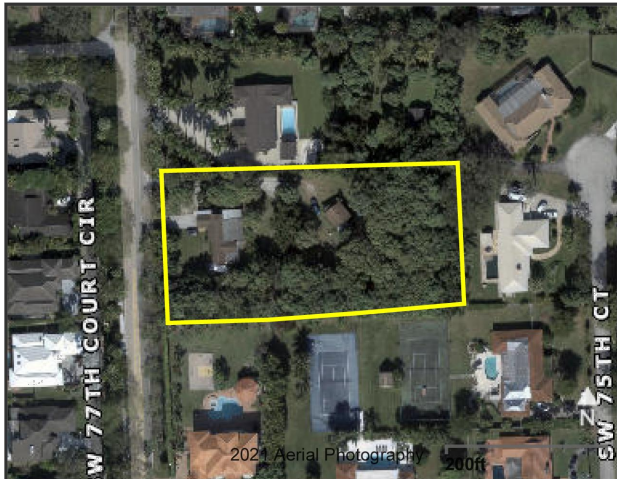


Property Information	
Folio#:	20-5011-000-0390
Property Address:	11041 SW 77 AVE Pinecrest, FL 33156-3772
Owner	PAOLO FIDANZA MILENA DORIA
Mailing Address	11041 SW 77 AVE PINECREST, FL 33156 USA
PA Primary Zone	2300 ESTATES - 1 ACRE
Primary Land Use	0802 MULTIFAMILY 2-9 UNITS - 2 LIVING UNITS
Beds / Baths / Half	4 / 3 / 0
Floors	1
Living Units	2
Actual Area	Sq Ft
Living Area	Sq Ft
Adjusted Area	1,881 Sq Ft
Lot Size	69,260 Sq Ft
Year Built	Multiple (See Building Info.)



Taxable Value Information			
	2022	2021	2020
County			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,398,568	\$1,044,685	\$949,714
School Board			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,398,568	\$1,238,441	\$949,714
City			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,398,568	\$1,044,685	\$949,714

Regional			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,398,568	\$1,044,685	\$949,714

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
07/23/2021	\$1,900,000	32684-0261	Qual by exam of deed
04/27/2011	\$980,000	27697-1430	Qual by exam of deed
01/01/2006	\$0	24859-3226	Sales which are disqualified as a result of examination of the deed

The Office of the Property Appraiser is continually editing and updating the tax roll. This website may not reflect the most current information on record. The Property Appraiser and Miami-Dade County assumes no liability, see full disclaimer and User Agreement at <http://www.miamidade.gov/inform/Disclaimer.asp>

COVER LETTER:

PROJECT LOCATION: 11041 SW 77 AVE, PINECREST, FL 33156

TO WHOM CONCERN:

SYSTEM MEETING BASELINE SYSTEM STANDARDS WITH ADVANCED SECONDARY TREATMENT STANDARDS CONSISTING OF ONE NORWECO SINGULAR BIO-KINETIC TREATMENT UNIT (MODEL 960-750 GPD.) WITH A CORRESPONDING DRAINFIELD AS DISPOSAL SYSTEM.

REQUIREMENTS:

THE NORWECO SINGULAR BIO-KINETIC TREATMENT UNIT (MODEL 960-750 GPD.), WHEN PROPERLY MAINTAINED AND OPERATED, CAN REDUCE EFFLUENT TO LESS THAN 10 MG/L FOR CBOD 5, TSS, THE TP CAN BE REDUCE BY A PHOSPHORUS REMOVAL FILTER (PHOS-4-FADE) TO LESS THAN 1.0 ML/L . THE FECAL COLIFORM WILL BE TREATED BY A CHLORINATION/DESCHLORINATION SYSTEM LESS THAN 200 FC COL/100 ML.

CERTIFICATION OF DESIGN:

PROJECT LOCATION: 11041 SW 77 AVE, PINECREST, FL 33156

TO WHOM CONCERN:

I CERTIFY THE ENGINEERING FEATURES OF THIS ADVANCED SECONDARY TREATMENT STANDARDS SYSTEM HAVE BEEN DESIGNED OR SPECIFIED BY ME AND CONFORM TO ENGINEERING PRINCIPLES APPLICABLE TO SUCH PROJECTS. IN MY PROFESSIONAL JUDGMENT, THIS SYSTEM, WHEN PROPERLY CONSTRUCTED, OPERATED AND MAINTAINED, WILL ACHIEVE THE ESTABLISHED PERFORMANCE STANDARD AND COMPLY WITH ALL APPLICABLE STATUS OF THE STATE OF FLORIDA AND RULES OF THE DEPARTMENT.

MONITORING REQUIREMENTS:

- 1-PONDING DEPTH QUARTERLY INSPECTION SHOULD BE DONE (MEMO HSES-10-001)
- 2-FECAL COLIFORMS SEMI ANNUALLY.
- 3- CBOD5 AND TSS SEMI ANNUALLY (MEMO# HSES 08-003)

LOCATION:

ON TOP OF THE OBSERVATION PORT AT DRAINFIELD

FREQUENCY:

ON A QUARTERLY BASIS

SYSTEM DESIGN CRITERIA

PBTS (ASTS) STANDARDS	BY FLORIDA HEATH
CBOD5	≤ 10 MG/L
TSS	≤ 10 MG/L
TN	= 50% REMOVAL REQ.
TP	≤ 10 MG/L
FECAL	≤ OR < 200 FC COL/100 ML

FLOW - 1120 G.P.D. SEWAGE FLOW SYSTEM

DRAIN-FIELD AREA REQUIRED	= 1400 FT2
UNOBSTRUCTED AREA PROVIDED	= 700 FT2
TOTAL SYSTEM AREA:	= 2100 SQFT

*SEE ATTACHED WITH ADDITIONAL DESIGN CALCULATIONS.

CONTINGENCY PLAN

1. AT THE HIGH WATER LEVEL, THE SYSTEM WILL START AN ALARM. THE OWNER MUST CONTACT THE MAINTENANCE ENTITY WITHIN 24 HOURS.
2. MAINTENANCE ENTITY PERSONNEL WILL INSPECT THE SYSTEM AND MAKE NECESSARY REPAIRS WITHIN 36 HOURS PER 64E-6.012(4)(B).
3. OWNER SHALL PUMP TANKS AS REQUIRED (NECESSARY) TO KEEP TRASH OUT OF AERATION CHAMBER.

OPERATION AND MAINTENANCE

THE OPERATIONS AND MAINTENANCE MANUALS ARE PROVIDED TO THE INSTALLER AND MAINTENANCE ENTITY AT THE TIME OF INSTALLATION. THESE MANUALS HAVE MOSTLY LIKELY BEEN PREVIOUSLY SUBMITTED TO THE COUNTY HEALTH OFFICE. COPIES CAN BE PROVIDED UPON REQUEST.

INSTALLATION

THE INSTALLATION INSTRUCTIONS WILL BE PROVIDED BY NORWECO FOR ANY NEW INSTALLERS. NEW INSTALLERS WILL HAVE A NORWECO SYSTEMS AND DESIGN REPRESENTATIVE ON SITE WITH THEM TO ENSURE PROPER CONSTRUCTION OF THE SYSTEM.

MANUFACTURER INFORMATION:

BASED ON THE INFORMATION PROVIDED BY NORWECO, (NSF STANDARD 40 AND 245 FINAL REPORTS) AND UNDERSTANDING THAT THESE RESULTS HAVE BEEN APPLIED TO THE LARGER UNITS AND CERTIFIED BY NSF, THE NORWECO AEROBIC SYSTEM, WHEN PROPERLY CONSTRUCTED, OPERATED AND MAINTAINED WILL ACHIEVE THE ESTABLISHED PERFORMANCE STANDARD IN THIS SUBMITTAL AND COMPLY WITH ALL APPLICABLE STATUS OF THE STATE OF FLORIDA AND RULES OF THE DEPARTMENT.

METHOD OF MONITORING FLOW THROUGH SYSTEM:

USED OF THE FLOW METER READING

NOTE:

THERE ARE NO PERTINENT FEATURES ON ADJACENT PROPERTIES AND ACROSS THE STREETS THAT MAY AFFECT THE ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM INSTALLATION.

AUTHORIZED SEWAGE FLOW:

LOT SIZE (SFT) X 1,500 GPD
43,560 ACRE
69,260 SQFT X 1,500 GPD =
43,560 ACRE
1.58999 X 1500 = 2384.98 GPD

FIXTURE UNITS CALCULATIONS

SANITARY SYSTEM No.#1 DRAINAGE FIXTURE UNIT COUNT		SANITARY SYSTEM No.#1	
GUEST BATHRM#1	6FU	TOTAL GALLONS PER DAY=1120 GPD	
GUEST BATHRM#2	6FU	TOTAL FIXTURE UNITS= 44 + 31 = 75 FU	
BATHRM # 3	6FU	44/75=0.5867 x1120= 657 GPD	
BATHRM # 4	6FU	DOSING TANK 525 GLS REQ.	
BATHRM # 5	6FU	DRAINFIELD 822 SQFT. TRENCH (55CHAMBERS)	
BATHRM # 6	6FU	RESERVE AREA: 411 SQFT	
P. BATHRM	4FU	TOTAL SYSTEM AREA 1233 SQFT	
BATH/SAUNA	4FU		
TOTAL FIXTURE UNITS	44FU		
TOTAL HOUSE COUNT	75 FU		
SANITARY SYSTEM No.#2 DRAINAGE FIXTURE UNIT COUNT		SANITARY SYSTEM No.#2	
MBATH RM	9FU	TOTAL GALLONS PER DAY= 1120 GPD	
LAUNDRY	2FU	TOTAL FIXTURE UNITS= 44 + 31 = 75 FU	
LAUNDRY SINK	2FU	31/75= 0.4133 x 1120= 463 GPD	
P. BATHRM 2	4FU	DF 579 SQFT	
P. BATHRM 3	4FU	1400 SQFT X 0.4133= 579 SQFT REQ DRAINFIELD	
MAID'S BATHRM	6FU	(39 CHAMBERS)	
BBQ SINK	2FU	RESERVE AREA 290 SQFT	
KITCHEN SINK	2FU	TOTAL AREA: 869 SQFT	
TOTAL FIXTURE UNITS	31FU		
TOTAL HOUSE COUNT	75 FU		

CALCULATION :

Standard Septic system:

Biochemical Oxygen Demand (BOD)

(1120 GPD) x (216 mg/l) x (3.7854 L/1 gal) x (1 lb/453592.4 mg) = 1.37 lbs/day

Suspended Solid (SS)

(1120 GPD) x (61 mg/l) x (3.7854 L/1 gal) x (1 lb/453592.4 mg) = 0.39 lbs/day

Total Nitrogen (TN)

(1120 GPD) x (60 mg/l) x (3.7854 L/1 gal) x (1 lb/453592.4 mg) = 0.38 lbs/day

Using an PBTS NSF 245

Biochemical Oxygen Demand (BOD)

(1120 GPD) x (4 mg/l) x (3.7854 L/1 gal) x (1 lb/453592.4 mg) = 0.025 lbs/day

Suspended Solid (SS)

(1120 GPD) x (9 mg/l) x (3.7854 L/1 gal) x (1 lb/453592.4 mg) = 0.057 lbs/day

Total Nitrogen (TN)

(1120 GPD) x (19.2 mg/l) x (3.7854 L/1 gal) x (1 lb/453592.4 mg) = 0.121 lbs/day

CONCLUSION:

INSTALLATION OF THE PBTS SYSTEM DRAMATICALLY REDUCE THE AMOUNT OF BIOCHEMICAL OXYGEN DEMAND, SUSPENDED SOLID AND TOTAL NITROGEN DISCHARGE INTO THE DRAINFIELD

ADVANCE SECONDARY TREATMENT STANDARDS WERE ADJUSTED TO TAKE INTO ACCOUNT THE REDUCTION IN LOT SIZE. THE ADJUSTED TREATMENT STANDARDS THAT THE PROPOSED SYSTEM SHALL MEET, ARE AS FOLLOWS:			
POLLUTANT - ANNUAL AVERAGE (MG/L)	Domestic Sewage Waste Range	Advanced Secondary Treatment Standards	Adjusted Advanced Secondary Treatment Standards for Non-Compliant Lot
CBOD5	300	10	7.96
TSS	200	10	7.96
TN	100	30	23.89
TP	18	10	7.96
Fecal coliform (cfu/100ml)	2.00E+06	200	159.26

PLUMBING GENERAL NOTES:

1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE PLUMBING SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, THE APPLICABLE EDITION OF THE FLORIDA BUILDING CODE 2017, ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL CODES AND ORDINANCES
2. THE CONTRACTOR SHALL PAY ALL INSPECTION FEES. ALL COSTS OF PERMITS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK UPON FINAL. ACCEPTANCE A CERTIFICATE FROM THE LOCAL INSPECTION AUTHORITY SHALL BE FURNISHED TO THE OWNER.
3. ALL MATERIALS AND EQUIPMENTS SHALL BE NEW, OF U.S. MANUFACTURER AND OF GOOD QUALITY OF RESPECTIVE KIND AND GRADE, AND MUST BE FURNISHED SO AS TO PREVENT AND DELAY IN THE PROGRESS OF THE WORK. ALL WORK THROUGHOUT SHALL BE PERFORMED IN A WORKMAN-LIKE MANNER BY SUFFICIENT NUMBER OF SKILLED WORKMEN.
4. THE CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL PERTINENT UTILITY DRAWINGS TO FAMILIARIZE HIMSELF WITH THE LOCATION OF ALL EXISTING AND/OR PROPOSED UTILITY STUB OUTS, PIPING, EQUIPMENT, ETC., AND MAKE DUE ALLOWANCE FOR ANY CONDITION AFFECTING HIS WORK.
5. ALL UNDERGROUND SANITARY & STORM DRAINAGE PIPING AND FITTINGS SHALL BE PVC-DWV (ASTM D-2662/D-3034).
6. ALL ABOVE GROUND SANITARY & STORM DRAINAGE BRANCH & VENT PIPES AND FITTING SHALL BE PVC-DWV (ASTM D-2662/D-3034).
7. PROVIDE CLEANOUTS (WITH CHROME PLATED WALL OR FLOOR ACCESS FRAME AND COVERS AS REQUIRED) AT THE BASE OF ALL WASTE AND/OR VENT STACKS. PROVIDE PITCH PANS & LEADS FLASHING FOR ALL SANITARY SYSTEM VENTS.
8. ALL HORIZONTAL WASTE PIPING SHALL BE SLOPPED AT 1/8 PER FOOT, UNLESS OTHERWISE NOTED.
9. CONTRACTOR SHALL VERIFY SLOPE AND DEPTHS AND LOCATIONS OF CONNECTION POINTS TO EXISTING PRESSURE OR DRAINAGE LINES BEFORE STARTING WORK.

ON SITE SEWAGE SYSTEM CALCULATION AS PER 62-6 AND ORDINANCE.

MAIN HOUSE HOUSE

S.F.H. 7 BEDROOMS W/11,291.03 SQFT OF CONDITION SPACE.

GUEST HOUSE EXE. RM W/523.77 SQFT OF CONDITION SPACE

2251 - 3300 SQFT OF BLDG-AREA 400 G.P.D. ESTIMATED SEWAGE FLOW

FOR EACH ADD BEDRM OR ADDITIONAL 750 SQFT OF BLDG 60 G.P.D.

11,814.8-3300= 8514.8 / 750) x 60= 681.8 G.P.D. 720 G.P.D.

TOTAL: 1120 G.P.D.

DRAIN-FIELD: AS PER TABLE NO III TRENCH SYSTEMS:

RATE ABSORPTION IN GPD/SF/DAY = 0.8

ESTIMATED SEWAGE FLOW (G.P.D.) = 1120 / 0.8 = 1325 SQFT DF/ 663 SQFT RA

TOTAL: 1988 SQFT

NORWECO SINGULAR TNT 960-750 / NOT RECIRCULATION

W/CHLORINATION/DESCHLORINATION SYSTEM

ADVANCED SECONDARY TREATMENT STANDARDS TYPE 3:

BY 62-6.017, (4) STANDARD

	STANDARD	NORWECO SINGULAR 960 750 SYSTEM
CBOD5	< 10 MG/L	CBOD5 < 6 MG/L
TSS	< 10 MG/L	TSS < 10 MG/L
TP	< 10 MG/L	TP < 10 MG/L
TN	50 % REMOVAL	TN 53% RED
FECAL COLIFORM	< 200 FC COL/100ML	FECAL COLIFORM < 2 FC COL/100ML

STANDARD FECAL COLIFORM IN THE EFFLUENT:

USING THE BLUE CRYSTAL DISINFECTION TABLETS WE HAVE A 99% REDUCTION OF FECAL EQUIVALENT TO 100 FC COL/100 ML

BLUE CRYSTAL TABLETS CONTAIN 20 PPM COMBINED CHLORINE, BIO-NEUTRALIZER TABLE REMOVED CHLORINE TO NON-DETECT LEVELS.

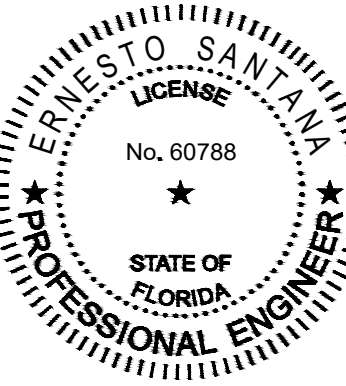
THE TABLE FEEDER INSERT IN THE BIOKINETIC FILTER IS 18" HIGH AND EVERY TABLET HAS A THICKNESS OF 1", WHEN FULLY CHARGED THE FEED TUBE CAN LAST AN AVERAGE OF 6 MONTHS (180 DAYS) 18 TABLETS / 180 DAYS = 0.10 TABLET PER DAY NEEDED FOR CHLORINATION.

AS PER SPECS ATTACHED, TABLETS SHALL DISSOLVE IN DIRECT PROPORTION TO THE FLOW RATE, RELEASING CONTROLLED AMOUNTS OF CHLORINE. CHLORINE CONTACT TIME REQUIRED FOR DISINFECTION 15 MINUTES, FREE CHLORINE 20 PPM, CHLORINE ON DEMAND 19.5 PPM AS PER SPECS ATTACHED

PROPOSE SYSTEM

PROPOSE SYSTEM	SYSTEM CALCULATION
NORWECO SINGULAR BIO-KINETIC SYSTEM 960-500	RESULT FROM CALC
6 MG/L	0.025 LBS/DAY
9 MG/L	0.057 LBS/DAY
5.4 MG/L	0.121 LBS/DAY
3.2 MG/L	0.3- 1.0 MG/L (W/FILTER)
< 100 FC COL/100ML USING THE BLUE CRYSTAL DISINFECTION	< 100 FC COL/100ML USING THE BLUE CRYSTAL DISINFECTION

Ernesto Santana, P.E., LEED @AP
CONSULTING ENGINEERS
P.E.# 60788-MECHANICAL
16438 S.W. 85Ln, Miami,
Florida 33193
Phone: (786)564-4040



SEAL:

(THIS ITEM HAS BEEN DIGITALLY SIGN AND SEALED BY ERNESTO SANTANA P.E. LIC-60788 ON PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.)

GENERAL NOTES,
SCHEDULES,
DETAILS AND
CALCULATIONS

NEW SINGLE FAMILY HOME
11041 SW 77 AVE, PINECREST, FL 33156

REVISION		
No.	DESCRIPTION	DATE:
Δ	COMMENTS	3-5-24

JOB No. 123-2023

SITE PLAN

DATE: 11/13/2023

SP-1.00

SYSTEM # 1

DETERMINATION OF OSTDS TYPE AND STANDARDS PER SECTION 24-42.7

GROSS LOT SIZE = 71,301.2 FT² = 1.637 ACRES
LAND USE: Residential
GROSS BUILDING AREA = 41,003.3 FT²
SEWAGE FLOW = 510 GPD
SEWAGE LOADING = 510 GPD / 1.637 ACRES = 311.54 GPD/ACRE

Y	N	CRITERIA FOR OSTDS TYPE SELECTION
Y		PROPERTY WILL BE SERVED BY PUBLIC WATER
Y		PROPERTY COMPLETELY OUTSIDE WELLFIELD PROTECTION AREA
N		SURFACE WATER BODIES BEYOND 1000 FEET
Y		SEWAGE FLOW IS LESS THAN 500 GPD FOR SFR/DUPLEX
N	A	SEWAGE FLOW IS LESS THAN 1000 GPD FOR MULTI-FAMILY/OTHER USES
Y		SEWAGE LOADING LESS THAN 500 GPD/ACRE
Y	N	OTHER CONSIDERATIONS FOR OSTDS APPROVAL
Y		SANITARY SEWERS NOT AVAILABLE, ABUTTING, OR OPERATIVE
Y		SYSTEM WILL SERVE ONLY ONE LOT
N	A	PROPERTY LINES OVER 50 FEET FROM OSTDS FOR PROPERTIES SERVED BY A POTABLE WATER WELL

TYPE OF SYSTEM REQUIRED: PBTS (Advanced Secondary Treatment Standards TYPE III)
TOTAL NITROGEN TREATED BY: NORWECO SINGULAR 960-750
TOTAL PHOSPHORUS TREATED BY: NORWECO SINGULAR 960-750
FECAL COLIFORM TREATED BY: BLUE CRYSTAL DESINFECTANT TANK
SOURCE OF TREATMENT STANDARDS: DEP Average Testing Performance Data for PBTS

POLLUTANT	TREATMENT STANDARDS (ANNUAL AVERAGE)	PROPOSED (mg/L) (ANNUAL AVERAGE)
CBOD ₅	<10 MG/L	6
TSS	<10MG/L	10
TN	50% Removal	53% RED.
TP	<10 MG/L	10
FECAL COLIFORM (cfu/100ml)	<200 FC COL/100ML	<2 FC COL/100ML (99% RED.)

OSTDS CALCULATIONS PER CHAPTER 62-6 F.A.C.

NET LOT SIZE = 69260 FT² = 1.589 ACRES
LAND USE: Residential
BUILDING AREA = 11814.08 FT²
1ndFL 7373.92 sqft + 2ndFL 3917.11 sqft + EXEC. BLDG 523.77 SQFT = 11,814.8 SQFT

SEWAGE FLOW
MAXIMUM SEWAGE LOADING ALLOWANCE = 1500 GPD/ACRE (1,500 GPD/ACRE OR 2,500 GPD/ACRE)
AUTHORIZED SEWAGE FLOW = 1500 GPD/ACRE x 1.589 ACRES = 2384.98 GPD
UNIT FLOW CRITERIA (PER TABLE 1) - BEDRMS/ BLDG AREA
SEWAGE FLOW PER UNIT FLOW = 100 G.P.D.X.BEDRMS or per 750 sqft
TOTAL SEWAGE FLOW = 1120 GPD

TREATMENT TANK AND DRAINFIELD
PROPOSED SYSTEM: PBTS (Advanced Secondary Treatment Standards)
MINIMUM REQUIRED TREATMENT CAPACITY = 750 GPD
DRAINFIELD CONFIGURATION: TRENCH
DRAINFIELD TYPE: STANDARD (SYSTEM#1)
DRAINFIELD MATERIAL: CHAMBER ARC 24
MAXIMUM SEWAGE LOADING RATE FOR THE PROPOSED DRAINFIELD = 0.8 GAL/FT² DAY
DRAINFIELD SIZE = 657 GPD / 0.8 GAL/FT² DAY = 822 FT²

SEPARATION BETWEEN THE SHWT AND BOTTOM OF THE DRAINFIELD (ELEVATIONS IN NGVD)
GRADE ELEVATION = 9.8 FT
SEASONAL HIGH WATER TABLE ELEVATION = 4.5 FT
ELEVATION AT THE BOTTOM OF THE DRAINFIELD = 8.2 FT
SEPARATION BETWEEN SHWT AND BOTTOM OF DRAINFIELD = 44.4 INCHES

SYSTEM # 2

DETERMINATION OF OSTDS TYPE AND STANDARDS PER SECTION 24-42.7

GROSS LOT SIZE = 71,301.2 FT² = 1.637 ACRES
LAND USE: Residential
GROSS BUILDING AREA = 41,003.3 FT²
SEWAGE FLOW = 510 GPD
SEWAGE LOADING = 510 GPD / 1.637 ACRES = 311.54 GPD/ACRE

Y	N	CRITERIA FOR OSTDS TYPE SELECTION
Y		PROPERTY WILL BE SERVED BY PUBLIC WATER
Y		PROPERTY COMPLETELY OUTSIDE WELLFIELD PROTECTION AREA
N		SURFACE WATER BODIES BEYOND 1000 FEET
Y		SEWAGE FLOW IS LESS THAN 500 GPD FOR SFR/DUPLEX
N	A	SEWAGE FLOW IS LESS THAN 1000 GPD FOR MULTI-FAMILY/OTHER USES
Y		SEWAGE LOADING LESS THAN 500 GPD/ACRE
Y	N	OTHER CONSIDERATIONS FOR OSTDS APPROVAL
Y		SANITARY SEWERS NOT AVAILABLE, ABUTTING, OR OPERATIVE
Y		SYSTEM WILL SERVE ONLY ONE LOT
N	A	PROPERTY LINES OVER 50 FEET FROM OSTDS FOR PROPERTIES SERVED BY A POTABLE WATER WELL

TYPE OF SYSTEM REQUIRED: PBTS (Advanced Secondary Treatment Standards TYPE III)
TOTAL NITROGEN TREATED BY: NORWECO SINGULAR 960-750
TOTAL PHOSPHORUS TREATED BY: NORWECO SINGULAR 960-750
FECAL COLIFORM TREATED BY: BLUE CRYSTAL DESINFECTANT TANK
SOURCE OF TREATMENT STANDARDS: DEP Average Testing Performance Data for PBTS

POLLUTANT	TREATMENT STANDARDS (ANNUAL AVERAGE)	PROPOSED (mg/L) (ANNUAL AVERAGE)
CBOD ₅	<10 MG/L	6
TSS	<10MG/L	10
TN	50% Removal	53% RED.
TP	<10 MG/L	10
FECAL COLIFORM (cfu/100ml)	<200 FC COL/100ML	<2 FC COL/100ML (99% RED.)

OSTDS CALCULATIONS PER CHAPTER 62-6 F.A.C.

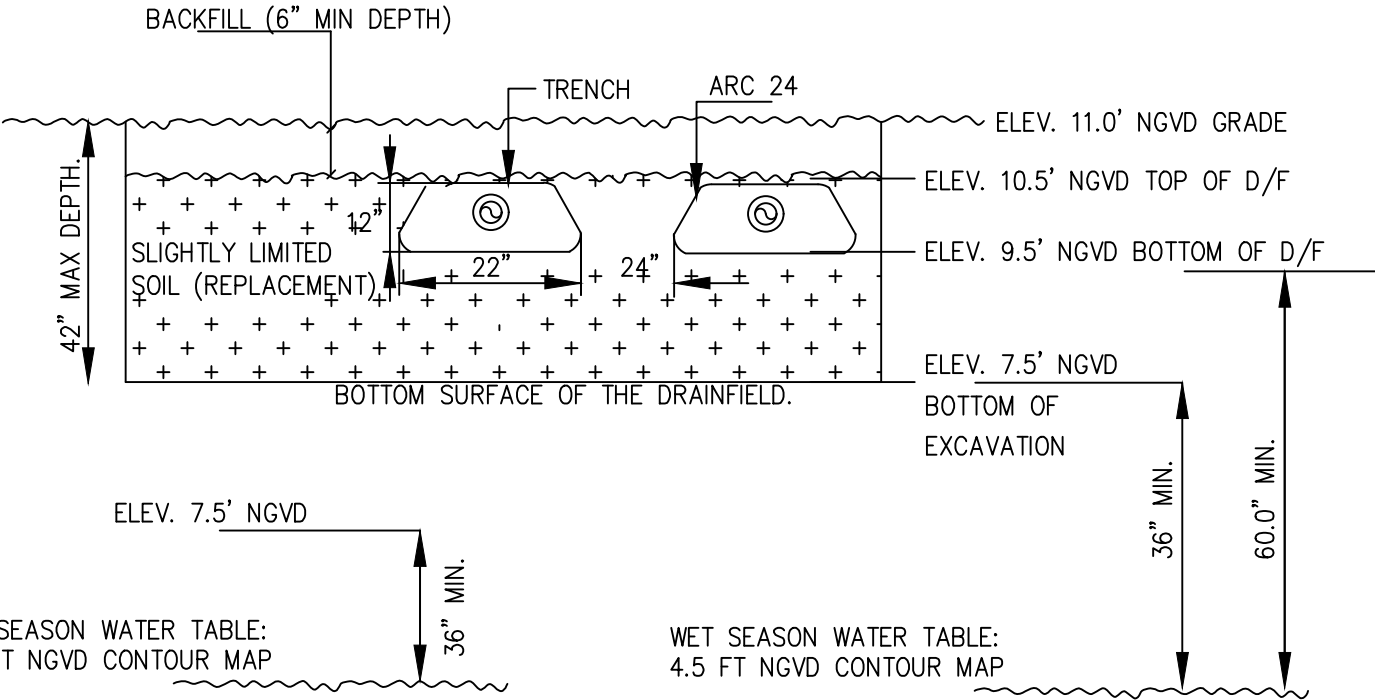
NET LOT SIZE = 69260 FT² = 1.589 ACRES
LAND USE: Residential
BUILDING AREA = 11814.08 FT²
1ndFL 7373.92 sqft + 2ndFL 3917.11 sqft + EXEC. BLDG 523.77 SQFT = 11,814.8 SQFT

SEWAGE FLOW
MAXIMUM SEWAGE LOADING ALLOWANCE = 1500 GPD/ACRE (1,500 GPD/ACRE OR 2,500 GPD/ACRE)
AUTHORIZED SEWAGE FLOW = 1500 GPD/ACRE x 1.589 ACRES = 2384.98 GPD
UNIT FLOW CRITERIA (PER TABLE 1) - BEDRMS/ BLDG AREA
SEWAGE FLOW PER UNIT FLOW = 100 G.P.D.X.BEDRMS or per 750 sqft
TOTAL SEWAGE FLOW = 1120 GPD

TREATMENT TANK AND DRAINFIELD
PROPOSED SYSTEM: PBTS (Advanced Secondary Treatment Standards)
MINIMUM REQUIRED TREATMENT CAPACITY = 750 GPD
DRAINFIELD CONFIGURATION: TRENCH
DRAINFIELD TYPE: STANDARD (SYSTEM#2)
DRAINFIELD MATERIAL: CHAMBER ARC 24
MAXIMUM SEWAGE LOADING RATE FOR THE PROPOSED DRAINFIELD = 0.8 GAL/FT² DAY
DRAINFIELD SIZE = 463 GPD / 0.8 GAL/FT² DAY = 579 FT²

SEPARATION BETWEEN THE SHWT AND BOTTOM OF THE DRAINFIELD (ELEVATIONS IN NGVD)
GRADE ELEVATION = 11.0 FT
SEASONAL HIGH WATER TABLE ELEVATION = 4.5 FT
ELEVATION AT THE BOTTOM OF THE DRAINFIELD = 9.5 FT
SEPARATION BETWEEN SHWT AND BOTTOM OF DRAINFIELD = 80.0 INCHES

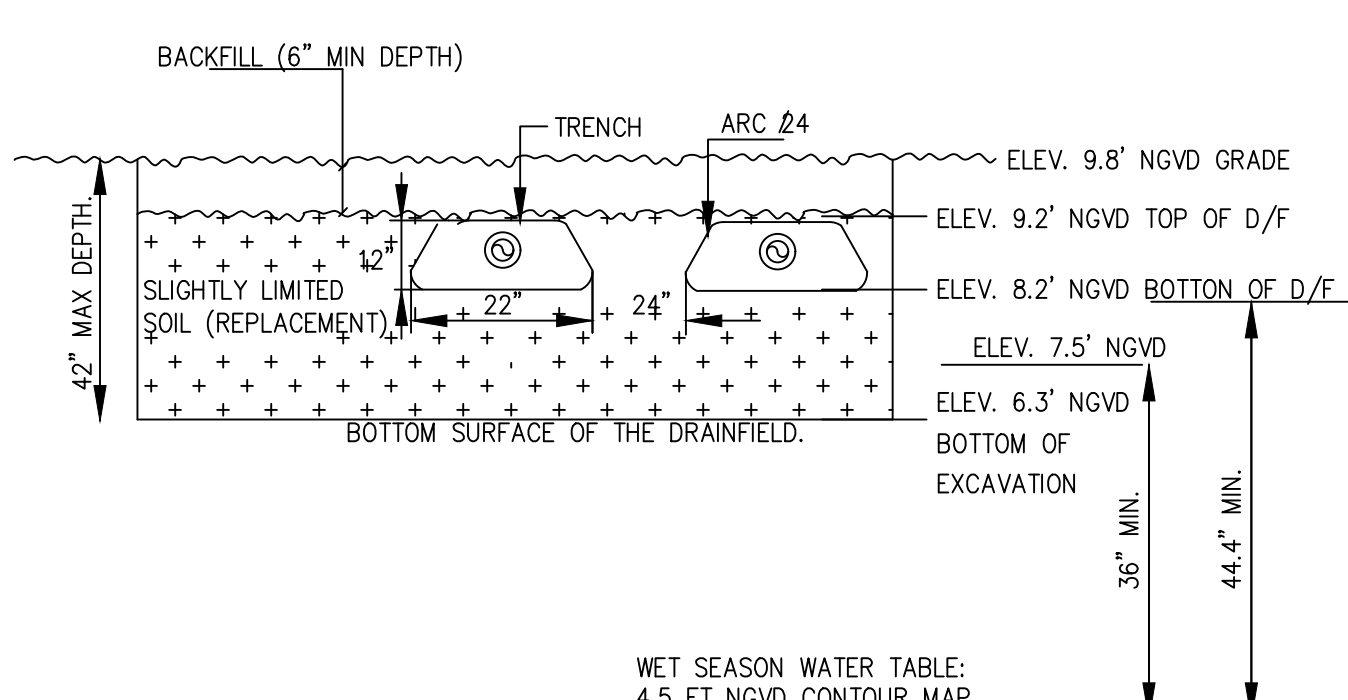
SYSTEM # 2



DRAINFIELD CROSS SECTION

N.T.S.

SYSTEM # 1



DRAINFIELD CROSS SECTION

N.T.S.

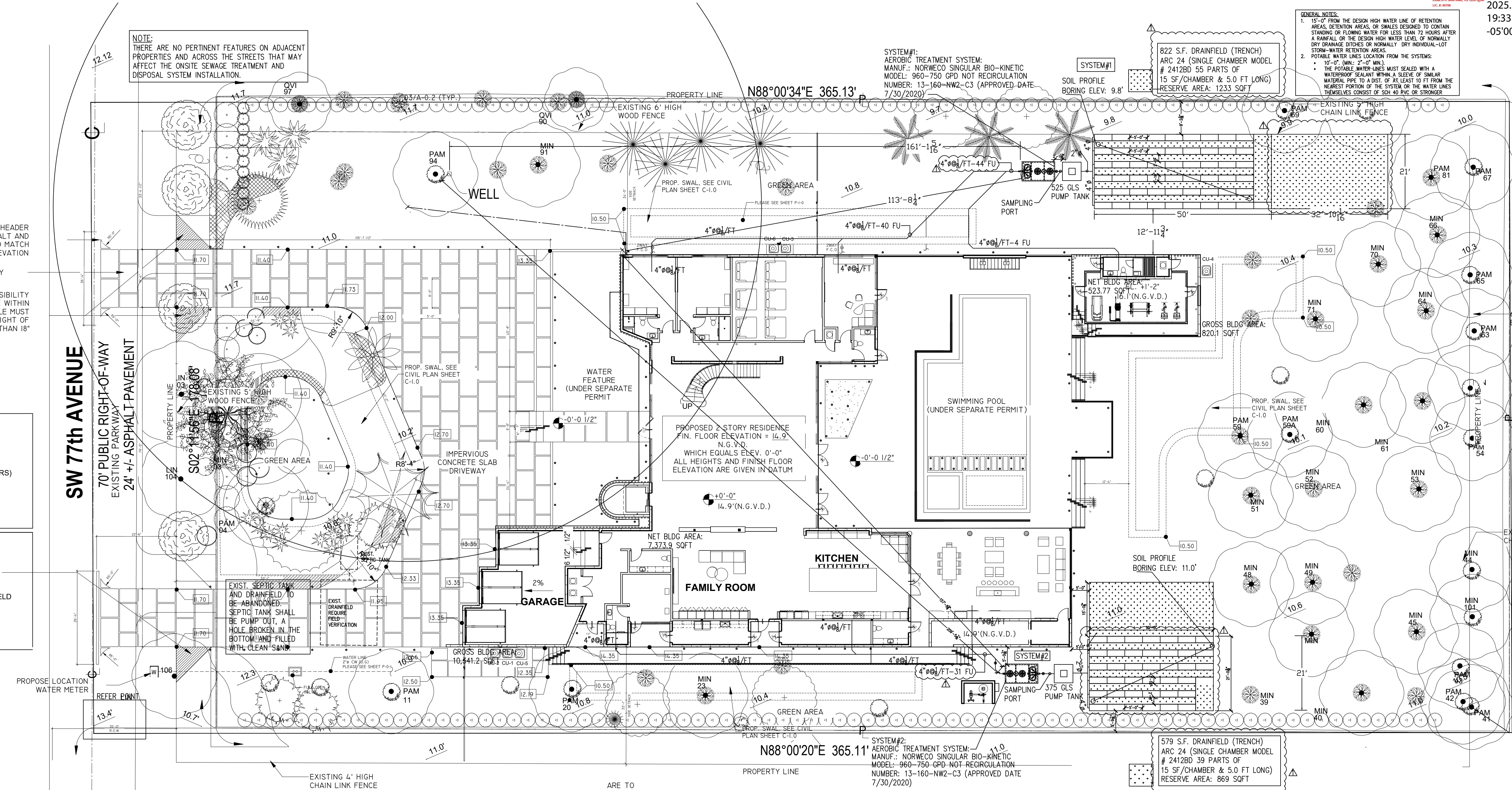
FIXTURE UNITS CALCULATIONS

SANITARY SYSTEM No.#1 DRAINAGE FIXTURE UNIT COUNT	SANITARY SYSTEM No.#1
GUEST BATHRM#1	6FU
GUEST BATHRM#2	6FU
BATHRM # 3	6FU
BATHRM # 4	6FU
BATHRM # 5	6FU
BATHRM # 6	6FU
P. BATHRM	4FU
BATH/SAUNA	4FU
TOTAL FIXTURE UNITS	44FU
TOTAL HOUSE COUNT	75 FU

SANITARY SYSTEM No.#2 DRAINAGE FIXTURE UNIT COUNT	SANITARY SYSTEM No.#2
MBATH RM	8FU
LAUNDRY	2FU
LAUNDRY SINK	2FU
P. BATHRM 2	4FU
P. BATHRM 3	4FU
MAID'S BATHRM	6FU
BBQ SINK	2FU
KITCHEN SINK	2FU
TOTAL FIXTURE UNITS	31FU
TOTAL HOUSE COUNT	75 FU

SW 77th AVENUE

70' PUBLIC RIGHT-OF-WAY
EXISTING PARKWAY
24' +/- ASPHALT PAVEMENT



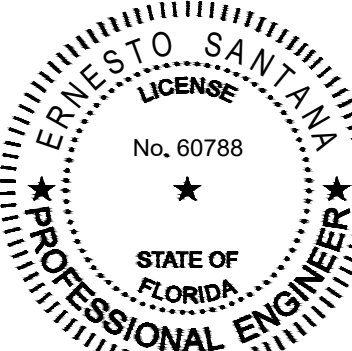
SITE PLAN PLUMBING

SCALE 1/16" = 1'-0"

NOTE:
THERE ARE NO PERTINENT FEATURES ON
ADJACENT PROPERTIES AND ACROSS THE STREETS
THAT MAY AFFECT THE ONSITE SEWAGE TREATMENT
AND DISPOSAL SYSTEM INSTALLATION.

Digitally
signed by
Ernesto
Santana
Date:
2025.12.11
19:33:17
-05'00'

Ernesto Santana, P.E., LEED
CONSULTING ENGINEERS
P.E.# 60788-MECHANICAL
16438 S.W. 85th, Miami,
Florida 33193
Phone: (786)564-4040



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SITE PLAN
ONSITE SEWAGE
TREATMENT

NEW SINGLE FAMILY
HOME
11041 SW 77 AVE, PINECREST,
FL 33156

REVISION	DATE:
No. DESCRIPTION	DATE:
COMMENTS	3-5-24

JOB No. 123-2023

SITE PLAN

DATE: 11/13/2023

SP-2.00

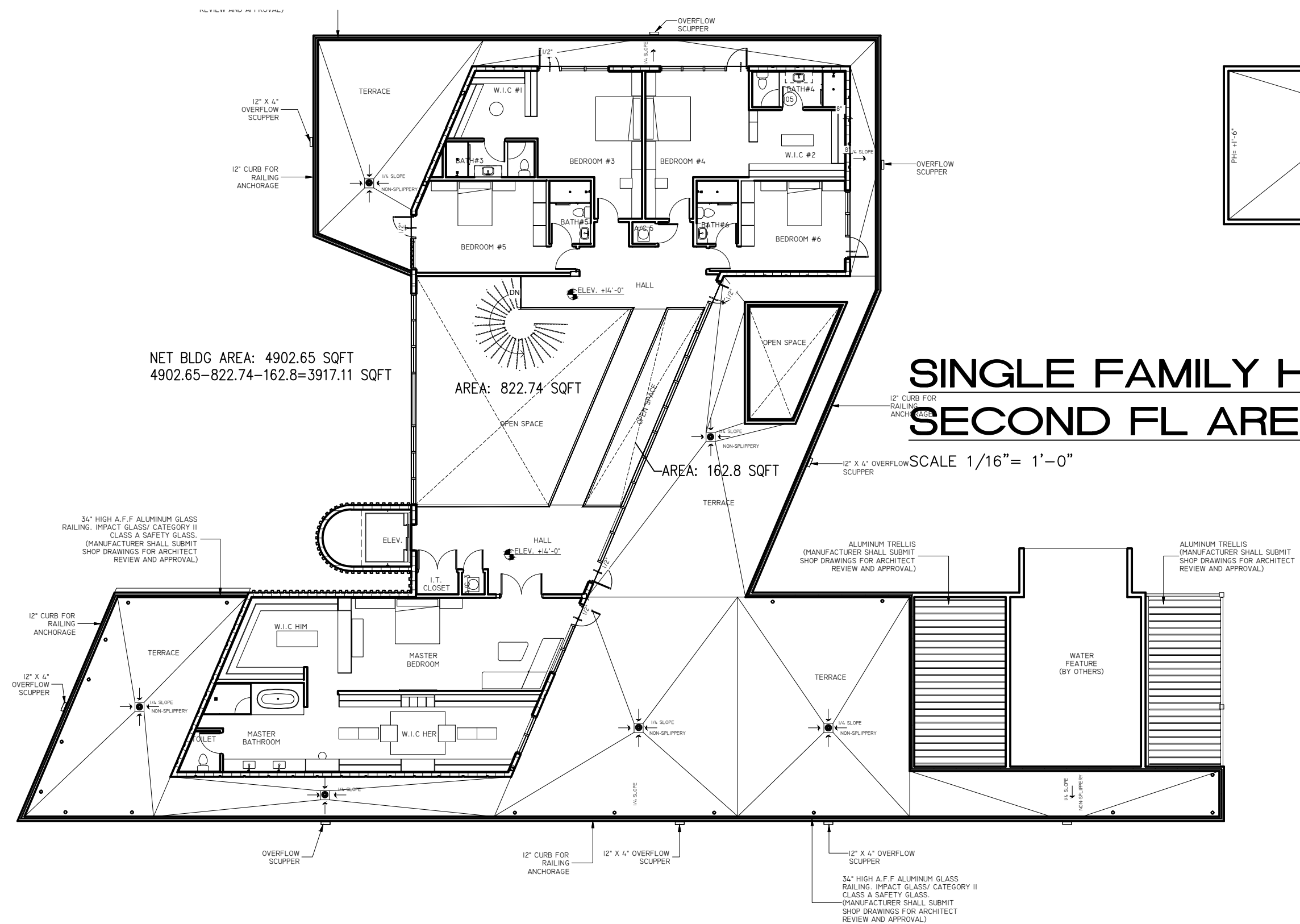
3 OF 5



ERNESTO SANTANA
LICENSE
No. 60788
★
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

SINGLE FAMILY HOME SECOND FL AREA

SCALE 1/16" = 1'-0"



SINGLE FAMILY HOME

SECOND FL AREA

SCALE 1/16" = 1'-0"

REVISION		
No.	DESCRIPTION	DATE:

JOB No. 123-2023

SITE PLAN

DATE: 11/13/2023

SP-2.00

FINAL CLARIFICATION CHAMBER

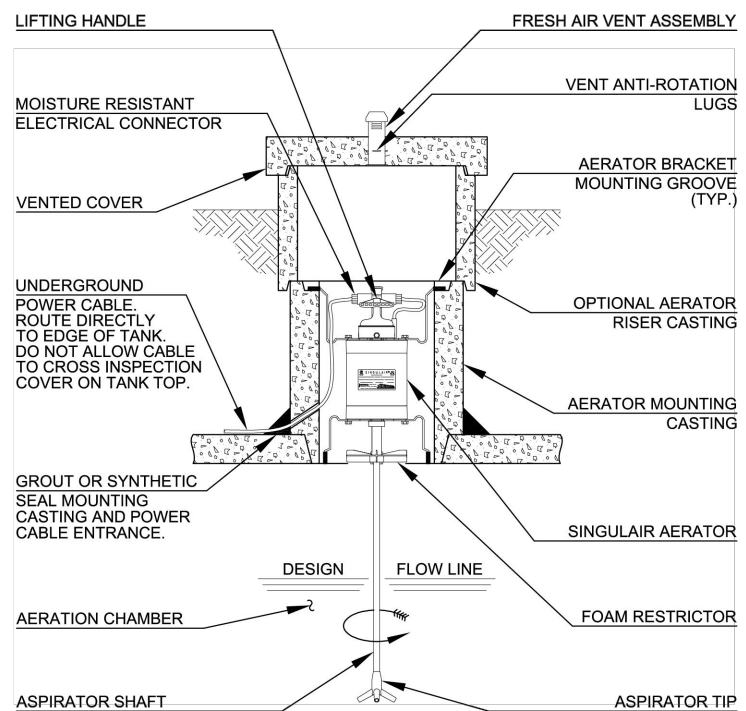
The final clarification chamber shall consist of 5 functionally independent zones operating together to provide satisfactory settling and clarification of the equalized flow. An inlet zone shall be provided and shall dissipate transfer turbulence at the flow inlet of the clarification chamber. Its performance shall also eliminate turbulence in other zones of the clarifier. Liquid shall be hydraulically displaced from the inlet zone to the sludge return zone. Hydraulic currents shall sweep settled sludge from the hoppers and return these solids via the inlet zone to the aeration chamber. As solids are removed, liquid is displaced to the hopper zone of the clarifier. In this zone, settling by gravity takes place. Three of the four sidewalls are slanted to form a hopper which directs all settled material back to the sludge return zone. Clarified liquid from the hopper zone shall be displaced into the final settling zone to provide additional clarification of the liquid. The liquid is finally displaced to the outlet zone for final filtration and discharge from the system. Non-mechanical equalization of the flow, through all 5 independent zones, shall provide optimal settling and clarification.

BIO-STATIC® SLUDGE RETURN

A Bio-Static sludge return shall be installed into the cast-in-place opening(s) in the aeration/clarification chamber wall to provide positive return of settled solids. Aeration chamber hydraulic currents shall enter the sludge return(s) and be directed into the sludge return zone of the clarification chamber. The Bio-Static sludge return shall accomplish resuspension and return of settled solids without disturbing the clarified liquid in the final settling zone and outlet zone.

MECHANICAL AERATOR

Each Singular airerator shall be installed in a concrete aerator mounting casting above the aeration chamber. Fresh air shall be supplied through a molded plastic vent assembly cast into the concrete access cover above the aerator. The Singular aerator shall include plated mounting brackets, NEMA 6 rated electrical connector, UL recognized fractional horsepower motor, molded plastic lifting handle, molded plastic air intake screens, molded plastic foam restrictor, stainless steel aspirator shaft and molded glass-filled nylon aspirator tip. The motor shall contain precision manufactured o-ring type seals installed between the motor shell and the machined aluminum endbells to insure watertight integrity is maintained. Molded Viton elastomer shaft seals shall be utilized to protect the bearings from contamination. Only the stainless steel aspirator shaft and glass-filled nylon aspirator tip shall be installed in contact with the liquid. There shall be no submerged electrical motors, bearings or fixed air piping in the aeration system. Singular aerator motors shall be designed not to exceed the motor nameplate rating when installed and operated as recommended for the system. The fractional horsepower aerator motor shall be equipped with a foam restrictor to protect the motor against high water and foam. The motor shall be 4 pole, 1725 RPM, 115 volt, 60 Hertz, single phase, ball bearing constructed with a 1.0 service factor. It shall draw less than 4.0 amps when operating at the rated nameplate voltage. Aerator motors without UL recognition have not demonstrated compliance with international electrical standards for safety and reliability and shall not be considered for this application.



BIO-KINETIC®

SERVICE PRO® ELECTRICAL CONTROL CENTER

The Service Pro electrical control center with MCD technology shall provide Monitoring, Compliance and Diagnostic functions for the Singular treatment plant using a microprocessor based platform. The Service Pro control center shall contain nonvolatile memory to prevent loss of programming in the event of a power failure. The pre-wired controls shall be mounted in a lockable NEMA rated enclosure designed specifically for outdoor use. Each Service Pro control center shall be a UL Listed assembly and shall include a time clock, alarm light, reset button, power switch, power light, phone light, aerator alarm light and three auxiliary alarm lights. The control center shall monitor all treatment system operating conditions including aerator over current, aerator under current and open motor circuit. In the event the control center detects one of these conditions, power to the aerator shall be interrupted, a diagnostic sequence shall begin and the visual alarm shall activate. After a programmed recovery interval, an automatic restart attempt shall be initiated. If normal aerator operation does not resume during 24 programmed recovery and restart cycles, the audible alarm shall activate and the telemetry system shall report the specific condition to the Service Pro monitoring center. In the event that any of the auxiliary inputs detect abnormal operation of the treatment system auxiliary equipment, the audible and visual alarms shall immediately activate and the telemetry system shall report the alarm condition to the monitoring center. The service provider shall automatically be notified by the Service Pro monitoring center of the specific alarm condition using phone, fax or email.

TIME CLOCK

The aerator run cycle shall be controlled by an adjustable, pre-wired time clock. The minimum setting shall not permit the aerator to be "off" for more than 30 minutes per hour. It shall be adjustable in 5 minute increments and designed such that any adjustment results in additional run time up to "continuous" operation (60 minutes per hour). Use of a time clock can seriously affect system performance and operating cost. Systems that have not been performance certified at the minimum time clock setting by an independent testing laboratory shall not be considered for this application.



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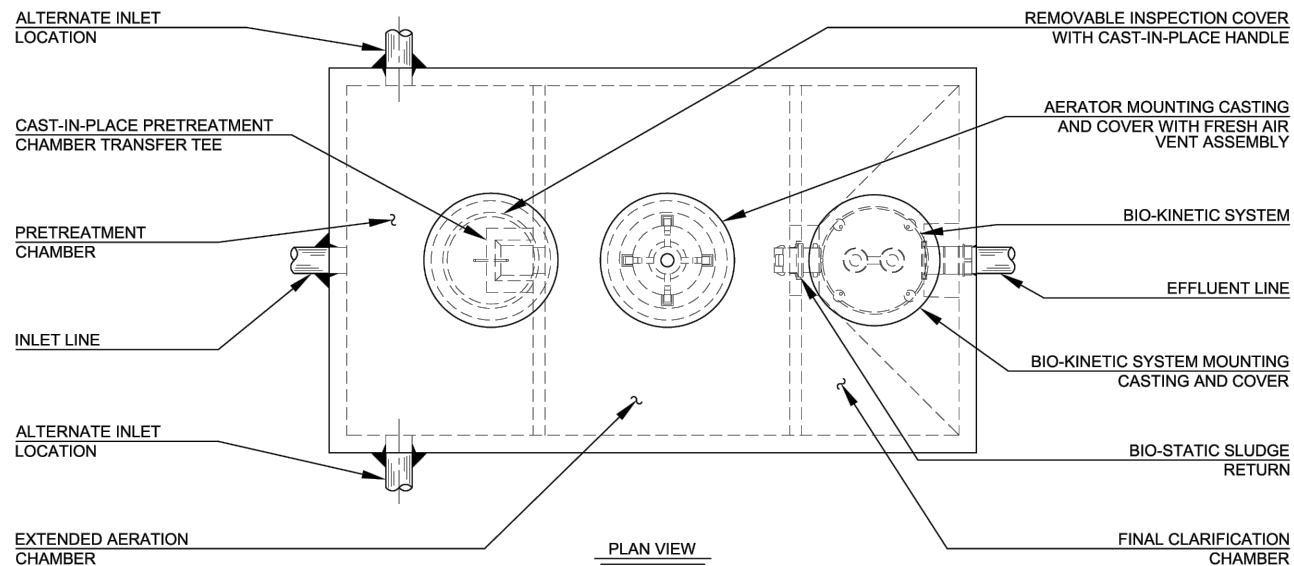
SINGULAR®

OPERATING CONDITIONS

Total holding capacity of the system shall provide a minimum of 48 hour retention of the daily flow. The pretreatment chamber shall provide at least 18 hour retention, the extended aeration chamber shall provide at least 24 hour retention and the clarification chamber shall provide at least 6 hour retention. The non-mechanical flow equalization device shall increase each individual chamber and total system retention time in direct proportion to loading. Design of the system shall ensure even when the significant runoff period is six hours. Hydraulic design considerations of the system and flow equalization device shall be such that intermittent peak flow factors as high as four shall not upset hydraulic reliability within the system. Capability of the system to perform as outlined, when built by an approved manufacturer, shall be certified by an independent testing laboratory and approved for use by the local governing regulatory agency.

PRETREATMENT CHAMBER

The pretreatment chamber shall be an integral part of the wastewater treatment system. All domestic wastewater shall be preconditioned and flow equalized while passing through the pretreatment chamber prior to being introduced to the extended aeration chamber. The outlet of the pretreatment chamber shall be equipped with a discharge tee that extends vertically into the liquid so that only the preconditioned equalized flow from the center area of the chamber is displaced to the extended aeration chamber. The discharge tee and transfer port shall be of adequate size to handle a peak flow factor of four without restricting the outlet and disturbing hydraulic displacement to the extended aeration chamber. A removable inspection cover shall be cast into the top of the pretreatment chamber to allow tank and transfer tee inspection. As a safety measure, the uncovered opening shall be small enough to insure that the tank cannot be entered for inspection or service.



AERATION CHAMBER

The extended aeration chamber shall provide in excess of 24 hour retention of the equalized daily flow. The chamber shall be of sufficient size to provide a minimum of 80 cubic feet of tank capacity per pound of applied BOD. The aeration chamber length-width-depth ratio shall be designed to insure uniform tank mixing and provide optimum treatment. The aeration chamber(s) shall be an integral part of the system flow path and constructed of properly reinforced 5,000 PSI, 28 day compression strength precast concrete. All castings used to construct the precast concrete tankage shall be monolithic units with external and internal walls incorporated into each section.

BIO-KINETIC® SYSTEM

A Bio-Kinetic system shall be installed in the mounting casting(s) above the clarification chamber. Each Bio-Kinetic system shall provide non-mechanical flow equalization through all plant processes including pretreatment, aeration, clarification, tertiary filtration, chlorination and dechlorination. The assembly shall be supplied with locking lugs and removable moisture/vapor shield and shall consist of a design flow and peak flow micronically molded filter, baffled perimeter settling zone, flow distribution deck, lifting handles, level indicator, adjustment lugs, optional chlorination feed tube, unbaffled perimeter settling zone, solids contact zone, vertical inlet zone, compartmented settling zone consisting of 42 baffled chamber plates, effluent stilling well, final discharge zone, adjustable outlet weir, optional dechlorination feed tube, outlet zone and gasketed discharge flange. All components shall be manufactured from inert synthetic materials or rubber, assembled in circular fashion and connected to a plastic outlet coupling. The outlet coupling shall accept a 4" diameter, Schedule 40, PVC pipe. Each Bio-Kinetic system shall be installed with the inverts of the design flow equalization ports located at the normal liquid level of the clarifier. If intermittent flow rates exceed the capacity of the design flow ports, flow shall be held upstream until the intermittent flow dissipates. If the intermittent flow continues to increase, the liquid level may reach a pair of sustained flow equalization ports. With four ports in use, flow through the system increases while continuing to provide flow equalization to all upstream and downstream processes. Peak flow equalization ports are supplied but should not be required in a properly sized system. Optional Blue Crystal and Bio-Neutralizer tablet feed tubes shall be positioned such that the flow-activated chemical cannot make contact with the liquid upstream of the feed tubes.

FLOW EQUALIZATION

The wastewater treatment system shall include a non-mechanical, demand use, flow equalization device. The device shall control normal residential flow rates and reduce typical residential flow surges. The flow equalization rate shall be dependent upon the specific loading pattern and the duration of flow surges. At the 600 gallon per day NSF Standard 40 design loading schedule, minimum performance of the device shall equalize daily flow an average of 50%.

BLUE CRYSTAL® CHLORINATION SYSTEM (Optional)

The Singular system shall be furnished complete with a tablet feeder and a six month supply of Blue Crystal disinfecting tablets. Blue Crystal tablets shall be specifically formulated for consistent chlorine dosage and effluent disinfection to the sustained, variable and intermittent flows that are typical of domestic wastewater treatment systems. The tablets shall be manufactured from pure calcium hypochlorite and contain a minimum of 70% available chlorine. Each tablet shall be 2 1/4" diameter, compressed to a 1" thickness, weigh approximately 5 ounces and be white in color with blue crystals for easy identification. The tablets shall dissolve in direct proportion to the flow rate, releasing controlled amounts of chlorine.

BIO-NEUTRALIZER® DECHLORINATION SYSTEM (Optional)

The Singular system shall be furnished complete with a tablet feeder and a six month supply of Bio-Neutralizer dechlorination tablets. The dechlorination tablets shall contain active ingredients specially formulated to chemically neutralize both free and combined chlorine. Each tablet shall be 2 1/4" diameter, compressed to a 1 1/4" thickness, weigh approximately 5 ounces and be green in color for easy identification. The tablets shall dissolve slowly, releasing controlled amounts of chemical for the instantaneous removal of residual chlorine from the system effluent.

EXECUTIVE SUMMARY

Testing of the Norweco Singular Model TNT-500 was conducted under the provisions of NSF/ANSI Standard 245 for Wastewater Treatment Systems – Nitrogen Reduction (March 2007). NSF/ANSI Standard 245 was developed by the NSF Joint Committee on Wastewater Technology.

The performance evaluation was conducted at the NSF Wastewater Technology Test Facility located in Waco, Texas using predominantly residential wastewater diverted from the Waco municipal wastewater collection system. The evaluation consisted of sixteen weeks of dosing at design flow, seven and one half weeks of stress testing, and two and one half weeks of dosing at design flow. Dosing was initiated on June 27, 2005. After a three-week start up period, sample and data collection for the test was officially started on July 18, 2005. Sampling started in the summer and continued into the winter, covering a range of operating temperatures.

Over the course of the evaluation, the average influent Total Nitrogen was 38 mg/L, ranging between 15 and 58 mg/L. The Norweco Singular Model TNT-500 produced an average effluent Total Nitrogen of 12 mg/L, which results in a 68% reduction in the influent Total Nitrogen.

The Norweco Singular Model TNT-500 was previously certified as an NSF/ANSI Standard 40 Class I system, producing an average effluent CBOD₅ of 3 mg/L (ranging between <2 and 11 mg/L) and an average effluent total suspended solids was 8 mg/L (ranging between <2 mg/L and 48 mg/L). The effluent successfully met the performance requirements established by NSF/ANSI Standard 40 for Class I effluent.

The maximum 7-day arithmetic mean was 15 mg/L for CBOD₅ and 30 mg/L for total suspended solids, both below the allowed maximums of 40 and 45 mg/L respectively. The maximum 30-day arithmetic mean was 7 mg/L for CBOD₅ and 17 mg/L for total suspended solids, both below the allowed maximums of 25 mg/L and 30 mg/L respectively. The effluent pH during the entire evaluation ranged between, 6.3 and 7.4, within the required range of 6.0 to 9.0. The Model TNT-500 met the requirements for noise levels (less than 60 dbA at a distance of 20 feet), color, threshold odor, oily film and foam.

Over the course of the Standard 245 evaluation the influent averaged 240 mg/L BOD₅, 270 mg/L TSS, 38 mg/L Total Nitrogen, 310 mg/L alkalinity, 28 °C and a median pH of 6.7, meeting the requirements of the Standard. The effluent averages over the course of the test were 3 mg/L CBOD₅, 8 mg/L TSS and 12 mg/L Total Nitrogen, representing a 68% reduction, and the effluent pH ranged between 6.3 and 7.4 SU. The effluent values met the requirements of the Standard.

05/06/2015/060
Final Nutrient Report

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November 2007

WARRANTY AND EXCHANGE PROGRAM

The manufacturer shall provide a three year limited warranty for each Singular aerator, Service Pro control center and Bio-Kinetic system purchased from the manufacturer. A comprehensive exchange program offers Singular owners a lifetime of equipment protection. The distributor shall provide warranty and exchange program details to the regulatory agency, contractor and customer as required.



EQUIPMENT MANUFACTURER

The equipment specified herein shall be the product of a manufacturer having a minimum of seven years experience in the construction of prefabricated wastewater treatment equipment and systems. Bids shall be prepared on the basis of the equipment and material specified herein for purposes of determining the low bid. This is not done, however, to eliminate other products or equipment of equal quality and efficiency. If equipment is to be substituted, approval of such substitution must be made prior to execution of any order. It is assumed that substitution will result in a reduction of cost to the contractor and that if accepted, these savings will be passed along by a reduction in the base bid.

SINGULAR® MODEL 960 DATA CHART

Designation: Model 960-	500 GPD	750 GPD	1000 GPD	1250 GPD	1500 GPD
Daily Treatment Capacity (Gallons Per Day)	500/600	750/800	1000	1250	1500
Total System Capacity (Gallons)	1300	1600	2300	2850	3400
Number of Singular Aerators	1	1	2	2	2
Number of Bio-Kinetic Systems	1	2	2	3	3
Number of Bio-Static Sludge Returns	1	1	1	2	2
Drawing Number (PC-5-)	7006	7007	7008	7009	7010

PROGRESS THROUGH SERVICE SINCE 1906



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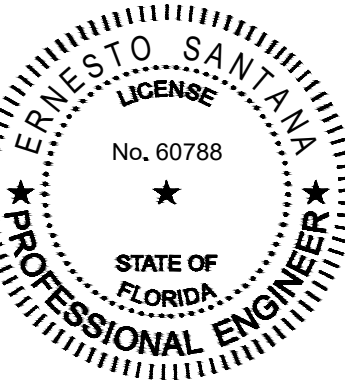
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Ernesto Santana, P.E., LEED
CONSULTING ENGINEERS
P.E.# 60788—MECHANICAL
16438 S.W. 85th, Miami,
Florida 33193
Phone: (786)564-4040



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SITE PLAN ON SITE
SEWAGE TREATMENT
SPECIFICATION

NEW SINGLE FAMILY
HOME
11041 SW 77 AVE, PINECREST,
FL 33156

REVISION	
No.	DESCRIPTION DATE:

JOB No. 123-2023

SITE PLAN

DATE: 11/13/2023

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