

Gentle Winds WWTP Civil Scope of Work

SCOPE OF WORK (CIVIL)

The Project involves replacing the existing WWTP with a 20,000 GPD low energy advanced aerobic biological treatment System. The scope of work is as follows:

- 1. Decommission 5,000 gallons and 10,000 gallons aeration/sludge tanks to make space for the new WWTP
- 2. Construction of a 42' x 10' concrete pad for the 40' x 8' container housing the new MABR unit.
- 3. Installation of solids, equalization and activated sludge tanks, each with a capacity of 5,000 gallons
- 4. Connection of new WWTP to existing wastewater feed & distribution system and commissioning
- 5. Connection of WWTP to new electrical power supply
- 6. Decommissioning of 20,000 gallons aeration/sludge tank and sand filter system

GENERAL NOTES

- 1. PLANS SHALL NOT BE REPRODUCED OR SOLD WITHOUT THE WRITTEN CONSENT OF PROJECT ENGINEER
- 2. ANY ALTERATIONS TO THE PLANS MUST BE NOTIFY TO THE ORIGINAL DESIGNER..
- 3. THE BUILDER INVOLVED SHALL BE RESPONSIBLE FOR VERIFYING ALL GRADES, LEVELS, DIMENSIONS AND CONDITIONS SHOWN ON THESE DRAWINGS BEFORE COMMENCEMENT OF CONSTRUCTION. THE BUILDER SHALL REPORT ANY CONFLICTS, OMISSIONS OR ERRORS TO THE DESIGNER BEFORE PROCEEDING WITH THE WORK.
- 4. ALL CONSTRUCTION SHALL CONFORM TO THE
 - * 2021 (IBC) INTERNATIONAL BUILDING CODE
 - * 2021 (IRC) INTERNATIONAL RESIDENTIAL CODE
 - * 2020 (NEC) NATIONAL ELECTRICAL CODES
 - * 2021 (UPC) UNIFORM PLUMBING CODESUNLESS MORE STRINGENT REQUIREMENTS ARE REQUIRED IN THE PLANS AND SPECIFICATIONS

PROJECT TEAM

PROJECT DEVELOPER
GENTLE WINDS CONDO ASSOCIATION
9003 GENTLE WINDS
CHRISTIANSTED, ST. CROIX VI 0020
TEL: 340-778-0540

SITE GENERAL MANAGER
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TEL: 340-778-0540

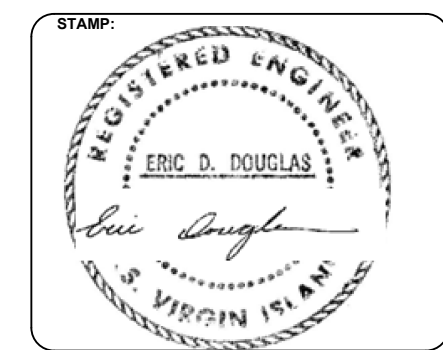
PROJECT ENGINEER
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DRAWING INDEX

- TO-01 TITLE SHEET, INDEX
- GN-01 CIVIL SCOPE & GENERAL NOTES
- CIVIL DRAWINGS
 - CO-01 EXISTING LAYOUT
 - CO-02 DECOMMISSIONING PLAN
 - CO-03 NEW WWTP LAYOUT PLAN
 - C1-02 PRIMARY SOLIDS TANK DETAILS
 - C1-02 EQUALIZATION TANK DETAILS
 - C2-01 MABR CONCRETE PAD DETAILS
 - C2-02 MABR UNIT ISOMETRIC DETAILS
 - C2-03 MABR UNIT INTERFACE DETAILS
 - C2-04 MABR UNIT INTERFACE DETAILS
 - C2-05 MABR UNIT HYDRAULIC PROFILE



Gentle Wind Condominiums Association
Wastewater Treatment Plant
9003 Gentle Winds, Christiansted, St. Croix,
USVI



PROJECT TITLE:
GENTLE WIND
CONDOMINIUMS ASSOCIATION
MABR WWTP PROJECT

DATE:
ERIC D. DOUGLAS
DRAWN BY: Hector I. Mercado-Perez

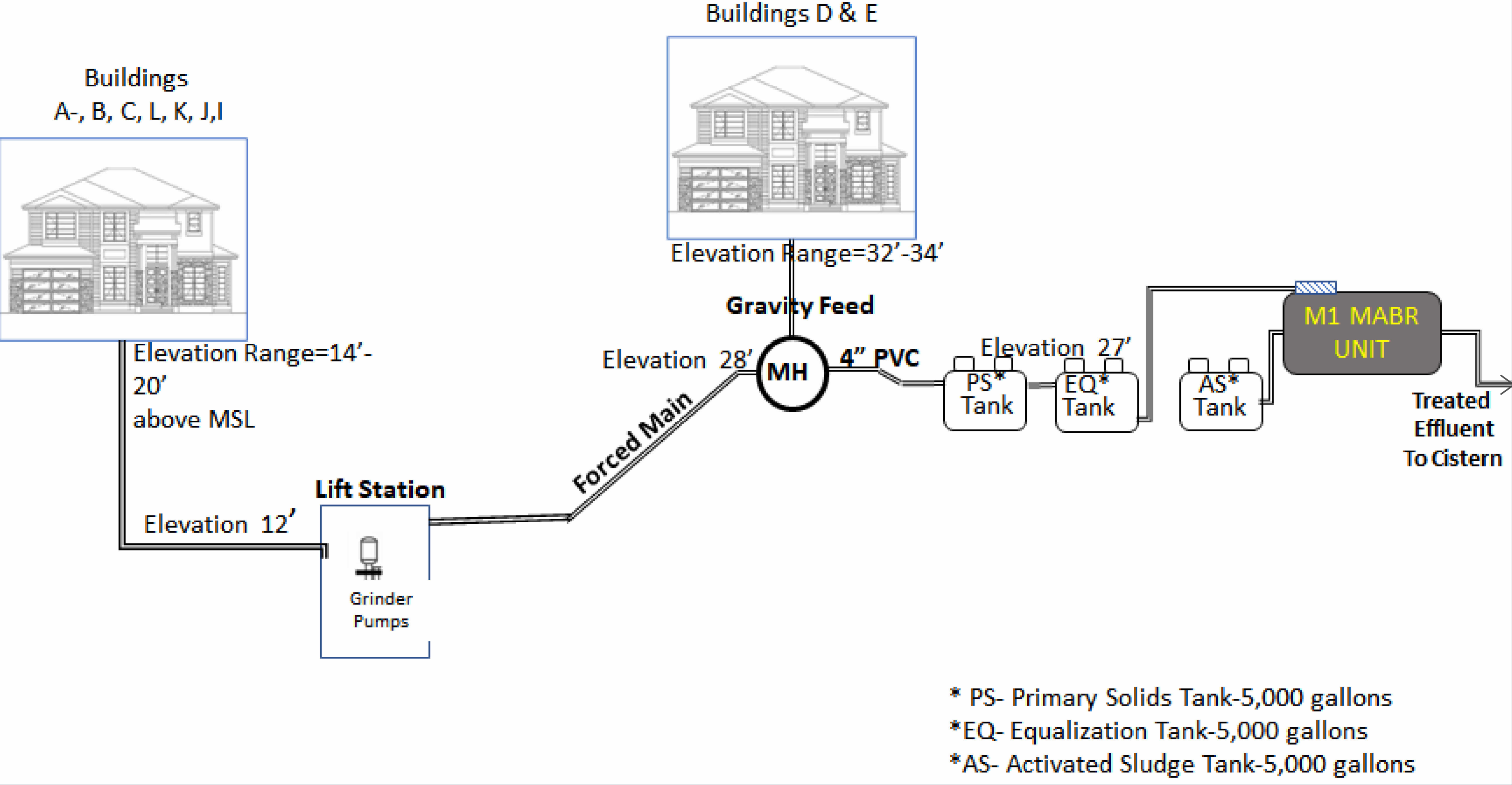
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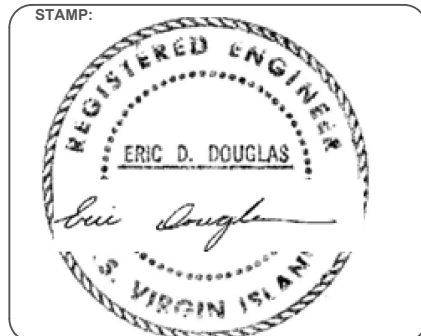
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SHEET NUMBER:
GN-01

Gentle Winds Condominium Complex New WWTP
Process Flow Diagram (PFD)



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Wastewater Treatment Plant
9003 Gentle Winds, Christiansted, St. Croix,
USVI



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GENTLE WIND
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MABR WWTP
PROJECT

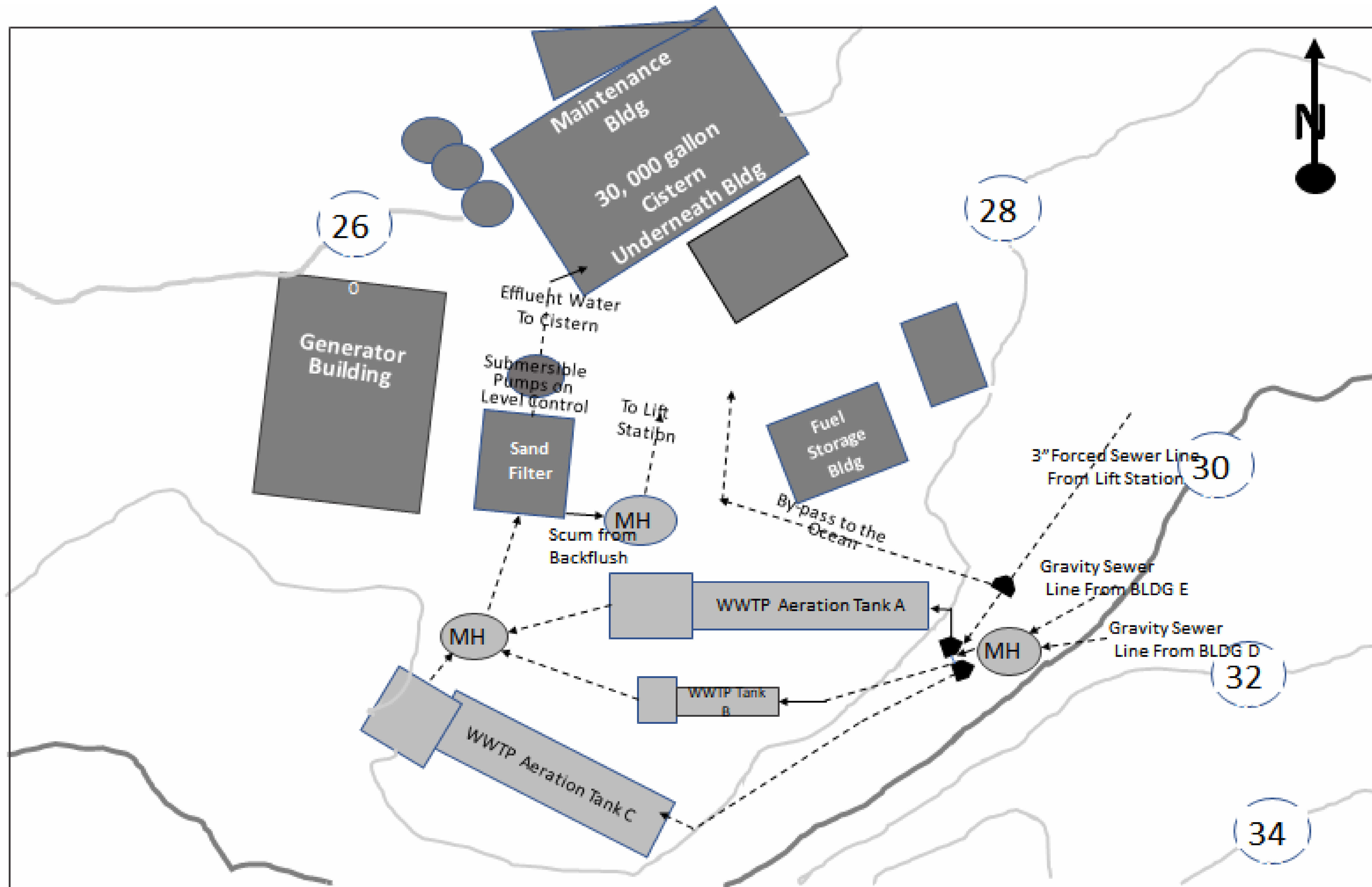
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DRAWN BY: Hector I. Mercado-Perez

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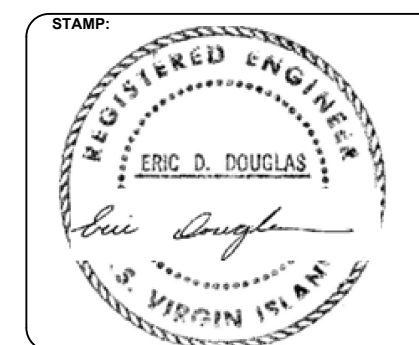
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Wastewater Treatment Plant
9003 Gentle Winds, Christiansted, St. Croix,
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PROJECT TITLE:
GENTLE WIND
CONDOMINIUMS ASSOCIATION
MAWR WWTW PROJECT

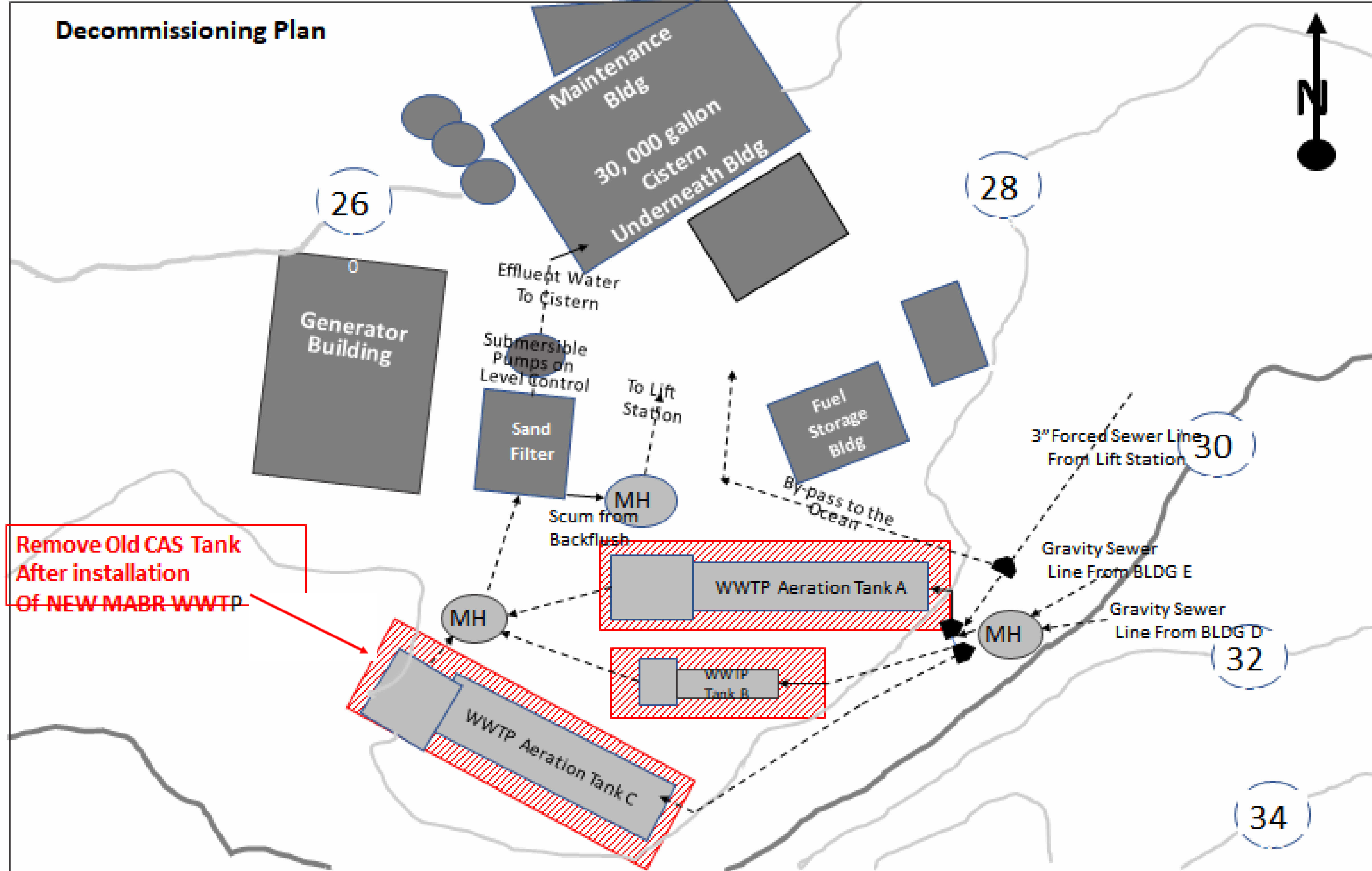
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DRAWN BY: Hector I. Mercado-Perez

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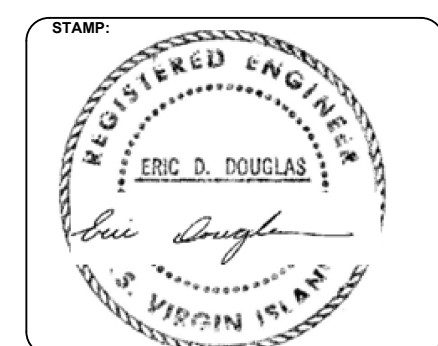
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SHEET NUMBER:
C0-01



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Wastewater Treatment Plant
9003 Gentle Winds, Christiansted, St. Croix,
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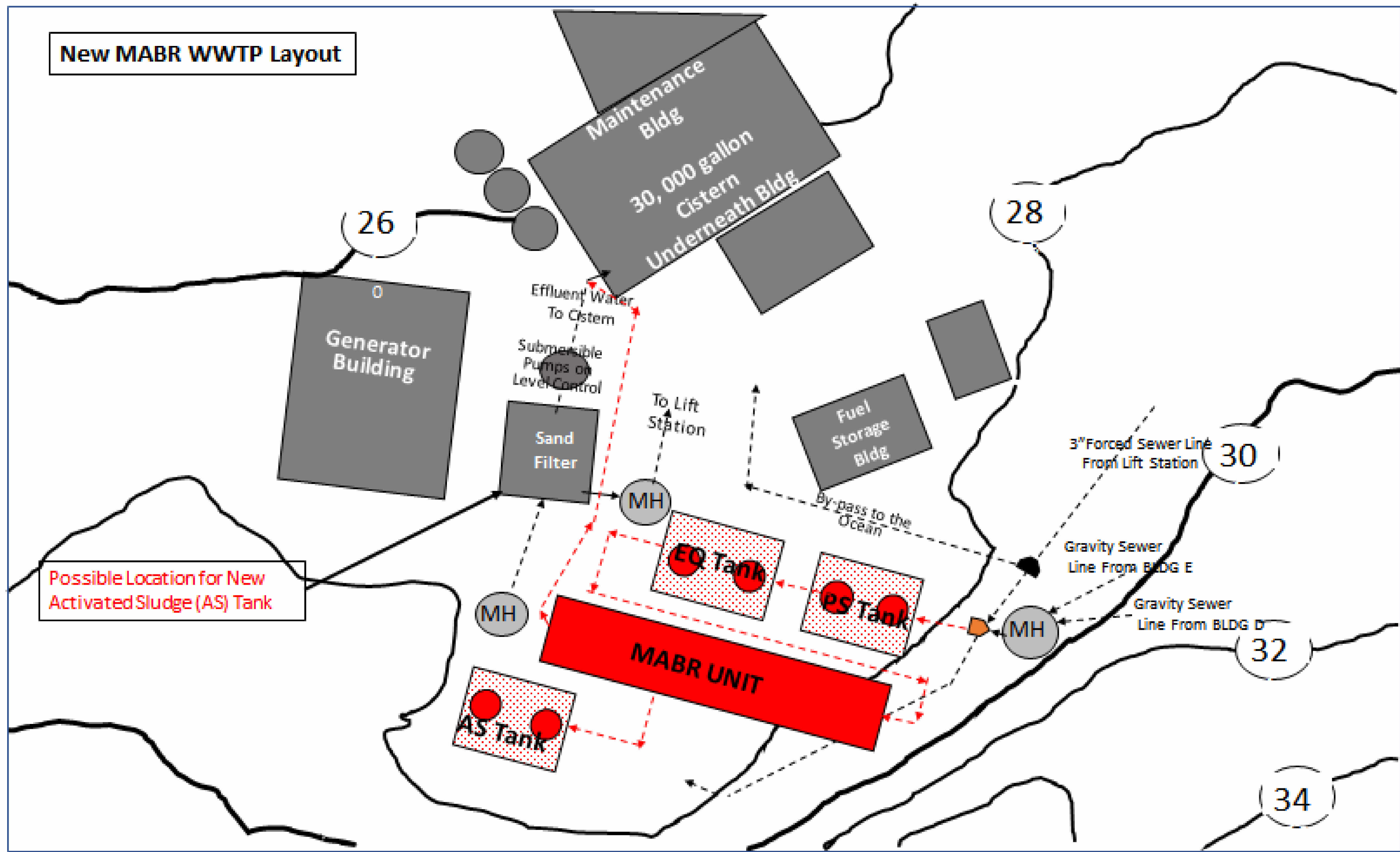
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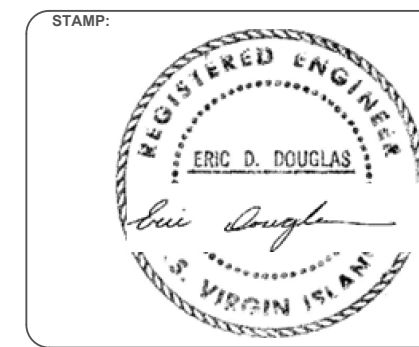
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C0-02

New MABR WWTP Layout



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MABR WWTP
PROJECT

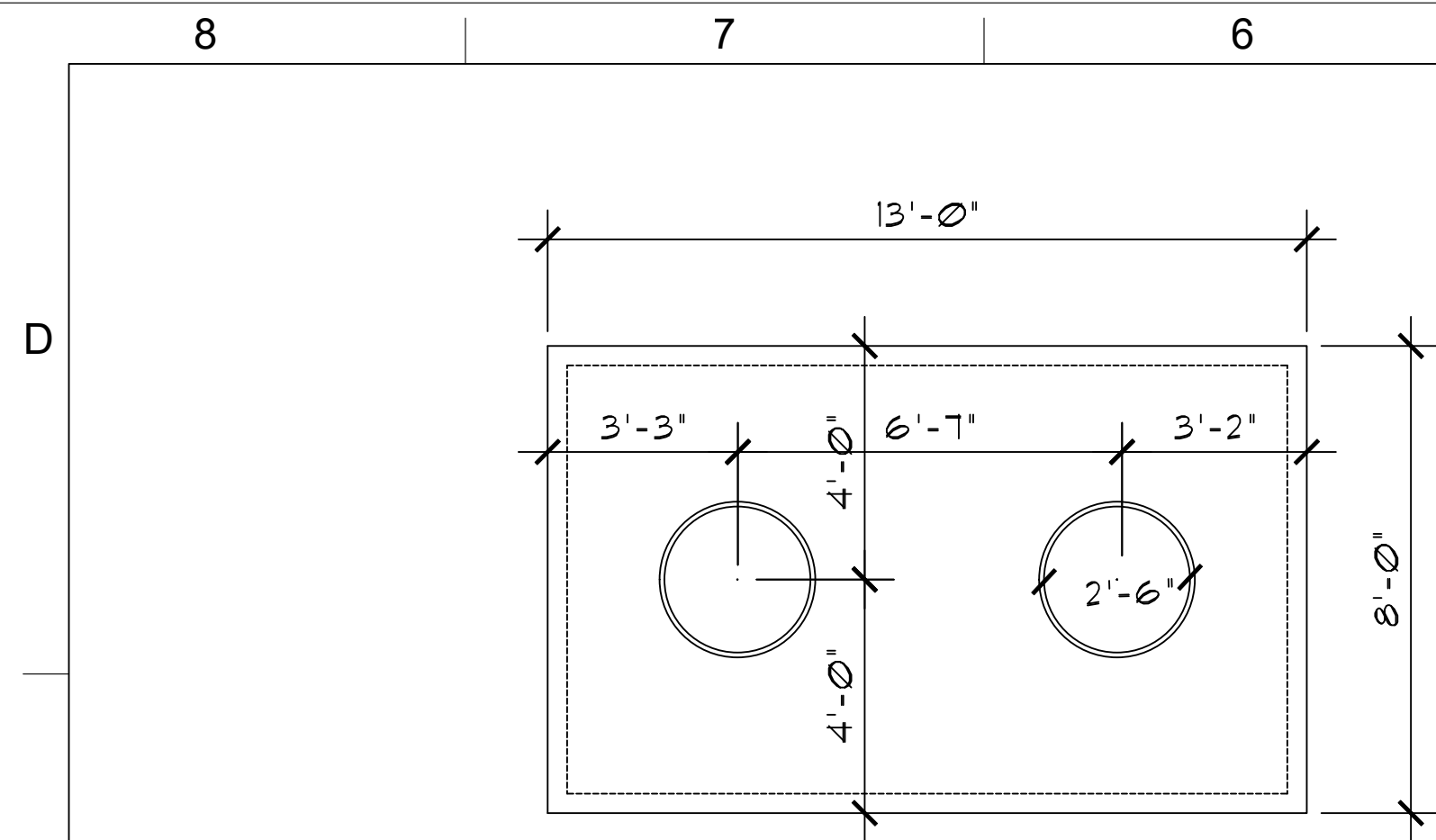
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ERIC D. DOUGLAS 4
DRAWN BY: HECTOR I. MERCADO-PEREZ

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MABR WWTP LAYOUT PLAN

FILE NUMBER:
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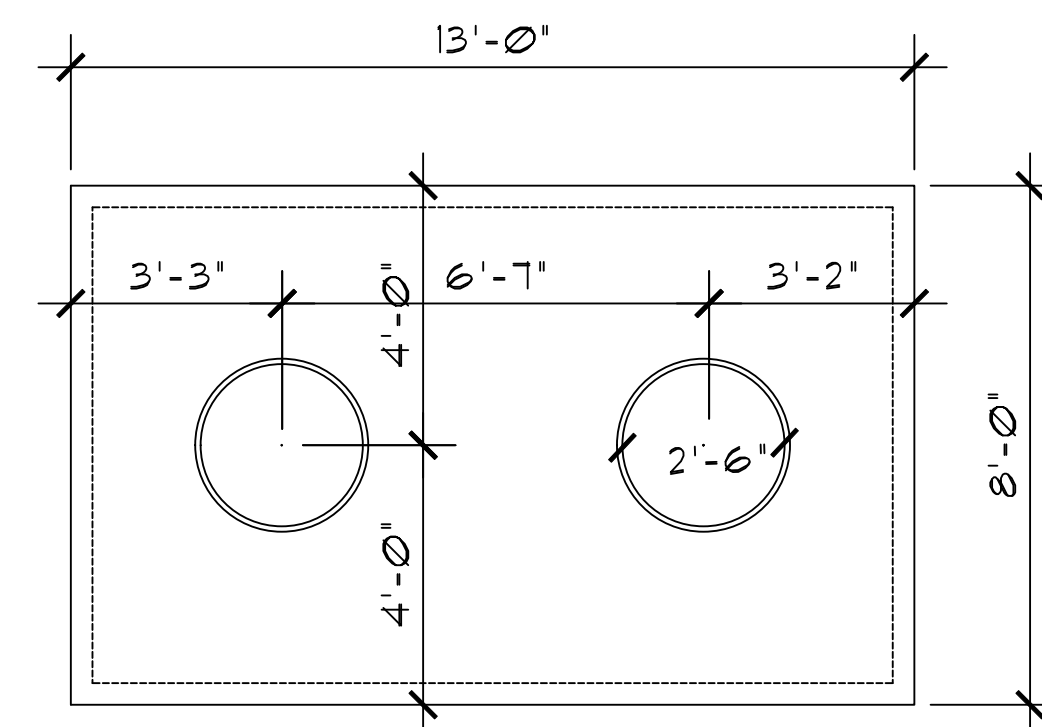
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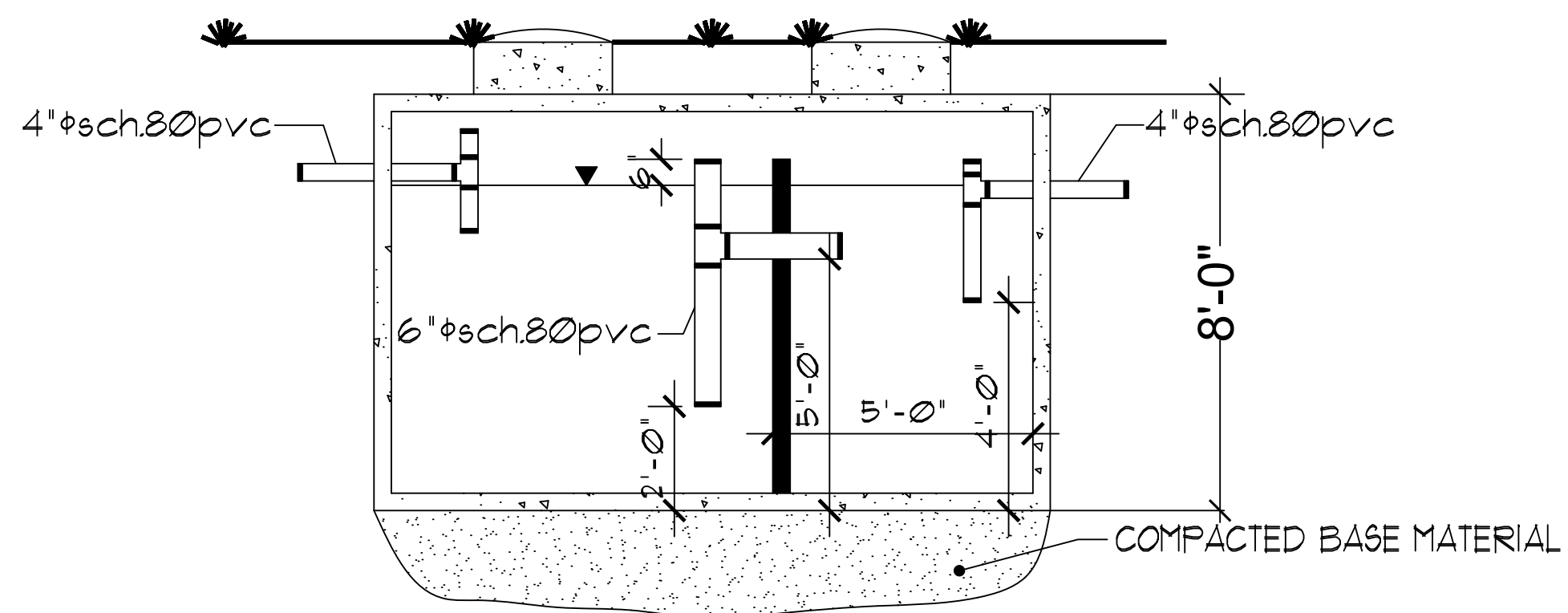
PRIMARY SOLIDS TOP VIEW

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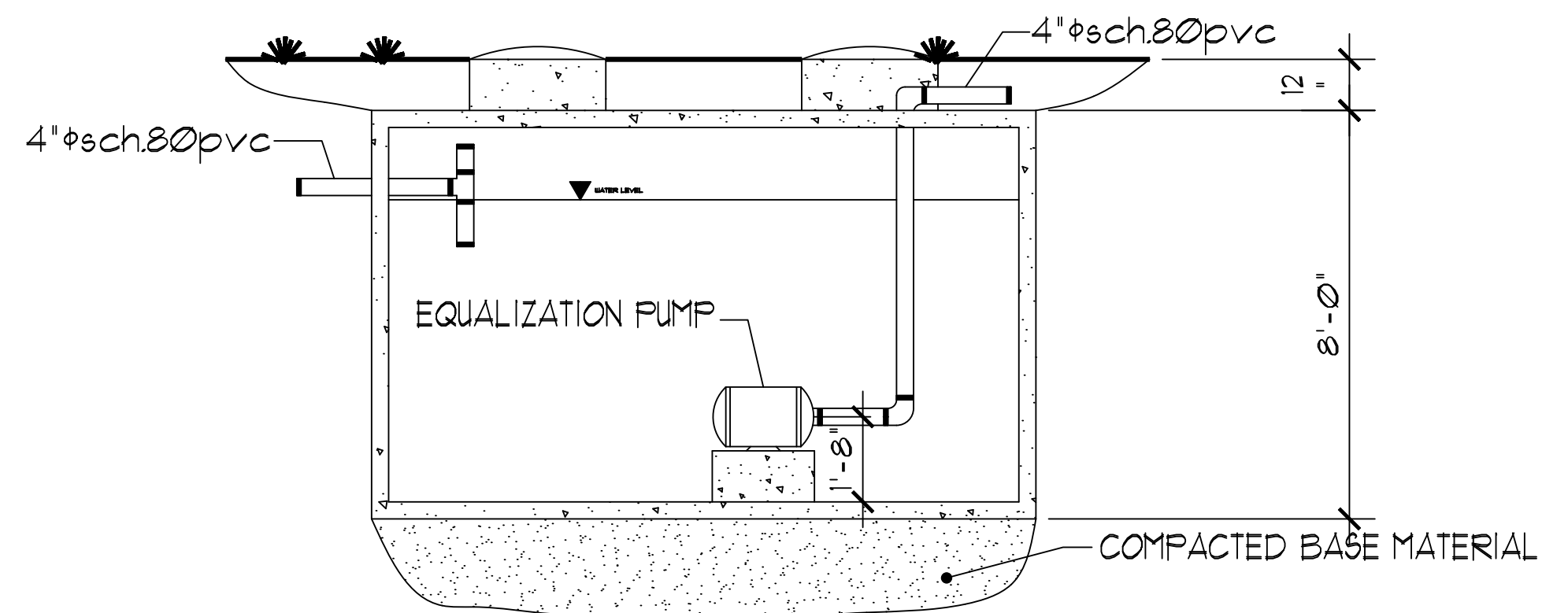
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PRIMARY SOLIDS SIDE VIEW

NOT TO SCALE

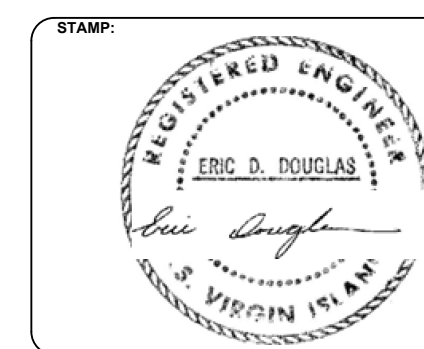


EQUALIZATION TK. SIDE VIEW

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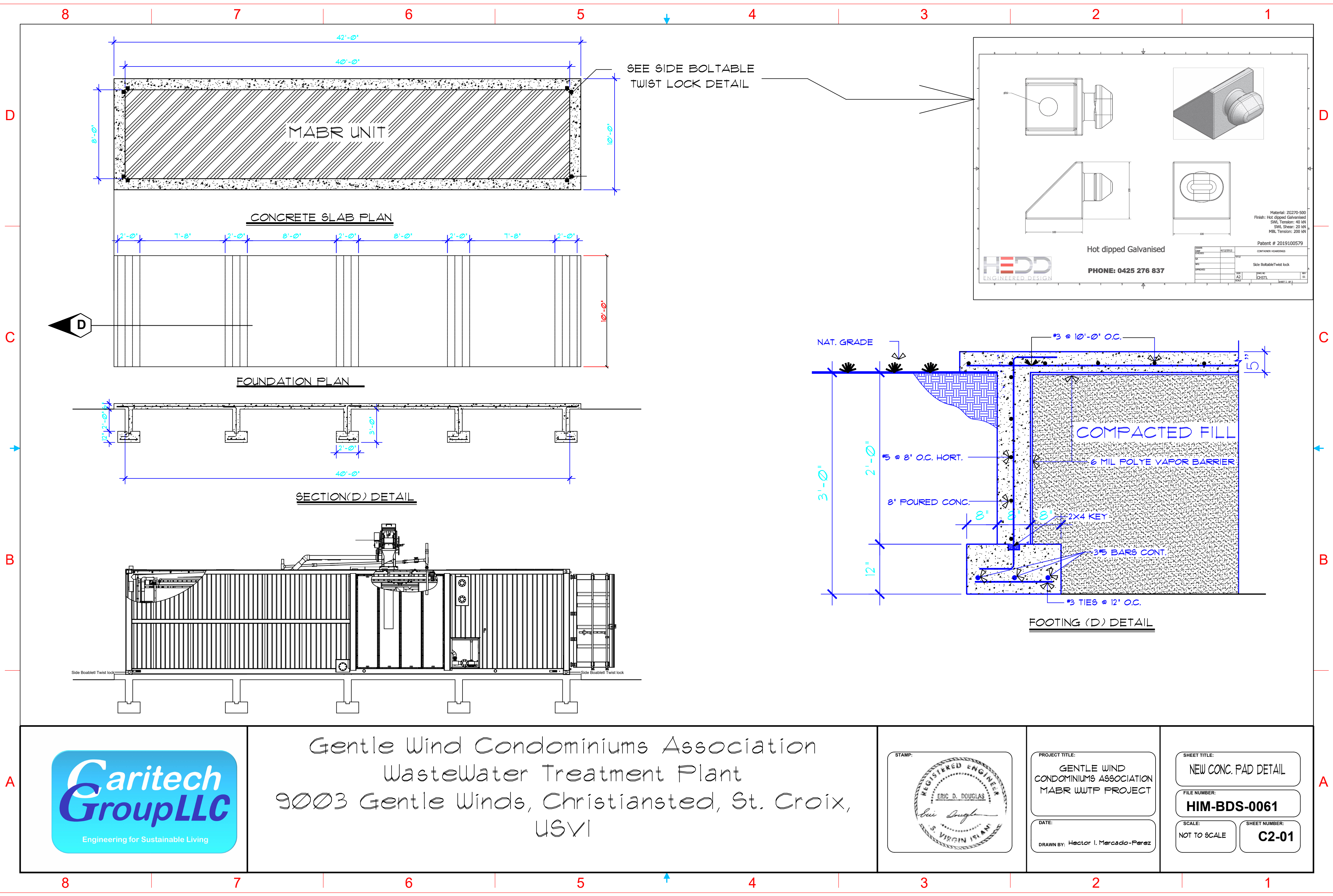


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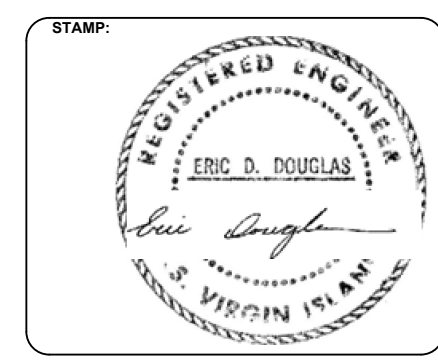


PROJECT TITLE:
GENTLE WIND
CONDOMINIUMS ASSOCIATION
MABR WWTP PROJECT
DATE:
DRAWN BY: Hector I. Mercado-Perez

SHEET TITLE:
PS & EQ TANKS DETAILS
FILE NUMBER:
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SHEET NUMBER:
C1-02



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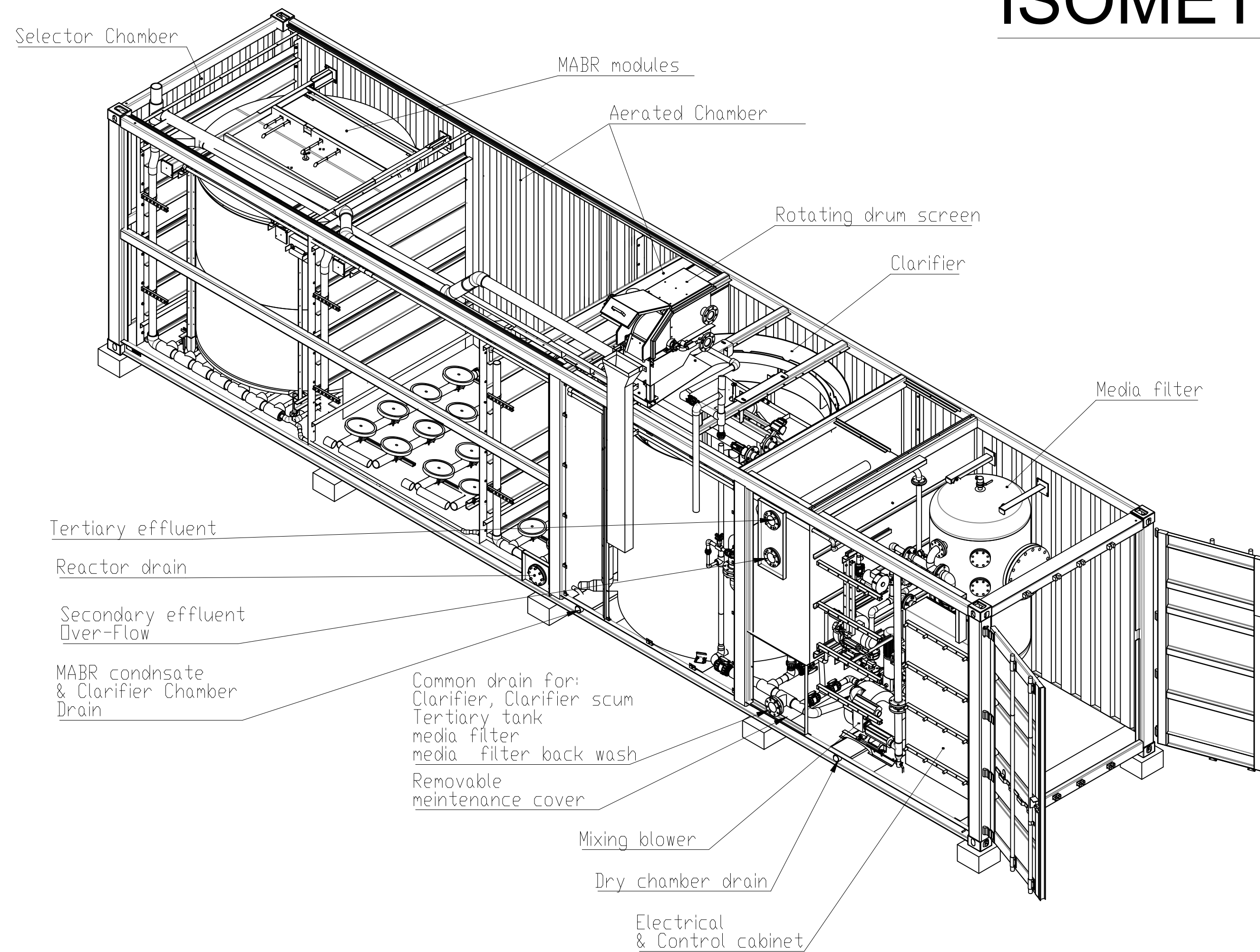
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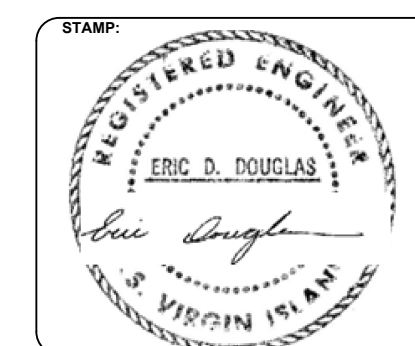
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SHEET NUMBER:
C2-01

ISOMETRIC



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9003 Gentle Winds, Christiansted, St. Croix,
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CONDOMINIUMS ASSOCIATION
MABR WWTP

DATE:
ERIC D. DOUGLAS
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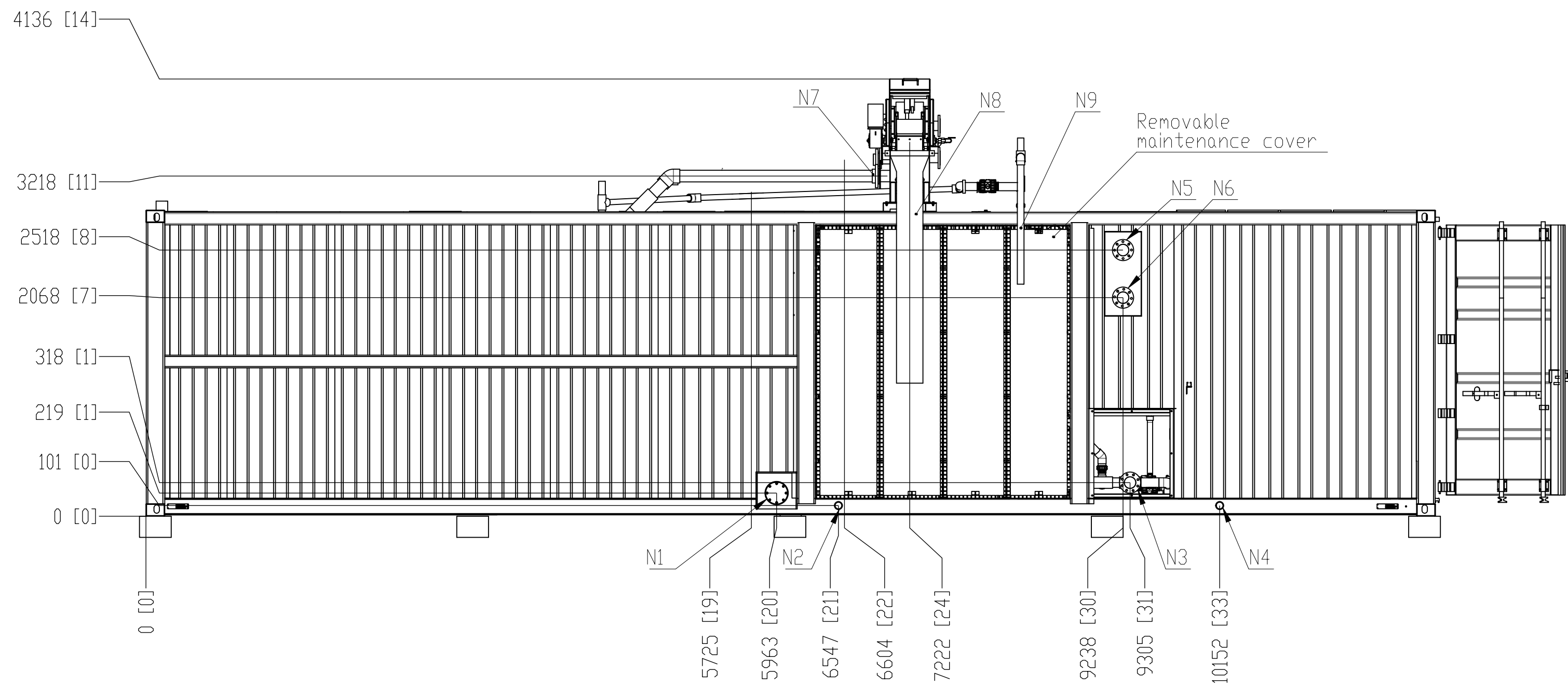
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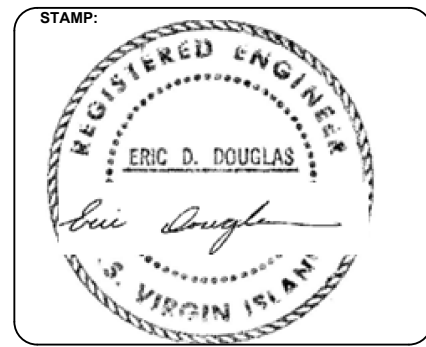
INTERFACE



TAG No.	SERVICE	SIZE	CONNECTION
N1	Reactor Drain	DN100	DN100 DIN FLANGE PN10
N2	Condensate Drain	ø50	CONDENSATE 2" F-BSP THREAD
N3	Common Drian	DN80	DN80 DIN FLANGE PN16
N4	Dry Room Drain	ø50	DRY ROOM 2" F-BSP THREAD
N5	3rd Effluent	DN80	DN80 DIN FLANGE PN16
N6	2nd Effluent.OF	DN80	DN80 DIN FLANGE PN16
N7	WW. Inlet	DN50	DN50 DIN FLANGE PN10
N8	Screening Chute	250x115	CHUTE
N9	WAS	DN50	DN50 PVC PIPE



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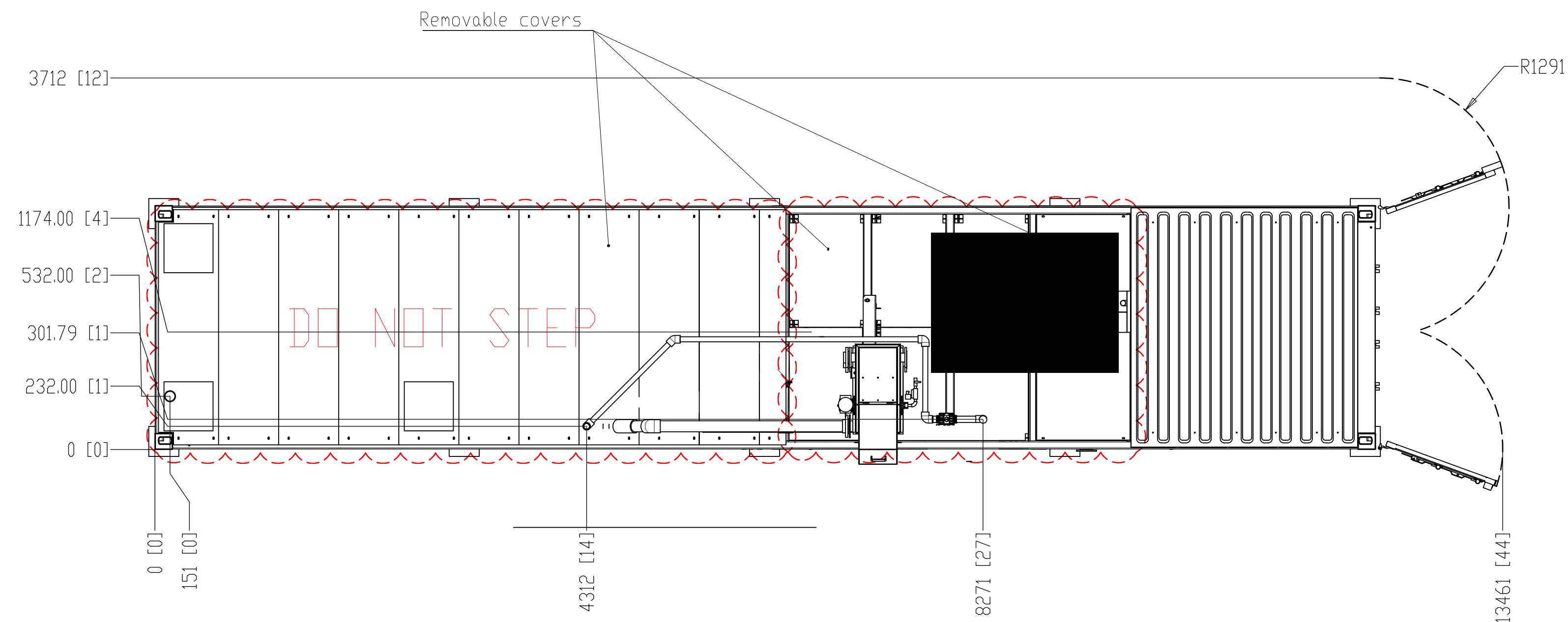
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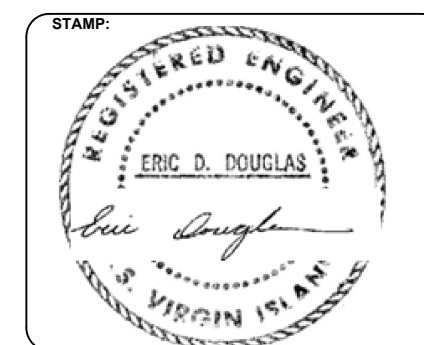
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SHEET NUMBER:
C2-03

INTERFACE



Gentle Wind Condominiums Association
Wastewater Treatment Plant
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USVI



PROJECT TITLE:
PROPOSED RENOVATION
GENLE WIND
CONDOMINIUM ASSOCIATION
INSTALLATION SPECIFICATIONS
MASTER PLAN

DATE:
ERIC D. DOUGLAS
DRAWN BY: Hector I. Mercado-Perez

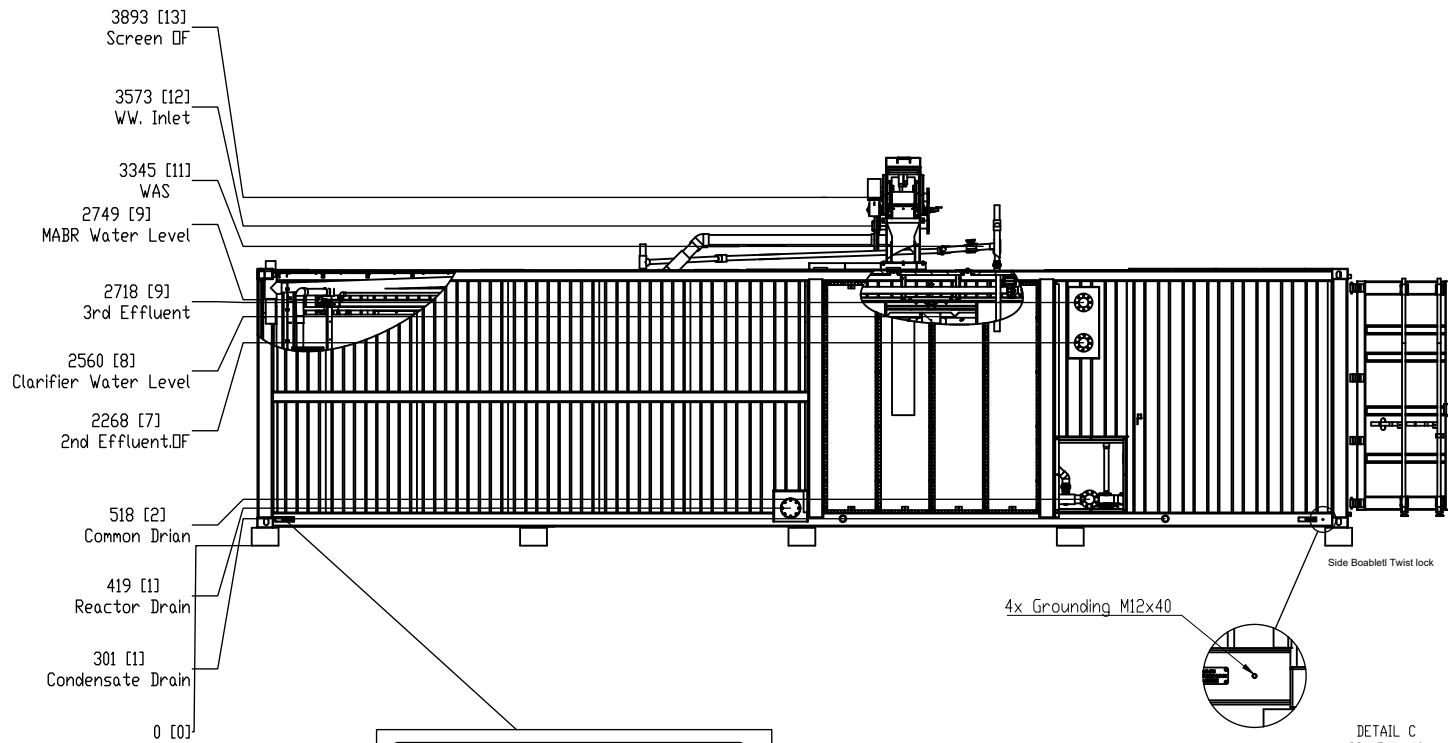
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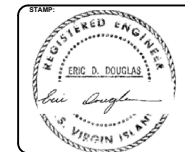
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SHEET NUMBER:
C2-04

HYDRAULIC PROFILE



Gentle Wind Condominiums Association
Wastewater Treatment Plant
9003 Gentle Winds, Christiansted, St. Croix,
USVI



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**GENTLE WIND
CONDOMINIUMS ASSOCIATION
MABR WWTP**

DATE:
ERIC D. DOUGLAS

DRAWN BY:
Hector I. Mercado-Perez

SHEET TITLE:
HYDRAULIC PROFILE

FILE NUMBER:
HIM-BDS-0061

SCALE:
NOT TO SCALE

SHEET NUMBER:
C2-05

GWCA WWTP ELECTRICAL SCOPE

SCOPE OF WORK

THIS PROJECT INVOLVES PROVIDING A SERVICE ENTRANCE FOR THE NEW WASTE WATER TREATMENT PLANT AND PREPARES THE SITE FOR A FUTURE LARGER UPGRADE FOR THE ENTIRE PROPERTY. THE WORK IS AS FOLLOWS:

1. PROVIDE AN ELECTRICAL DRAWING PACKAGE FOR PERMITTING AND CONSTRUCTION PURPOSES.
2. ELECTRICAL CONTRACTOR TO PROVIDE AN ELECTRICAL PERMIT AS REQUIRED BY DPNR AFTER CZM PERMIT IS APPROVED.
3. INSTALL A SERVICE ENTRANCE PER AN APPROVED WAPA AND DPNR DRAWING PACKAGE.
4. PROVIDE AND INSTALL TRENCH, CONDUIT, AND WIRE PER THE ELECTRICAL DRAWINGS.
5. PROVIDE AND INSTALL ALL EQUIPMENT PER THE ELECTRICAL DRAWINGS.
6. TEST AND COMMISSION SYSTEM.
7. PROVIDE A FINAL ELECTRICAL INSPECTION CERTIFICATE FROM DPNR.

GENERAL NOTES

1. ALL WORK TO BE INSTALLED BY A QUALIFIED AND APPROPRIATELY LICENSED CONTRACTOR.
2. ELECTRICAL CONTRACTOR SHALL BE FULLY COGNIZANT OF THE LATEST EDITION OF THE NFPA 70 (NEC), INTERNATIONAL BUILDING CODE, AND ALL LOCAL CODES, ORDINANCES OF THE AUTHORITIES HAVING JURISDICTION AND PERFORM ALL WORK IN ACCORDANCE WITH THE INTENT AND REQUIREMENTS OF THESE CODES, ORDINANCES, AND AUTHORITIES.
3. MECHANICAL CONTRACTOR SHALL BE FULLY COGNIZANT OF THE LATEST ADOPTED INTERNATIONAL BUILDING CODE AND ANY OTHER APPROPRIATE LOCAL CODES, ORDINANCES OF THE AUTHORITY HAVING JURISDICTION.
4. PERMISSION TO OPERATE THE SYSTEM IS NOT AUTHORIZED UNTIL FINAL INSPECTIONS AND APPROVALS ARE OBTAINED FROM THE LOCAL AUTHORITY HAVING JURISDICTION AND THE UTILITY PROVIDER.
5. ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL MEET A MINIMUM WIND LOAD OF 165 MPH. ALL CONNECTORS SHALL BE TORQUED PER DEVICE LISTING, MANUFACTURERS INSTALLATION INSTRUCTIONS, OR ENGINEERING RECOMMENDATIONS.
6. ALL INSTALLATION MATERIALS INCLUDING, BUT NOT LIMITED TO, FASTENERS SHALL BE CORROSION RESISTANT AND APPROPRIATE FOR SITE CONDITIONS.
7. CONTRACTOR IS ADVISED THAT ALL DRAWINGS, INSTRUCTION, AND COMPONENT MANUALS ARE TO BE UNDERSTOOD PRIOR TO INSTALLATION. ALL SWITCHES SHALL BE IN THE "OFF" POSITION AND FUSES REMOVED PRIOR TO INSTALLATION OF FUSE-BEARING COMPONENTS.

PROJECT TEAM

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SITE GENERAL MANAGER
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ARCHITECT
NONE

CIVIL ENGINEER
NONE

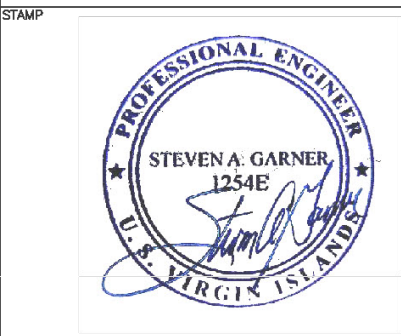
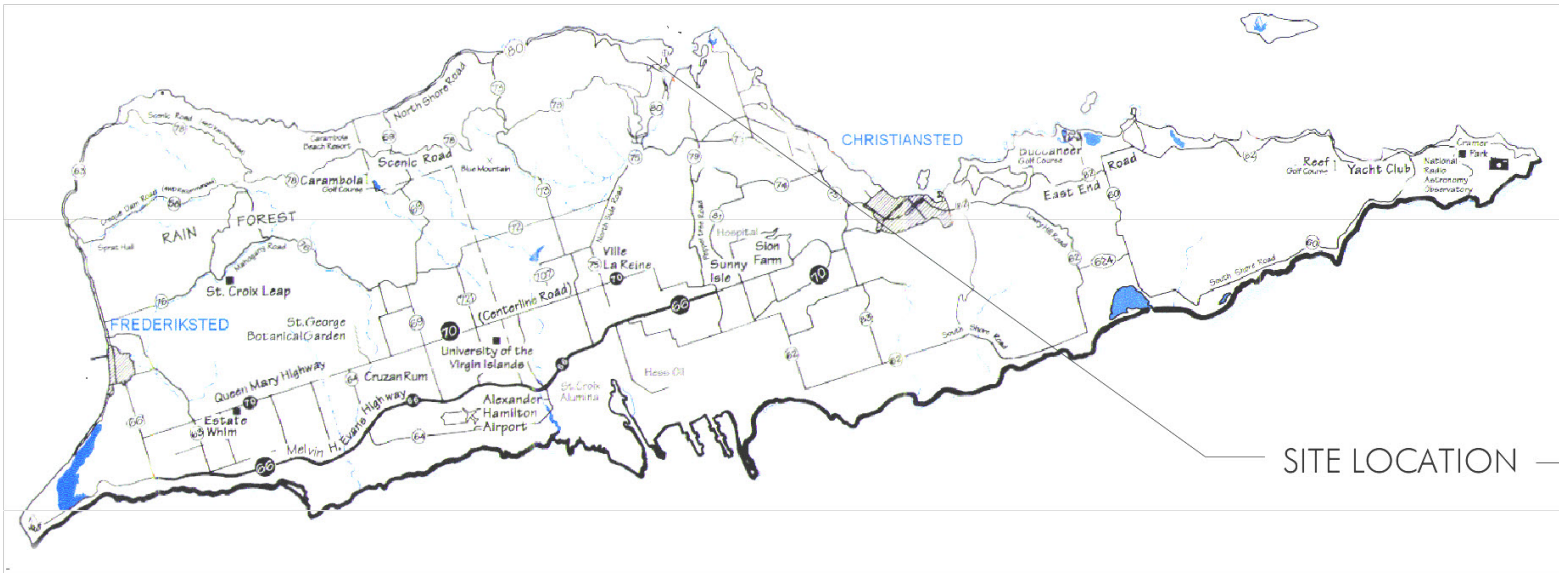
ELECTRICAL ENGINEER
STEVEN A. GARNER, P.E.
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P: 340.201.4412
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DRAWING INDEX

DRAWING NUMBER	DRAWING NAME
G-01	COVER SHEET
E0-01	GENERAL ELECTRICAL NOTES
E0-02	SYSTEM LABELS
E1-00	SITE PLAN
E1-01	SITE LAYOUT
E5-01	SCHEDULES
E6-01	ONE LINE DIAGRAM
E6-02	RISER DIAGRAM
E7-01	TRENCH DETAILS

NOTE
THESE DRAWINGS ARE PREPARED PER ESTABLISHED INDUSTRY STANDARDS AND REPRESENT THE ENGINEER'S DESIGN CONCEPT. THEY ARE NOT INTENDED TO PROVIDE EVERY DETAIL OR CONDITION REQUIRED FOR CONSTRUCTION. THE CONTRACTOR THROUGH SUBMITTALS AND OTHER COORDINATION EFFORTS IS FULLY RESPONSIBLE FOR PROVIDING A COMPLETE AND OPERATIONAL SYSTEM, WHETHER INDICATED ON THE PLANS OR NOT.

PROJECT SITE



--	Initial Release	09/13/22
No.	Revision/Issue	Date

Firm Name and Address
TropTech SOLUTIONS
9109 Castle Cookley, Suite 9
Christiansted, VI 00840
E: sgarner@tropitech.com

Project Name and Address
GENTLE WINDS WASTE WATER PLANT
9003 GENTLE WINDS
CHRISTIANSTED, ST. CROIX, USVI

Drawing COVER SHEET	
Area N.T.S	Sheet G0-01

GENERAL NOTES

- THE ELECTRICAL CONTRACTOR SHALL BE FULLY COGNIZANT OF THE LATEST EDITION OF THE NFPA 70 (NEC), 2012 NFPA 101, 2013 NFPA 72, AND ALL LOCAL CODES, ORDINANCES OF THE AUTHORITIES HAVING JURISDICTION AND PERFORM ALL WORK IN ACCORDANCE WITH THE INTENT AND REQUIREMENTS OF THESE CODES, ORDINANCES, AND AUTHORITIES.
2. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL LAYOUT OF ELECTRICAL SYSTEMS
3. WHEREVER THE WORD "PROVIDE" IS USED IT SHALL BE MEAN TO "PROVIDE AND INSTALL".
4. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
5. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO APPROVE METHODS AND MATERIALS NOT REFLECTED HEREIN.
6. PROPOSED SUBSTITUTIONS OF ELECTRICAL EQUIPMENT OR REQUEST FOR "OR EQUIVALENT" OR "APPROVED EQUIVALENT" LISTING SHALL BE SUBMITTED TO ENGINEER NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO BID.
7. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ENGINEER AND SITE MANAGER.
8. ALL EQUIPMENT AND MATERIALS PROVIDED SHALL BE NEW AND IN CONFORMANCE WITH APPLICABLE PROVISIONS OF NEMA, ANSI, U.L., ETC. AND SHALL BEAR AN UNDERWRITERS LABEL WHERE APPLICABLE
9. PROVIDE PERMITS AND INSPECTIONS AS REQUIRED PER VIWAPA AND V.I. DPNR.
10. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNERS ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
11. PROVIDE ALL UPDATES, ALTERATIONS, RE-ROUTINGS, CHANGES AND AS-BUILT CONDITIONS TO THE ENGINEER FOR RECORD DRAWING UPDATES.
12. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
13. THE CONTRACTOR SHALL COORDINATE WITH WAPA ALL REQUIREMENTS FOR SCOPE OF WORK THAT INVOLVES VOLTAGES ABOVE 600vac, INCLUDING CONDUIT, TERMINATIONS, HAND HOLE INSTALLATION, SWITCHGEAR, AND PAD MOUNT TRANSFORMERS. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
14. SPLICES IN EXTERIOR PULLBOXES AND HAND HOLES SHALL BE MADE WATER PROOF USING 3M "SCOTCHCAST" SPLICE KIT OR APPROVED EQUIVALENT. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCT SEAL" OR APPROVED EQUIVALENT
15. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
16. CONTRACTORS FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIAL. EQUIPMENT OR INSTALLATION METHODS.
17. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING AND INSTALLING CONDUIT.
18. PULLBOXES, CABINETS, ETC., MOUNTED ON THE EXTERIOR AT GRADE LEVEL, SHALL BE WEATHER PROOF TYPE WITH HINGED LOCKABLE COVERS SECURED WITH TAMPER-PROOF SCREWS.
19. DRY TYPE TRANSFORMERS SHALL BE MOUNTED ON RUBBER-IN-SHEAR ISOLATORS. MANUFACTURERS SHALL BE ASEA BROWN BOVERI, CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS (ITE), OR SORREL (SQ. D).
20. PROVIDE ENGRAVED NAMEPLATES ON HAND HOLES AND TRANSFORMERS INDICATING EQUIPMENT DESIGNATION (OR DESIGNATION OF EQUIPMENT SERVED) AND VOLTAGE.
21. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 90 DEGREE C.
22. ALL CABLES MUST BE TERMINATED WITH PREFORMED TERMINATIONS FOR EXTERIOR USE. TERMINATIONS SHALL BE RATED AT THE NOMINAL VOLTAGE OF THE CABLE OR SHALL BE ONE STEP HIGHER THAN THE NOMINAL VOLTAGE.
23. ALL PARTS, EQUIPMENT, INDICATOR LIGHTS, AND METERS SHALL BE READILY ACCESSIBLE TO AUTHORIZED PERSONS BY THE PROVISION OF ADEQUATE WORKING SPACES, WORKING FACILITIES, AND CLEARANCES.
24. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL UNDERGROUND CONDUIT SYSTEMS WITH RACK MOUNTING STRUCTURES.
25. CONDUCTORS SHOWN ON THE CONSTRUCTION DOCUMENTS MAY BE UPSIZED TO LIMIT VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED COMPRESSION PIN TERMINALS, SPLICES, ETC. TO ACCOMMODATE MANUFACTURER MAX WIRE SIZE REQUIREMENTS.
26. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WORK FOR EQUIPMENT PADS, PLINGS, AND DUCTBANK ENVELOPES. PROVIDE ALL CONCRETE, STEEL REINFORCING, ETC. AS INDICATED ON THE CONSTRUCTION DOCUMENTS.
27. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL TESTING REQUIRED BY MANUFACTURER AND COORDINATED WITH COMMISSIONING ENGINEER.
28. MINIMUM CONDUCTOR SIZE FOR POWER SHALL BE #10 AWG. ALL CONDUCTORS SIZED #8 AWG AND LARGER SHALL BE STRANDED COPPER.
29. ALL CONDUITS EXPOSED TO WEATHER SHALL BE RIGID GALVANIZED STEEL CONDUIT (RGS). PROVIDE THREADED WATERTIGHT RIGID GALVANIZED THREADED FITTINGS.
30. ALL UNDERGROUND CONDUITS SHALL E SCHEDULE 40 PVC. PVC JOINTS SHALL BE SOLVENT WELDED. THREADS WILL NOT BE PERMITTED ON PVC CONDUIT OR FITTINGS, EXCEPT RIGID STEEL TO PVC COUPLINGS.
31. MINIMUM TRADE SIZE CONDUIT PERMITTED SHALL BE 3/4". MINIMUM CONDUIT SIZE FOR BURIED CONDUITS SHALL BE 1".
32. FINAL CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION SHALL BE MADE USING LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT AND/OR PER MANUFACTURERS RECOMMENDATION.
33. LOCATION AND ROUTING OF CONDUITS IS APPROXIMATE AND DEPICTS DESIGN INTENT ONLY. THE CONTRACTOR, SITE MANAGER, AND ENGINEER IS RESPONSIBLE FOR DETERMINING FINAL CONDUIT ROUTING IN THE FIELD. THE CONTRACTOR SHALL COORDINATE THE FINAL ROUTING OF CONDUITS TO AVOID CONFLICTS WITH OTHER UTILITIES AND OBSTACLES, WHILE MINIMIZING CHANGES IN THE DIRECTION AND OVERALL CONDUIT LENGTH. ALL CONDUIT SHALL BE RUN UNDERGROUND EXCEPT AS INDICATED. OBTAIN APPROVAL OF ENGINEER PRIOR TO ANY CHANGES IN ROUTING. PROVIDE HANDHOLES AS NECESSARY. TOTAL NUMBER OF BENDS SHALL BE LIMITED TO A MAXIMUM OF 360 BETWEEN PULL BOXES OR HANDHOLES. MAXIMUM DISTANCE BETWEEN HANDHOLES FOR UNDERGROUND CONDUITS SHALL BE 500'.
34. CONDUCTOR COLOR CODING SHALL BE AS FOLLOWS
- | | | |
|--------------------------|--------------------------|---------------------|
| <u>208Y/120V SYSTEMS</u> | <u>480Y/277V SYSTEMS</u> | <u>DC SYSTEMS</u> |
| PHASE A: BLACK | PHASE A: BROWN | POSITIVE (+): RED |
| PHASE B: RED | PHASE B: ORANGE | NEGATIVE (-): BLACK |
| PHASE C: BLUE | PHASE C: YELLOW | GROUND: GREEN |
| NEUTRAL: WHITE | NEUTRAL: WHITE | |
35. ALL 480V GEAR SHALL BE LABELED PER NEC.
37. SWITCHES CONTROLLING LIGHTING LOADS SHALL HAVE A NEUTRAL CONDUCTOR. ANY EXCEPTIONS THAT MAY MEET ARTICLE 404.1(C) SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO INSTALLATION.
38. TAMPER-RESISTANT RECEPTACLES SHOULD BE INSTALLED WHERE REQUIRED PER NEC ARTICLE 406.12.

EXCAVATION AND BACKFILL

39. CONDUIT TRENCH. THE BOTTOM OF THE TRENCH SHOULD BE UNDISTURBED, TAMPED, OR RELATIVELY SMOOTH EARTH. WHERE THE EXCAVATION IS IN ROCK, THE CONDUIT SHOULD BE LAID ON A PROTECTIVE LAYER OF CLEAN TAMPED BACKFILL DIRT OR SAND. TRENCHES MUST BE INSPECTED BY THE APPROPRIATE ENTITY (ENGINEER, SITE MANAGER, AND/OR VIWAPA). THE FIRST INSPECTION IS DONE AFTER THE INSTALLATION OF PRIMARY AND SECONDARY CONDUITS AND PRIOR TO ANY BACKFILL. ADDITIONAL INSPECTIONS MAY BE REQUESTED.
40. BACKFILL. ALL BACKFILL SHOULD BE FREE OF MATERIAL THAT MAY DAMAGE THE CONDUIT SYSTEM. BACKFILL WITHIN 6 INCHES OF THE CONDUIT SHOULD BE FINE FILL MATERIAL, FREE OF ANY SOLID MATERIAL GREATER THAN 2 INCHES IN MAXIMUM DIMENSION OR WITH SHARP EDGES LIKELY TO DAMAGE THE CONDUIT SYSTEM. THE BALANCE OF BACKFILL SHOULD BE FREE OF SOLID MATERIAL NOT GREATER THAN 4 INCHES IN MAXIMUM DIMENSION. BACKFILL MATERIAL SHOULD BE ADEQUATELY COMPACTED TO 95% IN LAYERS NOT GREATER THAN 6 INCHES (CALICHE OR EQUIVALENT). VIWAPA RECOMMENDS THE USE OF FLOWABLE FILL (LOW STRENGTH CONCRETE RATED BETWEEN 75 PSI TO 200 PSI) AS AN ALTERNATIVE BACKFILL MATERIAL.
41. CONCRETE IN TRENCH. THE USE OF CONCRETE OVER CONDUITS IN THE TRENCH IS OPTIONAL ONCE THE PROPER DEPTH IS MET. THE MINIMUM DEPTH TO CONDUIT SYSTEM SHALL MAINTAIN A 3 FOOT DIMENSION FROM FINISH GRADE TO TOP OF CONDUIT. IF THIS MEASUREMENT IS NOT POSSIBLE, THEN 3 INCHES OF CONCRETE SHALL BE INSTALLED TO TRENCH OVER THE CONDUITS FOR EACH 12 INCHES OF DEPTH NOT ACHIEVED. CONCRETE SHALL HAVE A MINIMUM ULTIMATE 28 DAYS COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI.

GROUNDING AND BONDING

42. ALL EQUIPMENT AND SYSTEM SHALL MEET THE GROUNDING AND BONDING REQUIREMENTS OF NEC ARTICLE 250.
43. INSULATION SHIELDING OF CABLE, CONCENTRIC NEUTRAL AND JOINTS SHALL BE EFFECTIVELY GROUNDED. CABLE SHEATHS OR SHIELDS AND CONCENTRIC NEUTRAL WHICH ARE CONNECTED TO GROUND AT THE HAND HOLE SHALL BE BONDED OR CONNECTED TO A COMMON GROUND.
44. BONDING AND GROUND LEADS SHALL BE COPPER AND OF PROPER SIZE..
45. ALL CABLES CONNECTED TO GROUND RODS SHOULD BE CAD-WELDED OR APPROVED DIRECT BURIAL COMPRESSION CRIMPS.
46. GROUNDING ELECTRODE SYSTEM BONDED PER NEC 250.50.
47. RACK AND SOLAR PV TRACKERS SHALL BE BONDED PER UL-3703, CHAPTERS 16, 17, 43, AND 46.

HIGH VOLTAGE (> 600VAC) TESTING

48. LINES AND EQUIPMENT SHALL BE SUBJECTED TO STANDARD TESTS TO DETERMINE THAT THEY ARE IN ACCEPTABLE CONDITION BEFORE THE SYSTEM IS CONNECTED TO VIWAPA.
49. 15 KV HIGH VOLTAGE CABLES SHALL BE TESTED FOR A DURATION OF 15 MINUTES WITH HIGH POTENTIAL TEST VOLTAGES (HI POT TEST) OF 40 KV (DIRECT VOLTAGE, CONDUCTOR TO GROUND).
50. PRIOR TO ENERGIZE, THE TRANSFORMERS SHALL BE TESTED FOR INSULATION RESISTANCE AND FOR TRANSFORMER TURN RATIO. THE INSULATION RESISTANCE OF A TRANSFORMER SHALL BE AT LEAST 1 MEGAOHM PER KILOVOLT OF INSULATION CLASS, WITH A MIN. OF 1 MEGAOHM.
51. A QUALIFIED PERSON MUST PERFORM THESE TESTS IN THE PRESENCE OF VIWAPA TECHNICAL STAFF. CONTRACTOR IS TO INFORM VIWAPA TECHNICAL DEPARTMENT AT LEAST 2 WORKING DAYS BEFORE THE DESIRED TEST DATE.

ADDITIONAL REQUIREMENTS

52. ALL ELECTRICAL WORK SHALL COMPLY WITH LATEST ADOPTED INTERNATIONAL BUILDING CODE WITH US VIRGIN ISLAND AMENDMENTS AND LATEST ADOPTED EDITIONS OF ALL APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION CODES, INCLUDING THE NATIONAL ELECTRICAL CODE, SPECIFICALLY ARTICLES 690 AND 705.
 53. ALL APPLICABLE EQUIPMENT SHALL CONFORM TO NEMA STANDARDS AND SHALL BEAR UL LABELS OR EQUIVALENT PER THE AUTHORITY HAVING JURISDICTION FOR THE APPLICATION USED.
 54. ALL SOLAR MODULES SHALL BE UL LISTED 1703 & CEC APPROVED. ALL INVERTERS SHALL BE UL LISTED 1741 CERTIFIED & CEC APPROVED.
 55. SOLAR TRACKERS SHALL MEET UL STANDARD 3703.
 56. GROUND MOUNT RACK WITH ATTACHED PV MODULE SHALL BE CERTIFIED BY A USVI PROFESSIONAL ENGINEER TO WITHSTAND A MINIMUM WIND SPEED OF 165 MPH PER THE AMERICAN SOCIETY OF CIVIL ENGINEERING (ASCE) STANDARDS. CERTIFICATION SHALL BE BASED UPON MANUFACTURER'S DESIGN AND THE RESULTS OF THE GROUND PUSH/PULL TEST. THE PUSH/PULL TEST SHALL BE PERFORMED AND RESULTS PUBLISHED PRIOR TO FINAL RACK DESIGN, INSTALLATION, AND INSPECTION.
 57. PERMISSION TO OPERATE THE SYSTEM IS NOT AUTHORIZED UNTIL FINAL INSPECTIONS AND APPROVALS ARE OBTAINED FROM THE LOCAL AUTHORITY HAVING JURISDICTION AND THE LOCAL UTILITY SERVICE PROVIDER.
 58. THERE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) BETWEEN PULL POINTS, FOR EXAMPLE, CONDUIT BODIES AND BOXES PER NEC 352.26.
 59. PV SYSTEM CIRCUITS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH NEC ARTICLE 690.12.
- BATTERY SYSTEM REQUIREMENTS
60. SYSTEM SHALL ADHERE TO UL STANDARD 9540 AND BATTERY CELL SHALL ADHERE TO UL STANDARD 1642.
 61. BATTERY INVERTER AND POWER ELECTRONICS SHALL ADHERE TO UL 1741 AND IEEE 1547.

BATTERY SYSTEM REQUIREMENTS

60. SYSTEM SHALL ADHERE TO UL STANDARD 9540 AND BATTERY CELL SHALL ADHERE TO UL STANDARD 1642.

61. BATTERY INVERTER AND POWER ELECTRONICS SHALL ADHERE TO UL 1741 AND IEEE 1547.

2

SYMBOLS AND LEGEND

	WALL SWITCH, 1-POLE/125V, 20A, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		COMBINATION PHONE/DATA OUTLET, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.
	3-WAY WALL SWITCH, 1-POLE/125V, 20A, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		EXHAUST FAN – FRACTIONAL HORSEPOWER
	4-WAY WALL SWITCH, 1-POLE/125V, 20A, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		MOTOR NUMBER (n) DENOTES HORSEPOWER
	DIAMETER WALL SWITCH, 1-POLE/125V, 20A, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		DISCONNECT SWITCH – NON FUSED, A = AMP RATING-G, xxx = VOLTAGE/# POLES
	3-WAY, DIM WALL SWITCH, 1-POLE/125V, 20A, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		DISCONNECT SWITCH – FUSED, A = AMP RATING, xxx = VOLTAGE/# POLES
	4-WAY, DIM WALL SWITCH, 1-POLE/125V, 20A, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		SECURITY CAMERA - FIXED
	WALL CONTROLLED FAN SWITCH, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		SECURITY CAMERA - POINT TO ZONE
	3-WAY, WALL CONTROLLED FAN SWITCH, MOUNT 46" A.F.F., 42" A.F.F. # COUNTERTOPS OR AS NOTED.		DOOR SENSOR
	MOTOR RATED TOGGLE SAFETY SWITCH, 2-POLE, 240V		WINDOW SENSOR
	WALL MOUNTED OCCUPANCY SENSOR, LINE VOLTAGE.		CEILING MOUNT VACANCY SENSOR, LINE VOLTAGE OR POWER PACK. INFRARED SENSING.
	CEILING MOUNTED OCCUPANCY SENSOR, LINE VOLTAGE OR POWER PACK. INFRARED SENSING.		CEILING MOUNT VACANCY SENSOR, LINE VOLTAGE OR POWER PACK. ULTRA SONIC SENSING.
	CEILING MOUNTED OCCUPANCY SENSOR, LINE VOLTAGE OR POWER PACK. ULTRA SONIC SENSING.		CEILING MOUNT VACANCY SENSOR, LINE VOLTAGE OR POWER PACK. DUAL TECHNOLOGY SENSING.
	CEILING MOUNTED OCCUPANCY SENSOR, LINE VOLTAGE OR POWER PACK. DUAL TECHNOLOGY SENSING.		CORNER MOUNTED MOTION SENSOR
	SINGLE RECEPTACLE, 125, 20A – NEMA 5-20R, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.		CORNER MOUNTED MOTION SENSOR
	DUPLEX RECEPTACLE, 125, 20A – NEMA 5-20R, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.		ACCESS KEYPAD
	DUPLEX RECEPTACLE ON GROUND FAULT INTERRUPTER CIRCUIT, 125V, 20A – NEMA 5-20R		ACCESS FINGERPRINT READER
	DUPLEX RECEPTACLE WITH SPLIT BUS, TOP HALF ON SWITCH CONTROL, 125V, 20A – NEMA 5-20R		ALARM HORN
	QUAD RECEPTACLE, 125, 20A – NEMA 5-20R, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.		STROBE ONLY
	QUAD RECEPTACLE, 125, 20A – NEMA 5-20R, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.		HORN & STROBE, CEILING MOUNT
	DUPLEX FLOOR RECEPTACLE, 125, 20A – NEMA 5-20R.		SMOKE DETECTOR
	DATA OUTLET, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.		FIRE ALARM PULL STATION
	TELEPHONE OUTLET, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. AT COUNTERTOPS OR AS NOTED.		WIRELESS ACCESS POINT
	OUTDOOR PARKING LOT POLE LIGHT WITH PHOTOEYE CONTROLS		OUTDOOR WALLPACK WITH PHOTOEYE CONTROLS
	EARTH GROUND		GROUND CABLE
	HOMERUN BACK TO PANEL. "P" REPRESENTS THE PANEL, "CN" DEPICTS THE CIRCUIT NUMBER.		UNDERGROUND ELECTRIC
	FEEDER HOMERUN		FUSE
	CABLE TO GROUND CONNECTION		CIRCUIT BREAKER "XX A" INDICATES TRIP, "XX AF" INDICATES FRAME SIZE
	3/4" X 10'-0" COPPER GROUND ROD		DISCONNECT SWITCH, UNFUSED
	ELECTRIC MANHOLE		DISCONNECT SWITCH, FUSED
	ELECTRIC HAND HOLE		LIGHTING ARRESTOR
	GROUND CONNECTION		TRANSFORMER WITH SPLIT SECONDARY, H: PRIMARY VOLTAGE; X: SECONDARY 1 VOLTAGE; Y: SECONDARY 2 VOLTAGE
	POTENTIAL TRANSFORMER "2" INDICATES QUANTITY		3 PHASE, 3 WIRE DELTA CONNECTION
	CURRENT TRANSFORMER "3" INDICATES QUANTITY "500:5A" INDICATES PRIMARY TO SECONDARY TURNS RATIO		3 PHASE, 4 WIRE WYE SOLIDLY GROUNDED CONNECTION
	TRANSFORMER WITH PRIMARY VOLTAGE "4F" AND SECONDARY VOLTAGE Y OR L		3 PHASE, 4 WIRE WYE "FLOATING" CONNECTION

1

NOTES

STAMP		
—	Initial Release	09/13/22
No.	Revision/Issue	Date

Firm Name and Address



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Project Name and Address

GENTLE WINDS WASTE WATER PLANT
9003 GENTLE WINDS
CHRISTIANSTED, ST. CROIX, USVI

Drawing

GENERAL NOTES

Area

Scale	Sheet
N.T.S	E0-01

5

4

3

2

1

F

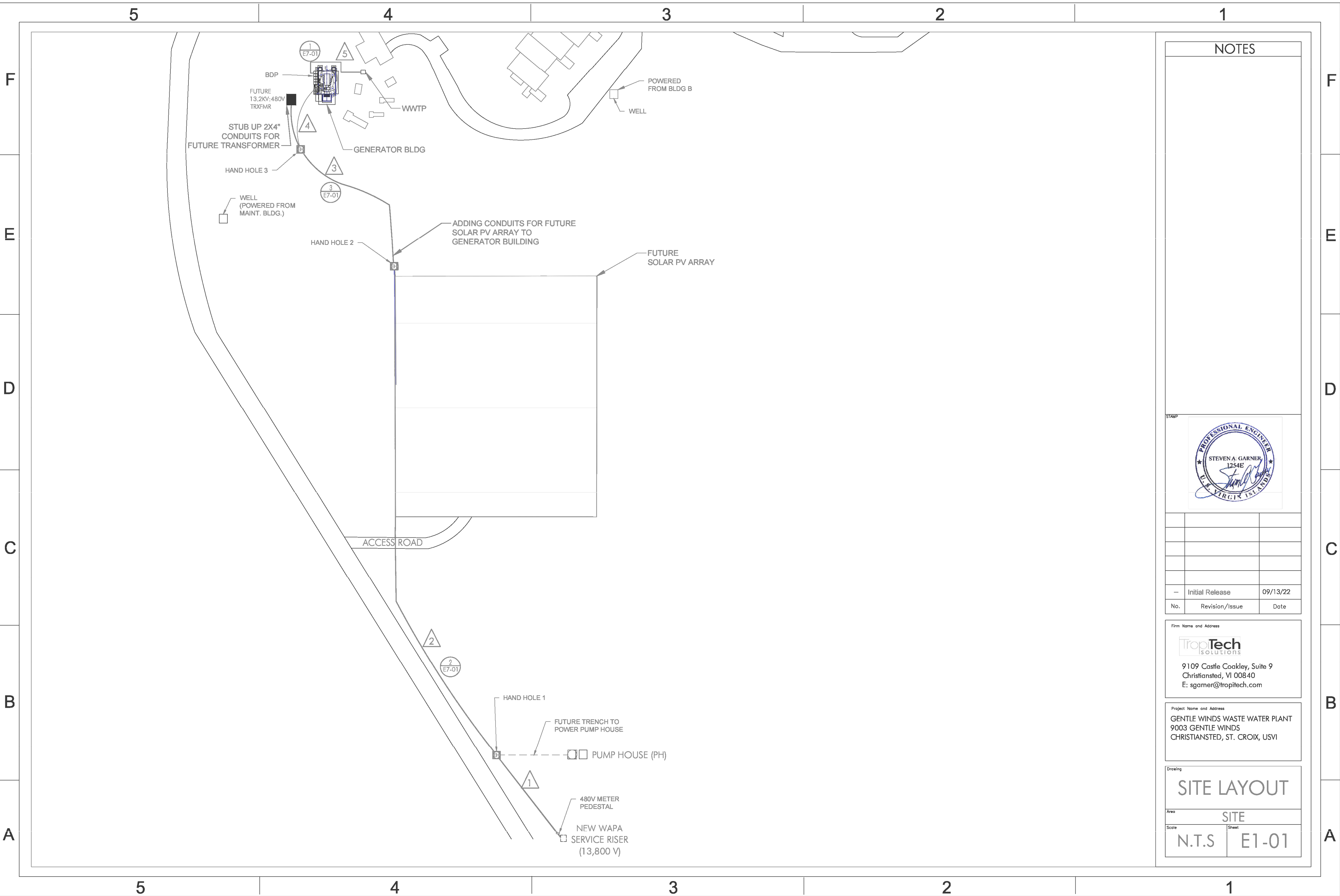
E

D

C

B







A












EQUIPMENT SCHEDULE

ITEM #	EQUIPMENT	MFG	MODEL	DESCRIPTION
1	GENERATOR "G-1"	EXISTING		500KW/625KVA 480V GENERATOR CONTAINS BREAKER SEE 16-01
2	FUSIBLE DISCONNECT	SGO	D323NB	100A, FUSED DISCONNECT, NEMA 3R OR 4X, Four-Wire (Three Bldgs, Three Fuses, SOLID NEUTRAL) 240 Vdc ADD 6KA FUSES
3	AUTOMATIC TRANSFER SWITCH	EATON	78C3C5001 008RU	480V, 100A, 3-POLE, SOLID NEUTRALS, ATC3001 - AUTOMATIC OPEN TRANSITION, NEMA3R, LISTED 78C7930V009.30D







TRENCH SCHEDULE

TRENCH SECTION	FROM	TO	DISTANCE FEET	TRENCH WIDTH	TRENCH DEPTH	POWER CONDUITS	COMMUNICATION CONDUITS
	WAPA ENTRANCE	HANDHOLE 1	116	12"	36"	2", 4" (S), 4" (S)	
	HANDHOLE 1	HANDHOLE 2	568	12"	36"	2", 2" (S), 4" (S), 4" (S)	
	HANDHOLE 2	HANDHOLE 3	177	24"	36"	2", 2" (S), 4" (S), 4" (S)	1", 1" (S)
	HANDHOLE 3	GENERATOR BUILDING	66	24"	36"	2", 4", 4" (S)	1", 1" (S)
	HANDHOLE 3	FUTURE TRANSFORMER	48	24"	36"	4", 4" (S)	
	GENERATOR BUILDING	WWTP CONTROL PANEL	83	12"	18"	2", 2" (S)	

WIRE & CONDUIT SCHEDULE

TRENCH SECTION	FROM	TO	DISTANCE FEET	CABLE LENGTH	VOLTAGE	WIRE SIZE	WIRE AMOUNT	WIRE TOTAL (FEET)	CONDUIT SIZE	CONDUIT AMOUNT	CONDUIT LENGTH
	WAPA ENTRANCE	HANDHOLE 1	116	136	480V	4#2AWG	4	344	2", 4" (SP), 4" (SP)	2	2' (136FT), 4' (272FT)
	HANDHOLE 1	HANDHOLE 2	568	588	480V	4#2AWG	4	2352	2", 2" (SP), 4" (SP), 4" (SP)	2	1176
	HANDHOLE 2	HANDHOLE 3	177	197	480V	4#2AWG	4	788	2", 2" (SP), 4", 4" (SP), 1", 1" (SP COMM)	2	394
	HANDHOLE 3	GENERATOR BUILDING	66	86	480V	4#2AWG	4	344	2", 4", 4" (SP), 1", 1" (SP COMM)	2	1' (172FT), 2' (86FT), 4' (172FT)
	HANDHOLE 3	FUTURE TRANSFORMER	48	68	NA	NA	0	0	4", 4" (SP)	2	136
	GENERATOR BUILDING	WWTP CONTROL PANEL	83	103	480V	4#2AWG	4	412	2", 2" (SP)	2	206
	100A DISCONNECT 1	AUTOMATIC TRANSFER SWITCH	10	30	480V	4#2AWG	4	120	2", 2" (SP)	2	60
	GENSET 'G'-1A	100A DISCONNECT 2	20	40	480V	4#4AWG	4	160	2", 2" (SP)	2	80
	100A DISCONNECT 2	AUTOMATIC TRANSFER SWITCH	10	30	480V	4#4AWG	4	120	2", 2" (SP)	2	60

WIRE SCHEDULE (GROUNDING)

TRENCH SECTION	FROM	TO	DISTANCE FEET	CABLE LENGTH	VOLTAGE	WIRE SIZE	AMOUNT	WIRE TOTAL (FEET)
	WAPA ENTRANCE	HANDHOLE 1	116	136	480V	# 6AWG	1	136
	HANDHOLE 1	HANDHOLE 2	568	588	480V	# 6AWG	1	588
	HANDHOLE 2	HANDHOLE 3	177	197	480V	# 6AWG	1	197
	HANDHOLE 3	GENERATOR BUILDING	66	86	480V	# 6AWG	1	86
	HANDHOLE 3	FUTURE TRANSFORMER	48	68	NA	NA	0	0
	GENERATOR BUILDING	WMTP CONTROL PANEL	83	103	480V	# 6AWG	1	103
	100A DISCONNECT 1	AUTOMATIC TRANSFER SWITCH	10	30	480V	# 6AWG	1	30
	GENSET "G-1"	100A DISCONNECT 2	20	40	480V	# 6AWG	1	40
	100A DISCONNECT 2	AUTOMATIC TRANSFER SWITCH	10	30	480V	# 6AWG	1	30

WIRE SUMMARY	
SIZE	FEET
#2	4560
#4	280
#6	1210

CONDUIT SUMMARY	
SIZE	FEET
4"	2150
2"	2198
1"	566

NOTES

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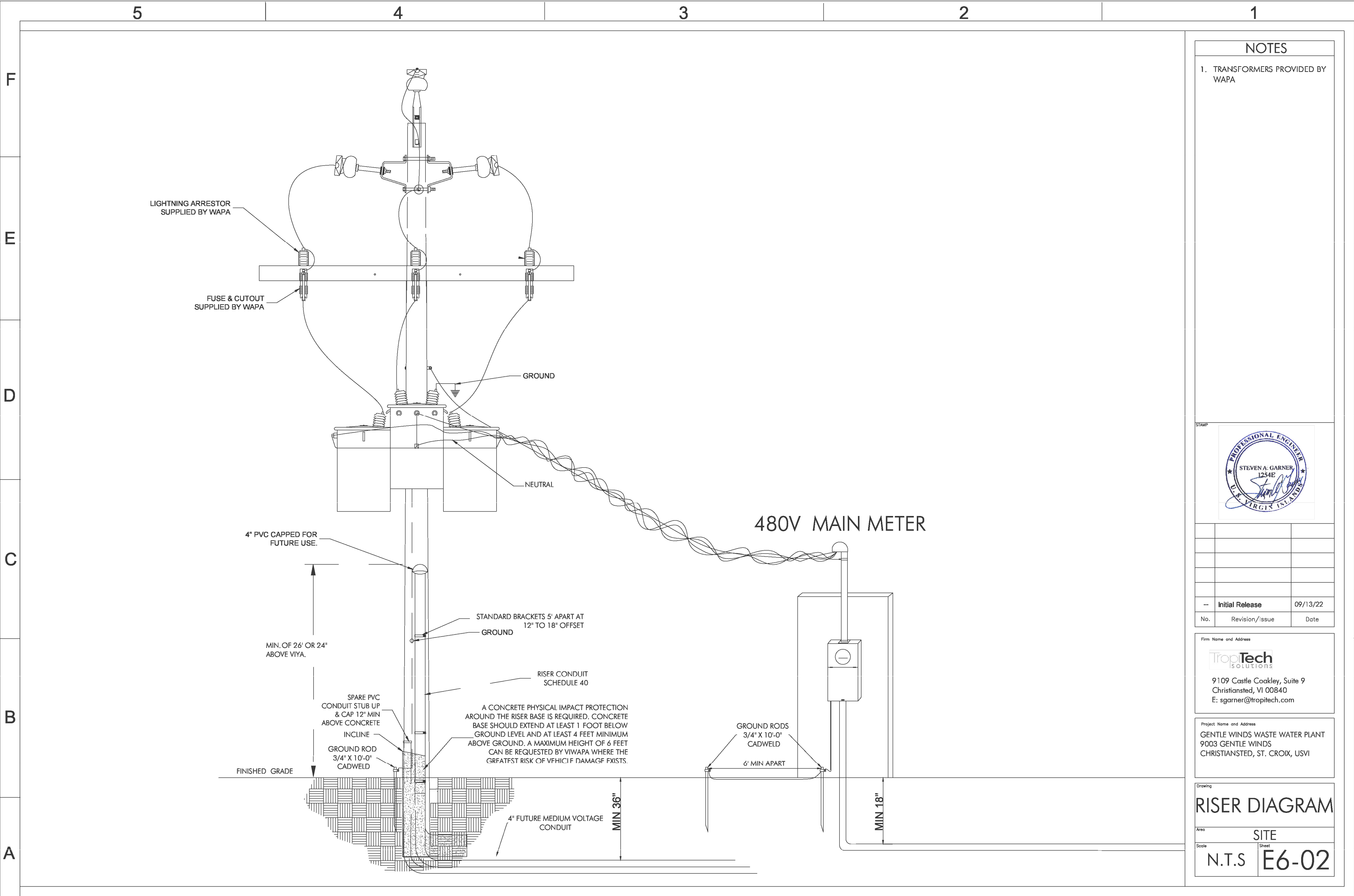
Project Name and Address

GENTLE WINDS WASTE WATER PLANT
9003 GENTLE WINDS
CHRISTIANSTED, ST. CROIX, USVI

Drawing

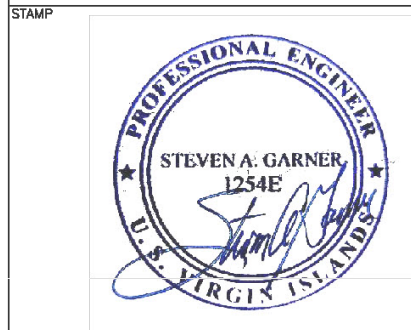
SCHEDULES

Area	SITE	
Scale	N.T.S	Sheet E5-01



NOTES

1. TRANSFORMERS PROVIDED BY WAPA



Initial Release	09/13/22
No.	Revision/Issue
	Date

Firm Name and Address

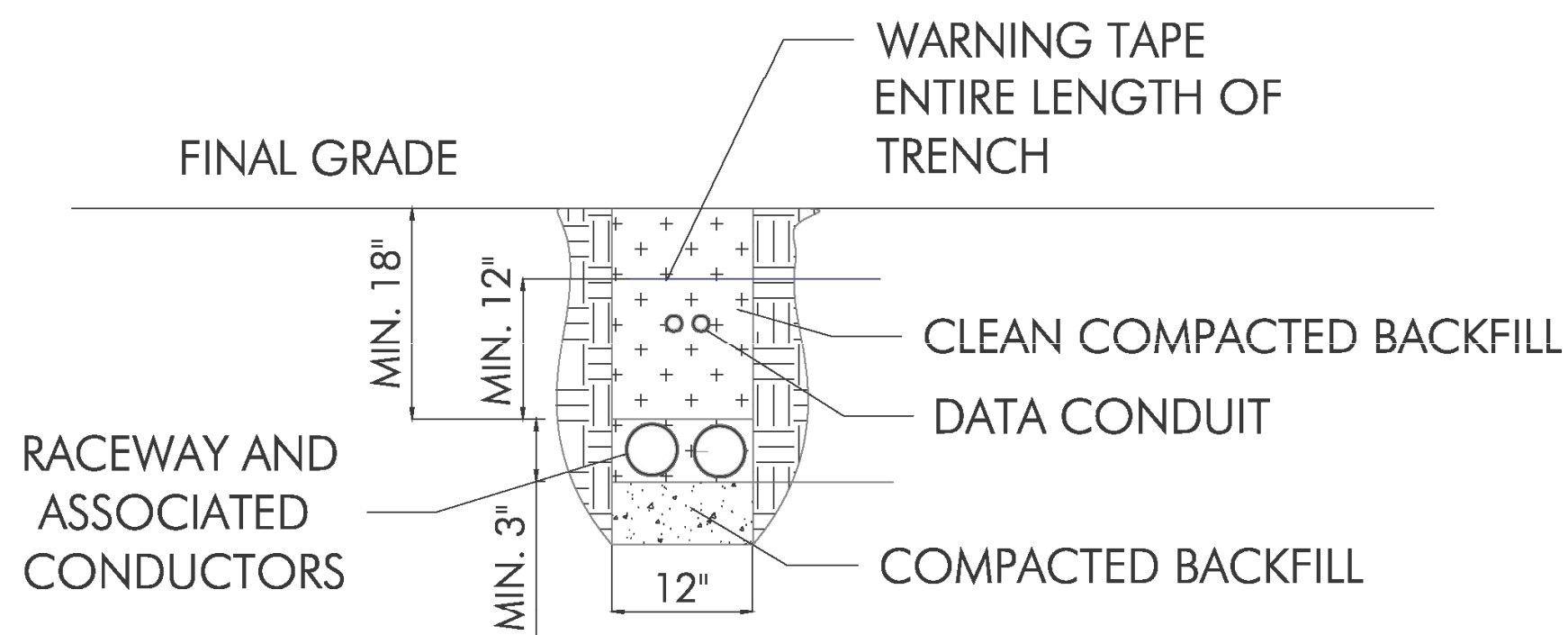
TropiTech
solutions

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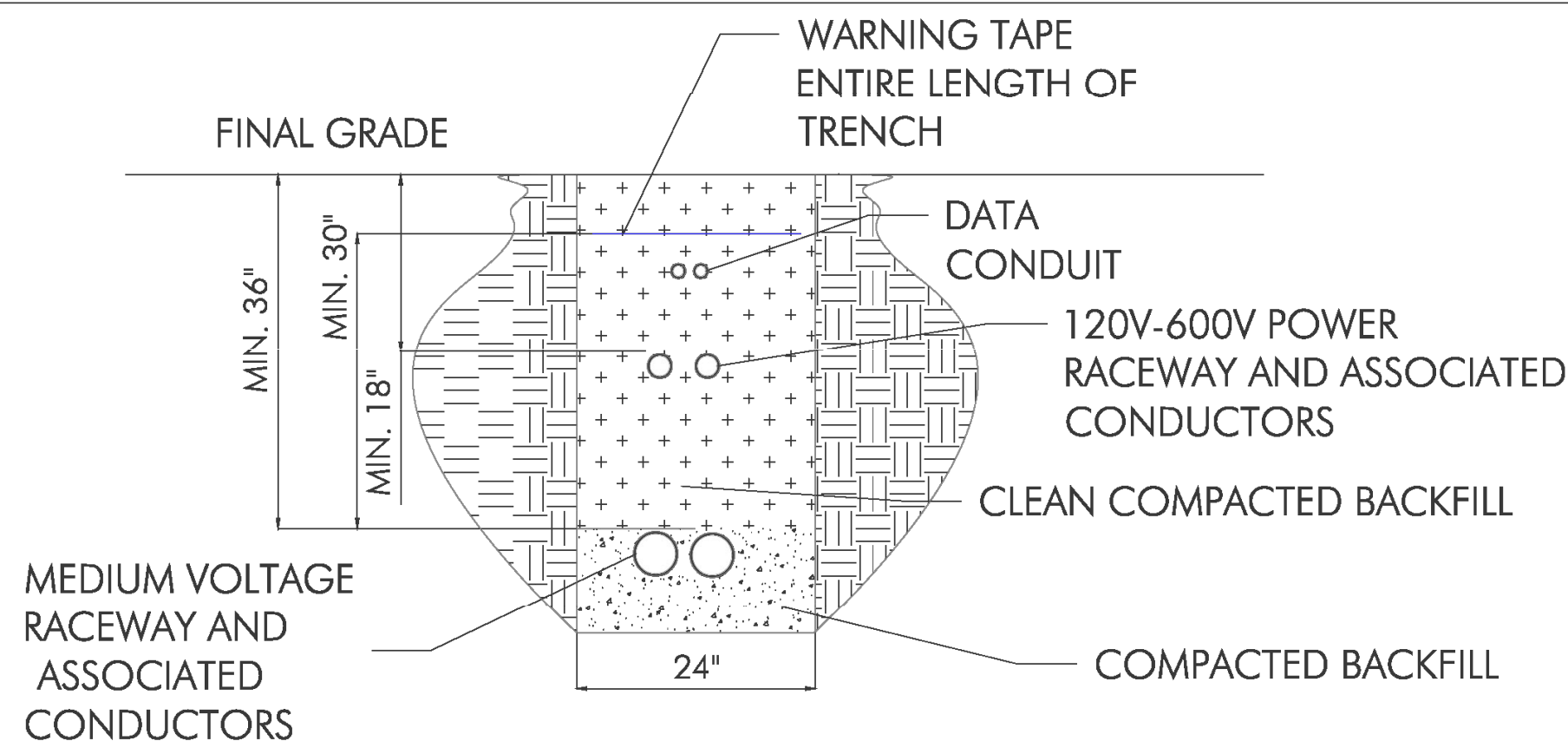
Project Name and Address

GENTLE WINDS WASTE WATER PLANT
9003 GENTLE WINDS
CHRISTIANSTED, ST. CROIX, USVI

Drawing	
RISER DIAGRAM	
Area	SITE
Scale	Sheet
N.T.S	E6-02



1. WARNING TAPE SHALL BE DETECTABLE TYPE FOIL BACKED 4 MIL POLYETHYLENE WITH FADE RESISTANT "BURIED ELECTRIC LINE BELOW" A MINIMUM OF 18 INCHES ABOVE THE BURIED SERVICE. TAPE SHALL BE EQUAL TO T&B NAF-0708.
2. THIS DETAIL IS NOT DESIGNED FOR ROADWAY CROSSINGS.



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2. THIS DETAIL IS NOT DESIGNED FOR ROADWAY CROSSINGS.
3. DEPTH DIMENSIONS ARE MINIMUM REQUIREMENTS. IT IS ACCEPTABLE TO LAY THE 120V-600V CONDUITS ON TOP OF THE MEDIUM VOLTAGE CONDUITS BEFORE BACKFILLING.

NOTES

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Project Name and Address

GENTLE WINDS WASTE WATER PLANT
9003 GENTLE WINDS
CHRISTIANSTED, ST. CROIX, USVI

Drawing

TRENCH DETAILS

Area

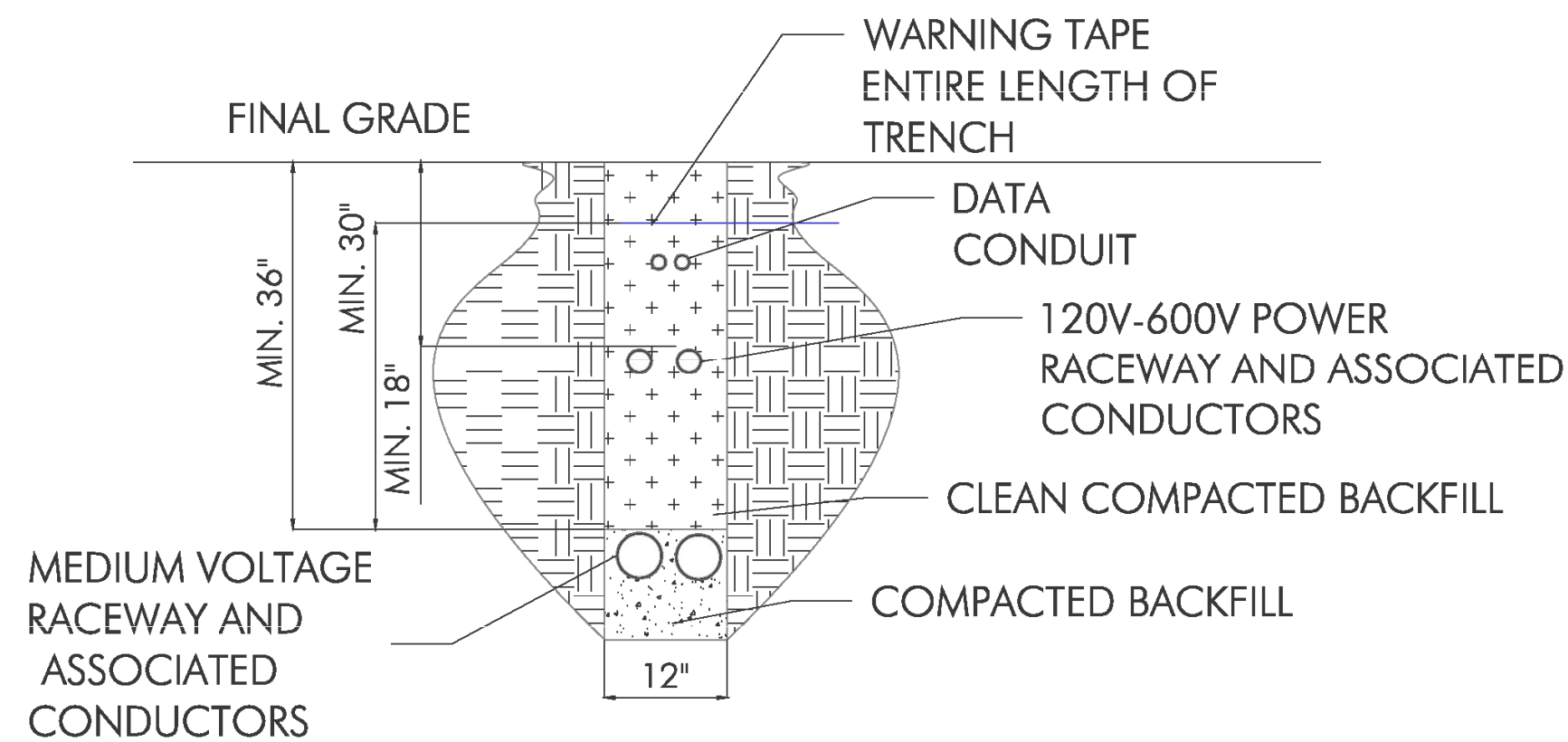
SITE

Scale

N.T.S

Sheet

E7-01



1. WARNING TAPE SHALL BE DETECTABLE TYPE FOIL BACKED 4 MIL POLYETHYLENE WITH FADE RESISTANT "BURIED ELECTRIC LINE BELOW" A MINIMUM OF 18 INCHES ABOVE THE BURIED SERVICE. TAPE SHALL BE EQUAL TO T&B NAF-0708.
2. THIS DETAIL IS NOT DESIGNED FOR ROADWAY CROSSINGS.
3. DEPTH DIMENSIONS ARE MINIMUM REQUIREMENTS. IT IS ACCEPTABLE TO LAY THE 120V-600V CONDUITS ON TOP OF THE MEDIUM VOLTAGE CONDUITS BEFORE BACKFILLING.

2 LOW/MEDIUM VOLTAGE 12" WIDE TRENCH DETAIL
SCALE: NTS

3 LOW/MEDIUM VOLTAGE 24" WIDE TRENCH DETAIL
SCALE: NTS

5

4

3

2

1