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SPECIFICATIONS, CALCULATIONS, SOILS REPORT & SUPPORTING MATERIAL FOR A GROUND ABSORPTION SEWAGE DISPOSAL SYSTEM USING SEPTIC TANK, PUMP TANK AND 25% REDUCTION LATERALS FOR A 4 BEDROOM RESIDENCE

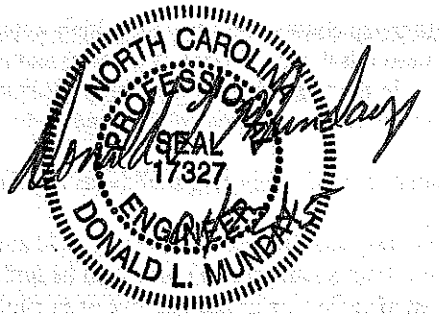
121 LANGDON ROAD

Mooresville, Iredell County, North Carolina

January 22, 2015

Prepared for:
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NCBELS No.: C-1007



DESIGN SPECIFICATIONS

121 Langdon Road, Mooresville, Iredell County

Design Flow:	480 gallons per day
Septic Tank size:	1 – 1,500 gal (two compartment) precast concrete with effluent filter w/ risers
Effluent Filter:	1 - Polylok Model PL-122
NITRIFICATION FIELD:	
Field Pumping Tank Size:	1 – 1,500 gal (single compartment) precast concrete tank w/ risers
Effluent loading rate:	0.30 GPD/SF
Total length and diameter of Supply force main:	+/-1,200 LF 2" diameter SCH 40 PVC pressure pipe
Total linear feet of laterals:	408 LF, 3 lines at 136 LF Ea. @ 9' CTS min.
Number of Chambers:	102 – Quick 4' gravelless chamber units
Pressure Manifold:	6" SCH 80 PVC w/ 3-1/2" Dia SCH 80 orifices
Manifold placement:	Above field
Flow rate through the system:	21.33 GPM
Elevation head:	50 ft
Operation head:	2.0 ft
Friction head:	5.18 ft
Total head:	57.18 ft
Pump requirements:	21.33 GPM @ 57.18' head; use Goulds 3885 Series Model WE1012H 1.0 HP–230V–1 PH (Contractor to verify)
Control Panel:	Aquaworx Simplex Panel or approved equal.
Dosing volume:	240 gallons
Depth of water pumped per dose:	8.41 inches (Contractor to Field Verify)
Pump run per dose:	11.25 min. per dose
Check valve:	Yes
Siphon break hole:	Yes

SEE REVISED Calculations
AZP 3-24-15

121 Langdon Road (Todd & Amy Gordon)
25% Reduction Septic System
Iredell County, North Carolina

DATE: January 6, 2015
REVISED DATE: March 24, 2015
TIME: 10:48:21 AM

Flow Determination	120	G/D/Bedroom
No Of Bedrooms	4	Bedrooms
Design Daily Flow	480	Gal/Day

TANK SIZING

Use	1,500	Gallon Septic Tank
Use	1,500	Gallon Pump Tank

Nitrification Field

Field Design	480.00	Gal/Day
LTAR	0.300	G/D/SF
LF of Drainfield	533.33	Total LF
25% Reduction	400.00	LF 25% Reduction Lines
No of Fields	1	Field(s)
No of Lines	3	Lines
LF per Lateral	133.33	LF
Number of Chambers per Lateral	33.33	Chambers
Therefore use	34	Chambers per Lateral
Total Lateral Length	136.00	LF
Total LF Drainline	408.00	LF 25% Reduction Lines
Dose Volume	172.39	66% Volume of Laterals
	195.90	75% Volume of Laterals
	180.00	Gallons per Dose
Percent Volume	69%	Volume of Laterals per Dose
Pump Run Time	8.44	Minutes per Dose
Tank Vol./In Depth	28.55	Gal/Inch in 1,500 Gallon Pump Tank
Tank Drawdown	6.30	Inches

Primary Pressure Manifold: 6" Dia. Sch 80 w/ 4-1/2" Dia Sch 80 Orfice

Determine Flow:	21.33	GPM	# of Lines x 7.11
Length of FM:	1,200.00	FT	Site Plan
Elev. Head:	50.00	FT	HI from pump to Manifold
Operation Head:	2.00	FT	Set by OSWW
Friction Head:	5.18	FT	Friction Loss times length of FM
Total Dynamic Head:	57.18	FT	Elev. Head + Oper. Head + Friction Head
Pump Req'd:	21.33	GPM @	57.18 TDH

Use Goulds 3885 Series Model WE1012H Effluent Pump
1.0HP - 230V - 1PH

Force Main Friction Head	2" SCH 40 PVC Forcemain
gpmX	21.33
p1	0.32
p2	0.38
gpm1	20
gpm2	22
hX(ft.)	0.36

ANTIFLOATATION CALCULATIONS:

1,500 Gallon Septic Tank Dimesions

Outer Length:	11.83	Ft
Inner Length:	11.33	Ft
Outer Width:	5.83	Ft
Inner Width:	5.33	Ft
Outer Height:	5.17	Ft
Inner Height:	4.50	Ft

Wt of Water Displaced:	22,254.56	Lbs	
Wt. of Tank:	6,833.75	Lbs	*Top & Bottom*
	2,260.42	Lbs	*Ends*
	5,177.08	Lbs	*Sides*
	900.00	Lbs	*Baffle*
	60.00	Lbs	*Risers*
	15,231.25	Lbs	*Total Tank Wt.*
Wt. of Overburden:	10,354.17	Lbs	*@ 15 Inches of Cover*
Total:	25,585.42	Lbs	

Water	22,254.56	<	25,585.42	Tank

1,500 Gallon Pump Tank Dimesions

Outer Length:	8.75	Ft
Inner Length:	8.25	Ft
Outer Width:	6.33	Ft
Inner Width:	5.83	Ft
Outer Height:	5.00	Ft
Inner Height:	4.33	Ft

Wt of Water Displaced:	17,290.00	Lbs	
Wt. of Tank:	5,486.25	Lbs	*Top & Bottom*
	2,375.00	Lbs	*Ends*
	4,156.25	Lbs	*Sides*
	60.00	Lbs	*Risers*
	125.00	Lbs	*Pump*
	12,202.50	Lbs	*Total Tank Wt.*
Wt. of Overburden:	8,312.50	Lbs	*@ 15 Inches of Cover*
Total:	20,515.00		

Water	17,290.00	<	20,515.00	Tank

*Do Not Pump Tanks During Extremely Wet Conditions

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

PROPERTY ID #: 4627503752
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM
(Complete all fields in full)

OWNER: Todd & Amy Gordon APPLICATION DATE
ADDRESS: 447 Glencrest Dr., Stanley, NC DATE EVALUATED:
PROPOSED FACILITY: 4 bdrm PROPOSED DESIGN FLOW (.1949): 480 GPD PROPERTY SIZE: 0.77 AC
LOCATION OF SITE: 121 Langdon Rd. CL&T sec 8 lot 395 (SFE) PROPERTY RECORDED: 10/5/1977
WATER SUPPLY: ☒ Private ☐ Public ☒ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☒ Auger Boring ☒ Pit ☐ Cut TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	OTHER PROFILE FACTORS .1943 SOIL DEPTH	OTHER PROFILE FACTORS .1956 SAPRO CLASS	OTHER PROFILE FACTORS .1944 RESTR HORIZ	PROFILE CLASS & LTAR
PIT 1	LS 18%	0-5	Br SCL WSBK	FR SS SP	N/A	68"	F-C SAP PS	N/A	PS 0.3-0.4
		5-30	R C SBK	FR SS SP					
		30-68	L/SL SAP M	FR SS SP					
PIT 2	LS 18%	0-5	Bf SCL WSBK	FR SS SP	N/A	48"	F-C SAP PS	N/A	PS 0.3-0.4
		5-28	R C SBK	FR SS SP					
		28-48	R CL WSBK	FR SS SP					
		48-64	L SAP M	FR SS SP					
PIT 3	LS 18%	0-6	Br SCL WSBK	FR SS SP	N/A	41"	F-C SAP PS	N/A	PS 0.3-0.4
		6-22	R C SBK	FR SS SP					
		22-41	R CL WSBK	FR SS SP					
		41-64	SL SAP M	FR SS SP					
PIT 4	PREFER NOT TO USE								

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	1200 FT2	909 FT2
System Type(s)	25% Reduction	PPBPS
Site LTAR	0.3	0.3

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: M A & Associates
OTHER(S) PRESENT:

COMMENTS:

SOIL/SITE EVALUATION

(Continuation Sheet-Complete all field in full)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

PROPERTY ID #: 4627503752
DATE OF EVALUATION: _____
COUNTY: IREDELL

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
AB 1	LS 18%	0-4	Br SCL WSBK	FR SS SP	N/A	42"	N/A	N/A	PS 0.3
		4-36	R C SBK	FR SS SP					
		36-42	R CL WSBK	FR SS SP					
		42	AR						
AB 2	LS 18%	0-4	Br SCL WSBK	FR SS SP	N/A	30"	F-C SAP	N/A	PS 0.3-0.4
		4-20	R C SBK	FR SS SP					
		20-30	R CL WSBK	FR SS SP					
		30-48	SL SAP M	VFR SS SP					
AB 3	LS 18%	0-4	Br SCL WSBK	FR SS SP	N/A	33"	F-C SAP	N/A	PS 0.3-0.4
		4-33	R C SBK	FR SS SP					
		33-48	SL SAP M	VFR SS SP					
AB 4	LS 18%	0-4	Br SCL WSBK	FR SS SP	N/A	28"	F-C SAP	N/A	PS 0.3-0.4
		4-12	R SCL WSBK	FR SS SP					
		12-28	R C SBK	FR SS SP					
		28-48	SL SAP M	VFR SS SP					

COMMENTS: _____