGNED BY: J.SCHWARTZLOW		CHECKED BY: BEBALL		
DRAWN BY: YANUDA		SECTION HEAD:		
DATE:		DATE:		

THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION  
 DRAWING NO. 430-2026  
 EXPIRES DATE OF THE WORKSHEET

  
 Bruce J. Ball  
 PROJECT ENGINEER



TMK: 3-5-001-027



**GENERAL NOTES:**

- EXISTING CONDITIONS SHOWN MAY OR MAY NOT BE REPRESENTATIVE OF ACTUAL FIELD CONDITIONS. VERIFY ALL FIELD CONDITIONS PRIOR TO START OF WORK.
- PROVIDE PERIMETER SEDIMENT CONTROL BMPs AROUND ALL AREAS OF ACTIVE CONSTRUCTION, INCLUDING ALL AREAS OF EXCAVATIONS, GRUBBED AREAS, AND AREAS WHERE PERMANENT SURFACE RESTORATION HAS NOT BEEN ESTABLISHED.

TMK: 3-5-001-166

TMK: 3-5-001-030

**LEGEND**

	AREAS OF WORK
	CENTER LINE
	NATURAL GROUND OR FINISHED GRADE
	EXISTING (SCREENED)
	EXISTING FENCELINE
	NEW FACILITIES
	EXISTING TO BE REMOVED
	STAGING AREA

**LOCATION MAP**  
SCALE: 1" = 30'

AT FULL SIZE IF NOT ONE INCH SCALE ACCORDING TO

ONE INCH

REVISION DATE BY APPROVE

PROJECT: COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT

PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

LOCATION MAP

DESIGNED BY: J. SCHWARTZLOW  
DRAWN BY: Y. YONODA  
CHECKED BY: B. BALL  
SECTION HEAD: [ ]  
DATE: [ ]

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
DATE: 4/30/2024  
PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

*Brian J. Ball*

REGISTERED PROFESSIONAL ENGINEER  
No. 10300-C  
HAWAII, U.S.A.

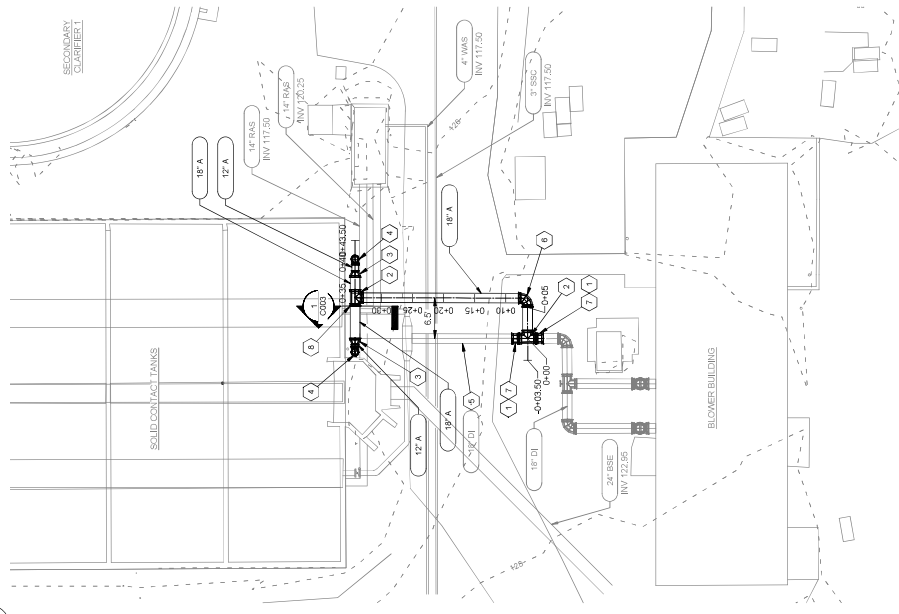
TMK: 3-5-001-030

SCALE IN FEET: 0 30 60

DRAWING CODE: SHEET: 6 OF 46



A B C D E F G



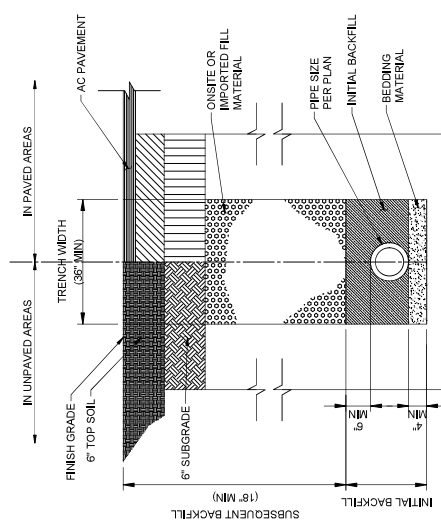
YARD PIPING PLAN  
SCALE 1" = 10'

**GENERAL NOTES:**

- EXISTING UTILITIES ARE APPROXIMATE BASED ON AS-BUILTS AND MAY NOT BE REPRESENTATIVE OF ACTUAL FIELD CONDITIONS. FIELD SURVEY SHALL VERIFY FIELD CONDITIONS PRIOR TO START OF WORK.
- CONTRACTOR TO FIELD ROUTE PIPING AND VERIFY LOCATION AND DEPTH OF EXISTING CONFIGURATION INCLUDING THE POINT OF CONNECTION AND ELEVATION. LAYOUT OF FITTINGS, AND SEPARATION.

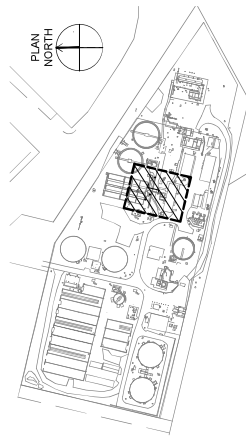
**KEY NOTES:**

- CONNECT TO EXISTING 18" DIAM SUPPLY LINE. ALL EXISTING PIPING SHALL BE 18" DI PIPE AND FIELD VERIFY DEPTH OF CONNECTION COORDINATE POINT OF CONNECTION WITH OFFICER-IN-CHARGE.
- 18" 16X18" STAINLESS STEEL TEE PER SECTION 40 05 02.01.
- 18" 12" STAINLESS STEEL REDUCER PER SECTION 40 05 02.01.
- 12" STAINLESS STEEL ELBOW UP PER SECTION 40 05 02.01. SEE MECHANICAL SHEET M102 FOR CONTINUATION.
- EXISTING 18" DI PIPE TO BE ABANDONED IN PLACE. SEE SHEET M101 FOR DEMOLITION.
- 18" STAINLESS STEEL 90 DEG BEND PER SECTION 40 05 02.01.
- 18" DRPCFA OR EQUIVALENT PER SECTION 40 05 06. PROVIDE BLIND FLANGE ON NEW 18" TEE AFTER COMMISSIONING OF SCT 1 AND SCT 2.



TYPICAL TRENCH SECTION FOR DUCTBANKS AND PIPES

DETAIL A  
SCALE NONE



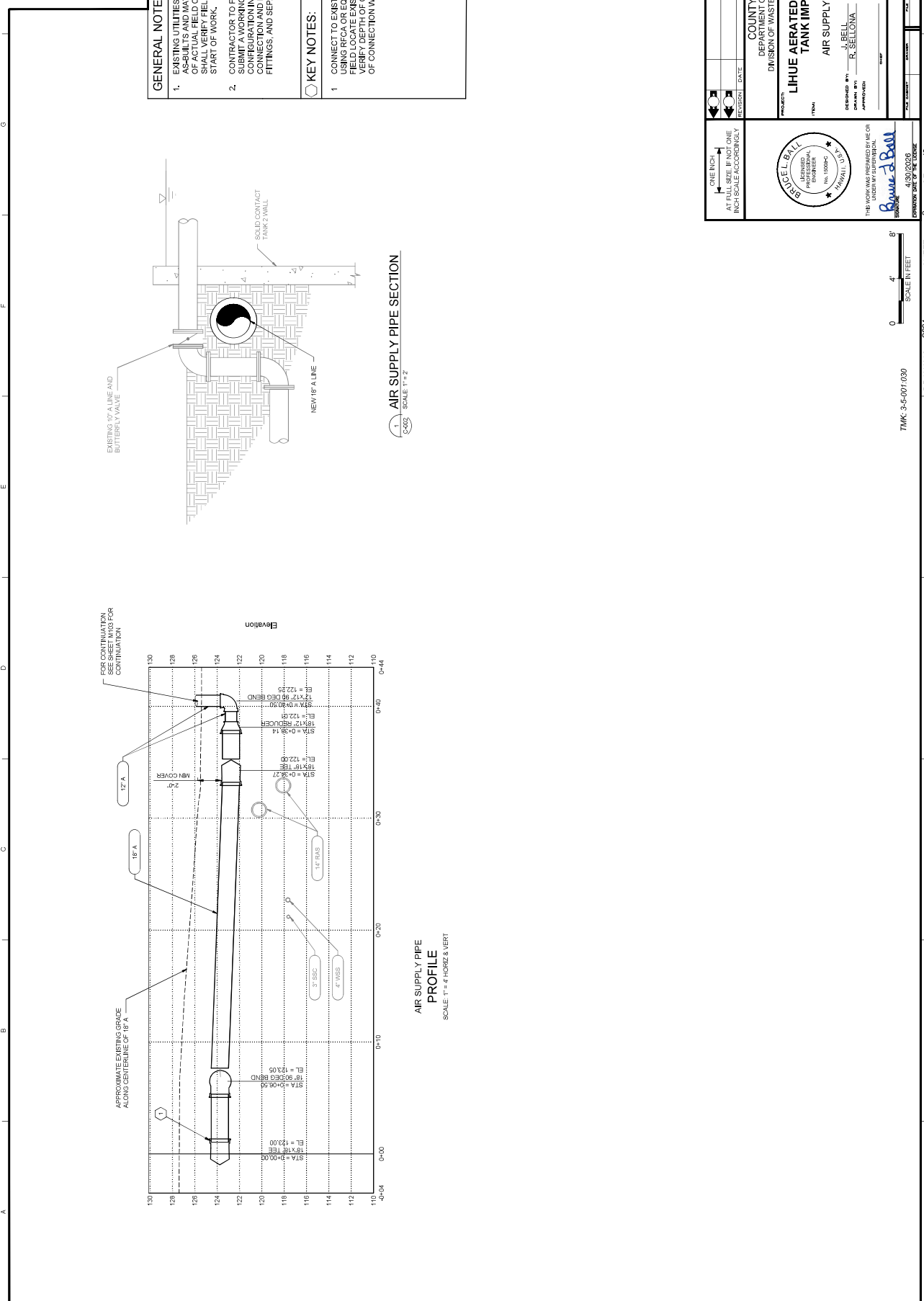
KEY PLAN  
NOT TO SCALE

SCALE IN FEET  
0 10' 20'

	PROJECT: COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT	DRAWN BY: J. BELL CHECKED BY: B. BALL SECTION: 44-0 DIVISION: 44-00 DATE:
	TITLE: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT YARD PIPING PLAN AND CIVIL DETAIL	APPROVED BY: R. SELLONA DATE:

THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.

*James J. Bell*  
 LICENSED PROFESSIONAL ENGINEER  
 LICENSE NO. 10000C  
 EXPIRES 4/30/2026  
 EXPIRES DATE OF THE BOARD



**GENERAL NOTES:**

- EXISTING UTILITIES ARE APPROXIMATE BASED ON AS-BUILTS AND MAY NOT BE REPRESENTATIVE OF ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO START OF WORK.
- CONTRACTOR TO FIELD ROUTE PIPING AND VERIFY FIELD CONDITIONS PRIOR TO START OF WORK. CONFIGURATION INCLUDING THE POINT OF CONNECTION AND ELEVATION, LAYOUT OF FITTINGS, AND SEPARATION.

**KEY NOTES:**

- CONNECT TO EXISTING 10.7" AIR SUPPLY LINE USING EXISTING CONNECTION. CONTRACTOR TO FIELD LOCATE EXISTING 10.7" PIPE AND FIELD VERIFY DEPTH OF COVER, COORDINATE POINT OF CONNECTION WITH OFFICER-IN-CHARGE.

**AIR SUPPLY PIPE SECTION**  
SCALE 1" = 2'

**AIR SUPPLY PIPE PROFILE**  
SCALE 1" = 4' HORIZ & VERT

COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT		PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT	ITEM: AIR SUPPLY PIPE PROFILE
DESIGNED BY: J. BELL	CHECKED BY: B. BALL	DRAWN BY: R. SELLONA	REVISION: 14-00
DATE: 4/10/2024	DATE: 4/10/2024	DATE: 4/10/2024	DATE: 4/10/2024
BY: [Signature]	BY: [Signature]	BY: [Signature]	BY: [Signature]

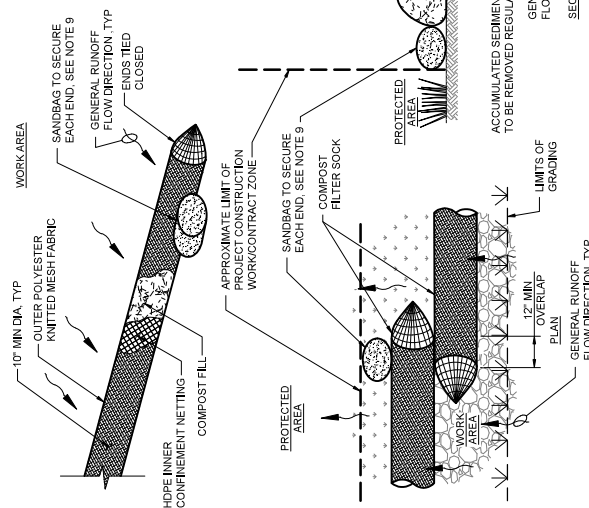
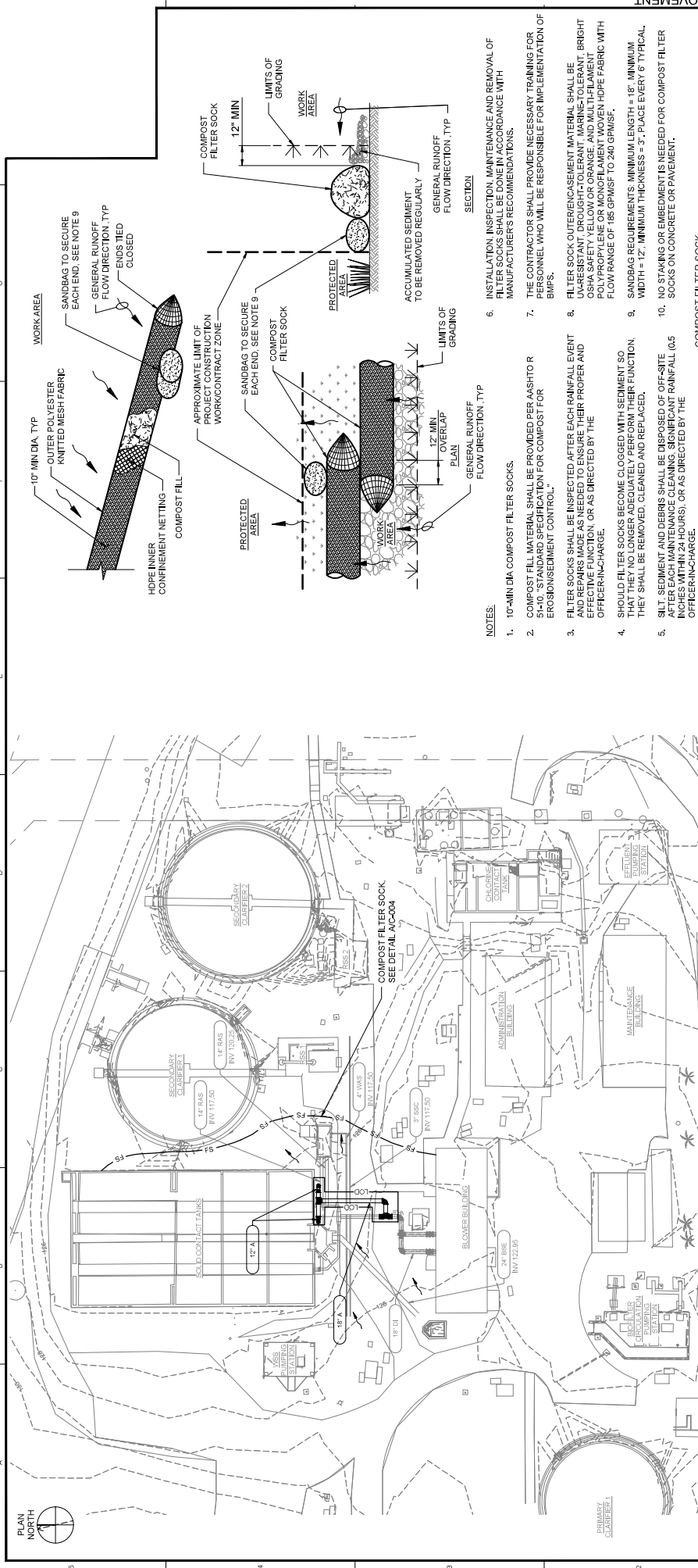
THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF THEY COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

**James J. Ball**  
LICENSED PROFESSIONAL ENGINEER  
No. 10006-C  
KAWAII, HI

DATE: 4/30/2024  
PROJECT DATE: 04/10/2024

TAK-3-5-001.030  
SHEET 9 OF 48  
DRAWING CODE





- NOTES:**
- 10-MIN DIA COMPOST FILTER SOCKS.
  - COMPOST FILL MATERIAL SHALL BE PROVIDED PER ASHTO R 5-10 "STANDARD SPECIFICATION FOR COMPOST FOR EROSION/SEDIMENT CONTROL."
  - FILTER SOCKS SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND REPAIRS MADE AS NEEDED TO ENSURE THEIR PROPER AND EFFECTIVE FUNCTION OR AS DIRECTED BY THE OFFICER-IN-CHARGE.
  - SHOULD FILTER SOCKS BECOME CLOGGED WITH SEDIMENT SO THAT THEY ARE NOT SUCCESSFULLY PERFORMING THEIR FUNCTION, THEY SHALL BE REMOVED, CLEANED AND REPLACED.
  - SILT, SEDIMENT AND DEBRIS SHALL BE DISPOSED OF OFF-SITE AFTER EACH MAINTENANCE CLEANING SIGNIFICANT RAINFALL (0.5 INCHES OR MORE), OR AS DIRECTED BY THE OFFICER-IN-CHARGE.
  - INSTALLATION, INSPECTION, MAINTENANCE AND REMOVAL OF FILTER SOCKS SHALL BE DONE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - THE CONTRACTOR SHALL PROVIDE NECESSARY TRAINING FOR PERSONNEL WHO WILL BE RESPONSIBLE FOR IMPLEMENTATION OF BMP'S.
  - FILTER SOCKS OUTER ENVELOPEMENT MATERIAL SHALL BE UNRESISTANT DROUGHT-TOLERANT MARKING-TOLERANT, BRIGHT OSHA SAFETY YELLOW OR ORANGE, AND MULTI-FILAMENT POLYPROPYLENE OR MONOFILAMENT WOVEN HDPE FABRIC WITH FLOW RANGE OF 185 GRMS/FT TO 240 GRMS/FT.
  - SANDBAG REQUIREMENTS: MINIMUM LENGTH = 18"; MINIMUM WIDTH = 12"; MINIMUM THICKNESS = 3"; PLACE EVERY 6" TYPICAL.
  - NO STRAKING OR EMBEDMENT IS NEEDED FOR COMPOST FILTER SOCKS ON CONCRETE OR PAVEMENT.

**COMPOST FILTER SOCK**

**DETAIL A**  
SCALE: 1" = 20'

**KEY PLAN**  
NOT TO SCALE

**EROSION AND SEDIMENT CONTROL PLAN**  
SCALE: 1" = 20'

**LEGEND**

- COMPOST FILTER SOCK
- ES (Erosion and Sediment Control)
- LOD (Limit of Disturbance)

**PROJECT:** COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT

**TITLE:** LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

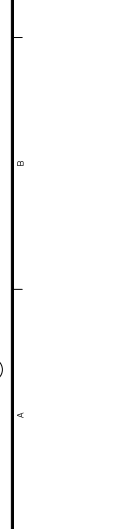
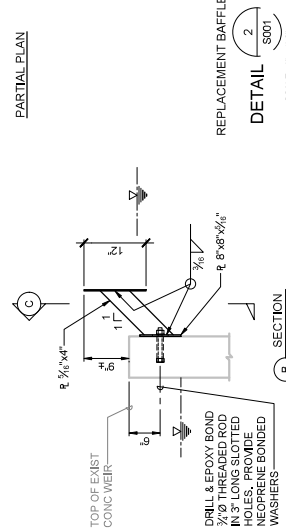
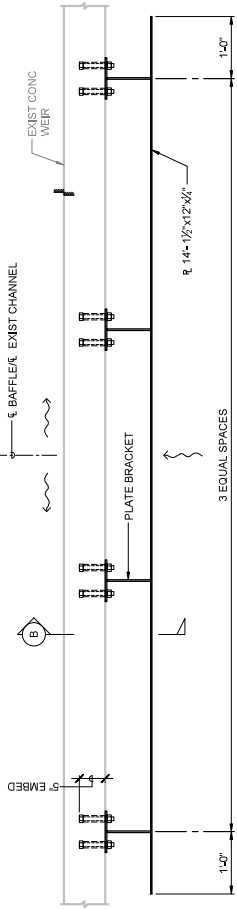
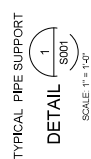
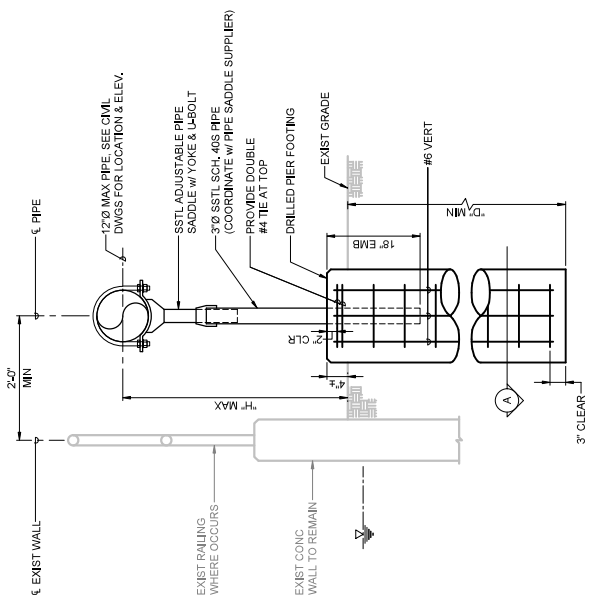
**EROSION AND SEDIMENT CONTROL PLAN**

DESIGNED BY: L. HILL  
DRAWN BY: R. SELLONA  
CHECKED BY: J. BELL  
SECTION HEAD: [blank]  
DATE: [blank]

**BULL BULL**  
LICENSED PROFESSIONAL ENGINEER  
NO. 10000C  
KAWAII, HAWAII

THIS WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A QUALIFIED PROFESSIONAL ENGINEER.  
DATE: 4/30/2024  
PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

H (FT)	D (FT)
4	4.5
8	6.0



**GENERAL:**

- WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE BUILDING CODE OF THE COUNTY OF KAUAI (AMENDED IBC, 2018 EDITION). HOWEVER, WHERE REFERENCE IS MADE TO PERFORMANCE CONFORMING TO OTHER STANDARDS THE MORE STRINGENT SHALL APPLY.
- THE CONTRACTOR SHALL COMPARE ALL THE CONTRACT DOCUMENTS WITH EACH OTHER AND REPORT IN WRITING TO THE OFFICER-IN-CHARGE ALL INCONSISTENCIES AND OMISSIONS.
- THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS AND SHALL COMPARE SUCH FIELD MEASUREMENTS AND CONDITIONS WITH THE DRAWINGS BEFORE COMMENCING WORK. REPORT IN WRITING TO THE OFFICER-IN-CHARGE ALL INCONSISTENCIES AND OMISSIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR METHODS OF CONSTRUCTION, WORKMANSHIP AND JOB SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING AS REQUIRED FOR STABILITY OF STRUCTURAL MEMBERS AND OPENINGS DURING CONSTRUCTION. PROVIDE SAFEGUARDS DURING CONSTRUCTION IN ACCORDANCE TO CHAPTER 33 OF THE IBC.
- CONSTRUCTION LOADING SHALL NOT EXCEED DESIGN LIVE LOAD UNLESS SPECIAL PROVISIONS ARE SHOWN. LOADS SHALL BE INTRODUCED IN AREAS WHERE THE STRUCTURE HAS NOT ATTAINED FULL DESIGN STRENGTH.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE ADJACENT PROPERTIES, STRUCTURES, STREETS AND UTILITIES DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION ACTIVITY TO THEIR ORIGINAL CONDITION OR BETTER AT NO CHARGE TO THE COUNTY.
- DETAILS NOTED AS TYPICAL ON THE STRUCTURAL DRAWINGS SHALL APPLY IN ALL CONDITIONS UNLESS SPECIFICALLY SHOWN OR NOTED.
- COORDINATE REQUEST FOR ANY UTILITY DOWNTIME OR RESTRICTIONS FOR AREA ACCESS WITH THE COUNTY AT LEAST THREE WEEKS PRIOR TO START OF WORK.

**CONCRETE:**

- CONCRETE SHALL BE REGULAR WEIGHT HARD ROCK CONCRETE AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
- MAXIMUM WATER TO CEMENTITIOUS MATERIALS RATIO SHALL BE 0.48.
- REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- REINFORCING BARS, ANCHOR BOLTS, INSERTS, AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE SECURED IN POSITION PRIOR TO PLACEMENT OF CONCRETE.
- CHAMFER ALL EXPOSED EDGES 3/4" UNLESS SPECIFIED OTHERWISE.
- EPOXY SHALL BE SIMPSON SET-3G HIGH-STRENGTH ANCHORING ADHESIVE AS MANUFACTURED BY SIMPSON STRONG TIE CO., INC. OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
- ALL INSERTS, ANCHOR BOLTS, PLATES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE STAINLESS STEEL UNLESS NOTED OTHERWISE.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST REQUIREMENTS OF THE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318) AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" (ACI 315), EXCEPT AS MODIFIED BY THE PLANS AND SPECIFICATIONS.
- PATCHING MATERIAL SHALL BE SIKAGUICK VOH WITH LATEX R BY SIKKA OR APPROVED SUBSTITUTE.

**STRUCTURAL STEEL:**

- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL OF STEEL CONSTRUCTION, 15TH EDITION.
- BOLTS AND THREADED RODS SHALL CONFORM TO A315 TYPE 316 STAINLESS, UNLESS OTHERWISE NOTED.
- WELDS AND WELDING PROCEDURES SHALL CONFORM TO THE STRUCTURAL WELDING CODE AWS D1.6 OF THE AMERICAN WELDING SOCIETY.
- WELDING SHALL BE PERFORMED BY WELDERS PREQUALIFIED FOR WELDING PROCEDURES TO BE USED.
- WELDING ELECTRODES SHALL BE E316.
- ALL STEEL INCLUDING CONNECTORS SHALL BE STAINLESS TYPE 316 UNLESS OTHERWISE NOTED. PIPES SHALL CONFORM TO ASTM A312 TP316 SEAMLESS.

**SPECIAL INSPECTION NOTES:**

- THE FOLLOWING STRUCTURAL WORK FOR THIS PROJECT REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE IBC:  
CONCRETE CONSTRUCTION (TABLE 1705.3)
- THE GENERAL CONTRACTOR SHALL NOTIFY THE SPECIAL INSPECTOR OF ALL ITEMS REQUIRING SPECIAL INSPECTION A MINIMUM OF 48 HOURS IN ADVANCE.
- SPECIAL INSPECTIONS DO NOT RELIEVE THE GENERAL CONTRACTOR OF HIS RESPONSIBILITIES TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND TO BE RESPONSIBLE FOR SAFETY ON THE JOBSITE.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

AT FULL SIZE IF NOT ONE (1/8" SCALE=FOOT/8")

ONE INCH

SCALE IN FEET

1" = 0' 1" = 2'

T.M.A. 35-001/030

DRAWING: SOI

SHEET: 11 OF 48

REVISION	DATE	BY	APPROVED	

THE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A duly Licensed Professional Engineer in the State of Hawaii.

DATE: 4/30/2024

EXPIRES: 4/30/2028

PROJECT	DATE	BY	APPROVED	
COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT				

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

GENERAL NOTES AND TYPICAL DETAILS

DESIGNED BY	CHECKED BY	DATE		
B. KING	G. OKUNAGA			
DRAWN BY	SECTION	SCALE	DATE	
G. OKUNAGA	11-40	1" = 0' 1" = 2'		

### FUNCTIONAL IDENTIFICATION

VARIABLE	MEASURED OR INITIATING VARIABLE DESCRIPTION	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY, SPECIFIC GRAVITY				DEVIATION
E	VOLTAGE, SOLENOID		PRIMARY ELEMENT		
F	FLOW, FLOW RATE		GLASS		
G	FIRE SMOKE				
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME SCHEDULE			CONTROL STATION	
L	LEVEL				LOW
M	MOISTURE, HUMIDITY, MOTION				MIDDLE, INTERMEDIATE
N	EQUIPMENT STATUS				OPEN
O	DISSOLVED OXYGEN			ORIFICE	
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY		INTEGRATE		
R	PACKAGING		RECORD		RUN
S	SPEED, FREQUENCY		SAFETY	SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE				MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE DAMPER	
W	WEIGHT, FORCE, TORQUE		WELL, PROBE		LOWER
X	UNCLASSIFIED		X AXIS		
Y	EVENT STATE OR PRESSURE		Y AXIS		
Z	POSITION, DIMENSION		Z AXIS		

### INSTRUMENT AND FUNCTION SYMBOLS

XXX XXX	FIELD MOUNTED INSTRUMENT
XXX XXX XXX	FACE MOUNTED INSTRUMENT ON MAIN PANEL, OPERATOR ACCESSIBLE
XXX XXX XXX	INSTRUMENT MOUNTED ON CREW MAIN PANEL OR OPERATOR ACCESSIBLE
XXX XXX XXX	FACE MOUNTED INSTRUMENT ON FIELD PANEL OR MCC, OPERATOR ACCESSIBLE
XXX XXX XXX	INSTRUMENT MOUNTED ON OR FIELD PANEL OR MCC, OPERATOR INACCESSIBLE
XXX XXX XXX	PIC SYSTEM DISPLAY OR FUNCTION, OPERATOR ACCESSIBLE
XXX XXX XXX	PIC SYSTEM DISPLAY OR FUNCTION, OPERATOR INACCESSIBLE
XXX XXX XXX	SCADA SYSTEM DISPLAY OR FUNCTION, OPERATOR ACCESSIBLE
XXX XXX XXX	SCADA SYSTEM DISPLAY OR FUNCTION, OPERATOR INACCESSIBLE
1	HARD WIRED INTERLOCKING OR SEQUENTIAL CONTROL FUNCTION
1	SOFTWARE INTERLOCKING OR PROGRAMMABLE LOGIC CONTROLLER FUNCTION
○	PILOT LIGHT

### EQUIPMENT IDENTIFICATION

**INSTRUMENT TAG NUMBERS**  
 P-12-3-4-5  
 SUFFIX USED FOR IDENTIFICATION TAG NUMBER  
 LOOP NUMBER  
 SHEET NUMBER  
 PLANT AREA  
 EQUIPMENT CODE

**INSTRUMENT TAG NUMBERS**  
 SUFFIX - USED ONLY WHEN TWO OR MORE INSTRUMENTS WOULD OTHERWISE HAVE THE SAME TAG NUMBER  
 LOOP NUMBER  
 SHEET NUMBER  
 PLANT AREA  
 SUCCEEDING LETTERS, READOUT OR PASSIVE FUNCTION AND/OR OUTPUT FUNCTION, MODIFIER WHEN REQUIRED  
 FUNCTIONAL IDENTIFICATION LETTERS, WHEN REQUIRED  
 MODIFIER LETTER, WHEN REQUIRED  
 MEASURED OR INITIATING VARIABLE LETTER  
 EXAMPLE: (P)12-3-4-5

### TO/FROM SYMBOL EXAMPLES

NOTE: WHENEVER POSSIBLE LINES ENTER THE DRAWING FROM THE LEFT SIDE AND EXIT TO THE RIGHT.

X (SHEET NUMBER) TO DESCRIPTION  
 FROM DESCRIPTION X (SHEET NUMBER)

DEFINES A LINE CONTINUING FROM A DRAWING, WHERE 'X' IS THE OFF-PAGE CONNECTOR OR IDENTIFIER NUMBER.

DEFINES A LINE CONTINUING FROM A DRAWING, WHERE 'X' IS THE OFF-PAGE CONNECTOR OR IDENTIFIER NUMBER.

### INPUT/OUTPUT SYMBOLS

ANALOG INPUT  
 PULSE INPUT  
 DISCRETE INPUT  
 DISCRETE OUTPUT  
 PULSE OUTPUT  
 ANALOG OUTPUT

### MISCELLANEOUS SYMBOLS

MCC (MOTOR CONTROL STARTER)  
 PURGE OR FLUSHING DEVICE  
 RESET FOR LATCH-TYPE OPERATOR  
 CONDITIONAL LOGIC OPERATOR

### PIPELINE DEVICES, VALVES AND GATES

QUICK CONNECTOR  
 BALL CHECK VALVE  
 CONCENTRIC REDUCER  
 BUTTERFLY VALVE  
 AIR RELEASE VALVE  
 SAFETY RELIEF VALVE  
 SOLENOID VALVE  
 BALL VALVE  
 PLUG VALVE  
 GATE VALVE  
 BUND FLANGE  
 SWING CHECK VALVE  
 CAP

### PRIMARY ELEMENTS

HYDROSTATIC LEVEL PROBE  
 ULTRASONIC LEVEL ELEMENT  
 FLAT LEVEL ELEMENT  
 BUBBLER LEVEL TUBE

### MISCELLANEOUS EQUIPMENT

BLOWER OR CENTRIFUGAL FAN  
 MOTOR  
 FLUME  
 CONVEYOR  
 DRAIN

### INSTRUMENTATION SYMBOLS

ULTRASONIC FLOW MOUNT (MULTIPLE ELEMENTS)  
 THERMAL FLOW ELEMENT  
 MAGNETIC FLOWMETER  
 ANNUBAR  
 FLUME  
 ORIFICE PLATE  
 ORIFICE  
 WELFAIR TAPS  
 WINDMILL SEAL AND ORIFICE  
 MAGNAROM SEAL WELDED PRESSURE  
 VARIABLE AREA FLOW INDICATOR (ROTAMETER)  
 FLOW TUBE  
 VENTURI OR FLOW TUBE  
 WIER  
 MAGNAROM SEAL AND ORIFICE  
 PRESSURE

### GENERAL NOTES

- THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS AND IDENTIFICATIONS SHOWN HEREIN MAY NOT BE USED ON THE CONTRACT DRAWINGS.
- REFER TO THE DRAWINGS ON SPECIFIC DRAWINGS TO OBTAIN CATEGORIES FOR CONVENIENCE ONLY. SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.
- EQUIPMENT DESIGNATED WITH 'B' TO BE PROVIDED BY VENDOR.
- USE VALVE BODY SYMBOL TO MATCH TYPE OF VALVE.

### ABBREVIATIONS

BS	BAR SCREEN
D	DRAIN
MGS	MOTOR-OPERATED GATE
GT	GATE
SCP	SCREEN
LCP	LOCAL CONTROL PANEL
VCP	VENDOR CONTROL PANEL

### INSTRUMENT SIGNAL SYMBOLS

—	INSTRUMENT SUPPLY, PROCESS TAPS
- - -	ELECTRONIC SIGNAL
— —	ELECTRIC POWER SUPPLY (32VAC/60HZ UNLESS OTHERWISE NOTED (P&ID))
— —	PNEUMATIC SIGNAL
— —	WATER SUPPLY

### PROCESS LINES

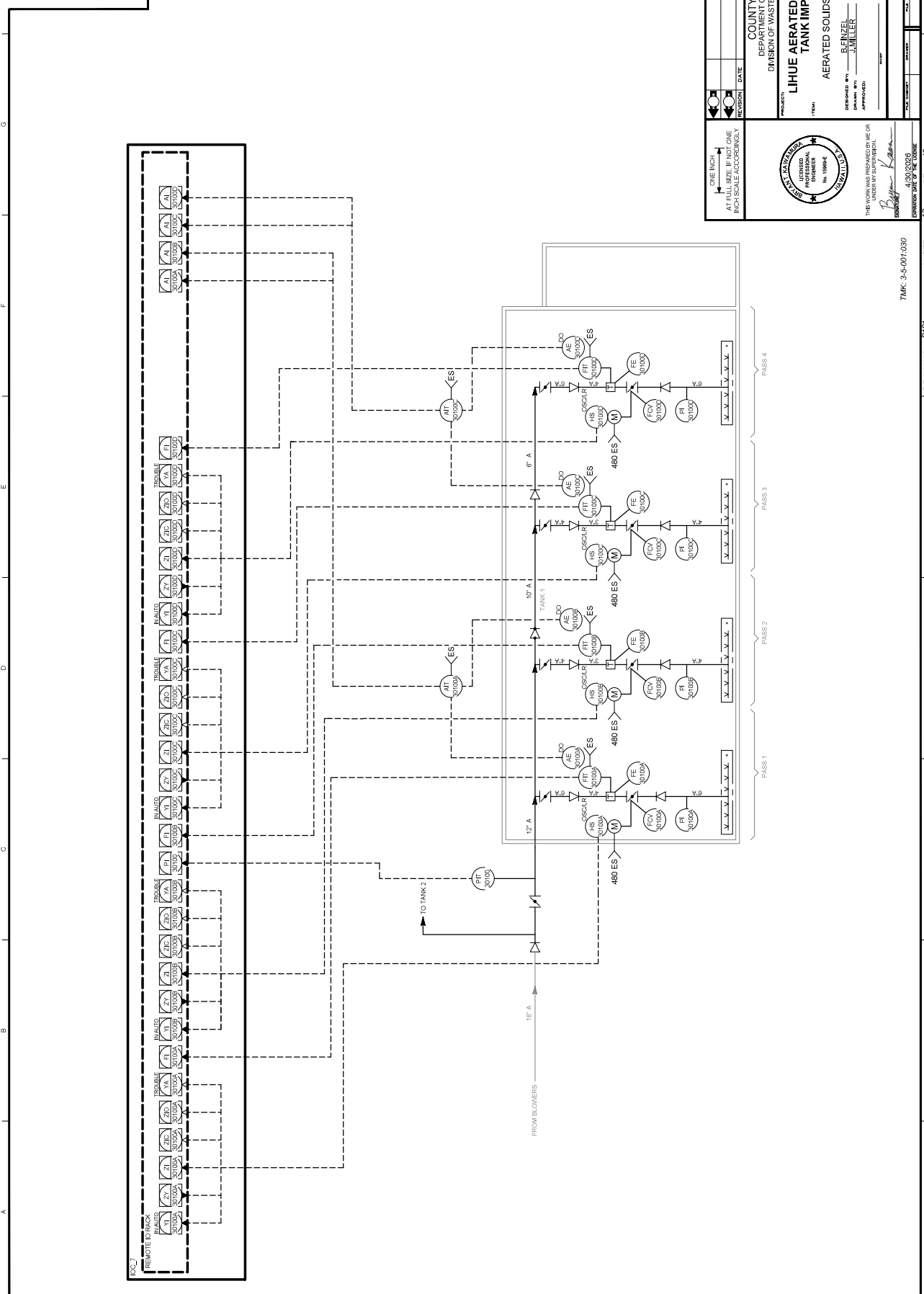
→	NEW PRIMARY PROCESS FLOW
→	NEW SECONDARY PROCESS FLOW
→	NEW UTILITY PROCESS FLOW
→	FUTURE

### CONTROL AND MEASUREMENT NOTATIONS

ACK	ACKNOWLEDGE
AM	AUTOMANUAL
INC	INCREASE
BYP	BYPASS
CL	CLOSE
CL2	CHLORINE
CM1	COMPUTER MANUAL/AUTO/BACKLOGS LOCKOUT STOP
COB	COMBUSTIBLE GAS
COND	CONDUCTIVITY
DE	DECREASE
DO	DISSOLVE OXYGEN
ESP	EMERGENCY STOP
FWD	FORWARD
FR	FORWARD/REVERSE
FRS	FRESH FLOW
HLOA	HIGH/LOW/AUTO
HOA	HAND/OFF/AUTO/LOCAL
HOR	HAND/OFF/REMOTE
INC	INCREASE
JOA	JOG/OFF/AUTO
LL	LEAK/DRAIN
LA	LOCAL/AUTO
LR	LOCAL/REMOTE
MALS	MANUAL/AUTO/LOCAL/STOP
OCA	OPEN/CLOSE/AUTO
CCP	PURGE VALVE (P&ID)
OR	OPEN
OCS	OPEN/CLOSE/SELECT
PA	PANIC
PAL	LOW PRESSURE
PB	PUSH BUTTON
PH	PH
POT	POTENTIOMETER
REV	REVERSE
RND	RUNNING
RST	RESET
RST	RESET
S02	SULLUR/BOIL
SP	STOP
ST	START
TSP	TEST/STOP/START
TIS	TENSING/RELIEF/CL
TBL	TROUBLE

### LEGEND AND SYMBOLS

COUNTY OF KAUIA  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT  
**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**  
 LEGEND AND SYMBOLS  
 DESIGNED BY: B. KAMAMURA  
 DRAWN BY: J. MILLER  
 CHECKED BY: B. KAMAMURA  
 APPROVED BY: B. KAMAMURA  
 DATE: 11/15/2019



1002.7

REVERT TO TANK 2

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

ONE INCH

AT FULL SIZE IF NOT ONE INCH SCALE (FOOTPRINTS)

REVISION DATE BY APPROVED

PROJECT: COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT

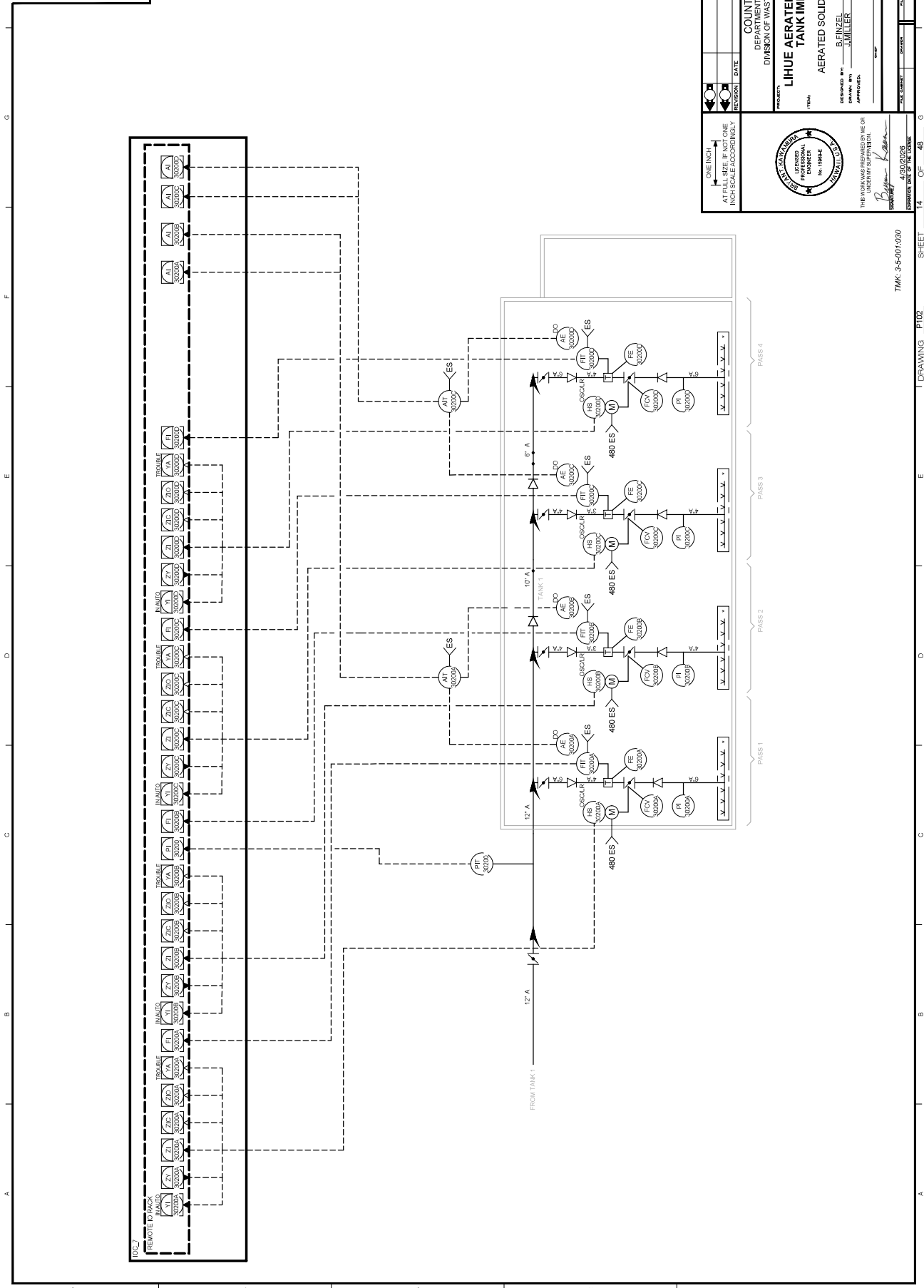
ITEM: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

DESIGNED BY: B. KAWAMURA  
DRAWN BY: J. MILLER  
CHECKED BY: B. KAWAMURA  
SECTION HEAD:  
APPROVED:  
DATE:

THESE WORKS WERE PREPARED BY ME OR UNDER MY SUPERVISION  
DATE: 4.30.2023  
DRAWN BY: *B. Kawamura*

13 OF 48 SHEET

TANK 3-5-001.030



ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE (FOOTING)

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

PROJECT  
ITEM  
**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

DESIGNED BY: B. KAWAMURA  
CHECKED BY: B. KAWAMURA  
DRAWN BY: J. MILLER  
APPROVED: SECTION HEAD

DATE: 4.30.2023

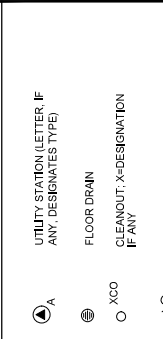
THESE WORKS WERE PREPARED BY ME OR  
UNDER MY CLOSE PERSONAL SUPERVISION  
DATE: 4.30.2023

ISSUED BY: B. KAWAMURA  
LICENSED PROFESSIONAL ENGINEER  
No. 11994-E

REVISION	DATE	BY	APPROVED

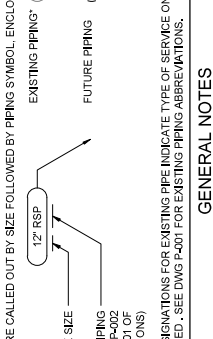
DATE: 4.30.2023  
SHEET: 14 OF 48

MISCELLANEOUS DEVICES



- UTILITY STATION (LETTER, IF ANY, DESIGNATES TYPE)
- FLOOR DRAIN
- CLEANOUT, X-DESIGNATION IF ANY
- IN LINE PRESSURE SENSOR
- INSTRUMENT
- DENSITY ELEMENT
- FLOW ELEMENT
- LEVEL ELEMENT
- PRESSURE ELEMENT
- PRESSURE INDICATOR (GAUGE)
- TEMPERATURE ELEMENT
- TEMPERATURE INDICATOR

PIPING SYSTEMS



GENERAL NOTES

- THIS DRAWING IS GENERAL IN NATURE. SOME DESIGNATIONS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
- SEE DRAWING P-002 FOR EQUIPMENT PREFIXES AND PIPING SYSTEM IDENTIFICATION. EXISTING PIPING IS DESIGNATED BY SERVICE WITHOUT IMPLICATION AS TO PIPING MATERIAL.
- EXISTING PIPING MATERIAL, IF KNOWN, IS INDICATED SEPARATELY, AND MAY NOT BE THE SAME MATERIAL AS SPECIFIED FOR NEW PIPING FOR THE SAME SERVICE.
- SEE PIPING SPECIFICATION SHEETS (PIPE SPECS) IN SPECIFICATION SECTION 40 05 01 FOR PIPING SYSTEM REQUIREMENTS.
- SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY. SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.
- THE MECHANICAL DRAWINGS REPRESENT THE ACTUAL PIPING AND EQUIPMENT LAYOUT AND LOCATIONS. IN CASE OF CONFLICT BETWEEN THE PROCESS/INSTRUMENTATION AND MECHANICAL DRAWINGS, THE CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS.

MECHANICAL PIPE AND FITTINGS

	2D SINGLE LINE	2D DOUBLE LINE
FLANGED JOINT		
PLAIN OR GROOVED END MECHANICAL COUPLING		
PUSH ON OR BALL AND SOCKET JOINT		
MECHANICAL JOINT		
WELDED JOINT		
GROOVED END ADAPTER FLANGE X FLANGE		
UNION		
SLEEVE TYPE MECHANICAL COUPLING		
RESTRAINED SLEEVE TYPE MECHANICAL COUPLING		
FLANGED COUPLING ADAPTER		
RESTRAINED FLANGED COUPLING ADAPTER OR DISMANTLING JOINT		
ELASTOMER AND FABRIC EXPANSION JOINT		
EXPANSION JOINT (SEE SPECS FOR TYPE)		
FLEXIBLE METAL HOSE		
EQUIPMENT CONNECTION FITTING		
ELBOW UP		
ELBOW DOWN		
TEE UP		
TEE DOWN		
LATERAL UP		
LATERAL DOWN		
CONCENTRIC REDUCER		
ECCENTRIC REDUCER		

VALVES

SCHEMATIC OR 2D	VALVE TYPE	SCHEMATIC OR 2D	VALVE TYPE
	THREE WAY VALVE		GAUGE OR ROOT VALVE
	GATE VALVE (FLANGED)		KNIFE GATE VALVE
	GATE VALVE (THREADED)		FLAP GATE
	PLUG VALVE (GEAR OPERATOR)		BALANCING COCK
	PLUG VALVE (LEVER HANDLE)		CIRCUIT SETTER
	BALL VALVE (THREADED)		THERMOSTATICALLY CONTROLLED VALVE
	BALL VALVE (FLANGED)		PRESSURE AND VACUUM RELIEF VALVE
	BUTTERFLY VALVE (LUGGED/WAFER)		VACUUM RELIEF VALVE
	BUTTERFLY VALVE (AWWA W/HANDWHEEL ACTUATOR)		PRESSURE RELIEF VALVE
	GLOBE VALVE (FLANGED)		IN-LINE SPRING LOADED RELIEF VALVE
	GLOBE VALVE (THREADED)		PRESSURE REGULATING VALVE
	DIAPHRAGM VALVE (FLANGED)		BACK PRESSURE REGULATING VALVE
	DIAPHRAGM VALVE (THREADED)		SOLENOID VALVE
	CHECK VALVE		DIAPHRAGM OPERATED VALVE
	PUMP DISCHARGE VALVE		PRESSURE BALANCE OPERATED VALVE
	DOUBLE LEAF CHECK VALVE		MOTOR OPERATED VALVE
	ANGLE VALVE		PISTON OPERATED VALVE
	FLOAT VALVE		CHLORINE INSTITUTE CONTAINER VALVE
	PINCH VALVE		MUD VALVE
	FUSIBLE LINK VALVE		WALL HYDRANT
	NEEDLE VALVE		TELESCOPING VALVE
	BALL CHECK VALVE		



THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.

**Bruce J. Ball**  
 LICENSE NO. 100042  
 EXPIRES DATE OF THIS LICENSE 4/30/2026

PROJECT: COUNTY OF KAUIA  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT

ITEM: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

DESIGNED BY: BENZEL SECTION: 44-0  
 DRAWN BY: VERRILLAND SECTION: 44-0  
 APPROVED: DATE: DATE

STANDARD SYMBOLS AND NOTES

DATE CHECKED: DATE  
 DATE CHECKED: DATE  
 DATE CHECKED: DATE

TAK. 3-5-001-030

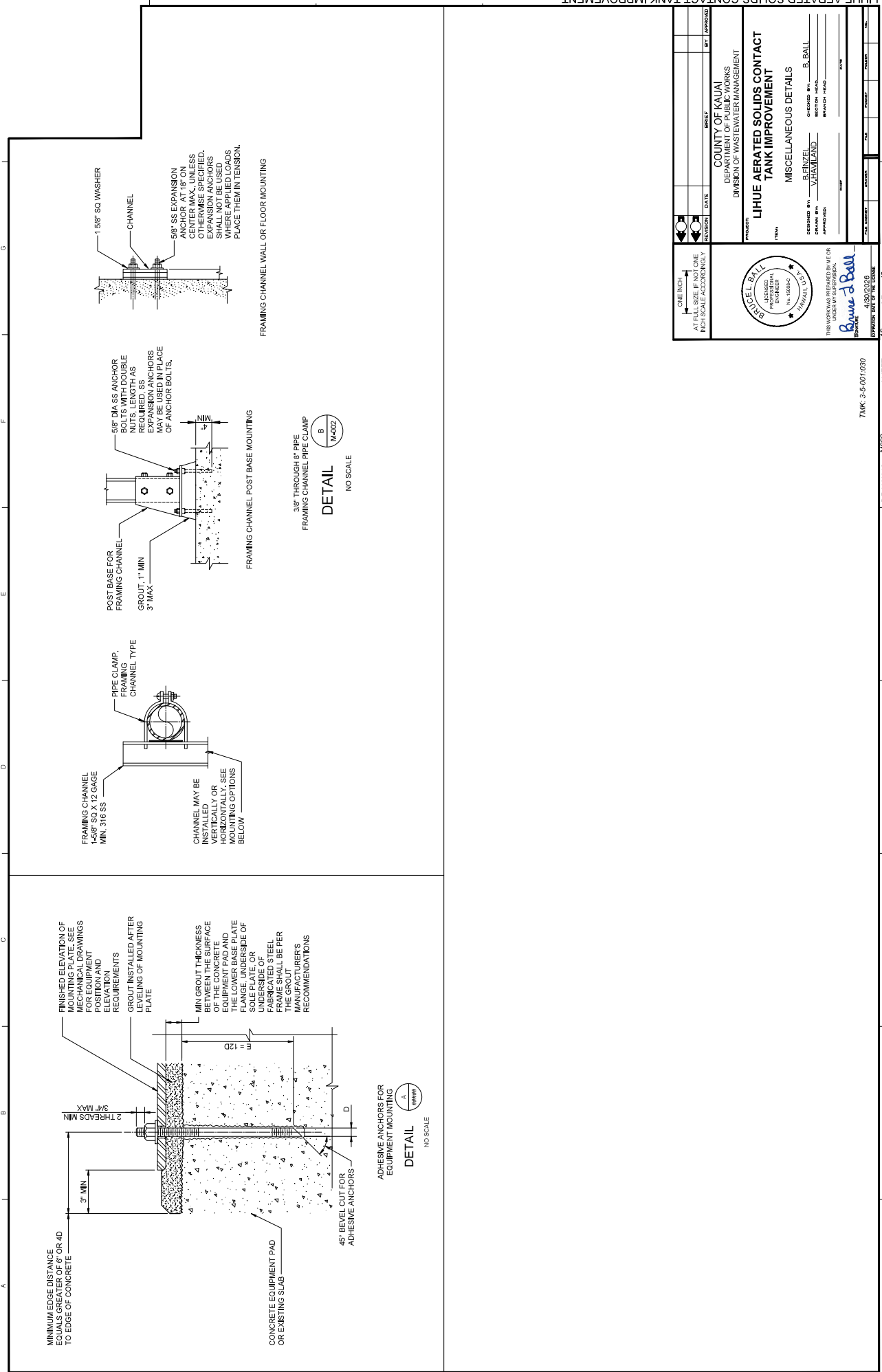
DRAWING MOD.

SHEET

15

OF

45



A B C D E F G

A B C D E F G

MINIMUM EDGE DISTANCE  
EQUALS GREATER OF 6" OR 4D  
TO EDGE OF CONCRETE

3" MIN

2 THREADS MIN

FINISHED ELEVATION OF  
MOUNTING PLATE, SEE  
MECHANICAL DRAWINGS  
FOR EQUIPMENT  
INSTALLATION AND  
ELEVATION

GROUT INSTALLED AFTER  
LEVELING OF MOUNTING  
PLATE

MIN GROUT THICKNESS  
SHALL BE 1/2" TO SURFACE  
OF THE CONCRETE  
EQUIPMENT PAD AND  
THE LOWER BASE PLATE  
FLANGE, UNDERSIDE OF  
CONCRETE EQUIPMENT PAD  
OR UNDERSIDE OF  
FABRICATED STEEL  
FRAME SHALL BE PER  
THE GROUT  
MANUFACTURER'S  
RECOMMENDATIONS

CONCRETE EQUIPMENT PAD  
OR EXISTING SLAB

45° BEVEL CUT FOR  
ADHESIVE ANCHORS

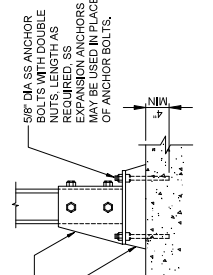
ADHESIVE ANCHORS FOR  
EQUIPMENT MOUNTING  
**DETAIL**  
NO SCALE

FRAMING CHANNEL  
1-5/8" SQ X 1/2 GAGE  
MIN. 316 SS

CHANNEL MAY BE  
INSTALLED  
VERTICALLY OR  
HORIZONTALLY, SEE  
MOUNTING OPTIONS  
BELOW

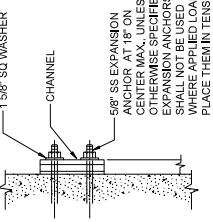


POST BASE FOR  
FRAMING CHANNEL  
GROUT, 1" MIN  
3" MAX



FRAMING CHANNEL POST BASE MOUNTING

3/8\"/>



FRAMING CHANNEL WALL OR FLOOR MOUNTING

REVISION	DATE	BY	APPROVED

PROJECT: COUNTY OF KAUI  
DIVISION OF WASTEWATER MANAGEMENT

ITEM: LIHUE AERATED SOLIDS CONTACT  
TANK IMPROVEMENT

MISCELLANEOUS DETAILS

DESIGNED BY: B. BALL  
DRAWN BY: VERONICA  
CHECKED BY: B. BALL  
SECTION NO.:  
REVISION NO.:

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE ACCORDINGLY

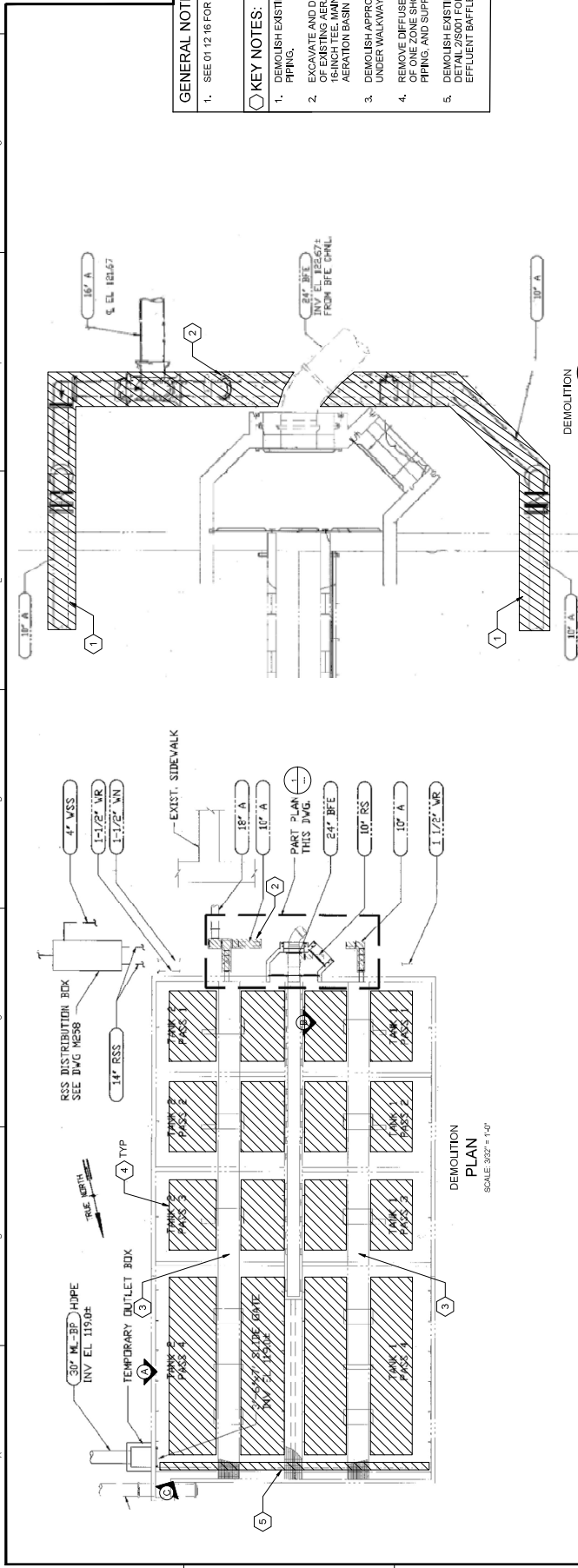
SEAL BALL  
REGISTERED  
PROFESSIONAL  
ENGINEER  
No. 100042  
HAWAII, U.S.A.

THE WORK WAS PREPARED BY ME OR  
UNDER MY CLOSE PERSONAL  
SUPERVISION AND I AM A  
LICENSED PROFESSIONAL ENGINEER  
DATE: 4/30/2025  
EXPIRES DATE OF THE LICENSE

TMK: 3-5-007-030

15 OF 45 SHEET

DRAWING MOD. 1



- GENERAL NOTES:**
- SEE 01 12 16 FOR WORK SEQUENCE.
- KEY NOTES:**
- DEMOLISH EXISTING AERATION DIFFUSERS AND PIPING.
  - EXCAVATE AND DEMOLISH BELOW GRADE PIPING OF EXISTING AERATION SYSTEM TO EXISTING 16-INCH TEE. MAINTAIN OPERATION OF ONE AERATION BASIN DURING CONSTRUCTION.
  - DEMOLISH APPROXIMATELY 95% OF AIR PIPING UNDER WALKWAY AND INSTALL BLIND FLANGES.
  - REMOVE DIFFUSERS FROM 10 ZONES. DIFFUSERS OF ONE ZONE SHOWN. REMOVE ALL DIFFUSERS, PIPING, AND SUPPORTS.
  - DEMOLISH EXISTING EFFLUENT BAFFLE. SEE DETAIL 2/5001 FOR INSTALLATION OF NEW EFFLUENT BAFFLE.

DEMOLITION ENLARGED PLAN  
SCALE: 1/8" = 1'-0"

DEMOLITION PLAN  
SCALE: 3/32" = 1'-0"

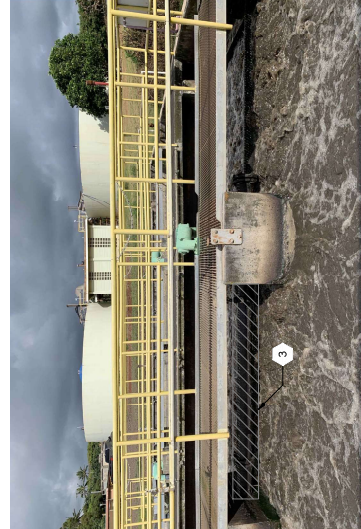


PHOTO A  
SCALE: NONE  
M101



PHOTO B  
SCALE: NONE  
M101



PHOTO C  
SCALE: NONE  
M101

TMK: 3-5-007.030

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE (FOOT/INCH)

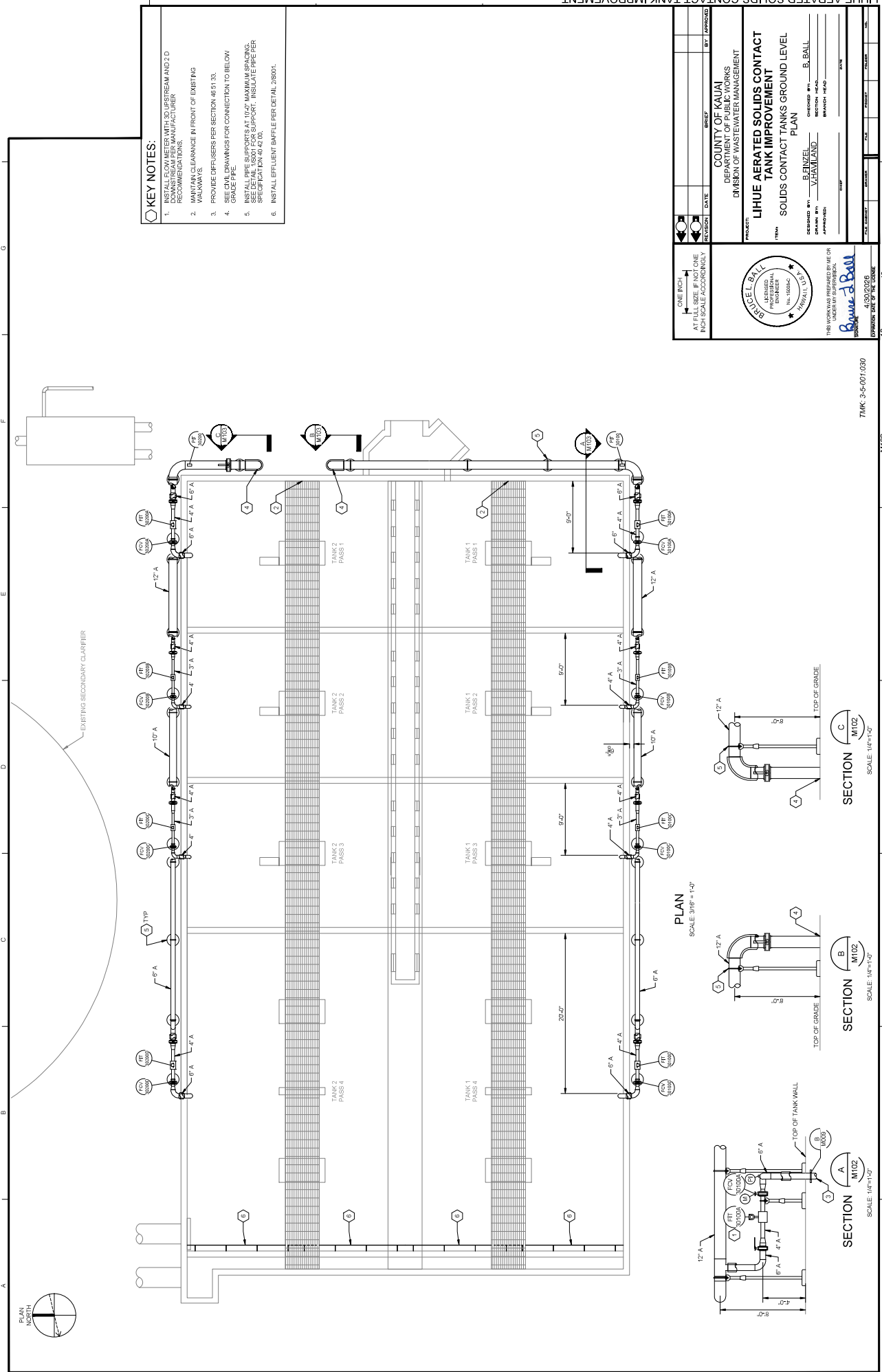
**BUBBLE BALL**  
REGISTERED PROFESSIONAL ENGINEER  
No. 10000  
KAWAII, HI

THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION  
DATE: 4/30/2024  
DRAWN BY: *George J. Ball*  
CHECKED BY: B. BALL  
SECTION: 18-A-0  
REVISION: 18-A-0

REVISION	DATE	BY	APPROVED

PROJECT: COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT  
ITEM: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT  
SOLIDS CONTACT TANKS DEMOLITION PLAN





- KEY NOTES:**
1. INSTALL ROW OF PIPES WITH 30" UPSIDE AND 2" DOWNSIDE CLEARANCE FROM TANK WALLS PER RECOMMENDATIONS.
  2. MAINTAIN CLEARANCE IN FRONT OF EXISTING VALKWAYS.
  3. PROVIDE DIFFUSERS PER SECTION 48.51.33.
  4. SEE CIVIL DRAWINGS FOR CONNECTION TO BELOW GRADE PIPE.
  5. INSTALL PIPE SUPPORTS AT 10'-0" MAXIMUM SPACING. SEE CIVIL DRAWINGS FOR SUPPORT. INSULATE PIPE PER SPECIFICATION 48.42.03.
  6. INSTALL EFFLUENT BAFFLE PER DETAIL 25801.

PROJECT	COUNTY OF KAUAI DIVISION OF WASTEWATER MANAGEMENT
ITEM	<b>LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT</b>
DESIGNED BY	B. BENZEL
DRAWN BY	V. HANIKLAND
CHECKED BY	B. BALL
APPROVED	SECTION HEAD
DATE	DATE
REVISION	BY / APPROVED

ONE INCH = 10 FEET (AS SHOWN)  
AT FULL SIZE (NOT ONE INCH SCALE) (AS SHOWN)

SEAL BALL  
REGISTERED PROFESSIONAL ENGINEER  
No. 16006-C  
Kauai, U.S.A.

THE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.  
DATE: 4/30/2024  
SIGNATURE: *Benzel & Ball*  
EXPIRES DATE OF THIS LICENSE

TAK-3-5-001-030

SHEET 15 OF 45 DRAWING M102

C:\hp\d3319829159839-GEN-EC01.dwg PLOT DATE: Friday, April 12, 2024 10:49:43 AM CAD USER: YOLANDA NODA

RACEWAYS		LIGHTING		LIGHTING CONTINUED		GROUNDING	
<p>HH23 □</p> <p>JB1900 ①</p> <p>TB-301 ①</p> <p>PBD-1900-1.3.5 ➤</p> <p>PBD-1900-1.3.5 ➤</p> <p>EXAMPLE: HOME TO PANELBOARD OR CONDUIT SCHEDULE FOR CIRCUIT INFORMATION</p> <p>EXAMPLE: HOME TO PANELBOARD OR CONDUIT SCHEDULE FOR CIRCUIT INFORMATION</p>	<p>LUMINAIRE IDENTIFIER: NUMBER OF LUMINAIRE</p> <p>LUMINAIRE TYPE, TYPE APPLIES TO ALL LUMINAIRE OF THE SAME SHAPE WITHIN A ROOM OR AREA.</p> <p>MOUNTING: R = RECESSED S = SURFACE P = PENDANT W = WALL</p> <p>PC 60°</p> <p>XX 60°</p> <p>NS</p> <p>NS</p> <p>NUMBER OF LAMP/S, LAMP VOLTAGE CONTROL, PHOTOCELL, SWITCH, CONTROLLER</p>	<p>EXIT LIGHTS: SURFACE ON CEILING WALL MOUNTED WITH DIRECTIONAL ARROWS</p> <p>CIRCUIT IDENTIFIERS, WHEN SHOWN ADJACENT TO LUMINAIRE IDENTIFIER, IDENTIFY THE CIRCUIT NUMBER AND SWITCH. EXAMPLE: CIRCUIT 3, CONTROLLED BY SWITCH a</p> <p>PC PHOTO CELL</p> <p>OS OCCUPANCY SENSOR</p>	<p>GROUND ROD</p> <p>GROUND ROD WITH GROUND WELL</p> <p>GROUND CONNECTION, COMPRESSION TYPE, EXOTHERMIC, SEE SPECIFIC</p> <p>GROUNDING CONDUCTOR</p> <p>GROUND CONNECTION TO STRUCTURAL REINFORCEMENT</p> <p>LIGHTING ROD/AIR TERMINAL</p>				
<p>LUMINAIRE SHAPES AND SCALE ARE REPRESENTED WHERE POSSIBLE. THE EXAMPLES SHOWN BELOW ARE TYPICAL APPLICATIONS</p> <p>RECESSED LUMINAIRE</p> <p>PENDANT MOUNTED LUMINAIRE</p> <p>SURFACE MOUNTED LUMINAIRE</p> <p>EMERGENCY LIGHTING LUMINAIRE, LUMINAIRE WITH EMERGENCY BALLASTS</p> <p>LUMINAIRE WITH EMERGENCY BATTERY PACK</p> <p>LUMINAIRE IDENTIFIED WITH AN "NS" SHALL BE PROVIDED WITH NON-SWITCHED POWER SOURCE</p> <p>DOWN LIGHT</p> <p>WALL MOUNTED LUMINAIRE</p> <p>DIRECTIONAL LIGHT</p> <p>POLE MOUNTED AREA LIGHT</p> <p>EMERGENCY LIGHTING UNIT SELF CONTAINED</p>	<p>TOGGLE SWITCH, SINGLE POLE</p> <p>GAUGED SWITCHES IN COMMON BOX WITH COMMON WALL PLATE</p> <p>SUPERSCRIPT INDICATES CIRCUIT CONTROLLED, a, b, c, ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 4b, ETC</p> <p>SUBSCRIPT MODIFIER INDICATES: 2 = DOUBLE POLE 3 = FUSEWAY 4 = FUSEWAY K = KEY OPERATED MC = MOMENTARY CONTACT, THREE POSITION MS = MOTOR STARTER OR SWITCH WITH OVERCURRENT PROTECTION R = RHEOSTAT (DIMMER, SPEED CONTROL) HOA = HAND-OFF-AUTO SWITCH</p> <p>DIMMER</p>	<p>RECEPTACLES: DUPLEX RECEPTACLE RECEPTACLE MODIFIERS: WP= WEATHER PROOF GF= GROUND FAULT CIRCUIT INTERRUPTER H= HAZARDOUS AREA=EXPLOSION PROOF</p> <p>EXPLOSION PROOF CLASS 1, DEAD FRONT, 45° ANGLE, TWO GANG</p> <p>RECESSED FLOOR RECEPTACLE - ANY RECEPTACLE INSIDE A SQUARE</p> <p>SURFACE FLOOR RECEPTACLE - ANY RECEPTACLE INSIDE A TRIANGLE</p> <p>GAUGED RECEPTACLES, IN COMMON BOX, WITH COMMON WALL PLATE</p> <p>RECEPTACLE CLOCK HANGER</p> <p>RECEPTACLE DUPLEX ON EMERGENCY</p> <p>480V RECEPTACLE</p>	<p>MOTORS AND EQUIPMENT</p> <p>MOTOR STARTER, INDIVIDUAL, NOT MCC OR SIMILAR GROUP ASSEMBLY</p> <p>COMBINATION MOTOR STARTER, NOT MCC OR SIMILAR GROUP ASSEMBLY</p> <p>DISCONNECT SWITCH, NON-FUSED EXAMPLE: 60 AMP</p> <p>DISCONNECT SWITCH, FUSED EXAMPLE: 100 AMP, 2P, 80 AMP FUSES</p> <p>100/280</p> <p>MOTOR</p> <p>SOLENOID VALVE</p> <p>HEATER</p> <p>HYGROTHERMOSTAT</p> <p>THERMOSTAT</p> <p>WATER HEATER</p> <p>FIELD INSTRUMENT</p> <p>FIELD TERMINAL BOX</p> <p>LOCAL CONTROL STATION</p> <p>EQUIPMENT DESIGNATION (EXAMPLE)</p> <p>CONTROL PANEL, VFD, RVSS, APPROXIMATE SHAPE AND SCALE.</p>				
<p>RECEIVED BY: BAKAMAMURA DRAWN BY: BAKAMAMURA DATE: 03/20/24 SECTION: 16-02 SCALE: 1/8"=1'-0"</p> <p>PROJECT: COUNTY OF KAUAI DIVISION OF WASTEWATER MANAGEMENT TITLE: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT ELECTRICAL LEGEND - 1</p> <p>DESIGNED BY: BAKAMAMURA CHECKED BY: BAKAMAMURA DATE: 03/20/24 SECTION: 16-02 SCALE: 1/8"=1'-0"</p> <p>DRAWN BY: BAKAMAMURA DATE: 03/20/24 SECTION: 16-02 SCALE: 1/8"=1'-0"</p> <p>PROJECT: COUNTY OF KAUAI DIVISION OF WASTEWATER MANAGEMENT TITLE: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT</p>	<p>GENERAL NOTES: 1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS AND IN DRAWINGS EXCEPT AS NOTED OTHERWISE. 2. SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS. 3. IDENTIFICATIONS (ID), SECS, RATINGS, LOCATIONS AND SIMILAR INFORMATION SHOWN ASSOCIATED WITH SYMBOLS ARE OPTIONAL. EXAMPLES OF SUCH INFORMATION ARE SHOWN WITH SOME SYMBOLS FOR CLARITY.</p>	<p>AT FULL SIZE IF NOT ONE INCH SCALE (AS SHOWN) ONE INCH BY: BAKAMAMURA DATE: 03/20/24 SECTION: 16-02 SCALE: 1/8"=1'-0"</p>	<p>APPROVED BY: BAKAMAMURA DATE: 03/20/24 SECTION: 16-02 SCALE: 1/8"=1'-0"</p>				

CONTROL DIAGRAM SYMBOLS			ONE LINE DIAGRAM SYMBOLS		
<b>GENERAL</b> CONDUCTORS CONNECTED CONDUCTORS NOT CONNECTED TERMINAL POINT FOR EXTERNAL CONNECTIONS EXISTING EQUIPMENT (SCREENED)			<b>MISCELLANEOUS</b> FUSE WITH SIZE AND OPTIONAL IDENTIFICATION FUSE WITH BLOWN FUSE INDICATOR CONTROL TRANSFORMER PRIMARY WINDING SIZE AS SHOWN OR AS SPECIFIED CURRENT TRANSFORMER PRIMARY TURNS RATIO SHOWN (OPTIONAL) RESISTOR RECTIFIER SURGE OR ARC SUPPRESSOR CAPACITOR CONNECTOR INCOMING LINE POWER SUPPLY DRAWOUT MECHANISM SOLENOID VALVE BUS DUCT GROUND CONNECTION POTENTIOMETER METER WITH ALPHA IDENTIFIERS: H = ELAPSED TIME A = AMMETER V = VOLTMETER BATTERY SHIELDED CABLE LOCATED IN FIELD AC TERMINAL BLOCK DC TERMINAL BLOCK PLC I/O POINTS DO = DIGITAL OUT SIGNAL DI = DIGITAL IN SIGNAL AO = ANALOG OUT SIGNAL AI = ANALOG IN SIGNAL		
<b>INDICATING LIGHTS</b> INDICATING LIGHTS L = LENS COLOR: A = AMBER B = BLUE G = GREEN R = RED W = WHITE PUSH TO TEST, TEST VOLTAGE TERMINAL SHOWN			<b>INPUT SWITCHES</b> INITIATING VARIABLE SPEED TEMPERATURE FORCE OR TORQUE POSITION (LIMIT) FLOW LEVEL PRESSURE		
<b>PUSHBUTTONS</b> PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED PUSHBUTTON WITH MUSHROOM HEAD, EMERGENCY STOP			<b>TIMING RELAYS</b> OPERATING COIL ONLY DELAY RANGE FROM 0.1 TO 999 SECONDS NORMALLY OPEN TR3 OR TR3 TO (LINE) TR3 OR TR3 TO (LINE) TR3 OR TR3 TO (LINE) TR3 OR TR3 TO (LINE)		
<b>SELECTOR SWITCHES</b> HS-XXXX 2 POSITION MAINTAINED CONTACT O = CONTACTS OPENED X = CONTACTS CLOSED 2 POSITION RETURNED TO RIGHT SPRING CONTACTS OPENED O = CONTACTS OPENED X = CONTACTS CLOSED 3 POSITION MAINTAINED CONTACT X = CONTACTS CLOSED O = CONTACTS OPENED			<b>CONTACTORS</b> OPERATING COILS C = CONTACTOR, LIGHTING OR GENERAL USE F = FIRST MAIN OR FORWARD 1M = FIRST MAIN OR WYE 2M = SECOND MAIN OR DELTA R = RUN OR REVERSE IC = ISOLATION CONTROL MAIN CONTACTS MAIN CONTACTS AIR BREAK, NEMA SIZE OPTIONAL VACUUM CONTACTOR, NEMA SIZE OPTIONAL		
<b>CONTROL RELAYS</b> OPERATING COIL CR = CONTROL RELAY U = UNLATCH L = LATCH OVERLOAD RELAY OL CR2 OUTPUT CONTACTS, LINE NUMBER OF RELAY COIL SHOWN (OPTIONAL)			AC CIRCUIT BREAKER AND DRAWOUT CASE, CURRENT SENSOR RATING OVER BREAKER FRAME SIZE CIRCUIT BREAKER WITH CURRENT SENSOR RATING OVER BREAKER FRAME SIZE, SHOWN FEATURES: L = LONG DELAY S = SHORT DELAY G = GROUND FAULT CIRCUIT BREAKER TYPE: MCP = MOTOR CIRCUIT PROTECTOR OR 3P = 3-POLE THERMAL MAGNETIC TRIP FUSED SWITCH FUSE RATING AND POLES SHOWN MODIFIERS: CLF = CURRENT LIMITING FUSE ELEMENT CF = CLASS F E = E RATED FUSE, 100 AMP CLASS 'F' SHOWN POWER TRANSFER SWITCH, DESIGNATION, AMP RATING AND CONFIGURATION SHOWN MTS = MANUAL TRANSFER SWITCH ATS = AUTOMATIC TRANSFER SWITCH FUSE = SUITABLE FOR USE AS SERVICE ENTRANCE AIR BREAK CONTACTOR, FVAR U.O.N. NEMA SIZE 1 INDICATED FVA = FULL VOLTAGE FVS = FULL VOLTAGE STARTING SPEED TWO WINDING STARTER METERS (ANALOG FUNCTIONS AS SPECIFIED) POWER MONITOR (PM) POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM) MOTOR MONITOR AND PROTECTION RELAY (MPR) AND PROTECTION RELAY (FPR) PACKAGED EQUIPMENT OR MOTOR LOAD, KVA, KW, AMPS AS NOTED VARIABLE FREQUENCY DRIVE (VFD) NORMAL DUTY UON, HP IS INDICATED IF DIFFERENT THAN DRIVEN LOAD HP. ##AMPS-RATED CONTINUOUS AMPS SOLID STATE REDUCED VOLTAGE STARTER SURGE PROTECTION DEVICE ANSIC37.2 DEVICE, QUANTITIES SHOWN.		
<b>GENERAL</b> GENERATOR WITH WINDING CONFIGURATION VOLTAGE, POWER, FREQUENCY SHOWN, POWER FACTOR OPTIONAL MOTOR, HORSEPOWER SHOWN POWER FACTOR CORRECTION CAPACITOR, KVAR RATING INDICATED POTHEAD STRESS CONE TERMINATOR MV TERMINATOR INDICATES THAT ALL OR PART OF CONDUIT MAY BE ROUTED IN DUCT BANK OR UNDERGROUND PORTABLE CABLE CABLE BUS BUS CONDUCTOR CABLE CONDUCTOR SURGE ARRESTOR LIGHTNING ARRESTOR AND GROUND TEST DEVICE DISCONNECT OR ISOLATING SWITCH, 200 AMP SHOWN NEUTRAL GROUNDING RESISTOR, AMPS/TIME RATING SHOWN POWER MONITOR WITH TAG SHOWN CURRENT TRANSFORMER SHORTING BLOCK			600MW 480V 60 Hz 3ph, 4w 55 KVAR 480V 30kVA 5% Z 208Y/120V 480V 30kVA 5% Z 208Y/120V 1.5 KVA 480 V 2.5% Z 480 V ISOLATION TRANSFORMER, MVA AND VOLTAGES SHOWN POTENTIAL TRANSFORMER, PT QUANTITY (3) AND VOLTAGES SHOWN CURRENT TRANSFORMER, CT QUANTITY AND 250:5 TURNS RATIO SHOWN WINDING CONFIGURATIONS: DELTA WYE (GROUNDED) KIRK-KEY INTERLOCK FIELD TERMINAL BOX AUTOMATIC BREAKER CONTROL SYSTEM SMART OVERLOAD RELAY WITH CONTROL BACK TO CONTACTOR KIRK-KEY CONNECTION SIGNAL AUTOMATIC BREAKER CONTROL SYSTEM SIGNAL		

9 F G E D C B A

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

AT FULL SIZE IF NOT ONE INCH SCALE-PROPORTIONALLY

ONE INCH

REVISED BY: BKAVAMURA  
 SECTION: 16-02  
 DATE: 11/20/2023

DRAWN BY: B. FENWALDA  
 SECTION: 16-02  
 DATE: 11/20/2023

PROJECT: COUNTY OF KAUAI  
 DIVISION OF WASTE/WATER MANAGEMENT

LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

ELECTRICAL LEGEND - 2

DATE: 11/20/2023

BY: [Signature]

DATE: 11/20/2023

PROJECT: COUNTY OF KAUAI  
 DIVISION OF WASTE/WATER MANAGEMENT

LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

ELECTRICAL LEGEND - 2

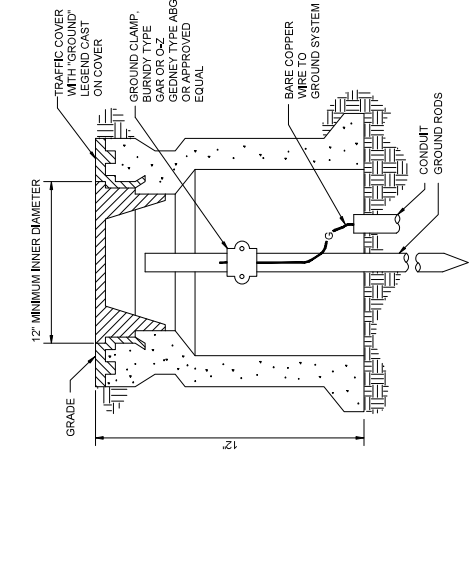
DATE: 11/20/2023

BY: [Signature]

DATE: 11/20/2023

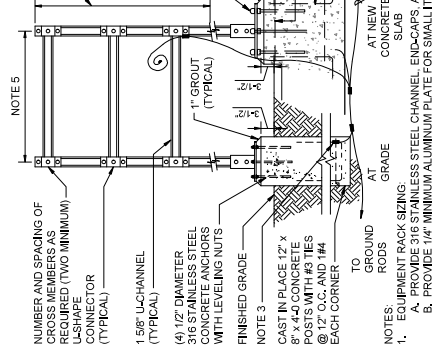
TMK. 3-5-007.030 SHEET 20 OF 48





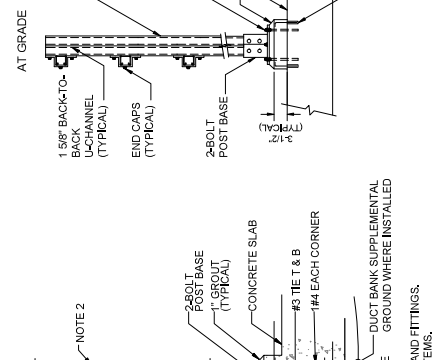
GROUND WELL AND ROD  
DETAIL  
SCALE: NONE

1  
E004



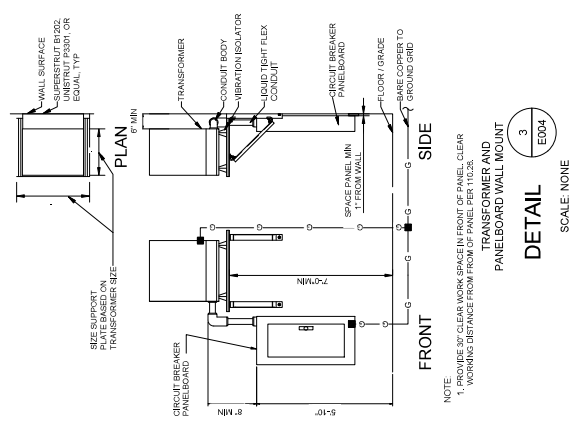
EQUIPMENT RACK  
DETAIL  
SCALE: NONE

2  
E004



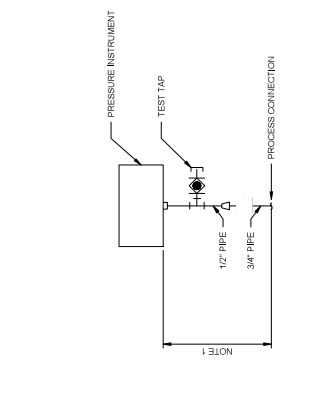
FLOW TRANSMITTER THERMAL  
DISPERSION - GAS SERVICE  
DETAIL  
SCALE: NONE

5  
E004



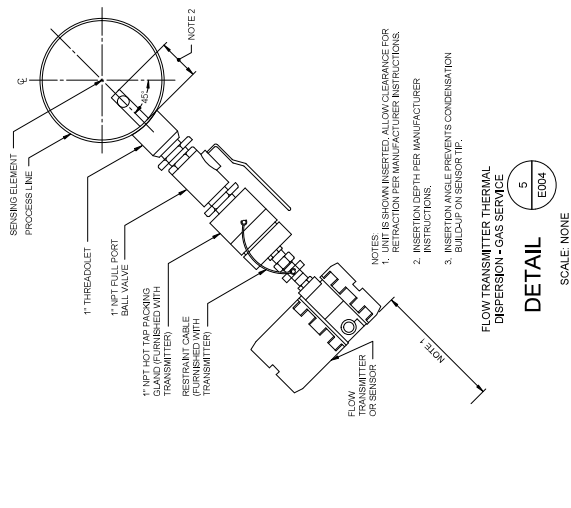
TRANSFORMER AND  
PANELBOARD WALL MOUNT  
DETAIL  
SCALE: NONE

3  
E004



PRESSURE INSTRUMENT -  
DIRECT MOUNT  
DETAIL  
SCALE: NONE

4  
E004



FLOW TRANSMITTER  
DETAIL  
SCALE: NONE

5  
E004

NOTES:  
1. 8" MAX BETWEEN PROCESS PIPELINE AND PRESSURE INSTRUMENT.  
2. ALL MATERIAL TO BE COMPATIBLE WITH PROCESS FLUID.  
3. DETAIL SUCH AS BALL VALVES, IF SAUERBROOK VALVES ARE REQUIRED, SUBSTITUTE VALVES AS APPROPRIATE.  
4. THIS INSTALLATION DETAIL IS INTENDED FOR CLEAN WATER APPLICATIONS. SEE SEPARATE DETAIL FOR SUSPENDED SOLIDS APPLICATIONS.

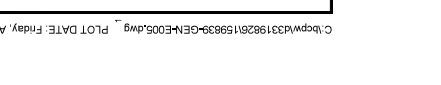
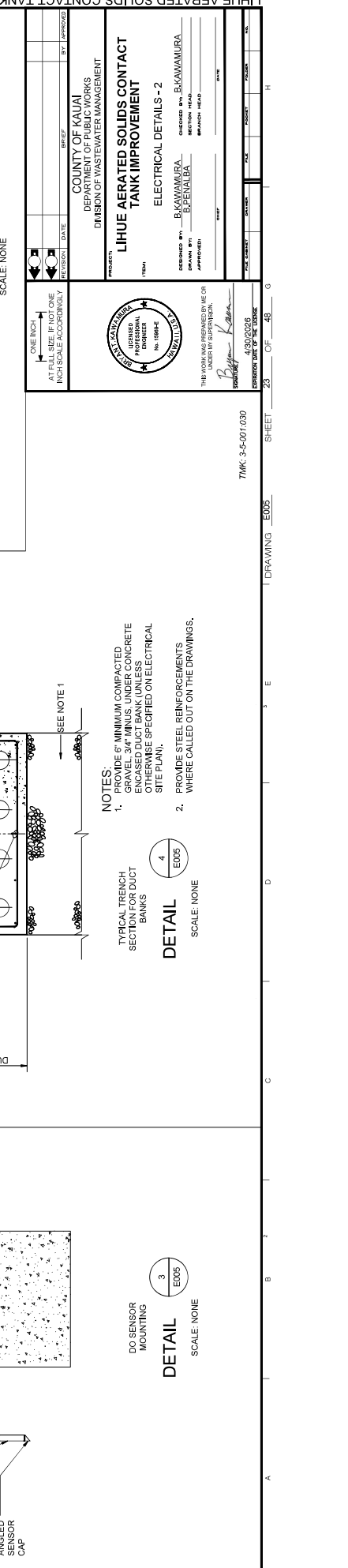
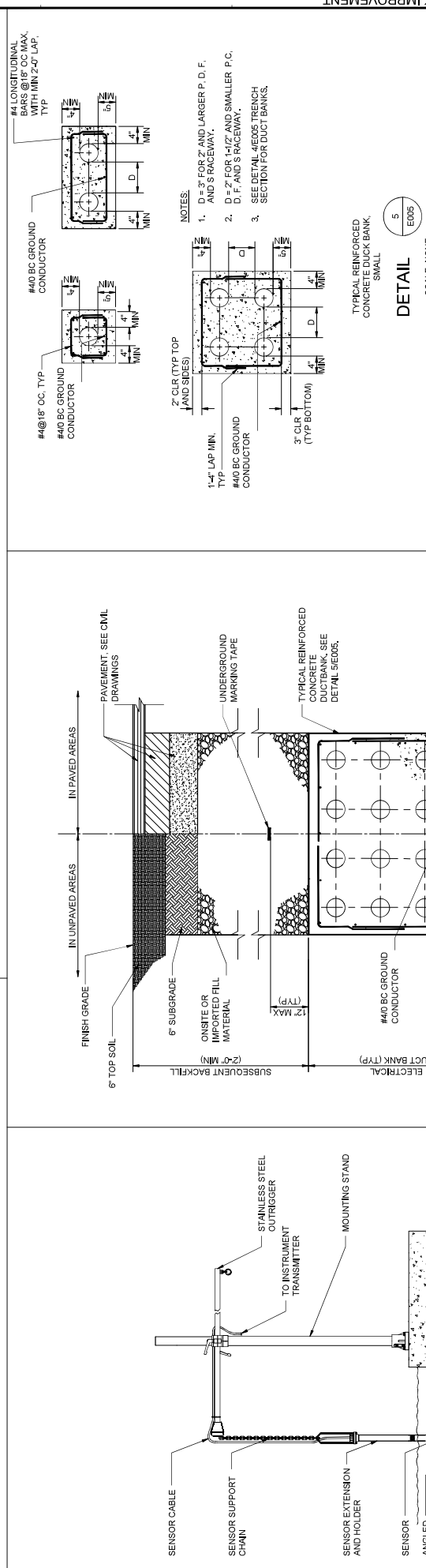
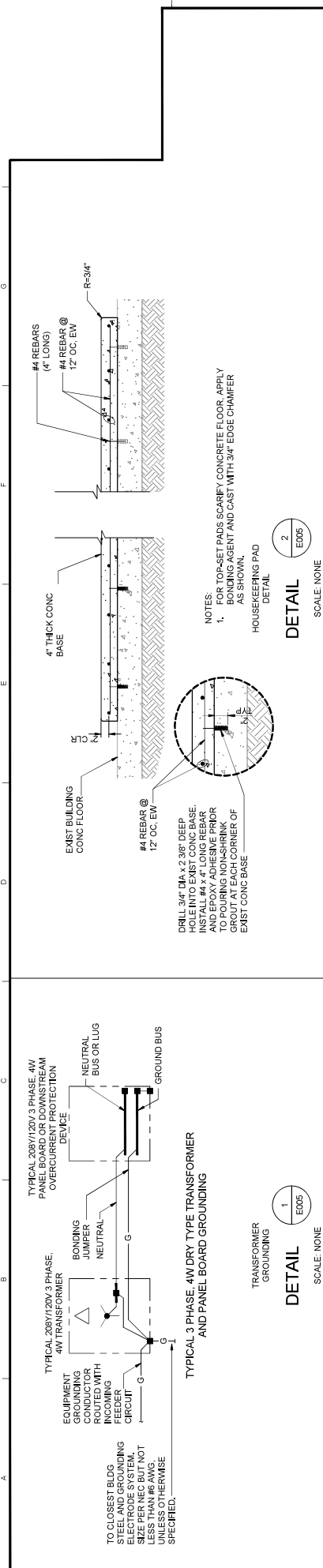
NOTES:  
1. SECTION IS SHOWN INSERTED ALLOWING SPACING FOR RETRACTION PER MANUFACTURER INSTRUCTIONS.  
2. INSERTION DEPTH PER MANUFACTURER INSTRUCTIONS.  
3. BUILDUP ON SENSOR TIP.

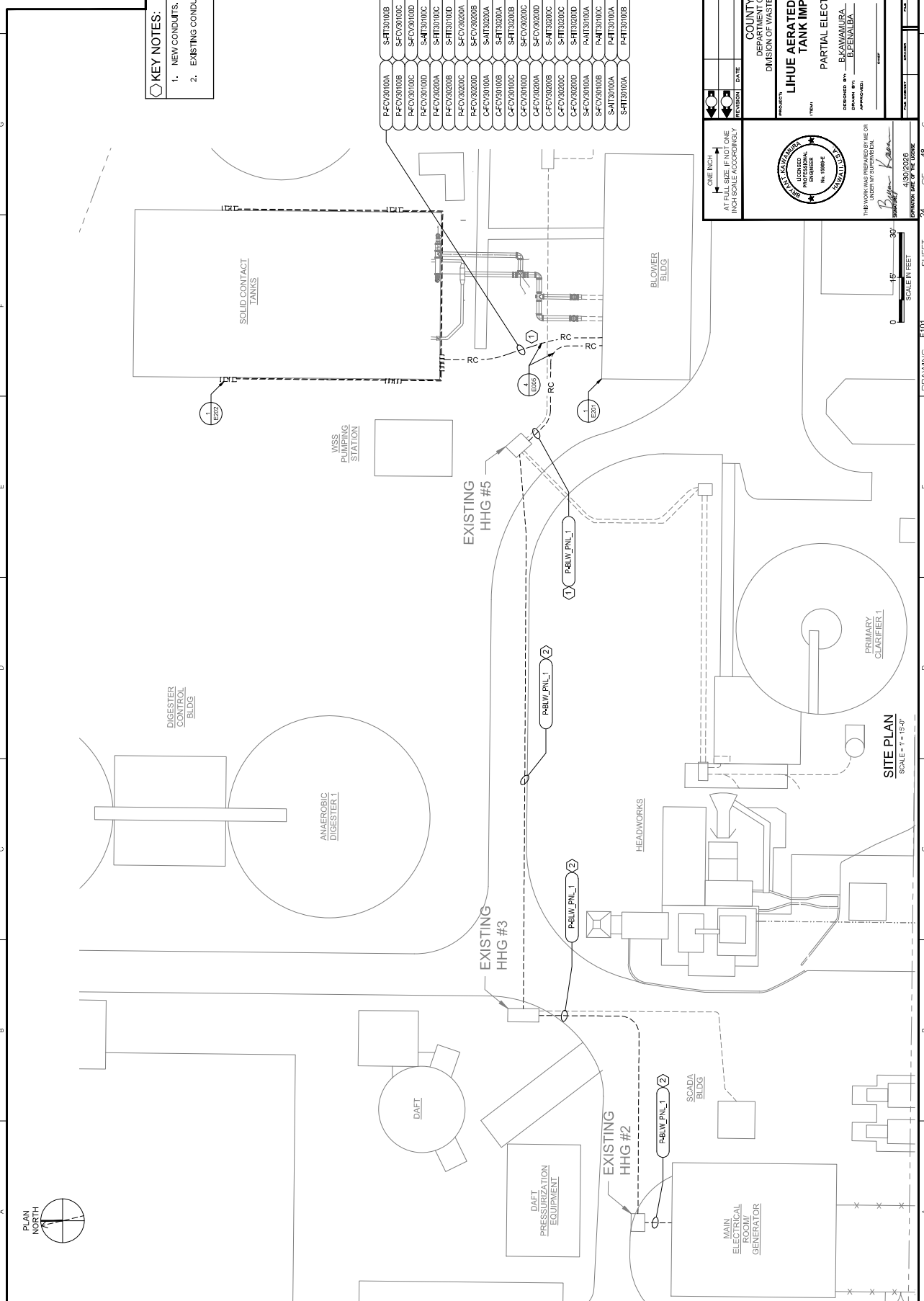
PROJECT: COUNTY OF KAUIA, DEPARTMENT OF PUBLIC WORKS, DIVISION OF WASTEWATER MANAGEMENT. TITLE: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT. ELECTRICAL DETAILS - 1.

DESIGNED BY: BKAWAMURA, CHECKED BY: BKAWAMURA. DRAWN BY: BUCENALUA, SECTION NO.: SECTION HEAD. APPROVED BY: [Signature], DATE: 4.30.2024. PROJECT NO.: 19994.

Professional Engineer Seal for B.KAWAMURA, No. 19994, State of Hawaii. License No. 430/2026. Expiration Date of License: 08-01-2028.

Revision table with columns for REVISION, DATE, BY, and APPROVED.





- KEY NOTES:**
1. NEW CONDUITS.
  2. EXISTING CONDUITS.

P-FCV30100A	S-FIT30100B	P-FIT30100C
P-FCV30100B	S-FCV30100C	P-FIT30100D
P-FCV30100C	S-FIT30100D	P-4IT30200A
P-FCV30200A	S-FIT30100C	P-4IT30200B
P-FCV30200B	S-FIT30100D	P-4IT30200C
P-FCV30200C	S-FCV30200A	P-FIT30200D
P-FCV30200D	S-FCV30200B	P-FIT30200D
C-FCV30100A	S-4IT30200A	
C-FCV30100B	S-FIT30200B	
C-FCV30100C	S-FCV30200C	
C-FCV30200A	S-FCV30200D	
C-FCV30200B	S-4IT30200C	
C-FCV30200C	S-FIT30200D	
C-FCV30200D	S-FIT30200D	
S-FCV30100A	P-4IT30100A	
S-FCV30100B	P-4IT30100C	
S-FCV30100C	P-4IT30100A	
S-FCV30100A	P-FIT30100B	
S-FCV30100B	P-FIT30100C	
S-FCV30100C	P-FIT30100B	

TWK 3-5-001.030



PROJECT: COUNTY OF KAUAI  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

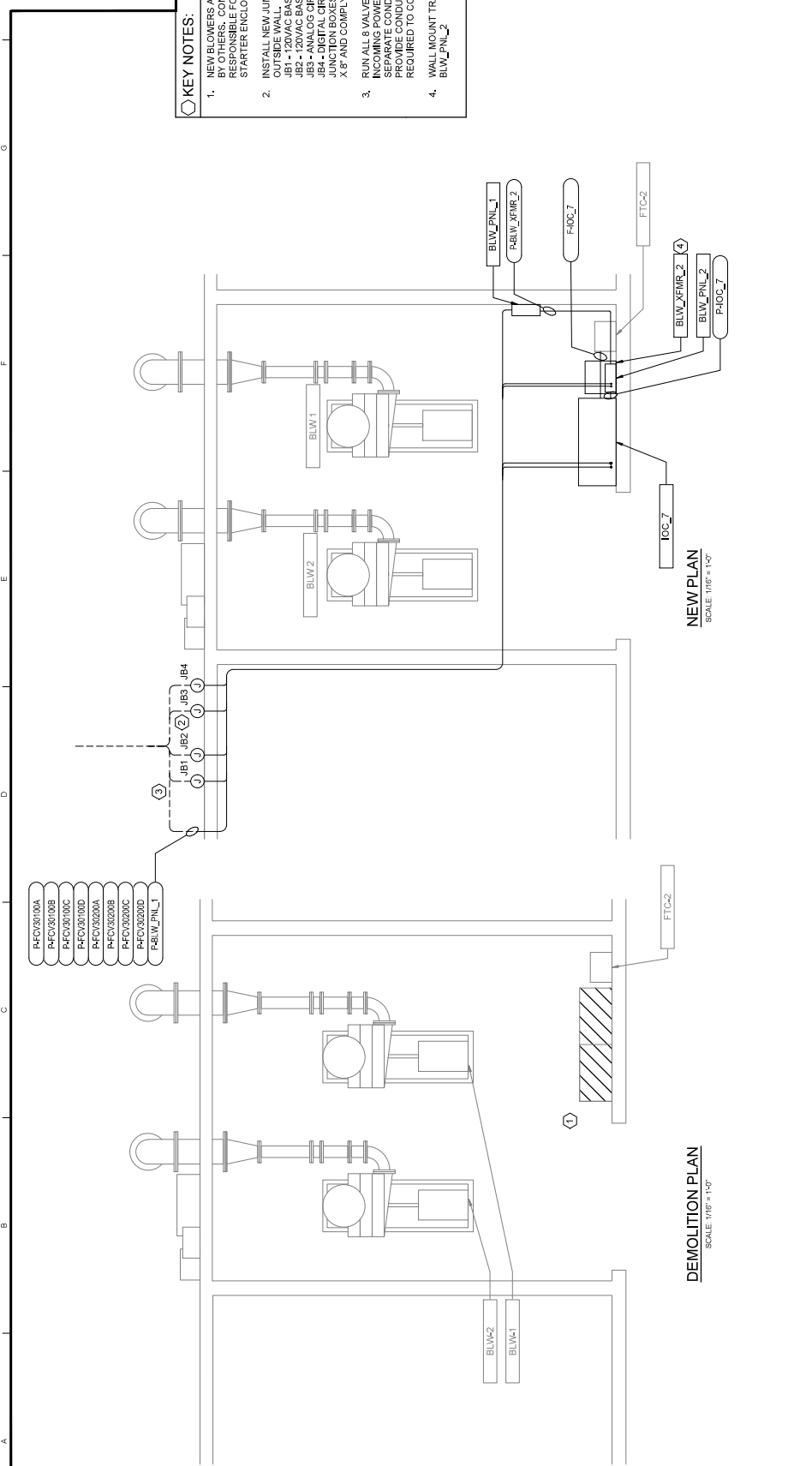
PARTIAL ELECTRICAL SITE PLAN

DESIGNED BY: B. KAMAMURA  
 DRAWN BY: B. KAMAMURA  
 CHECKED BY: B. KAMAMURA  
 MONITOR INFO: B. KAMAMURA

DATE: 4/30/2026  
 EXPIRES: 4/30/2028

**SITE PLAN**  
SCALE = 1" = 15'-0"

SCALE IN FEET  
0 15' 30'



**KEY NOTES:**

- NEW BLOWERS AND VFDS WILL BE INSTALLED BY OTHERS. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF OLD BLOWER STARTER ENCLOSURES.
- INSTALL NEW JUNCTION BOXES ON THE OUTSIDE WALL.  
 JB1 - 120VAC BASIN ONE  
 JB2 - 120VAC BASIN TWO  
 JB3 - ANALOG CIRCUITS  
 JB4 - DIGITAL CIRCUITS  
 JUNCTION BOXES SHOULD BE AT A MINIMUM 8' X 8' AND COMPLY WITH THE NEC.
- RUN ALL 8 VALVE ACTUATOR CIRCUITS AND SEPARATE CONDUITS. CONTRACTOR SHALL PROVIDE CONDUIT BODIES OR BOXES AS REQUIRED TO COMPLY WITH THE NEC.
- WALL MOUNT TRANSFORMER ABOVE BLW\_PNL\_2

**DEMOLITION PLAN**  
SCALE: 1/16" = 1'-0"

**NEW PLAN**  
SCALE: 1/16" = 1'-0"

PROJECT	COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT
ISSUE	LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT
DESIGNED BY	BAKAMAMURA
DRAWN BY	BAKAMAMURA
APPROVED	BAKAMAMURA
CHECKED BY	BAKAMAMURA
DATE	4/30/2026
REVISION	DATE
BY	APPROVED

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE APPROXIMATELY

THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF THEY COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

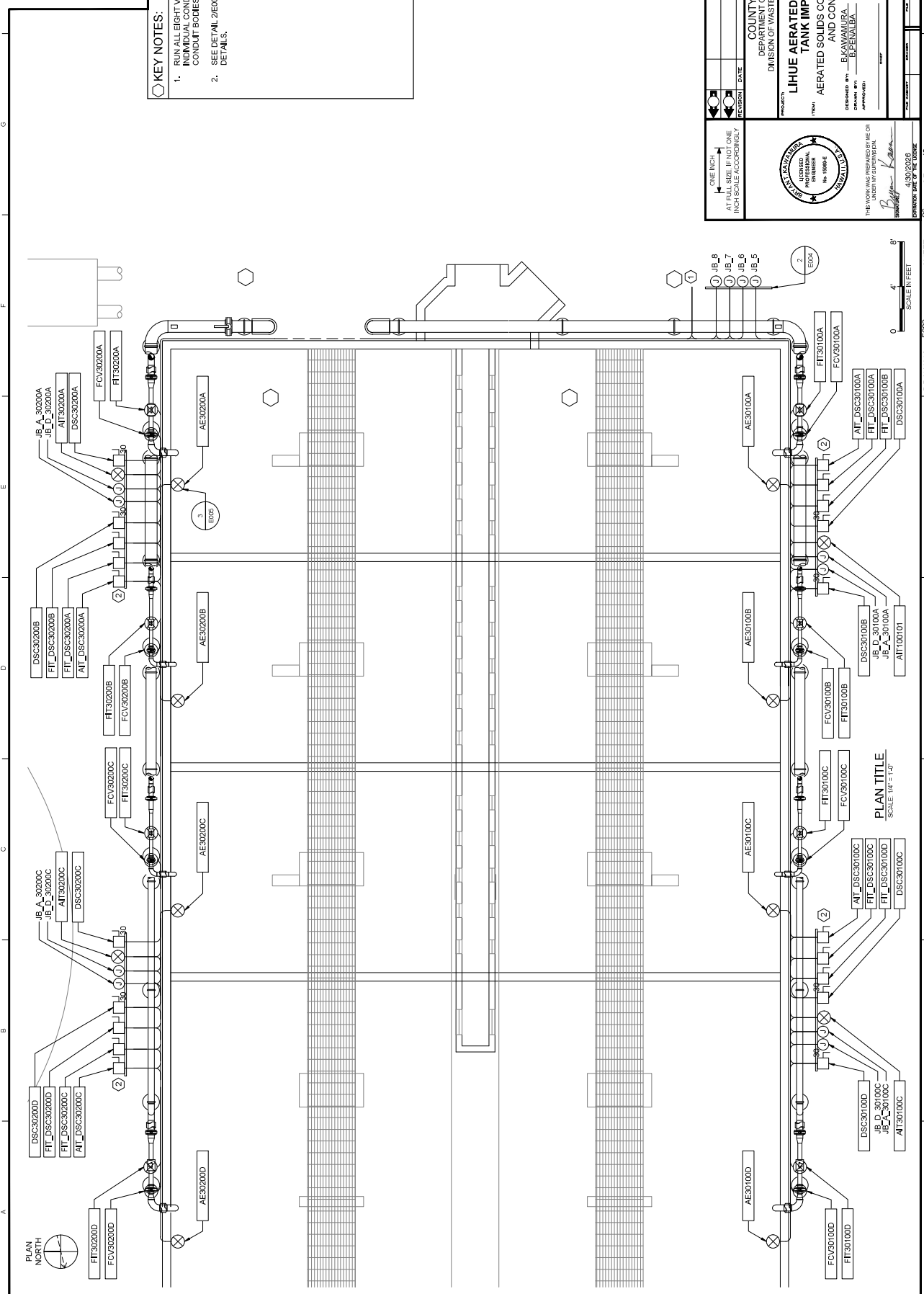
*Bakamura*  
4/30/2026  
DRAWN DATE OF THE ISSUE

TMK: 3-5-007-030

SHEET 25 OF 48

DRAWING E201





**KEY NOTES:**

1. RUN ALL EIGHT VALVE ACTUATOR CIRCUITS IN INDIVIDUAL CONDUITS TO PANEL. USE CONDUIT BODIES AS NEEDED.
2. SEE DETAIL 2E004 FOR EQUIPMENT RACK DETAILS.

TMK: 3-5-071.030

PROJECT	DATE	REVISION	DATE	BY	APPROVED

**COUNTY OF KAUAI**  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT TANK IMPROVEMENT AND CONTROL PLAN**

DESIGNED BY: BAKAMAMURA CHECKED BY: \_\_\_\_\_  
 DRAWN BY: BEFENALUA SECTION HEAD: \_\_\_\_\_  
 DATE: \_\_\_\_\_

THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.  
 DRAWN BY: B. K. Kama  
 DATE: 4/30/2024  
 EXPIRES DATE OF THE LICENSE: \_\_\_\_\_

ONE INCH  
 AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

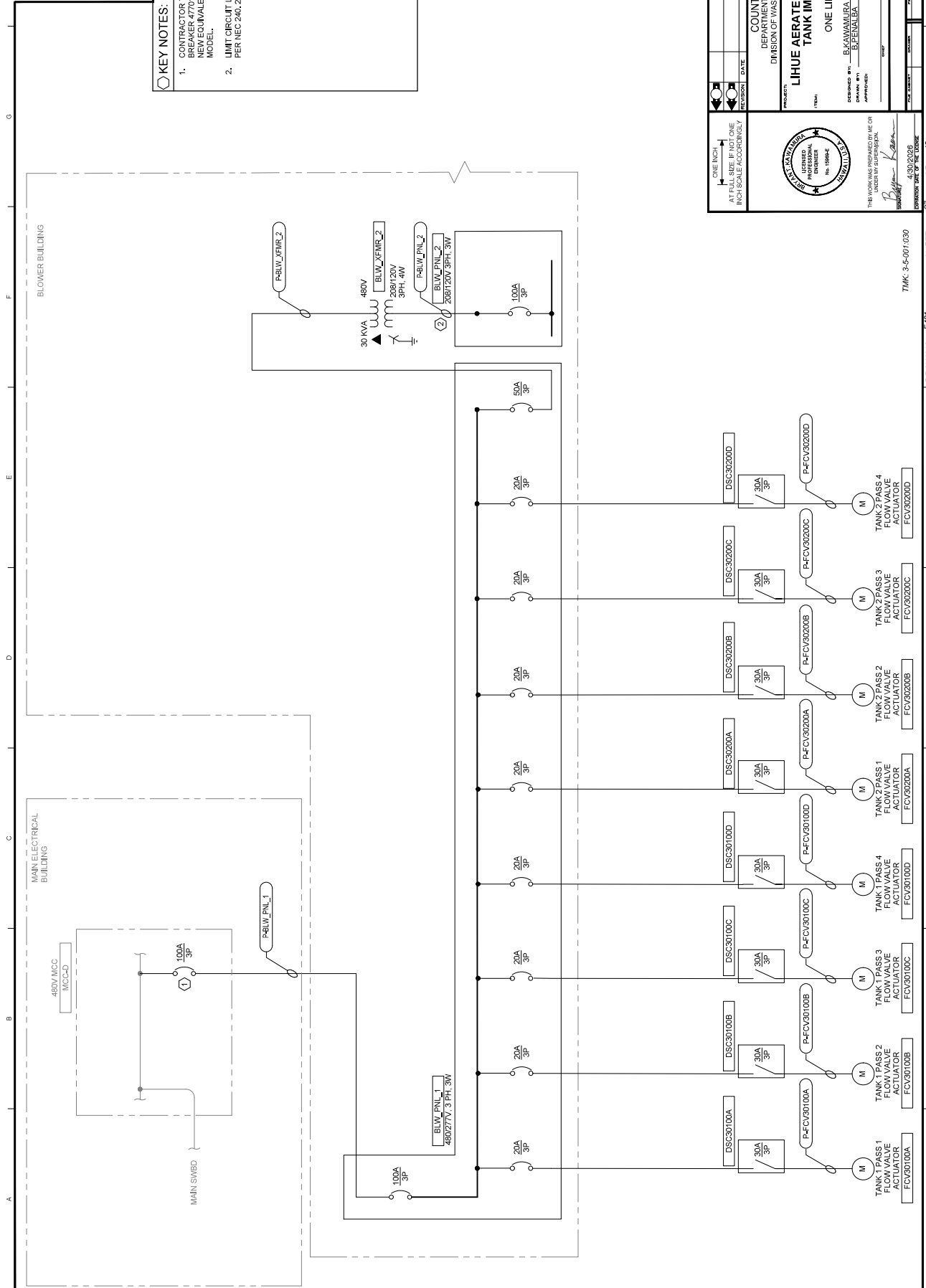
SCALE: 1/4" = 1'-0"

0 4' 8'

SHEET 26 OF 48

DRAWING: E202

**PLAN TITLE**  
 SCALE: 1/4" = 1'-0"



**KEY NOTES:**

- CONTRACTOR TO REMOVE EXISTING BREAKER #7701 IN MCC-D AND REPLACE WITH NEW EQUIVALENT EATON COUTLER-HAMMER MODEL.
- LIMIT CIRCUIT LENGTH TO 10 FEET OR LESS PER NEC 240.21.

AT FULL SCALE IF NOT ONE INCH SCALE (FOOTING ONLY)

REVISION	DATE	BY	APPROVED

ONE LINE DIAGRAM

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

DESIGNED BY: B. KANAMURA  
DRAWN BY: B. KANAMURA  
CHECKED BY: B. KANAMURA  
SECTION HEAD: \_\_\_\_\_  
DATE: \_\_\_\_\_

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
*B. Kanamura*  
REGISTERED PROFESSIONAL ENGINEER  
No. 11994-K  
EXPIRES 4/30/2026  
ISSUED DATE OF THE DRAWING: \_\_\_\_\_





GENERAL	SELECTOR SWITCHES	CONTROL RELAYS	TIMING RELAYS	GENERAL NOTES
<p><b>EXTERNAL WIRING</b></p> <p>CONDUCTORS CONNECTED</p> <p>CONDUCTORS NOT CONNECTED</p> <p>CONNECTION POINT</p> <p>TERMINAL POINT</p> <p>DEMOLITION</p>	<p><b>2 POSITION MAINTAINED CONTACT</b> X = CONTACTS CLOSED</p> <p><b>3 POSITION MAINTAINED CONTACT</b> X = CONTACTS CLOSED</p> <p><b>2 POSITION</b> SPRING RETURNED TO RIGHT X = CONTACTS CLOSED</p> <p><b>3 POSITION</b> SPRING RETURNED TO CENTER X = CONTACTS CLOSED</p>	<p><b>OPERATING COIL</b> CR = CONTROL RELAY FUNCTION L = LATCH U = LATCH</p> <p><b>THERMAL OVERLOAD RELAY</b></p> <p><b>OUTPUT CONTACTS</b></p> <p><b>INDICATING LIGHTS</b> L = LENS COLOR: A = AMBER B = BLUE G = GREEN R = RED W = WHITE</p> <p><b>DIRECT CONNECTION</b></p> <p><b>PUSH TO TEST, TEST VOLTAGE TERMINAL SHOWN</b></p> <p><b>CONTACTORS</b></p> <p><b>OPERATING COILS</b> C = CONTACTOR, LIGHTING OR GENERAL USE F = FORWARD M = MAIN OR LINE 1M = FIRST MAIN OR WYE 2M = SECOND MAIN OR DELTA R = RUN OR REVERSE S = SLOW OR START</p> <p><b>MAIN CONTACTS</b></p>	<p><b>ON DELAY (DELAY ON COIL ENERGIZATION) RELAY CONTACTS</b> WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION. NOTC = NORMALLY OPEN TIME CLOSE, NCTO = NORMALLY CLOSED TIME OPEN</p> <p><b>OFF DELAY (DELAY ON COIL DEENERGIZATION) RELAY CONTACTS</b> WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION. NOTO = NORMALLY OPEN TIME OPEN, NCTO = NORMALLY CLOSED TIME CLOSE</p> <p><b>TIME DELAY RELAY INSTANTANEOUS CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.</b></p>	<p>1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED IN THE FIELD. THE SYMBOLS SHOWN ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY. SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.</p>
<p><b>TRANSFORMERS</b></p> <p>CONTROL TRANSFORMER, PRIMARY AND SECONDARY VOLTAGES SHOWN, SIZE AS SHOWN OR SPECIFIED.</p> <p>CURRENT TRANSFORMER, PRIMARY/SECONDARY TURN RATIO SHOWN.</p>	<p><b>DISCONNECTS AND OVERCURRENT DEVICES</b></p> <p>CIRCUIT BREAKER, THERMAL-MAGNETIC, 1 POLE</p> <p>DISCONNECT, 1 POLE, LION</p> <p>FUSE TERMINAL BLOCK, 1 POLE</p> <p>BLOWN FUSE INDICATOR</p>	<p><b>OUTPUT LOADS AND DEVICES</b></p> <p>MOTOR</p> <p>SPACE HEATER, WATTAGE SHOWN</p> <p>SOLENOID</p> <p>HOUR METER (ELAPSED TIME)</p> <p>TIME CONTROLLER</p> <p>ENCLOSURE FAN</p> <p><b>DEFINITIONS</b> AIR = AS REQUIRED</p>	<p><b>MISCELLANEOUS</b></p> <p>HORN</p> <p>RESISTOR</p> <p>RECTIFIER</p> <p>SURGE OR ARC SUPPRESSOR</p> <p>CAPACITOR</p> <p>CONNECTOR PLUG</p> <p>REMOTE DEVICE LOCATED AT FIELD EQUIPMENT</p> <p>MECHANICAL INTERLOCK</p> <p>GROUND CONNECTION</p> <p>CHASSIS GROUND</p> <p>ETHERNET RJ-45 CONNECTION</p>	
<p><b>PUSHBUTTONS</b></p> <p>PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN</p> <p>PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED</p> <p>PUSHBUTTON WITH MUSHROOM HEAD, EMERGENCY STOP, MAINTAINED CONTACT</p>	<p><b>INPUT SWITCHES</b></p> <p>NORMALLY OPEN</p> <p>FS-101</p> <p>LS-101</p> <p>PS-101</p> <p>SS-101</p> <p>TS-1001</p> <p>MS-101</p> <p>ZS-101</p>	<p><b>INITIATING VARIABLE</b></p> <p>FLOW</p> <p>LEVEL</p> <p>PRESSURE</p> <p>SPEED</p> <p>TEMPERATURE</p> <p>FORCE OR TORQUE</p> <p>POSITION (LIMIT)</p>		

PLT DATE: Friday, April 12, 2024 11:38:18 PM  
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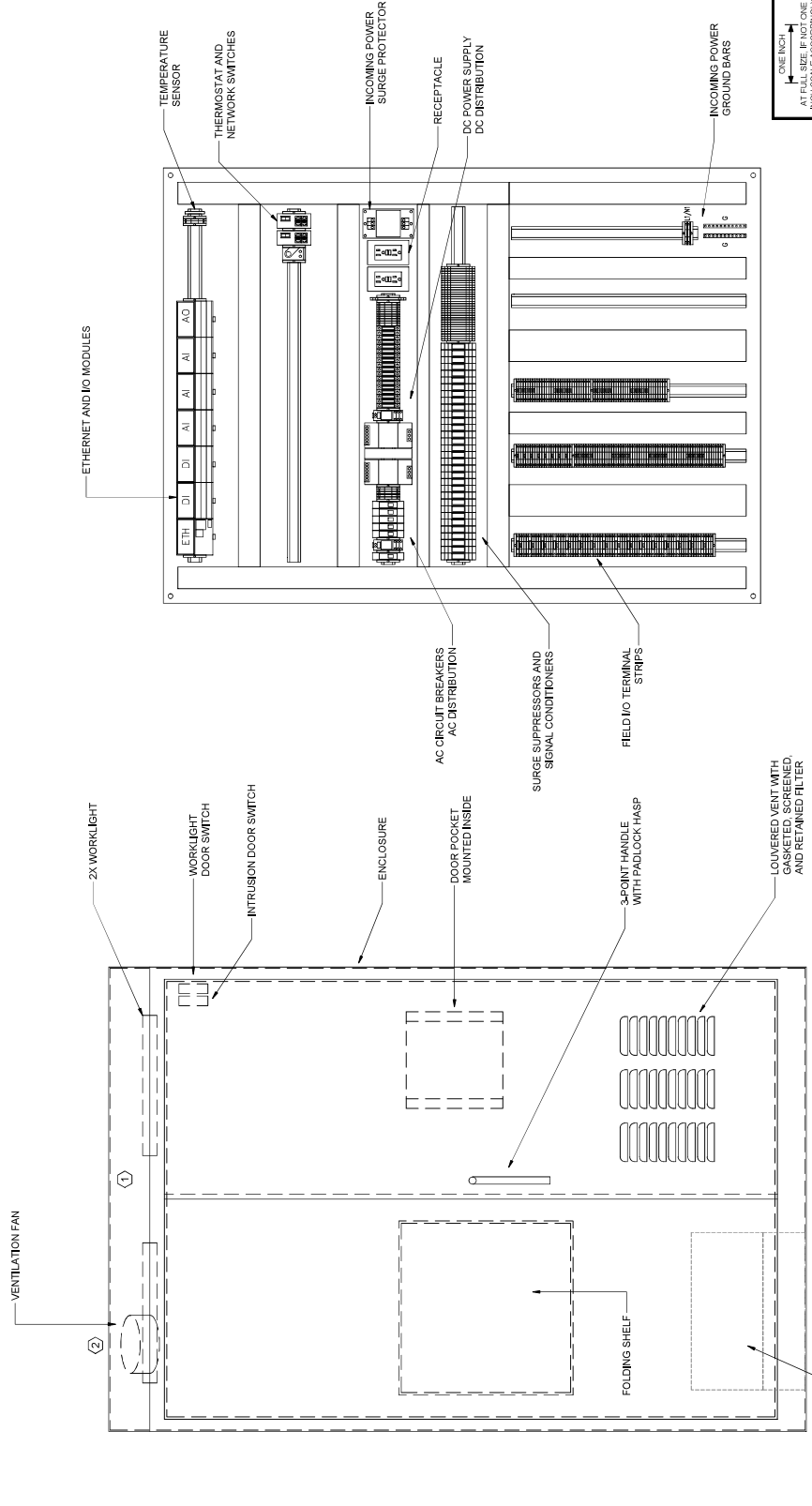
SEAL OF HAWAII  
 LICENSED PROFESSIONAL ENGINEER  
 No. 11994  
 State of Hawaii  
 THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
 Signature: [Signature]  
 EXPIRES: 4/30/2026  
 EXPIRES DATE OF THE BOARD

PROJECT: COUNTY OF KAUAI  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT  
**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**  
 LEGEND AND SYMBOLS  
 DESIGNED BY: BIKANAMURA  
 CHECKED BY: BIKANAMURA  
 DRAWN BY: BIKANAMURA  
 APPROVED: [Signature]  
 REVISION: [Table with columns for REVISION, DATE, BY, APPROVED]

ONE INCH  
 AT FULL SIZE IF NOT ONE INCH SCALE (FOOTING ONLY)

TMK: 3-5-007-030  
 SHEET: 30 OF 45  
 DRAWING: 001

A B C D E F G



**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE IN FABRICATION. PLANT PROGRAMMER TO PROVIDE THE I/O MODULES AND NETWORK SWITCHES. PLANT PROGRAMMER TO REVISE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.
2. PLANT PROGRAMMER TO ADD SIDE PANELS AS NECESSARY.
3. PLANT PROGRAMMER TO PROVIDE THE IDC WITH A UL 508A LABEL.
4. CONTRACTOR TO INSTALL PANELS.

**KEY NOTES**

1. PROVIDE SPACE FOR TOP MOUNTED CONDUITS.
2. OVERHANG VENT WITH GASKETED, SCREENED, AND RETAINED FILTER.

FRONT ELEVATION VIEW

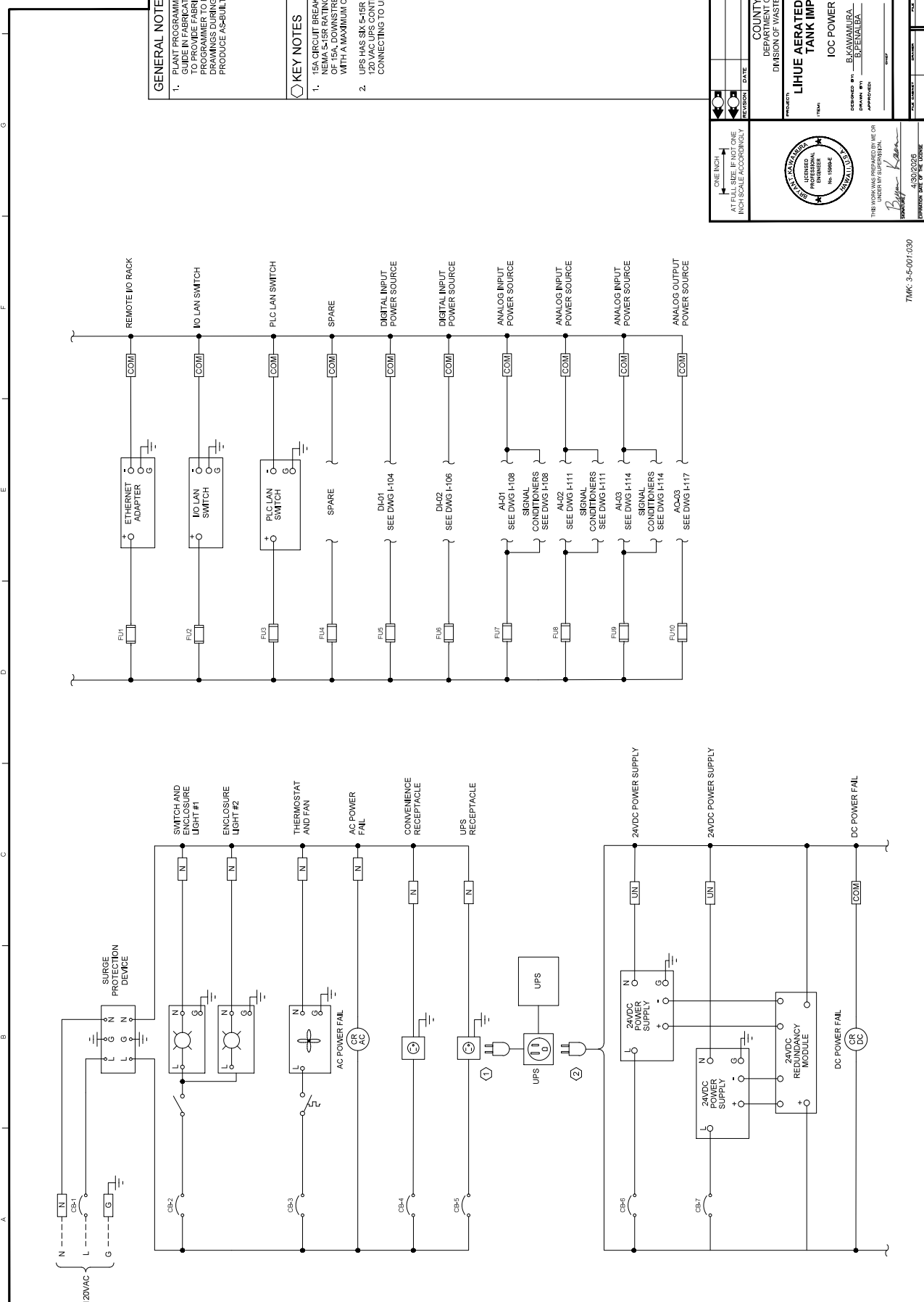
BACK PANEL LAYOUT

PROJECT	COUNTY OF KAUAI
DEPARTMENT	DEPARTMENT OF PUBLIC WORKS
DIVISION	DIVISION OF WASTEWATER MANAGEMENT
<b>LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT</b>	
IOC ELEVATION	
DESIGNED BY	BAKAMAMURA
DRAWN BY	B. PEVALIBA
APPROVED	DATE
DATE	DATE
REVISION	DATE
BY	DATE
BY	DATE

THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF THEY COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

*Bakamura*  
 LICENSED PROFESSIONAL ENGINEER  
 No. 15199-AL  
 HAWAII, U.S.A.  
 EXPIRES 03/31/2026

DATE: 4/30/2024  
 DRAWING NO: TMK-3-5-007-030



**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A REFERENCE TO REFINISH THE IO RACK TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO REFINISH THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- 15A CIRCUIT BREAKER IS FOR RECEPTACLE WITH NEW 5-15R RECEPTACLES. USE 15A CIRCUIT BREAKER WITH 5-15R RECEPTACLES WITH A MAXIMUM CURRENT OF 15A.
- UPS HAS SIX 5-15R AVAILABLE. USE 5-15P FOR 120 VAC UPS CONTROL POWER WHEN CONNECTING TO UPS.

AT FULL SIZE IF NOT ONE INCH SCALE APPROXIMATELY

REVISION	DATE	BRIEF	BY	APPROVED

ONE INCH

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

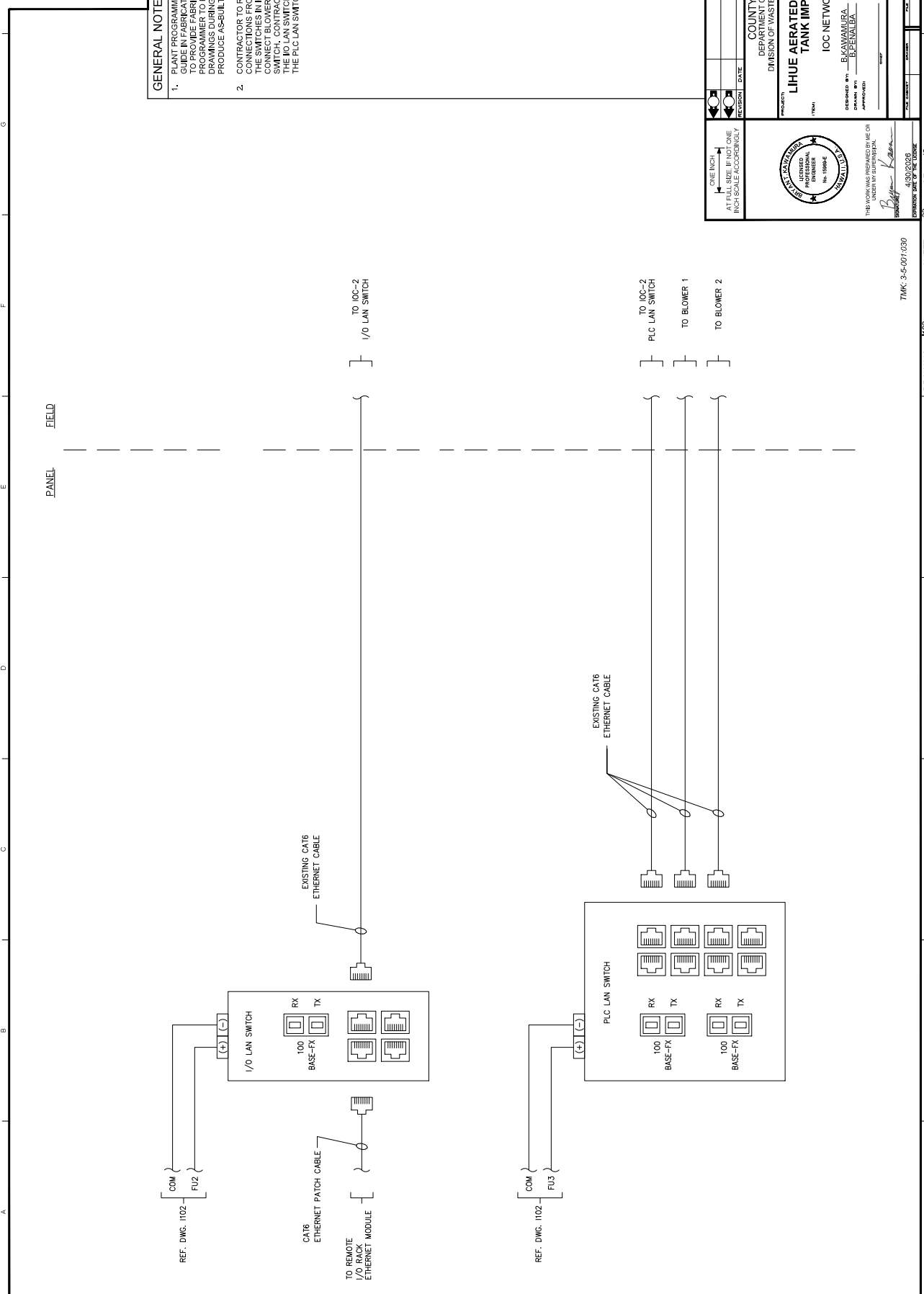
**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

IOC POWER DISTRIBUTION

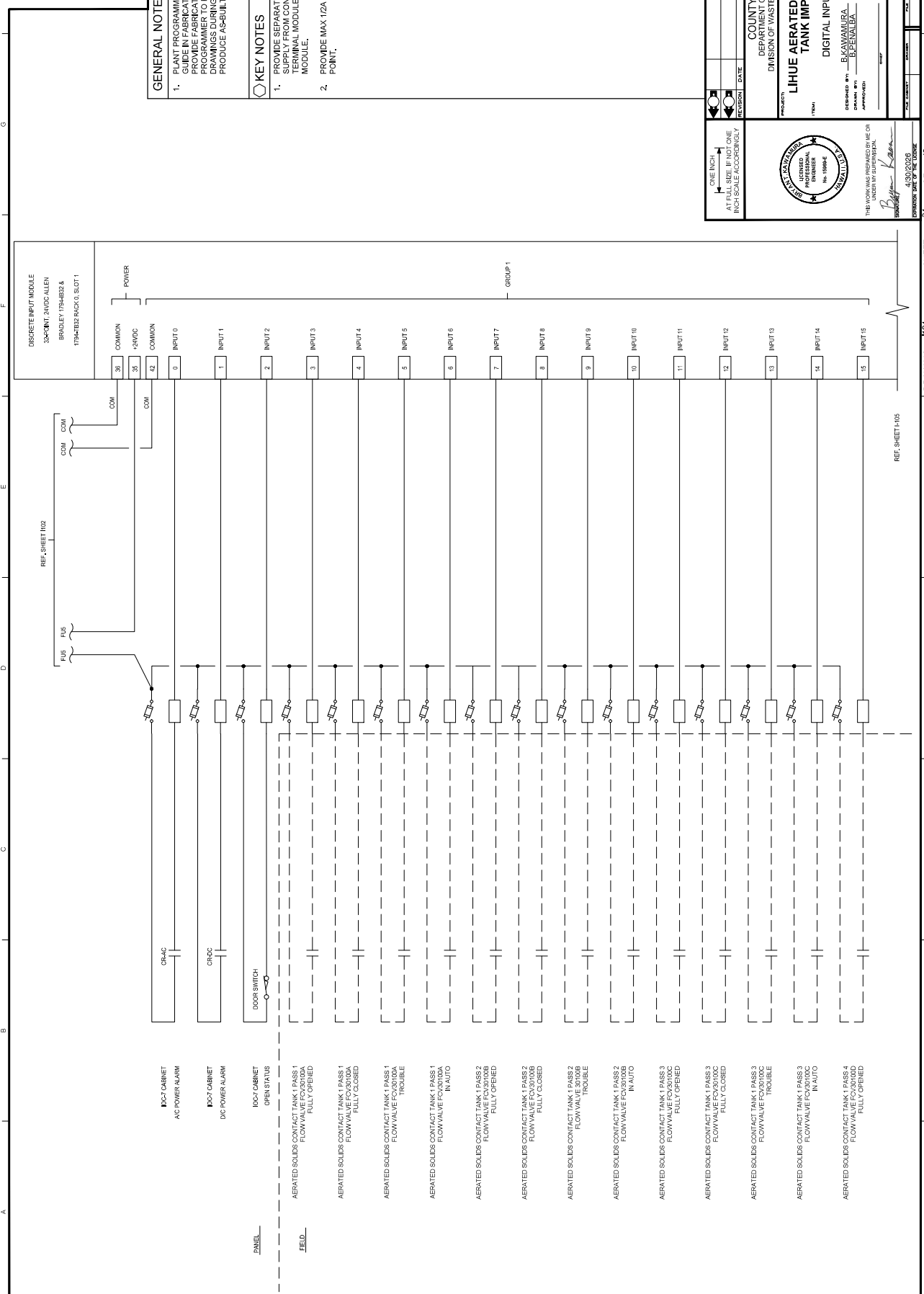
DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: BAKAMAMURA  
DATE: 4/30/2024

THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF THEY COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

*Bakamura Kaui*  
DATE: 4/30/2024







**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE IN FABRICATION. PLANT PROGRAMMER TO VERIFY ALL WIRING AND CONNECTIONS TO THE PROGRAMMER TO RECREATE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- PROVIDE SEPARATELY USED 24VDC POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH DIGITAL INPUT MODULE.
- PROVIDE MAX 1/2A FUSE FOR EACH DIGITAL INPUT POINT.

TMK: 3-5-001/030

**SEAL OF THE STATE OF HAWAII**  
**LICENSED PROFESSIONAL ENGINEER**  
 No. 19994  
 STATE OF HAWAII

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
 Signature: *Raymond Kama*  
 DATE: 4/30/2024  
 EXPIRES DATE OF THE LICENSE: \_\_\_\_\_

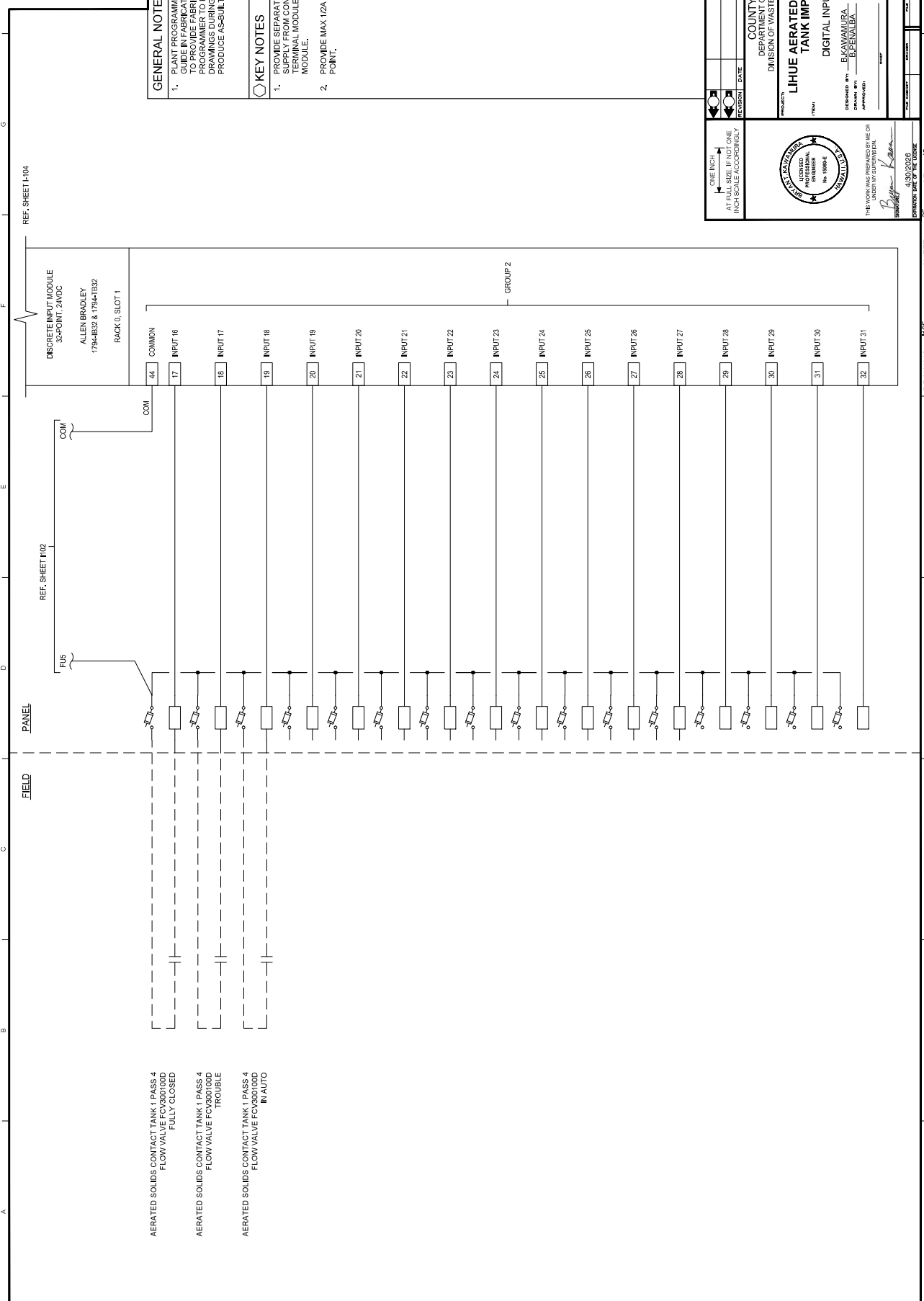
**COUNTY OF KAUAI**  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**  
 DIGITAL INPUT MODULE 1A

DESIGNED BY: BAKAMAMURA  
 DRAWN BY: BAKAMAMURA  
 CHECKED BY: BAKAMAMURA  
 APPROVED BY: BAKAMAMURA

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 REVISION: \_\_\_\_\_ BY: \_\_\_\_\_

ONE INCH  
 AT FULL SIZE IF NOT ONE  
 INCH SCALE (FOOTING ONLY)



**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE FIELD AND PANEL TERMINALS TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO RECLINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- PROVIDE SEPARATELY USED 24VDC POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH DIGITAL INPUT MODULE.
- PROVIDE MAX 1/2A FUSE FOR EACH DIGITAL INPUT POINT.

TWK: 3-5-001-030

**COUNTY OF KAUAI**  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

**DIGITAL INPUT MODULE 1B**

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
APPROVED BY: BAKAMAMURA

DATE: \_\_\_\_\_

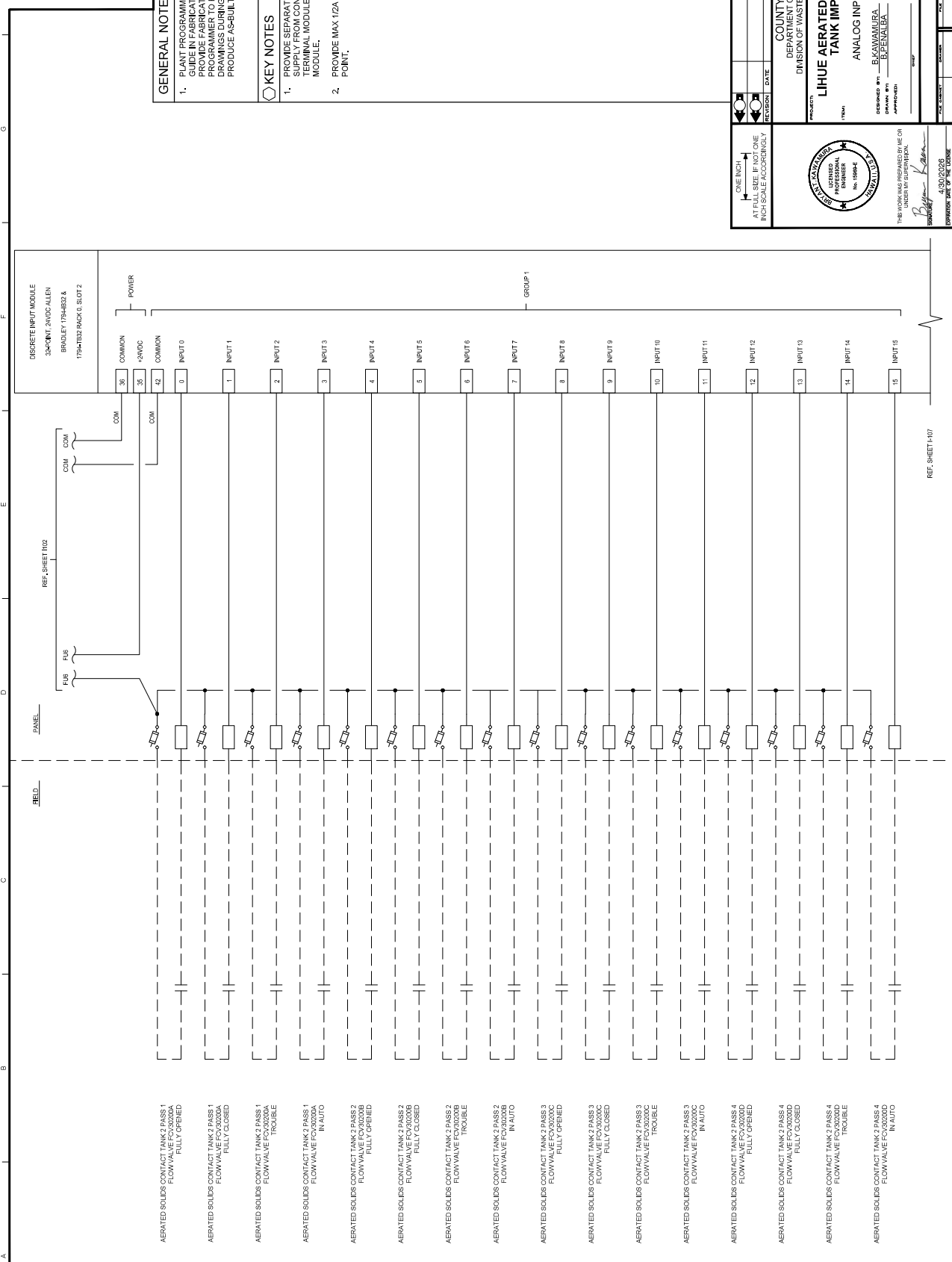
REVISION: \_\_\_\_\_ DATE: \_\_\_\_\_ BY: APPROVED

**STATE OF HAWAII**  
LICENSED PROFESSIONAL ENGINEER  
No. 19994E  
KUALA, HAWAII

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*Bakamamura*  
DATE: 4/30/2024  
EXPIRES DATE OF THE LICENSE: \_\_\_\_\_

ONE INCH  
AT FULL SIZE IF NOT ONE INCH SCALE (PROPORTIONALLY)

REF. SHEET H-104      REF. SHEET H-105      SHEET 35 OF 48



**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE IN FABRICATING. PLANT PROGRAMMER TO VERIFY ALL WIRING AND TERMINALS TO BE USED IN FABRICATING. PROGRAMMER TO REVIEW THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. PROVIDE SEPARATELY FUSED 24VDC POWER SUPPLY FROM TERMINAL BLOCK FOR EACH TERMINAL MODULE USED WITH DIGITAL INPUT MODULE.
2. PROVIDE MAX 1/2A FUSE FOR EACH DIGITAL INPUT POINT.

TWK-3-5-001-030

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

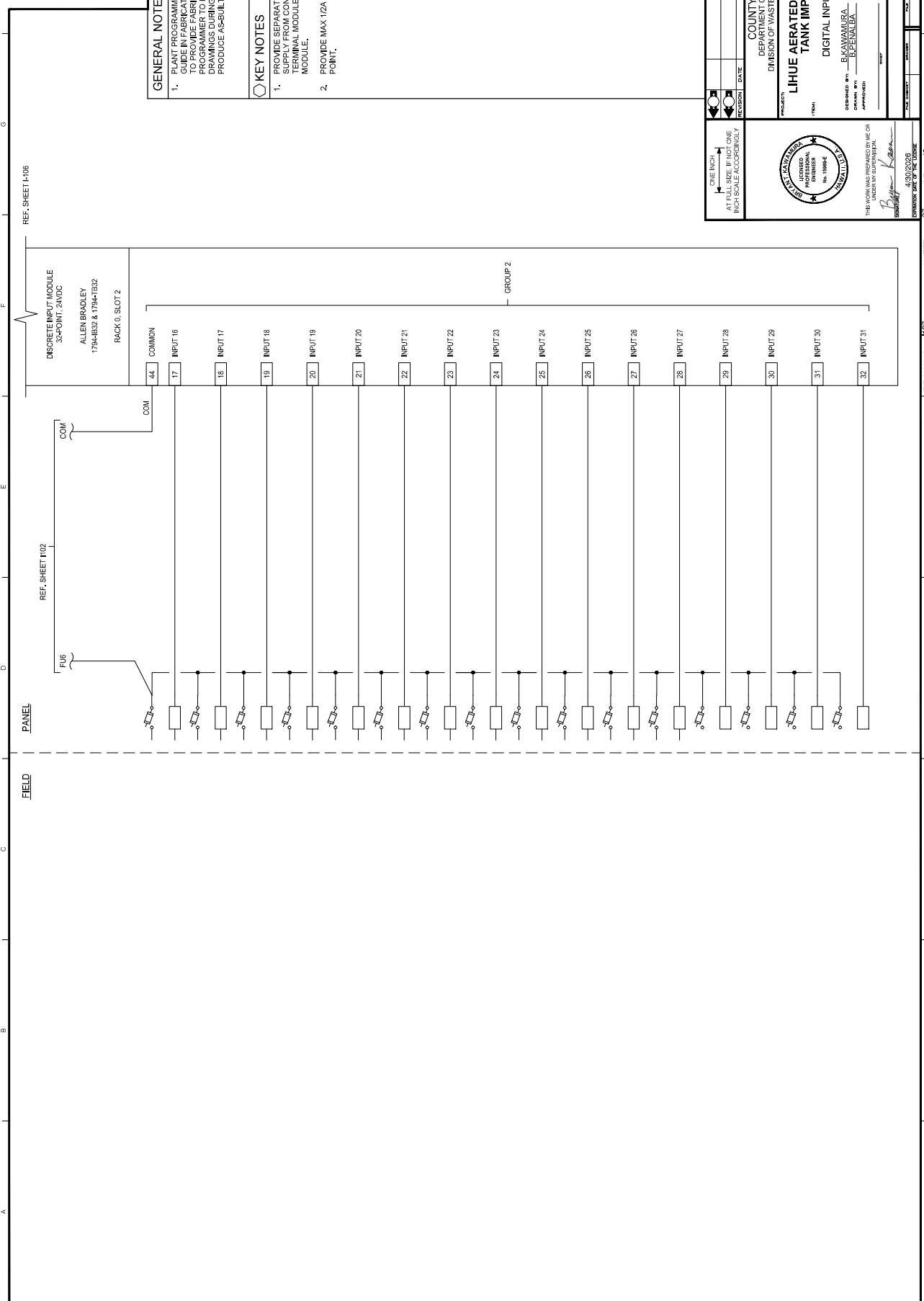
ANALOG INPUT MODULE 2A

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: BAKAMAMURA  
DATE: 4/30/2023

DATE CHECKED: \_\_\_\_\_  
BY: \_\_\_\_\_  
DATE: \_\_\_\_\_



THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
DATE: 4/30/2023  
DRAWING DATE OF THE WORK: \_\_\_\_\_



**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE WIRING OF THE DIGITAL INPUT MODULES. THE PROGRAMMER IS RESPONSIBLE TO PROVIDE FABRICATION DRAWINGS, PLANT PROGRAMMER TO RECLINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- PROVIDE SEPARATELY USED 2A 1/2A POWER SUPPLY FROM TERMINAL BLOCK FOR EACH TERMINAL MODULE USED WITH DIGITAL INPUT MODULE.
- PROVIDE MAX 1/2A FUSE FOR EACH DIGITAL INPUT POINT.

TWK-3-5-001-030

DATE	BY	APPROVED
REVISION	DATE	BY

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE APPROXIMATELY

SEAL OF HAWAII  
LICENSED PROFESSIONAL  
ENGINEER  
No. 19994  
STATE OF HAWAII

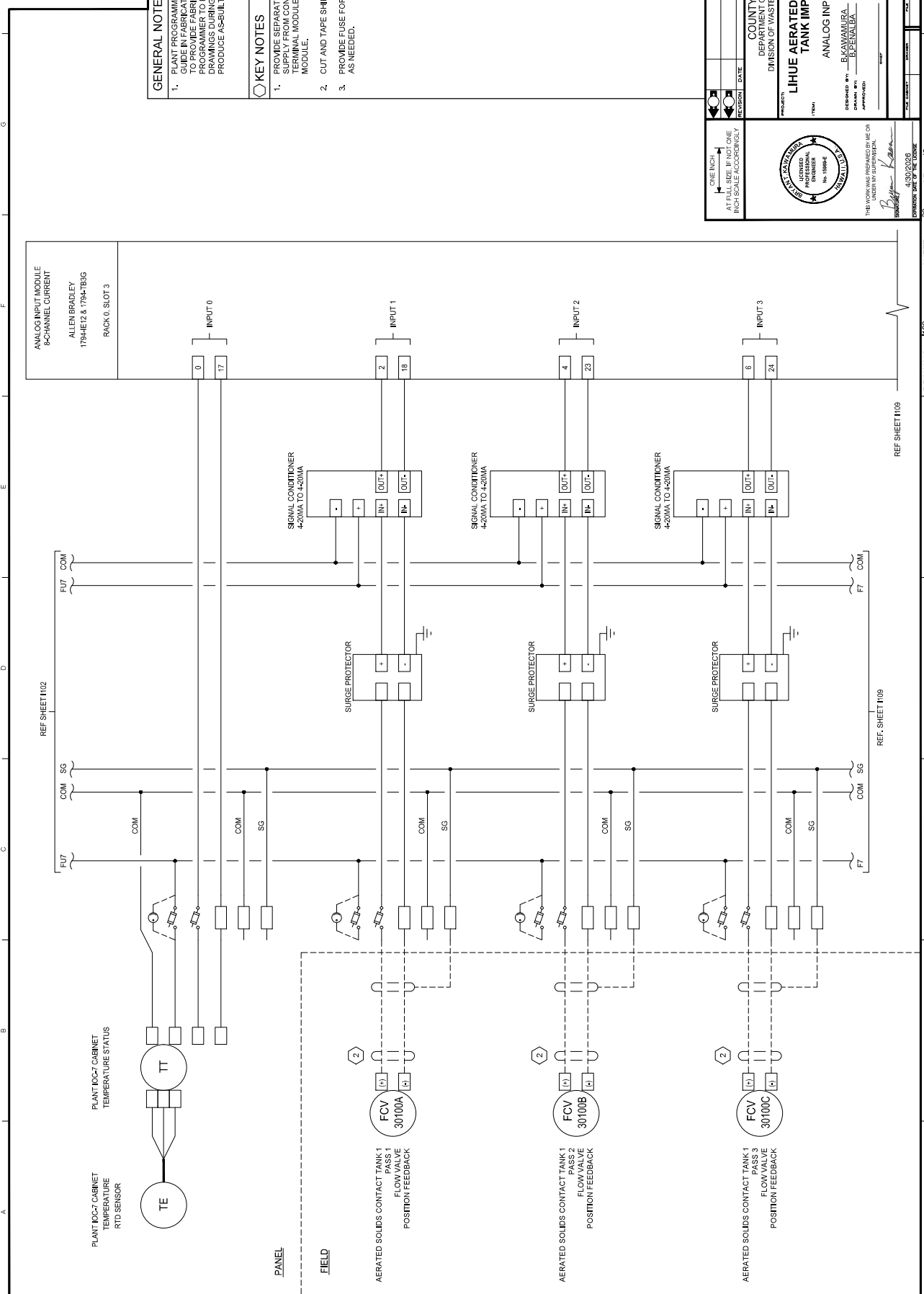
THE WORK WAS PREPARED BY ME OR  
UNDER MY SUPERVISION  
*Allen Bradley*  
DATE: 4/30/2023  
ISSUANCE DATE OF THE BOOK

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT  
TANK IMPROVEMENT**

DIGITAL INPUT MODULE 2B

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: BAKAMAMURA  
DATE: 4/30/2023



ANALOG INPUT MODULE  
8-CHANNEL CURRENT  
ALLEN BRADLEY  
1794HE12 & 1794TB3G  
RACK 0, SLOT 3

**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE FOR THE WIRING OF THE TANKS TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO RECLINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- RELAYS SEPARATELY USED TO VCS POWER SUPPLY FROM LOGICAL POWER FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
- CUT AND TAPE SHIELD
- PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE (PROVIDE S&L)

REVISED DATE BY APPROVED

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT  
TANK IMPROVEMENT**

ANALOG INPUT MODULE 1A

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD:  
APPROVED: BAKAMAMURA  
DATE: \_\_\_\_\_

THESE WORKS WERE PREPARED BY ME OR  
UNDER MY CLOSE PERSONAL SUPERVISION  
AND TO THE BEST OF MY KNOWLEDGE AND  
BELIEF THEY COMPLY WITH ALL  
REQUIREMENTS OF THE DIVISION

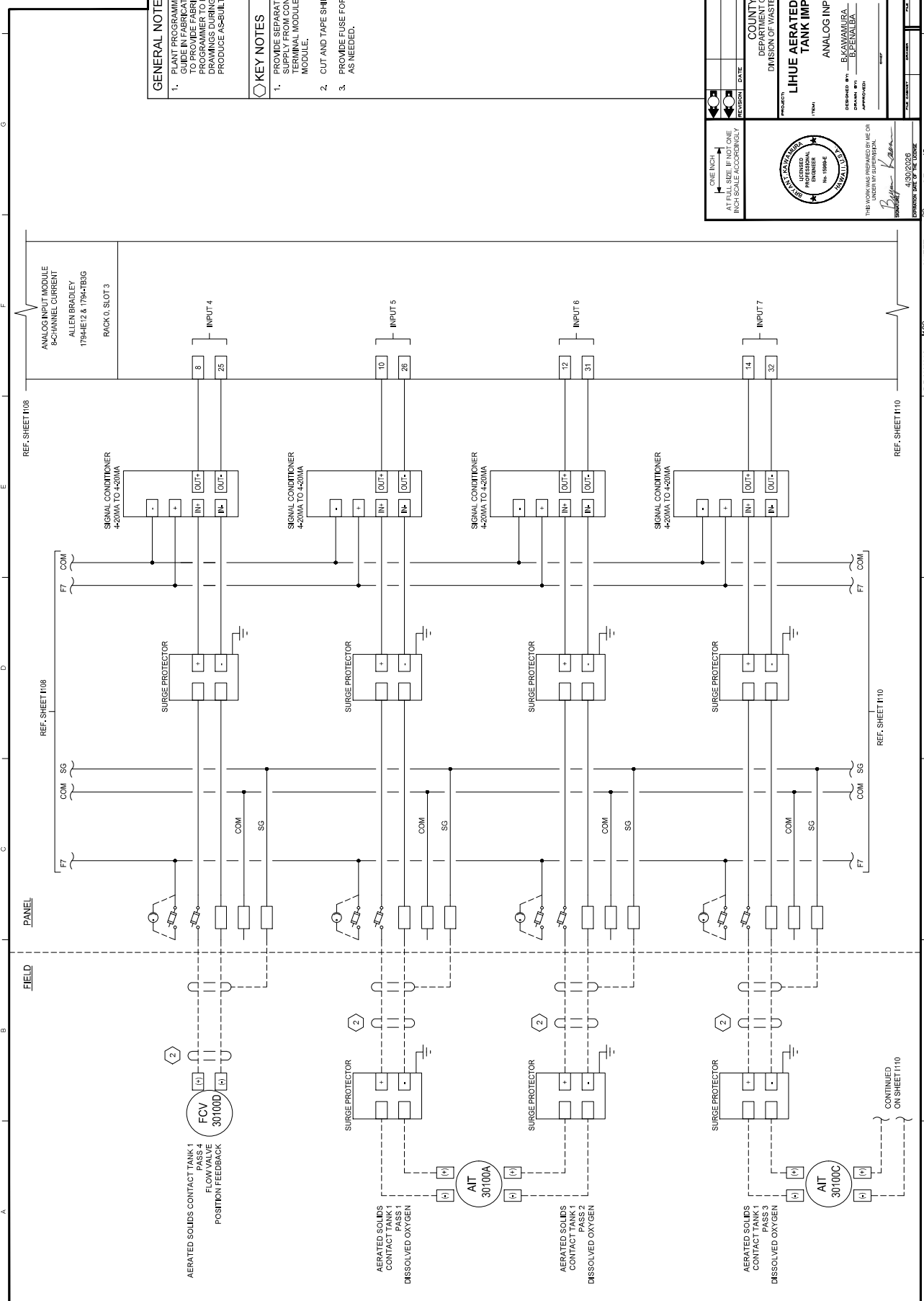
DATE: 4/30/2025  
DRAWN BY: BAKAMAMURA

PROJECT NO: 191994E  
LICENSURE NO: 191994E  
STATE OF HAWAII  
REGISTERED PROFESSIONAL ENGINEER

TWK: 3-5-001-030

A B C D E F G

0 1 2 3 4 5 6 7 8 9



**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A REFERENCE TO THE FIELD AND PANEL DRAWINGS TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO REVIEW THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. FUSES SEPARATELY USED FOR POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
2. CUT AND TAPE SHIELD
3. PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

TWK-3-5-001-030

PROJECT	LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT
CLIENT	COUNTY OF KAUAI DEPARTMENT OF PUBLIC WORKS DIVISION OF WASTEWATER MANAGEMENT
DESIGNED BY	BAKAMAMURA
DRAWN BY	BAKAMAMURA
APPROVED	BAKAMAMURA
DATE	
REVISION	
DATE	
BY	
APPROVED	

SCALE: 1" = 1'-0"

AT FULL SIZE IF NOT ONE INCH SCALE PROGRAMMERS USE

ONE INCH

THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF THEY COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

DATE: 4/30/2024

PREPARED BY: BAKAMAMURA

SECTION HEAD: BAKAMAMURA

PROJECT NO: 19994

DATE: 4/30/2024

PROJECT NO: 19994

DATE: 4/30/2024

PROJECT NO: 19994

DATE: 4/30/2024

A B C D E F G H

1 2 3 4

REF. SHEET 1108

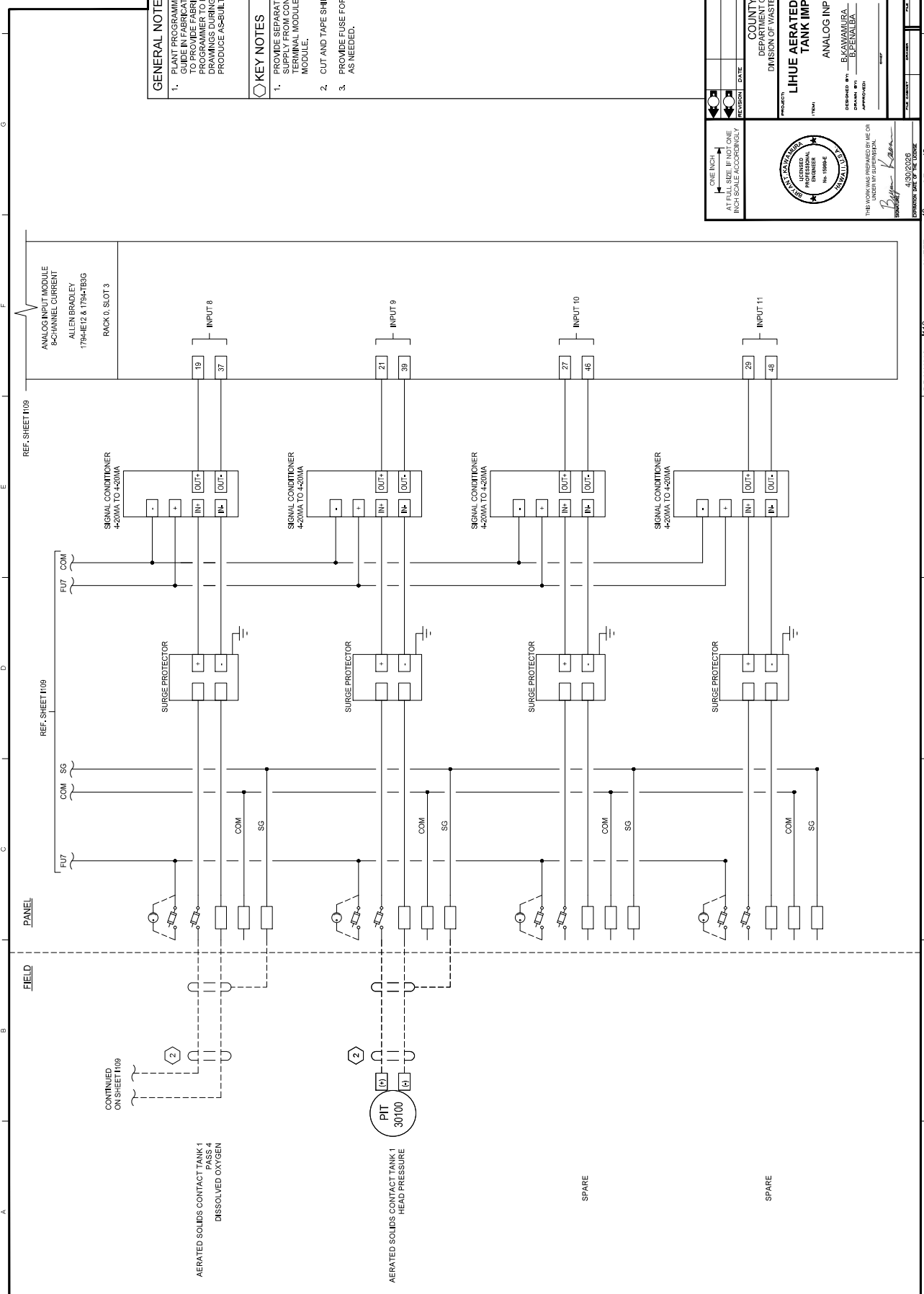
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REF. SHEET 1110

REF. SHEET 1110

DRAWING 1109

SHEET 39 OF 48



CONTINUED ON SHEET 1109

PANEL REF. SHEET 1109 REF. SHEET 1109 REF. SHEET 1109 REF. SHEET 1109

AERATED SOLIDS CONTACT TANK 1 PASS 4 DISSOLVED OXYGEN

AERATED SOLIDS CONTACT TANK 1 HEAD PRESSURE

SPARE

SPARE

PIT 30100

COM SG COM SG COM SG COM SG

FUT COM FUT COM

SURGE PROTECTOR

SIGNAL CONDITIONER 4-20MA TO 4-20MA

SIGNAL CONDITIONER 4-20MA TO 4-20MA

SIGNAL CONDITIONER 4-20MA TO 4-20MA

SIGNAL CONDITIONER 4-20MA TO 4-20MA

INPUT 8 INPUT 9 INPUT 10 INPUT 11

19 37 21 39 27 46 29 48

ANALOG INPUT MODULE 8-CHANNEL CURRENT ALLEN BRADLEY 1794-IE12 & 1794-TB3G RACK 0, SLOT 3

**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE FIELD AND PANEL TERMINALS TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO REELECT THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. FUSES SEPARATELY USED ON EACH POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
2. CUT AND TAPE SHIELD
3. PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

TWK-3-5-001-030

DATE	REVISION	BY	APPROVED

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE PROGRAMMERS

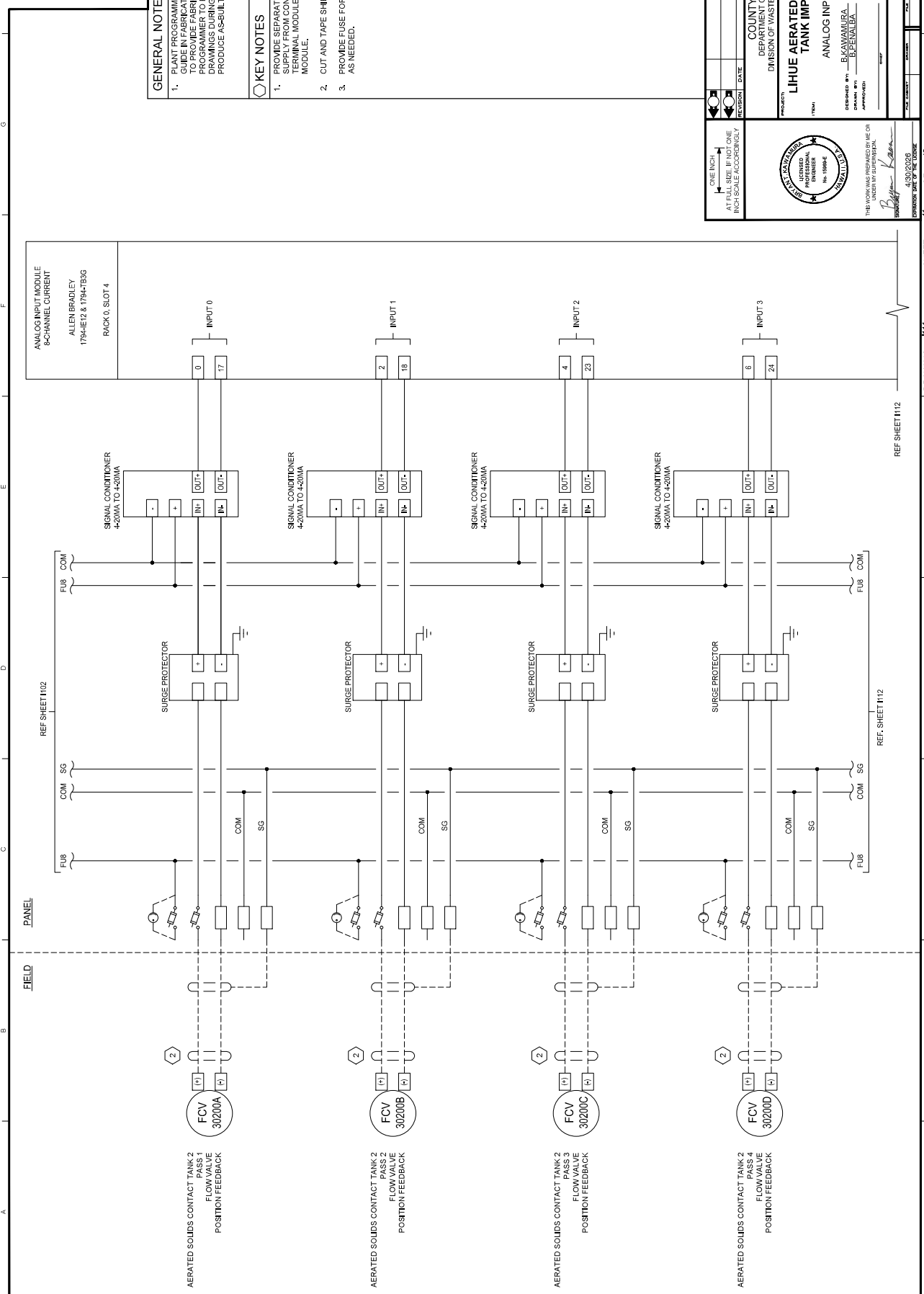
SEAL OF HAWAII  
LICENSED PROFESSIONAL  
ENGINEER  
No. 19194-E  
STATE OF HAWAII

THIS WORK WAS PREPARED BY ME OR  
UNDER MY SUPERVISION  
DATE: 4/30/2023  
DRAWN BY: B. KAMAMURA  
CHECKED BY: B. KAMAMURA  
SECTION HEAD: B. KAMAMURA  
DATE:  

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

ANALOG INPUT MODULE 1C



**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE WIRING. THE WIRING IS TO BE DONE IN ACCORDANCE WITH THE FABRICATION DRAWINGS. THE FABRICATION PROGRAMMER TO RECHECK THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- PROVIDE SEPARATELY USED 24 VDC POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
- CUT AND TAPE SHIELD
- PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

ANALOG INPUT MODULE  
8-CHANNEL CURRENT  
ALLEN BRADLEY  
1794-IE12 & 1794-IB3G  
RACK 0, SLOT 4

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE (PROPORTIONALLY)

REVISION DATE BY APPROVED

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

ANALOG INPUT MODULE 2A

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: BAKAMAMURA  
APPROVED: BAKAMAMURA  
DATE: 4/30/2023

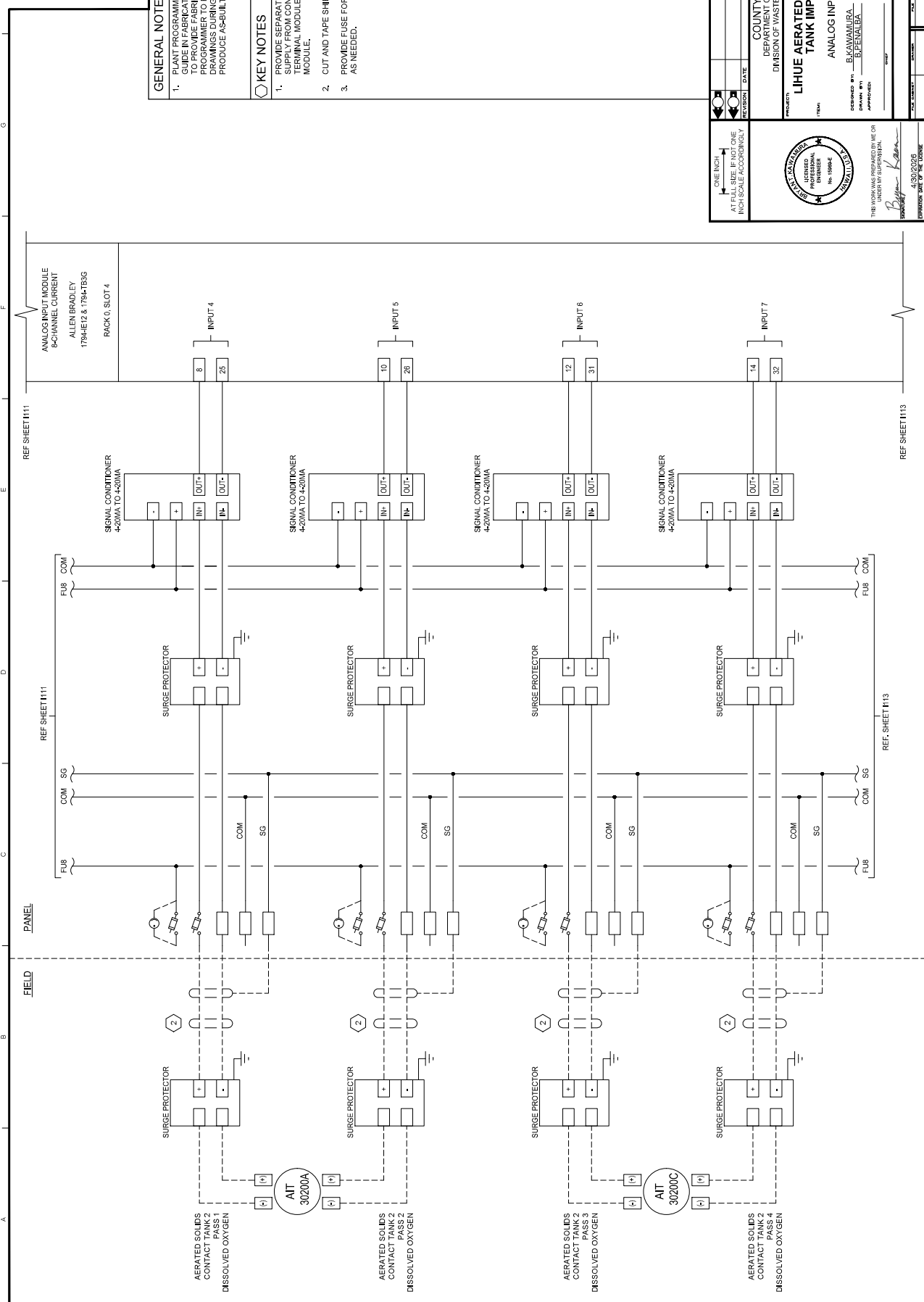
THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMPLIES WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

41 OF 48 SHEET

DRAWING: I11

TWK-3-5-001-030





**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE FIELD AND PANEL WIRING TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO RE-DEFINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. FUSES SEPARATELY USED FOR POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
2. CUT AND TAPE SHIELD
3. PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

TANK-3-5-001-030

DATE	BY	APPROVED
REVISION	DATE	BY

COUNTY OF KAUAI  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WASTEWATER MANAGEMENT

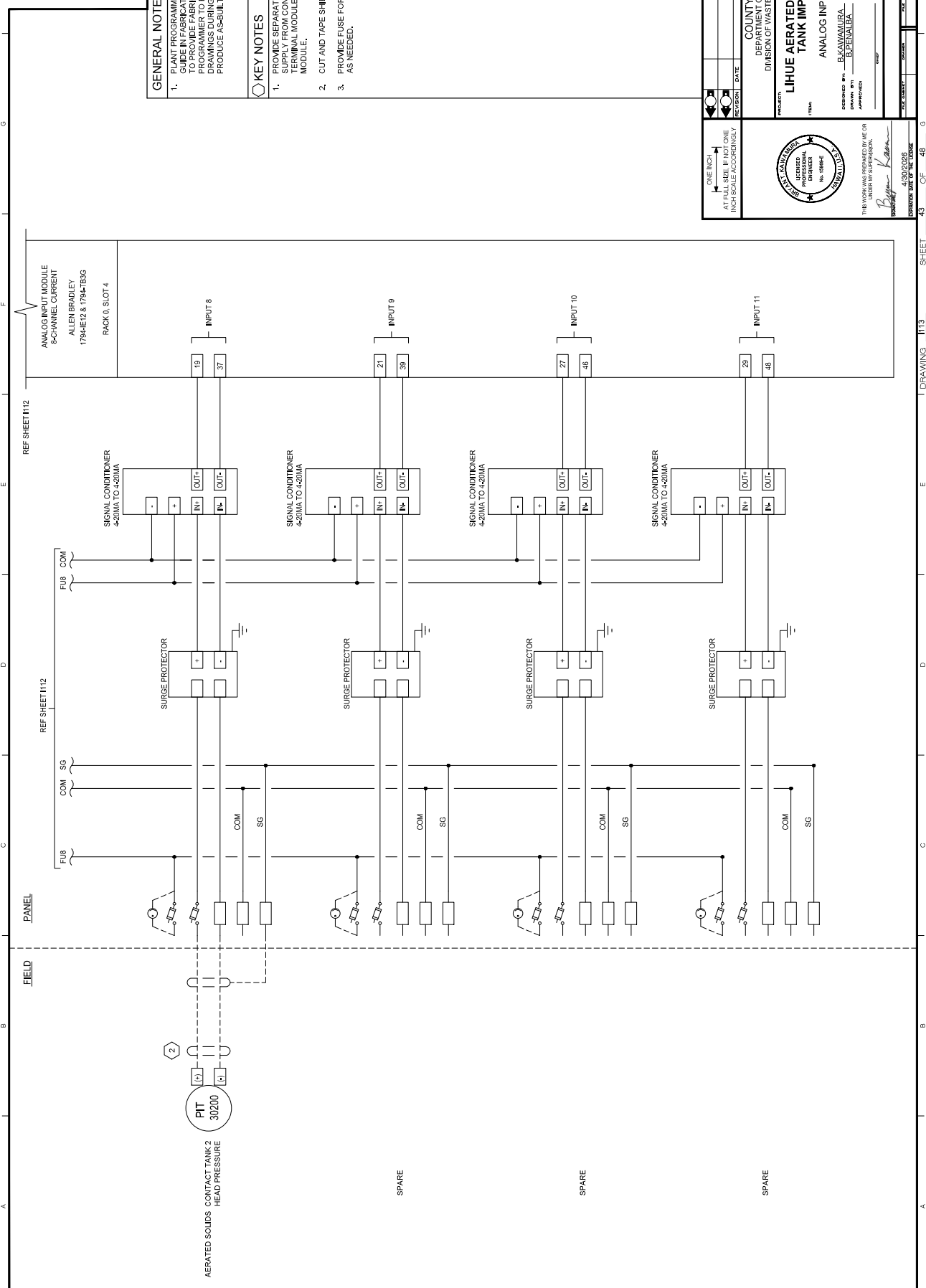
**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

ANALOG INPUT MODULE 2B

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: BAKAMAMURA  
DATE: 4/30/2023

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*Bakamura Kama*  
DATE: 4/30/2023  
DRAWING DATE OF THE WORK

SCALE: 1" = 1'-0"



**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE WIRING. THE PROGRAMMER TO PROVIDE FABRICATION DRAWINGS, PLANT PROGRAMMER TO RECLINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. PROVIDE SEPARATELY USED 2A VCS POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
2. CUT AND TAPE SHIELD
3. PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE PROGRAMMERS USE

REVISION	DATE	BY	APPROVED

PROJECT: COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT

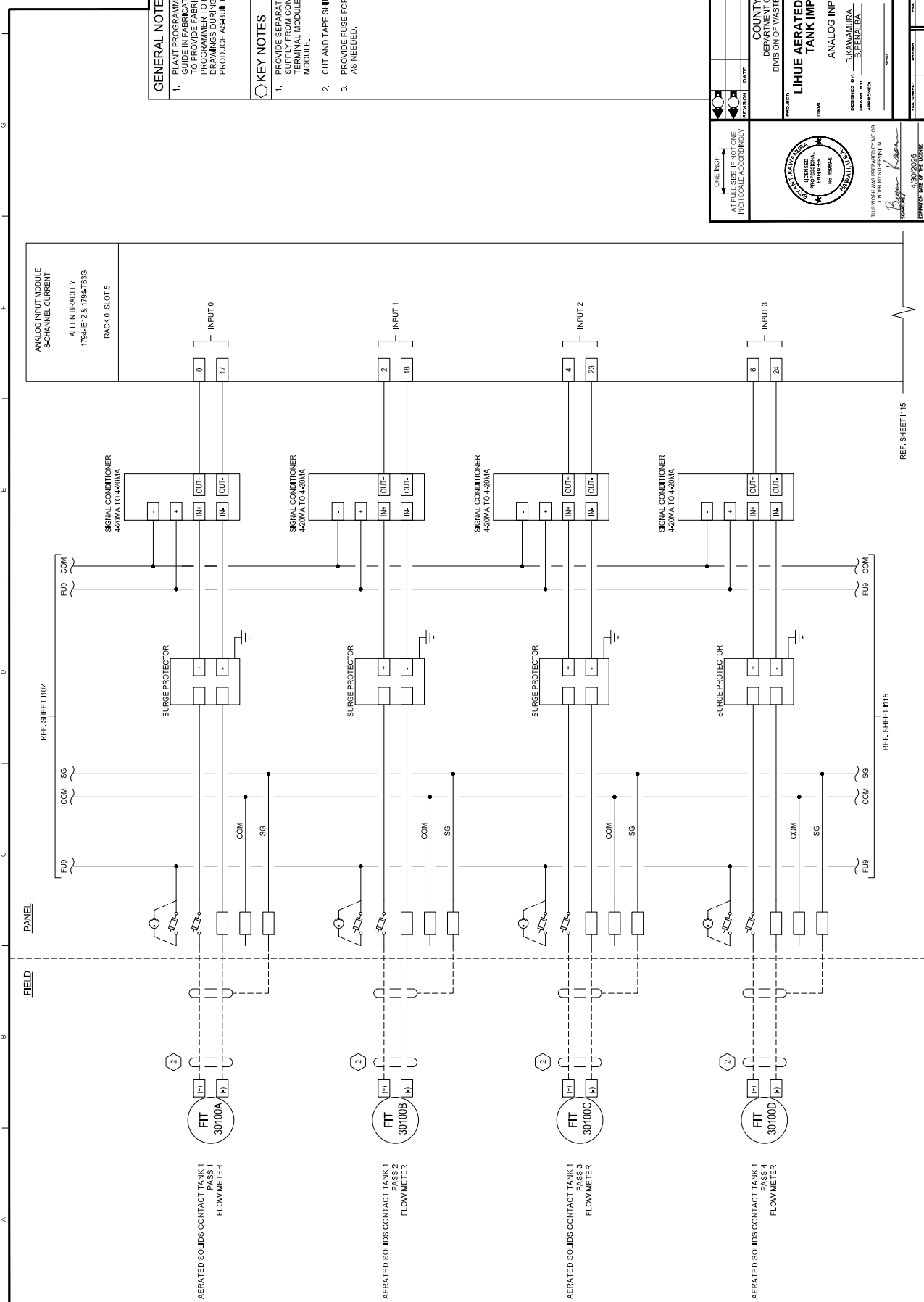
ITEM: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
APPROVED: BAKAMAMURA

ANALOG INPUT MODULE 2C

DATE: \_\_\_\_\_

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
DATE: 4/30/2023  
DRAWN BY: BAKAMAMURA  
DATE OF THE ISSUE: \_\_\_\_\_



**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE FIELD AND PANEL TERMINALS TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO RECREATE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- PROVIDE SEPARATELY USED 24 VDC POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
- CUT AND TAPE SHIELD
- PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

SCALE: 1" = 1'-0"

DATE: \_\_\_\_\_

REVISION: \_\_\_\_\_

BY: \_\_\_\_\_

APPROVED: \_\_\_\_\_

PROJECT: COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT

ITEM: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

ANALOG INPUT MODULE 3A

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: \_\_\_\_\_  
APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_

THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF THEY COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS.

DATE: 4/30/2023

PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

PROJECT NO: 1982819839

PROJECT LOCATION: LIHUE WASTEWATER TREATMENT PLANT

PROJECT OWNER: COUNTY OF KAUAI

PROJECT NO: 1982819839

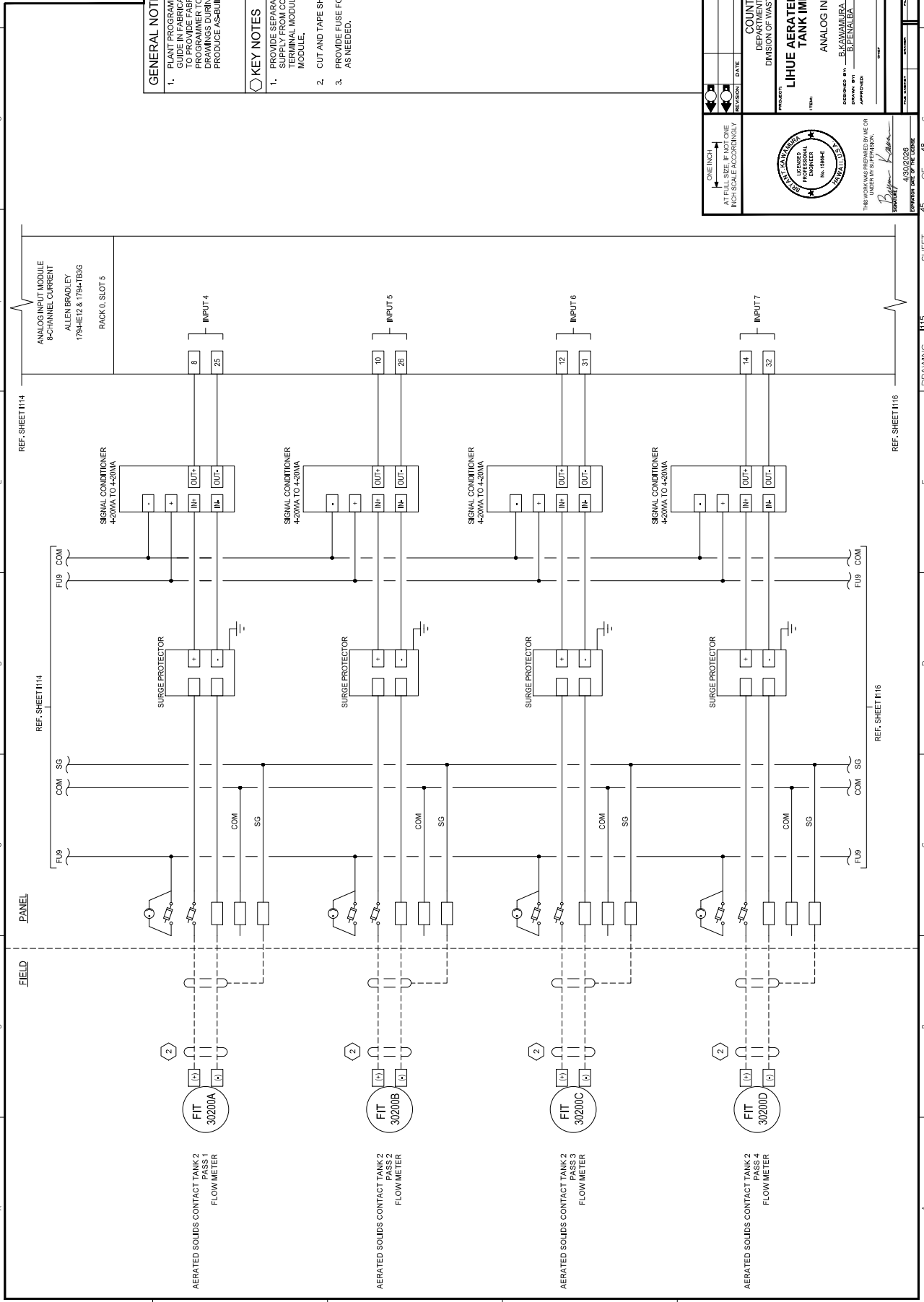
PROJECT LOCATION: LIHUE WASTEWATER TREATMENT PLANT

PROJECT OWNER: COUNTY OF KAUAI

A B C D E F G

1 2 3 4 5

SHEET 44 OF 45 DRAWING M14 REF. SHEET M15 REF. SHEET M15



**GENERAL NOTES**

- PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE WIRING AND TO PROVIDE FABRICATION DRAWINGS, PLANT PROGRAMMER TO REVIEW THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

- FUSES SEPARATELY USED TO PROTECT SURGE PROTECTORS AND SIGNAL CONDITIONERS FROM ELECTRICAL DAMAGE FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
- CUT AND TAPE SHIELD
- PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

SCALE: 1" = 1'-0"

AT FULL SIZE IF NOT ONE INCH SCALE (PROGRESSIVE)

ONE INCH

DATE: \_\_\_\_\_

REVISION: \_\_\_\_\_

BY: \_\_\_\_\_

APPROVED: \_\_\_\_\_

PROJECT: COUNTY OF KAUAI  
DIVISION OF WASTEWATER MANAGEMENT

ITEM: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

ANALOG INPUT MODULE 3B

DESIGNED BY: BAKAMAMURA  
DRAWN BY: BAKAMAMURA  
CHECKED BY: BAKAMAMURA  
SECTION HEAD: \_\_\_\_\_  
APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_

THESE WORKS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION.  
DATE: 4/30/2024  
DRAWN BY: BAKAMAMURA  
PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

NO. 11999-04  
LICENSED PROFESSIONAL ENGINEER  
STATE OF HAWAII

DATE: 4/30/2024  
DRAWN BY: BAKAMAMURA  
PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT

TWK-3-5-001-030

A B C D E F G

FIELD PANEL

REF. SHEET M14 REF. SHEET M14 REF. SHEET M14 REF. SHEET M16

ANALOG INPUT MODULE  
82-CHANNEL CURRENT  
ALLEN BRADLEY  
1794-HE12 & 1794-TB3G  
RACK 0, SLOT 5

INPUT 4 INPUT 5 INPUT 6 INPUT 7

8 25 10 26 12 31 14 32

SIGNAL CONDITIONER 4-20MA TO 4-20MA

COM SG COM SG COM SG COM SG

SURGE PROTECTOR

FIT 30200A FIT 30200B FIT 30200C FIT 30200D

AERATED SOLIDS CONTACT TANK 2 PASS 1 FLOW METER

AERATED SOLIDS CONTACT TANK 2 PASS 2 FLOW METER

AERATED SOLIDS CONTACT TANK 2 PASS 3 FLOW METER

AERATED SOLIDS CONTACT TANK 2 PASS 4 FLOW METER

FLU9 COM SG

FLU9 COM SG COM SG COM SG

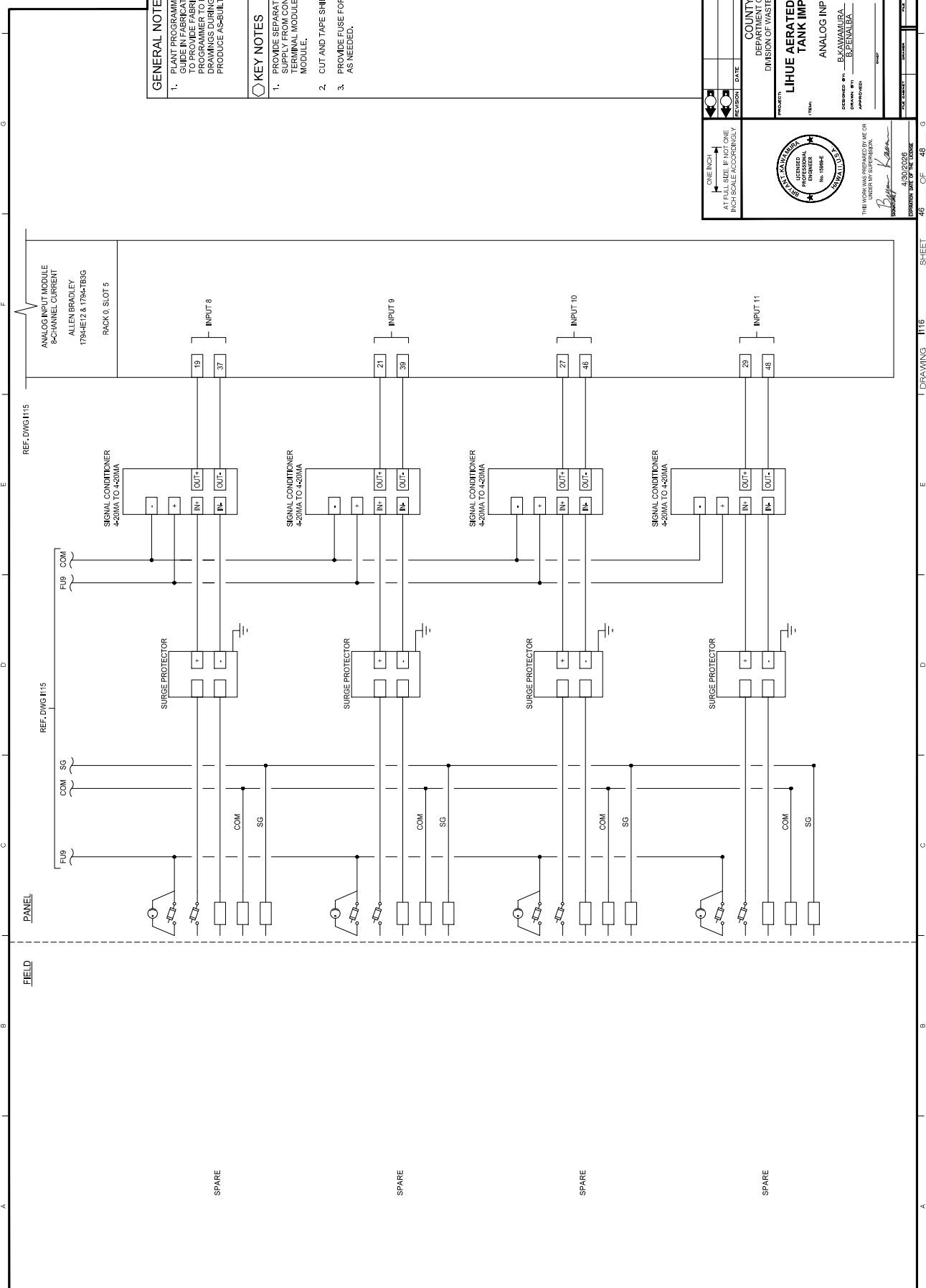
REF. SHEET M14 REF. SHEET M16

45 46

DRAWING M15

SHEET 45 OF 46

LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT



ANALOG INPUT MODULE  
8-CHANNEL CURRENT  
ALLEN BRADLEY  
1794-HE2 & 1794-TB3G  
RACK 0, SLOT 5

REF. DWG 1115

REF. DWG 1115

REF. DWG 1115

REF. DWG 1115

**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE FABRICATION OF THE WIRING TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO RECLINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. PROVIDE SEPARATELY USED 24 VDC POWER SUPPLY FROM POWER SUPPLY FOR EACH TERMINAL MODULE USED WITH ANALOG INPUT MODULE.
2. CUT AND TAPE SHIELD
3. PROVIDE FUSE FOR EACH ANALOG INPUT POINT AS NEEDED.

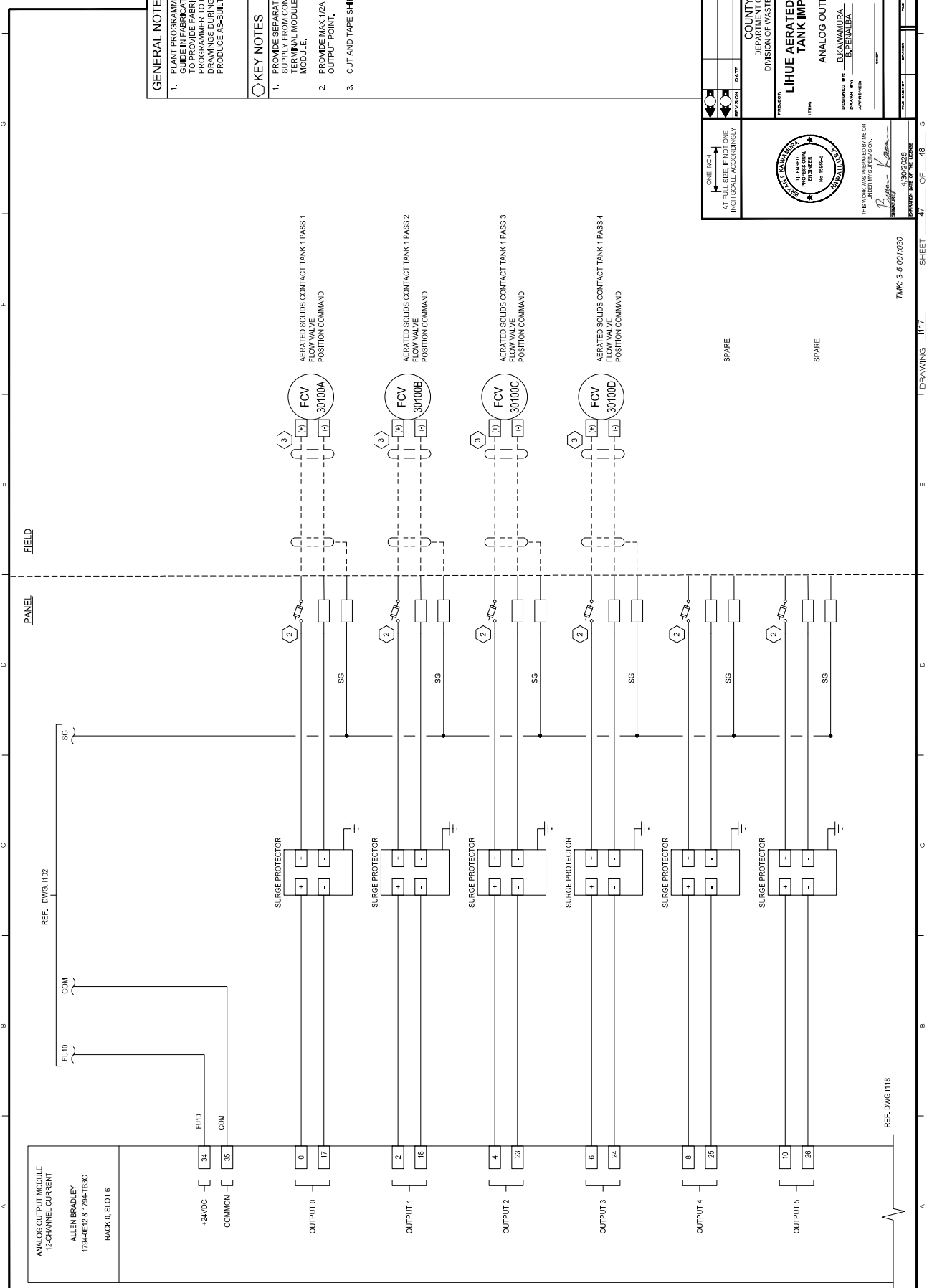
TWK-3-5-001-030

DATE	BY	APPROVED
REVISION	DATE	BY

ONE INCH  
AT FULL SIZE IF NOT ONE  
INCH SCALE PROGRAMMERS USE

SEAL OF HAWAII  
LICENSED PROFESSIONAL  
ENGINEER  
No. 19194-E  
STATE OF HAWAII

THESE WORKS WERE PREPARED BY ME OR  
UNDER MY CLOSE PERSONAL SUPERVISION  
DATE: 4/30/2024  
DRAWN BY: B. KAMAMURA  
CHECKED BY: B. KAMAMURA  
SECTION HEAD: B. KAMAMURA  
PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT  
DIVISION: DIVISION OF WASTEWATER MANAGEMENT  
COUNTY OF KAUAI



**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE FOR WIRING AND TO PROVIDE FABRICATION DRAWINGS. PLANT PROGRAMMER TO REDEFINE THE FABRICATION DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. PROVIDE SEPARATELY USED 24VDC POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG OUTPUT MODULE.
2. PROVIDE MAX. 1/2A FUSE FOR EACH ANALOG OUTPUT POINT.
3. CUT AND TAPE SHIELD

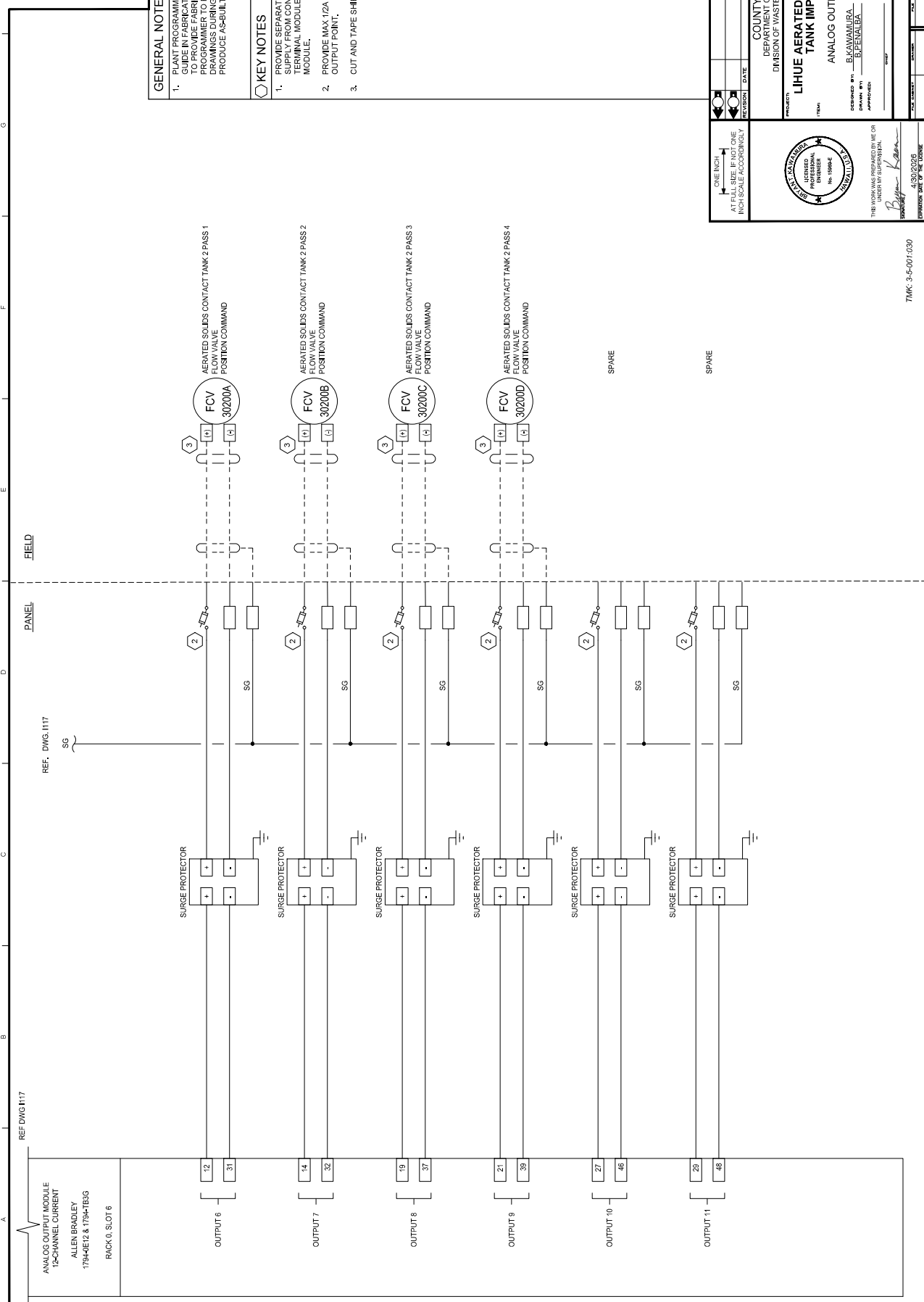
SCALE	DATE	REVISION	BY	APPROVED
ONE INCH = AT FULL SIZE IF NOT ONE INCH SCALE APPROXIMATELY				

COUNTY OF KAUAI  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT  
**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**  
 ANALOG OUTPUT MODULE 1A

DESIGNED BY: BAKAMAMURA  
 DRAWN BY: BAKAMAMURA  
 CHECKED BY: BAKAMAMURA  
 APPROVED BY: BAKAMAMURA

PROJECT NO.:  
 SHEET NO.:  
 DATE:

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
 I AM A LICENSED PROFESSIONAL ENGINEER.  
 License No. 15199-LE  
 State of Hawaii  
 Date: 4/30/2025  
 Signature: *Bakamura*  
 EXPIRES DATE OF THE LICENSE:



**GENERAL NOTES**

1. PLANT PROGRAMMER TO USE THIS SHEET AS A GUIDE TO THE FIELD. THE PLANT PROGRAMMER TO PROVIDE FABRICATION DRAWINGS, WIRING DIAGRAMS, AND AS-BUILT DRAWINGS DURING CONSTRUCTION AND PRODUCE AS-BUILT DRAWINGS.

**KEY NOTES**

1. PROVIDE SEPARATELY LISTED VACS POWER SUPPLY FROM ELECTRICAL PANEL FOR EACH TERMINAL MODULE USED WITH ANALOG OUTPUT MODULE.
2. PROVIDE MAX. 1/2A FUSE FOR EACH ANALOG OUTPUT POINT.
3. CUT AND TAPE SHIELD.

AT FULL SIZE IF NOT ONE INCH SCALE APPROXIMATELY

ONE INCH

REVISION	DATE	BRIEF	BY	APPROVED

THESE WORKS WERE PREPARED BY ME OR UNDER MY SUPERVISION  
 DATE: 4/30/2024  
 PROJECT: LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT  
 SHEET: 46 OF 46

COUNTY OF KAUAI  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF WASTEWATER MANAGEMENT

**LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT**

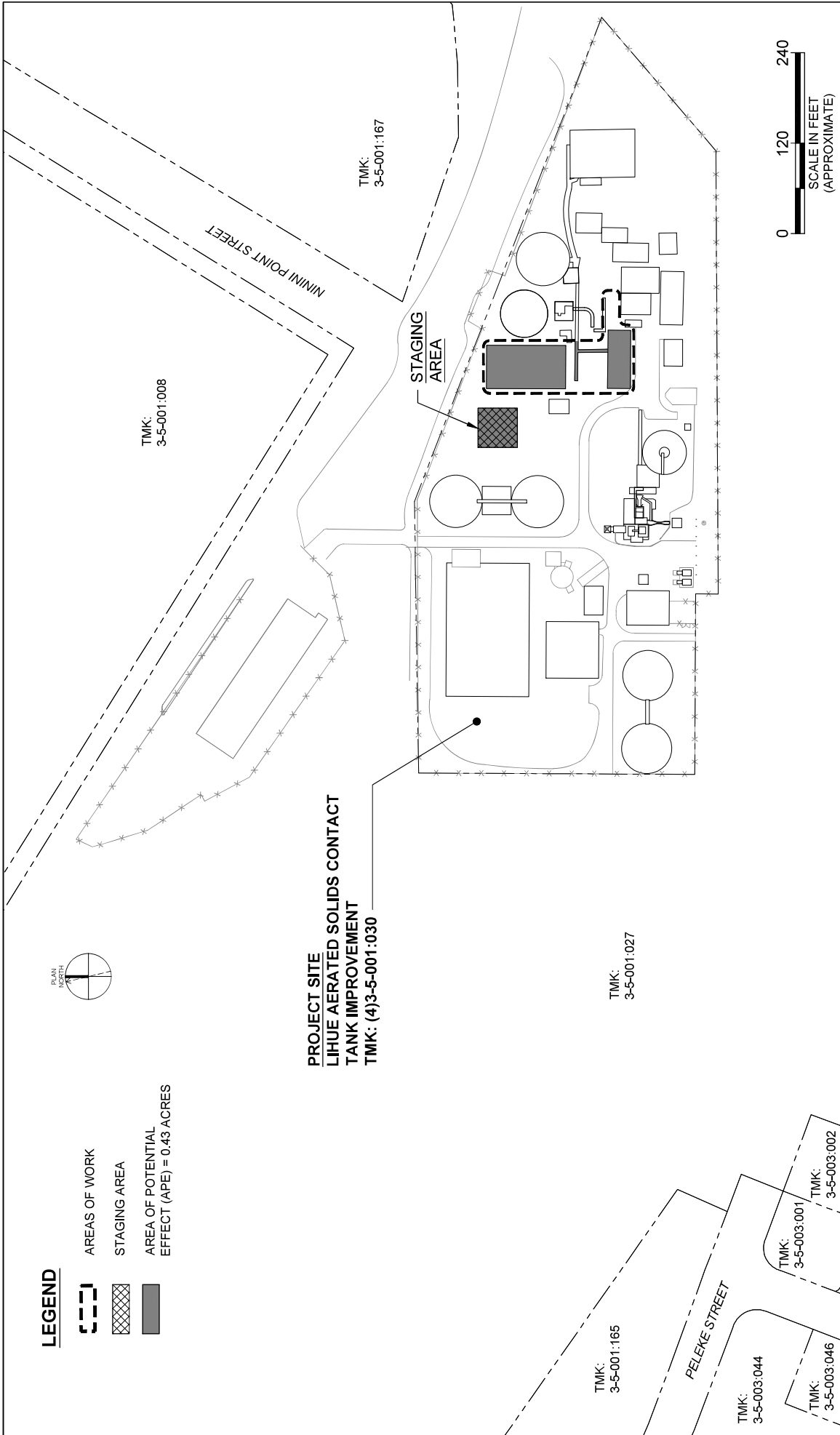
ANALOG OUTPUT MODULE 1B

DESIGNED BY: BAKAMAMURA  
 DRAWN BY: BAKAMAMURA  
 CHECKED BY: BAKAMAMURA  
 APPROVED BY: BAKAMAMURA

**Attachment B**

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LIHUE AERATED SOLIDS CONTACT TANK IMPROVEMENT  
 LIHUE WWTP LOCATION MAP - TMK BASE

FIGURE **F1**

**Attachment C**

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**Figure 1: Street View of Access Road to Lihue WWTP**



**Figure 2: View of the Project Area from the South**



**Figure 3: View of the Project Area from the Southwest**



**Figure 4: View of the Project Area from the Southeast**



Figure 5: View of the Project Area from the West



Figure 6: View of the Project Area from the East



**Figure 7: View of the Project Area from the North**

## Attachment D

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## Native Hawaiian Organization / Interested Parties Consultation List

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