Supervisor/Administrative Professional Checklist

New Septic ☑ **New Well** ☐ **Use Existing** ☐ **Alteration** ☐ **Modified Plot Plan** ☐

New Septic Fees Paid:

IP ($250.00) MSB 9/19/14 Initials/Date

CA ($200.00) LE 9/8/16 Initials/Date

OP ($200.00) LE 9/8/16 Initials/Date

(CA and OP fees need to be paid before a building permit can be issued)

New Well Fee Paid: $550.00 _____ Initials/Date

Use Existing Fee Paid: $100.00 _____ Initials/Date

Alteration Fee Paid: $300.00 (Total) $200 (If use existing was paid)_____ Initials/Date

Modified Plot Plan Fee Paid: $100.00 _____ Initials/Date

Floor plans need to be submitted and reviewed before CA can be issued. ☑ Reviewed ☑ SAM 9-9-16

This site is served by septic and well. Verify each is complete before final hold is released. ☐

Septic file completed. ☐ _____ Well file completed. ☐ _____

Send permit for signature. ☑ Signature received. ☑ 11/19/14

This septic system requires a certified operator contract before final hold is released. ☐

Certified operator contract is on file. ☐ _____

Groundwater & Wastewater Services
Septic Project File & Data Review Worksheet

GWS File #: 90248 WASPS App #: 7029

Primary ES assigned to project: Shelby Ledford

Secondary ES assigned to project: _____

Project Type: New System ☑ Alteration ☐ Repair ☐ Modified Plot Plan ☐

I. File Review:

Rule or Law	Permit Application			
.1937(d)	Is the Application complete	Yes ☑	No ☐	N/A ☐
.1937(d)	Is there a Site plan/Plat with application	Yes ☑	No ☐	N/A ☐
.1937(d)	Is the Facility shown?	Yes ☑	No ☐	N/A ☐
.1937(d)	Are appurtenances shown	Yes ☑	No ☐	N/A ☐
	Site Evaluation Information			
.1939 (a)(1)	Topography and Landscape Position Recorded?	Yes ☑	No ☐	N/A ☐
.1940 (a-g)	Slope % Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Texture Class Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Structure type Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Consistence Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Mineralogy Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(3)	Soil Wetness Condition Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(4)	Soil Depth to Rock or Parent Material Recorded When Encountered	Yes ☑	No ☐	N/A ☐
.1939 (a)(5)	Depth to Restrictive Horizons Recorded When Encountered?	Yes ☑	No ☐	N/A ☐
.1939 (a)(6)	Sufficient Available Space Recorded?	Yes ☑	No ☐	N/A ☐
.1937(m)	Are the Profile Locations Shown?			
.1939(a)	Are the S/PS Profiles in system & in repair area?	Yes ☑	No ☐	N/A ☐
& .1945(b)	Number of auger borings made: 5			
	Were sufficient auger borings made?	Yes ☑	No ☐	N/A ☐
.1939(d), .1955, .1956, .1957	LTAR 0.275	Yes ☑	No ☐	N/A ☐
	Improvement Permit/Construction Authorization			
.1937(g) 130A-336(a)	Proposed System Type stated-Initial	Yes ☑	No ☐	N/A ☐
.1945(b)	Proposed System Type stated-Repair	Yes ☑	No ☐	N/A ☐
130A-336 (a)(3)	System location identifiable by setbacks - Initial	Yes ☑	No ☐	N/A ☐
.1937(g) .1945(b)	System components shown – Initial	Yes ☑	No ☐	N/A ☐
.1945(b)	Repair area shown	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Does System design match facility, flow & WWcharacteristics?	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Is System design consistent with soil/site conditions?	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Is the System located in the approved area?	Yes ☑	No ☐	N/A ☐
130A-336(a)	Is the Design flow (gpd) indicated?	Yes ☑	No ☐	N/A ☐

130A-336(a)	Number of Bedrooms, employees, seats, etc. indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench depth indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench width indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench length indicated?	Yes ☑	No ☐	N/A ☐
130A-336(a)(1)	Proposed/existing well shown?	Yes ☐	No ☐	N/A ☑
130A-336(a)(1)	Property line lengths shown?	Yes ☑	No ☐	N/A ☐
130A-336(a)	Facility/appurtenance setbacks shown from fixed points?	Yes ☑	No ☐	N/A ☐
	Operation Permit			
.1937(i)	System type as described in table V(a) of rule .1961	Yes ☑	No ☐	N/A ☐
.1937(i)	Conditions for system performance, operation, maintenance, monitoring and reporting.	Yes ☑	No ☐	N/A ☐

II. WASPS Review:

Construction authorization issued	Yes ☐	No ☐	N/A ☐
Installation approval issued	Yes ☐	No ☐	N/A ☐
Operation permit issued	Yes ☐	No ☐	N/A ☐
Other related documentation	Yes ☐	No ☐	N/A ☐

Items requiring correction/modification: _____

Comments:

IA issued date: 7/12/16

OP issued date: 8/25/17

Review performed by: JAM Date performed: 8-30-17

9024B

MECKLENBURG COUNTY
GROUNDWATER & WASTEWATER SERVICES

App # 7079

APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL

1. **SEPTIC / TYPE APPLICATION:** ☐ N/A ☑ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFIED PLOT PLAN

2. **WELL / TYPE APPLICATION:** ☑ N/A ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

Public Water line in front of lot

3. **JOB LOCATION INFORMATION:**

TAX PARCEL NUMBER: 139-034-02
STREET ADDRESS: 7911 Deerbridge street
CITY: Mint Hill
STATE: NC ZIP: 28227
SUBDIVISION NAME: Stonebridge
LOT #: 83 LOT SIZE (acres): .804 AC
TOWNSHIP:
☐ 0-MECKLENBURG ☐ 3-CORNELIUS ☐ 6-HUNTERSVILLE
☐ 1-CHARLOTTE ☐ 4-PINEVILLE ☑ 7-MINT HILL
☐ 2-DAVIDSON ☐ 5-MATTHEWS

4. **BUILDING INFORMATION:**

BUILDING TYPE:
☐ SINGLE MOBILE HOME ☐ MODULAR HOME
☐ DOUBLE WIDE ☐ MULTIPLE FAMILY
☑ HOUSE ☐ OTHER _____
HEATED SQUARE FOOTAGE: 3,000 SF
NUMBER OF BEDROOMS: 5
NUMBER OF OCCUPANTS: Single family typical
FOUNDATION TYPE:
☐ CONCRETE SLAB ☐ BASEMENT WITH PLUMBING
☑ CRAWL SPACE ☐ BASMENT WITH NO PLUMBING

5. **IF PLANNING TO EXPAND OR ALTER THE EXISTING SEPTIC SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION:** ☐ N/A

NUMBER OF BEDROOMS TO BE ADDED: _____ NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: _____

6. **WATER SUPPLY:** ☑ MUNICIPAL ☐ PRIVATE WELL ☐ PUBLIC WELL ☐ SHARED WELL ☐ OTHER _____

CMU As-Built plan attached

7. **PROPOSED USE OF WELL:** ☑ N/A ☐ IRRIGATION ☐ POTABLE (DRINKING WATER) ☐ OTHER _____

8. **PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE** *(1-MOST DESIRED 5-LEAST DESIRED):*

☐ N/A ☐ ANY TYPE ☐ CONVENTIONAL ☐ ACCEPTED ☐ INNOVATIVE ☐ ALTERNATIVE ☑ OTHER No preference

8A. **RANK:** ____ ____ ____ ____ ____

9. **DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION.**

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☑ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☑ NO
EXISTING WASTEWATER (SEPTIC) SYSTEMS	☐ YES	☑ NO	JURISDICTIONAL WETLANDS	☐ YES	☑ NO
WELLS, SPRINGS, OR WATER LINES	☑ YES	☐ NO	APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY	☐ YES	☑ NO
EASEMENTS OR RIGHT-OF-WAYS	☑ YES	☐ NO	WASTEWATER OTHER THAN DOMESTIC SEWAGE	☐ YES	☑ NO
CHEMICAL/PETROLEUM STORAGE TANKS	☐ YES	☑ NO	KNOWN UNDERGROUND CONTAMINATION	☐ YES	☑ NO
WASTE STORAGE	☐ YES	☑ NO	GROUNDWATER USE RESTRICTIONS/VARIANCES	☐ YES	☑ NO

10. **WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED?** _____ ☑ UNKNOWN

11. **WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY?** Sept/Oct 2014 ☐ N/A

12. **PROPERTY OWNER:**

NAME: Pedus Charlotte Housing LLC
ADDRESS: 3563 Phillips Highway - MAC
CITY: Z3058-060 CLA-ORE Jacksonville
STATE: FL ZIP: 32207
HOME PHONE: —
WORK PHONE: 704-715-5282
MOBILE PHONE: —
FAX: —

13. **OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:**

NAME: Paul Carty w/ Wells Fargo
ADDRESS: 301 south college street
CITY: Charlotte
STATE: NC ZIP: 28202
HOME PHONE: —
WORK PHONE: 704-715-5282
MOBILE PHONE: —
FAX: —

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST. SUITE 211 CHARLOTTE, NC 28202, OFFICE: 704-336-5103, FAX: 704-336-6894

Revised on: 7/1/08

14. SEPTIC SYSTEM PERMIT APPLICATION:

If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either sixty (60) months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months, complete plat = non-expiring.

_____ (Initial here for septic system applications)

15. WELL PERMIT APPLICATION:

If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of twelve (12) months from the date of issuance.

N/A (Initial here for well applications)

16. APPLICATION SIGNATURE SECTION:

ONLY COMPLETE APPLICATIONS WILL BE PROCESSED. A proper signature is required in order to process your application. Please review the application carefully and sign in the space provided below.

Paul Cox
Property Owner's or Owner's Legal Representative Signature

09/11/14
Date

OFFICE USE ONLY

☐ SURVEY PLAT TO SCALE SUBMITTED ☐ SCALED SITE PLAN SUBMITTED ☑ UN-SCALED SITE PLAN SUBMITTED

Record plat map

SEPTIC APPLICATION FEES RECEIVED: $ 250 DATE FEE RECEIVED: 9/19/14

WELL APPLICATION FEES RECEIVED: $ _____ DATE FEE RECEIVED: _____

APPLICATION PROCESSED BY: Dws

GWS FILE NUMBER ASSIGNED: 9024B

APPLICATION ID NUMBER ASSIGNED: 7079

COMMENTS:

MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST. SUITE 211 CHARLOTTE, NC 28202, OFFICE: 704-336-5103, FAX: 704-336-6894

Revised on: 7/1/08

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30007079** GWS File #: **9024B** Tax Parcel #: **139-034-02**

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be NO grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is **NOT** transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 11/12/2019

Type of Installation: Residential - New System Lot Number: 83

Structure Type: HOUSE Size (ft^2): 3000 # Bedrooms: 5 # Occupants: 4

Building Foundation: Crawl Space Water Supply: Municipal

II. Initial System Type: Pump to Accepted **System Classification:** IIIb

Initial System Specifications:

Design Flow (gpd):	600	LTAR (gpd/ft^2):	0.275	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1636	Total Trench Length (ft):	545
Maximum Trench Depth (in):	24	Depth of Media (in):	12	Distribution Device:	Pressure Manifold		

III. Repair System Type: PPBPS (pressurized) **System Classification:** IVa

Repair System Specifications:

Design Flow (gpd):	600	LTAR (gpd/ft^2):	0.275	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1092	Total Trench Length (ft):	364
Maximum Trench Depth (in):	32	Depth of Media (in):	N/A	Distribution Device:	Manifold (LPP Distri		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment, and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: Shelby Ledford Owner/Legal Agent: Brad Cardwell

Signature: Shelby Ledford Signature: Bradley D. Cardwell

Print Name

Date Issued: 11/12/2014

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30007079** GWS File #: **9024B**

IV. Permit Conditions/Comments:

- This type of septic system requires an inspection once every 5 years by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- All components of the septic system must be installed in accordance with the required setbacks listed on the corresponding plot plan.
- All waterlines must be located a minimum of 10 ft. from any part of the septic system.
- Upon completion of the project the system designer shall provide Groundwater & Wastewater Services with a letter certifying that the system was installed in accordance with the approved design.
- The system must be water tested during the final inspection to verify proper operation and set system pressure.
- Flow from all gutters and downspouts shall be directed not to discharge water onto or across any part of the septic system.
- Foundation drains shall be constructed not to discharge water onto or across any part of the septic system.
- The septic system shall be located at least 10 feet from any foundation drain.

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: Shelby Ledford

Signature: Shelby Ledford

Date Issued: 11/12/2014

Owner/Legal Agent: Brad Cardwell
Print Name

Signature: Bradley D. Cardwell

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: 139-034-02
Lot #: 83
File #: 9024B
AppID: 7079

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Property Owner: Redus Charlotte Housing
Address: 3563 Phillips Hwy, Jacksonville, FL 32207
Proposed Facility: 5 Bedroom House
Design Flow (.1949): 600 GPD
Location of Site: 7911 Deerbridge St, Mint Hill, NC 28227
Water Supply: [X] Public [X] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [ ] Auger Boring [X] Pit [ ] Cut
Type of Wastewater: [X] Sewage [ ] Industrial Process [ ] Mixed

Applicant: Paul Carty w/ Wells Fargo
Date Evaluated: 9/25/2014
Property Size: 0.877 ac
Property Recorded: Unknown

PROFILE #	.1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941 .1941 Structure/ Texture	.1941 Consistence Mineralogy	b PROFILE FACTORS .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	General Comments	Profile Class & LTAR	Maximum Trench Bottom Depth for 3' Wide Conventional Trench
Pit	LS	0 - 10	gr CL	FR SEXP							
#1	6%	10 - 24	wmabk C	FI SEXP	2 chroma	40	PS	NA	few rock inclusions	PS IV	31"
		24 - 40	wmabk CL	FR SEXP	@ 50"				40 - 52"	0.275	
		40 - 52	mass SL Sap	SS SP FI SEXP							
Pit	LS	0 - 10	wfsbk CL	FR SEXP						PS IV	
#2	6%	10 - 54	mfabk C	FI SEXP	>54"	54	NA	NA		0.3	36"
Pit	LS	0 - 7	wfsbk CL	FR SEXP							
#3	4%	7 - 30	mfabk C	FI SEXP	>57"	45	NA	NA	saprolite inclusions	PS IV	36"
		30 - 45	wfsbk CL	FR SEXP					30 - 45"	0.3	
		45 - 57	mass L Sap	SS SP FR SEXP							
Pit	LS	0 - 6	gr L	FR SEXP							
#4	5%	6 - 10	wfsbk CL	FR SEXP	>52"	40	NA	NA		PS IV	32"
		10 - 30	wfabk C	FI SEXP					saprolite inclusions	0.3	
		30 - 40	wmsbk CL	FR SEXP					30 - 40"		
		40 - 52	mass SL Sap	SS SP FR SEXP							
Pit	LS	0 - 13	gr CL	FR SEXP							
#5	5%	13 - 30	wmabk C	FI SEXP	>56"	48	PS	NA	saprolite inclusions	PS IV	36"
		30 - 48	wmsbk CL	FR SEXP					30 - 48"	0.3	
		48 - 56	mass L Sap	SS SP FR SEXP							

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	IIIb	IIIa
Site LTAR (gpd/sq ft)	0.275	0.275

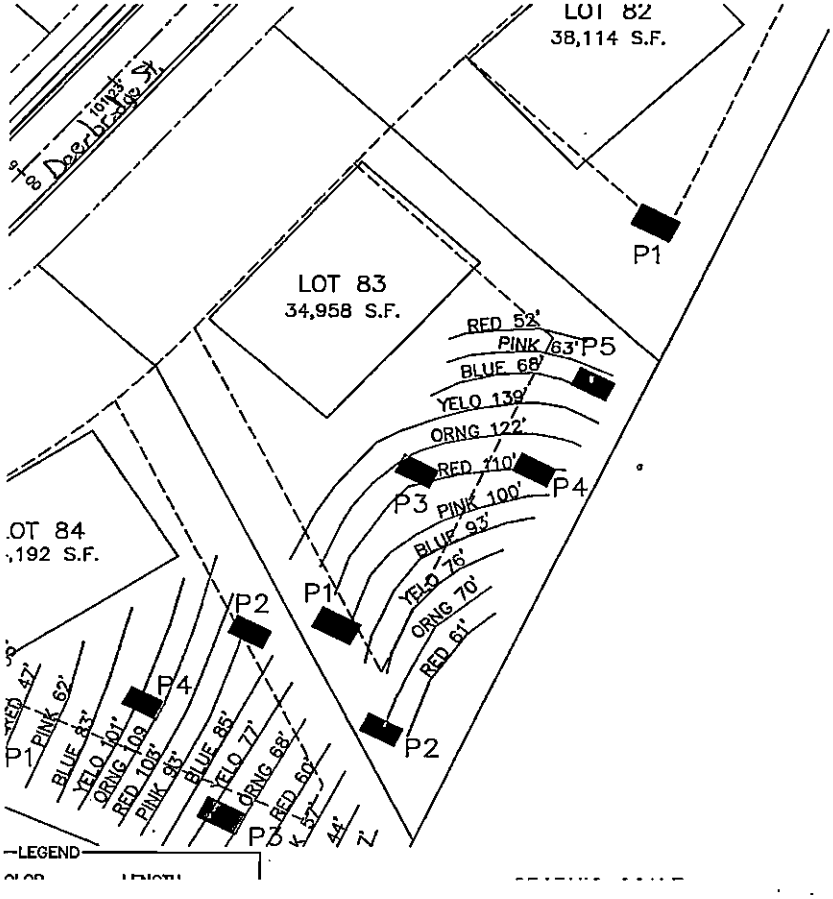
Other Factors (.1946):
Soil Evaluation By: Jacob Presley, REHSI, LSS
Others Present: Wendell Overby, LSS
Site Classification (.1948): PS
Site Evaluation By: Shelby Ledford
Others Present: Shelby Ledford REHSI

COMMENTS:

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	sg-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		mass-Massive
LS-Linear Slope				cr-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	gr-Granular
NS-Nose Slope		L-Loam		sbk-Subangular Blocky
HS-Head Slope				abk-Angular Blocky
CC-Concave Slope	III	Si-Silt	0.6 - 0.3	pl-Platy
CV-Convex Slope		SiCL-Silty Clay Loam		pr-Prismatic
T-Terrace				Sap-Saprolite
FP-Flood Plain		CL-Clay Loam		**Structure Prefixes**
D-Drainage Way		SCL-Sandy Clay Loam		w-weak
				m-moderate
		SiL-Silt Loam		s-strong
				f-fine
	IV	SC-Sandy Clay	0.4 - 0.1	m-medium
		SiC-Silty Clay		c-coarse
		C-Clay		

Consistence	Consistence	Mineralogy
Moist	**Wet**	SEXP-Slightly Expansive
VFR-Very Friable	SS-Slightly Sticky	EXP-Expansive
FR-Friable	S-Sticky	
FI-Firm	VS-Very Sticky	**Classification**
VFI-Very Firm	NP-Non-Plastic	US-Unsuitable
EFI-Extremely Firm	SP-Slightly Plastic	PS-Provisionally Suitable
	P-Plastic	S-Suitable
	VP-Very Plastic	NA-Not Applicable

Sketch of Soil Evaluation Locations



SOIL & FORESTRY SERVICES
OF THE CAROLINAS, PA

A design for a 5 Bedroom Innovative Septic System using pressure manifold distribution for lot 83 of Stonebridge Subdivision
7911 Deerbridge Street, Mint Hill

Contents: **Page**

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Septic Tank Diagram---------- 8

Pump Tank Diagram---------- 9

Control Panel Specifications---------- 10-13

Pump Specifications---------- 14-15

Calculations---------- 16

Pressure Manifold Specifications---------- 17

GWS Septic System Design Review

GWS File #: 9038 Approved Disapproved

Design Review: ☐ ☑

Field Review: ☐ ☐

Design By: W. Overby

October 2014

*Projects are not considered "APPROVED" until both sections above are completed and indicate an APPROVED status.

CWS Septic System Design Review

CWS File #:	Approved	Disapproved
Design Engineer:	☐	☐
Health Officer:	☐	☐

Septic System shall not be installed until "APPROVED" design

PRESSURE MANIFOLD DOSED SYSTEM FOR WASTEWATER TREATMENT

Applicant:	LiveWell Homes
Contact:	Brad Cardwell
Phone:	704 787-0517
County:	Mecklenburg
Location:	Stonebridge Lot 83

Source of Wastewater Flow:	5 Bedroom Single Family Residence
Estimated Daily Wastewater Production:	600 gpd
System Flow:	21.33 gpm

Design Specifications

Drainfield Size:	546 lf
Loading Rate:	0.275 gpd/ft.^{2}
Depth of Gravel in Trench:	n/a
Gravel Size:	n/a
Trench Depth:	24 in.
Trench Width:	36 in.
Septic Tank Size:	1500 gal.
Pump Tank Size:	1500 gal.
Estimated Supply Line Length:	150 lf
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	26.10 gal
Dosing Volume:	249.58 gal

Recommended Float Controls:	SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel:	SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.
Pressure Head:	2 ft.
Friction Head:	1.43 ft
Elevation Head:	11.00 ft
Total Dynamic Head:	16.08 ft
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 at manifold
Check Valves:	In Tank
Anti-Siphon Hole:	n/a
Recommended Pump:	Myers Model ME40 or County Approved Effluent Rated Pump Capable of Delivering 16 ft.of Head at 21 gpm Total Flow

Stonebridge Lot 83
Manifold Design

DESIGN FLOW:	600	gpd
SOIL APPLICATION RATE:	0.275	gpd/ft.^{2}
TOTAL AREA TRENCH BOTTOM:	1638	sf
TOTAL LATERAL LENGTH:	546	lf
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	545	lf
SUPPLY LINE LENGTH:	150	lf
TOTAL DYNAMIC HEAD:	16.08	gpm
DOSING VOLUME:	249.58	gal
PUMP TANK DRAW DOWN*:	8.6	in
SEPTIC TANK SIZE:	1500 gal.	
PUMP TANK SIZE:	1500 gal.	
RECOMMENDED PUMP:	Myers Model ME40 or County Approved Effluent Rated Pump Capable of Delivering 16 ft.of Head at 21 gpm Total Flow	

**Pump tank draw down based on a volume basis of 29 gallons per inch. Draw down may vary among pump tank manufacturers.*

Stonebridge Lot 83

Layout for a 5 bedroom home — Oct 2014

LINE #	FLAG COLOR	BS	HI	FS	ELEV	FLAGGED LINE LENGTH	
TBM		5.7			100.0		
INSTR. 1			105.7				
			SYSTEM				
1	Red			3.10	105.4	61	60
2	Orange			3.70	104.8	70	60
3	Yellow			4.40	104.1	76	64
4	Blue	5.0		2.20	103.5	93	84
5	Pink			3.00	102.7	100	100
6	Red			3.80	101.9	110	108
7A	Orange			4.30	101.4	72	70
			REPAIR				
7B	Orange			4.30	101.4	50	
8	Yellow			4.80	100.9	139	
9	Blue			5.50	100.2	68	
10	Pink			6.10	99.6	63	
11	Red			6.70	99.0	52	

	LINE LENGTH	LTAR GPD/FT	SYSTEM TYPE	REDUCTION TYPE	DIST	TRENCH DEPTH
SYSTEM	546	0.275	INNOV	25%	MANIFOLD	24
REPAIR	372	0.275	MOD	50%	PPBPS	32

Notes:

** TBM located at staked back right house crner

**TBM is assumed to be 100'

**All measures in feet

**Nitrification lines are demonstrated on contour via colored pin flags

**BS and FS indicate rod readings

Stonebridge Lot 83

SYSTEM FLOW

DESIGN SPECIFICATIONS

Line #	Color	Elev	Length	Hole Size	Flow/Tap	Line gpd	Line Trench Area	Flow/Line	Line LTAR
1-3	R,O,Y	105.4	184	SCH 40 1/2	7.11	83.19	552	0.039	0.15
4-5	B+P	103.5	184	SCH 40 1/2	7.11	83.19	552	0.039	0.15
6-7a	R+O	101.9	178	SCH 40 1/2	7.11	83.19	534	0.040	0.16
	total	feet =	546	gal/min =	21.33				

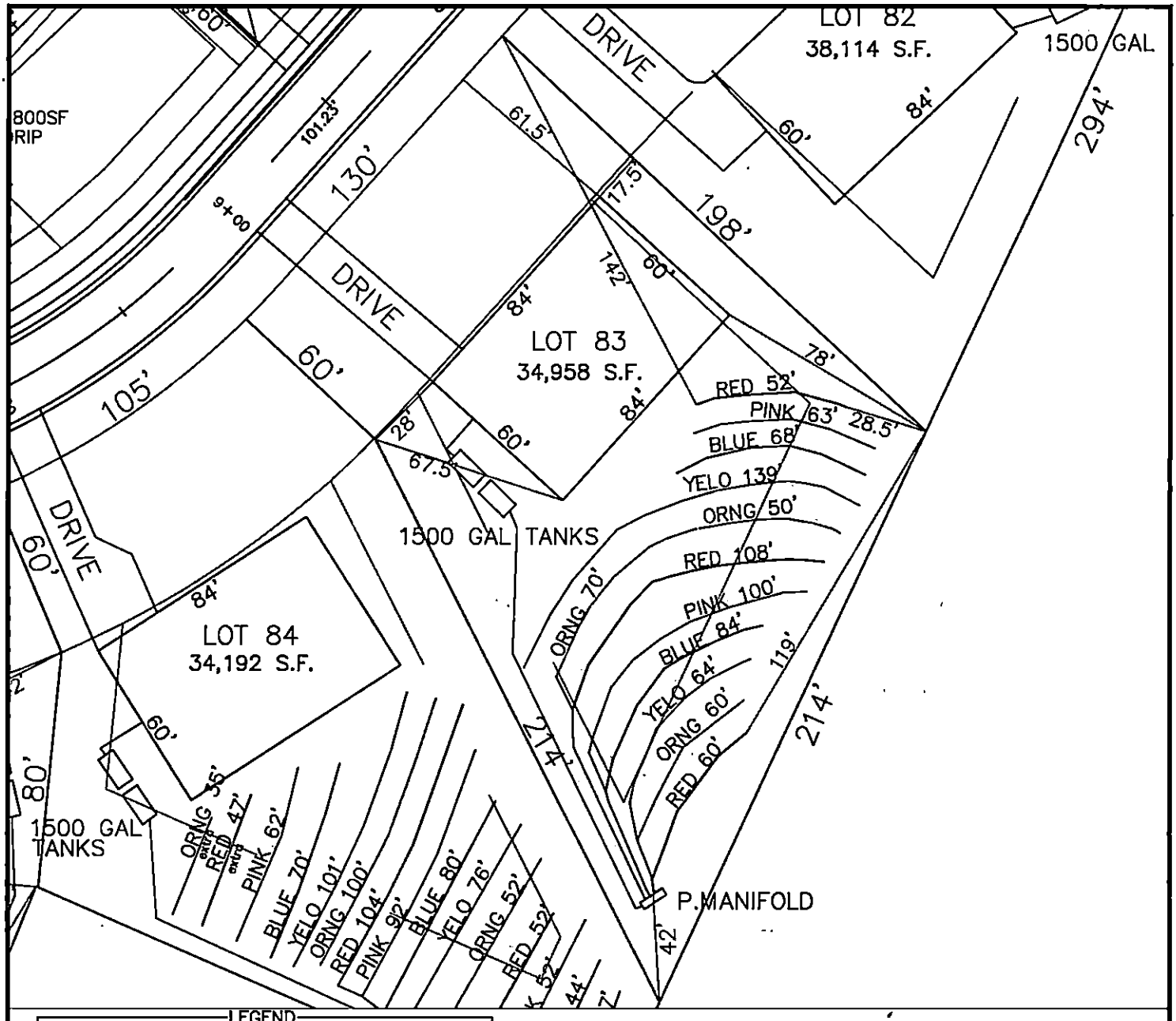
Des. Flow	600	gpd
Single Dose time	11.70	min
soil LTAR	0.275	
Innov LTAR	0.37	

Stonebridge Lot 83

Repair (PPBPS)

DESIGN SPECIFICATIONS

Line #	Color	#Panels	#Holes Panel	ft Line Length	Hole Size	ft Line Head	gpm Line Flow
7b	Orange	11	1	50	5/32"	2	4.51
8a	Yellow	16	1	70	5/32"	2	6.56
8b	Yellow	15	1	69	5/32"	2	6.15
9	Blue	15	1	68	5/32"	2	6.15
10	Pink	14	1	63	5/32"	2	5.74
11	Yellow	9	1	52	5/32"	2	3.69
		80		372			29.11



LEGEND

LINE #	COLOR	LENGTH
1	RED	61'
2	ORANGE	70'
3	YELLOW	76'
4	BLUE	93'
5	PINK	100'
6	RED	110'
7	ORANGE	122'
8	YELLOW	139'
9	BLUE	68'
10	PINK	63'
11	RED	52'

SYSTEM INFO: INNOV TRENCH; .275 LTAR
REPAIR INFO: PPBPS TRENCH; .275 LTAR

GRAPHIC SCALE
1" = 50'

50' 0 50' 100'

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

Figure 1. Septic System Layout and House Plan Layout performed by S&FS

SHEET TITLE:
SEPTIC SYSTEM LAYOUT/PRELIM SITE PLAN SKETCH MAP

PROJECT NAME:
LIVEWELL HOMES
STONEBRIDGE LOT 83
MECKLENBURG COUNTY, NORTH CAROLINA
October 2014

Soil & Forestry Services of the Carolinas, PA
P.O. Box 832
Mooresville, NC 28115

SCALE: 1"
PROJECT NO.: 14-125

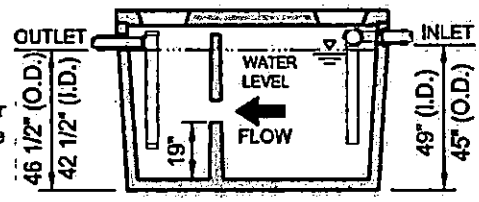
INFORMATION FOR THE INSTALLER:

- The permit should be read very carefully prior to bidding. The following are details that must be considered along with all other considerations.
- Tanks shall be approved by DEHNR, and certification supplied by the manufacturer.
- Tanks shall be water tested prior to installation.
- The installer shall be responsible to the owner for placement of the tanks and to insure that final grades are returned to the original natural grade, with exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement.
- Installation of the system shall be during dry conditions in order to protect the soil
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post installation inspections by the designer must be scheduled 5 week days in advance.
- Trenches shall be carefully excavated so the bottom is within 2" from the highest to . the lowest points of elevation within the trench. If the bottom elevation needs adjusting after it has been trenched, it will be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over excavated during initial trenching. All fine grading within the trench will be hand done with a shovel. No loose material will be left in the trench
- All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the field during or after installation. The use of a small loader (i.e. Bobcat) or a trencher (i.e. Ditch Witch 2300/2310) may be used.
- Elevations at pinflag locations should be checked by the installer prior to beginning
- Pumptank riser should be 6" above grade, control panel should be 12" above grade.
- Septic tank riser shall be a minimum of 6" above finished grade.
- **System specified as innovative type using pressure manifold distribution**
- **Repair specified as PPBPS type with LPP distribution**
- **System trench depth specified at 24"**
- **System trenches installed on 9' minimum; 3' wide trenches**
- **See Figure 1. Septic System Layout and House Plan**

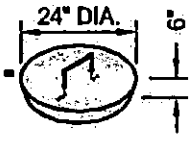
© 2008 Details Provided by APPIAN Consulting Engineers www.appianengineers.com

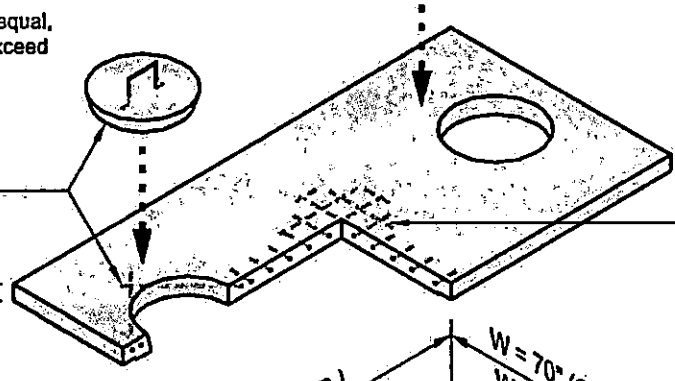
GENERAL NOTES:

1. Design specifications conform to latest ASTM C1227 specifications "Precast Concrete Water and Wastewater Structures"
2. Concrete compressive strength 4,000 psi minimum.
3. Steel reinforcing design to conform to the requirements of ASTM C890 specifications for "Structural Design Loading for Water and Wastewater Structures" and shall utilize grade 60 re-bars conforming to the requirements of ASTM A615 or WWF conforming to the requirements of ASTM A185 or both. Place Additional reinforcing at all openings.
4. Optional EZ set lid cast in place. Supplied by Dellinger Precast. To be field adjusted using approved methods by contractor.
5. Pipe penetration locations as per job requirements. Pipe inlet and outlet locations to have PSX Direct Drive boots or equal. Pipe Inlet locaions (typical 3 sides) to be knock out pannels. Effluent Filter supplied by Dellinger. Inlet Tee & Pipe supplied by contractor.
6. Joints to be sealed with ConSeal CS102. butyl rubber joint sealant or equal. Sealant meets or exceeds the requirements of latest federal specification SS-S-0021(210-A), AASHTO M-198B, and ASTM C-990-91.
7. Lift Insert / Lift Eye Pin by M.A Industries or equal, Cast-in by Dellinger Precast. Lifts meet or exceed OSHA requirements.
8. Method of namufacture is Wet Cast.
9. Sections are monolithic. Weights:
   Top Slab 3,134 ± lbs.
   Base Section 9,751 ± lbs.
10. I.D. = Inside dimension
    O.D. = Outside dimension
    L = Length
    W = Width
    H = Height



ELEVATION



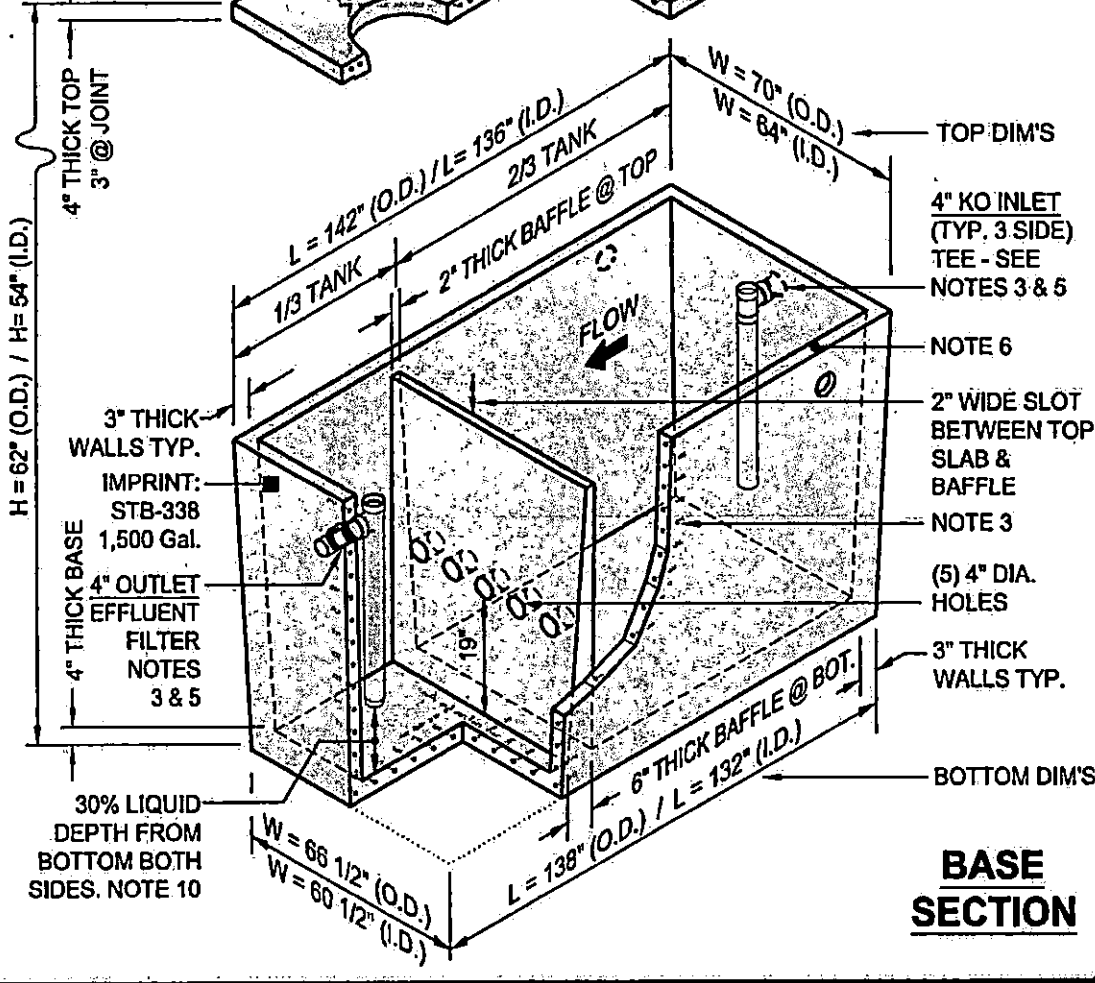


TOP SLAB

NOTES 3 & 4

NOTE 3





BASE SECTION

DELLINGER PRECAST
4531 North Hwy 16 • Denver, N.C. 28037 • Phone: 800-948-1666 • 704-483-2868 • Fax: 704-483-2363

1,500 Gallon (Top Slab) SEPTIC TANK

Scale: Not To Scale

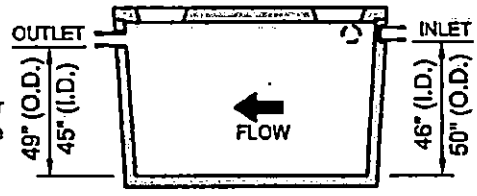
Revision Date: February 2008

Detail # ST-1,500-TS

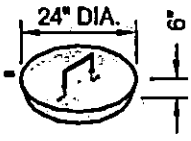
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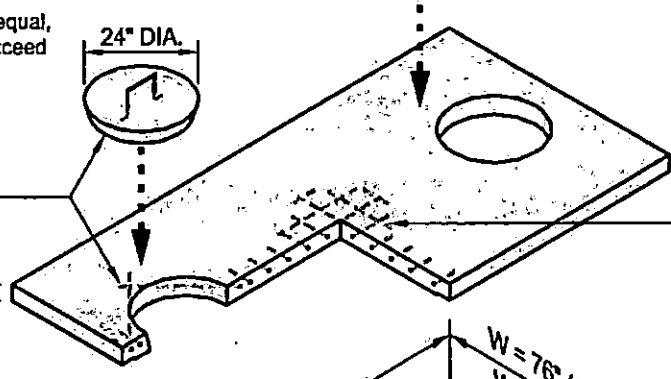
GENERAL NOTES:

1. Design specifications conform to latest ASTM C1227 specifications "Precast Concrete Water and Wastewater Structures"
2. Concrete compressive strength 4,000 psi minimum.
3. Steel reinforcing design to conform to the requirements of ASTM C890 specifications for "Structural Design Loading for Water and Wastewater Structures" and shall utilize grade 60 re-bars conforming to the requirements of ASTM A615 or WWF conforming to the requirements of ASTM A185 or both. Place Additional reinforcing at all openings.
4. Optional EZ set lid cast in place. Supplied by Dellinger Precast. To be field adjusted using approved methods by contractor.
5. Pipe penetration locations as per job requirements. Pipe inlet and outlet locations to have PSX Direct Drive boots or equal. Pipe inlet locaions (typical 3 sides) to be knock out pannels. Pipe supplied & installed by contractor.
6. Joints to be sealed with ConSeal CS102. butyl rubber joint sealant or equal. Sealant meets or exceeds the requirements of latest federal specification SS-S-0021(210-A), AASHTO M-198B, and ASTM C-990-91.
7. Lift Insert / Lift Eye Pin by M.A Industries or equal, Cast-in by Dellinger Precast. Lifts meet or exceed OSHA requirements.
8. Method of manufacture is Wet Cast.
9. Sections are monolithic. Weights:
   Top Slab 2,636 ± lbs.
   Base Section 7,453 ± lbs.
10. I.D. = Inside dimension
    O.D. = Outside dimension
    L = Length
    W = Width
    H = Height

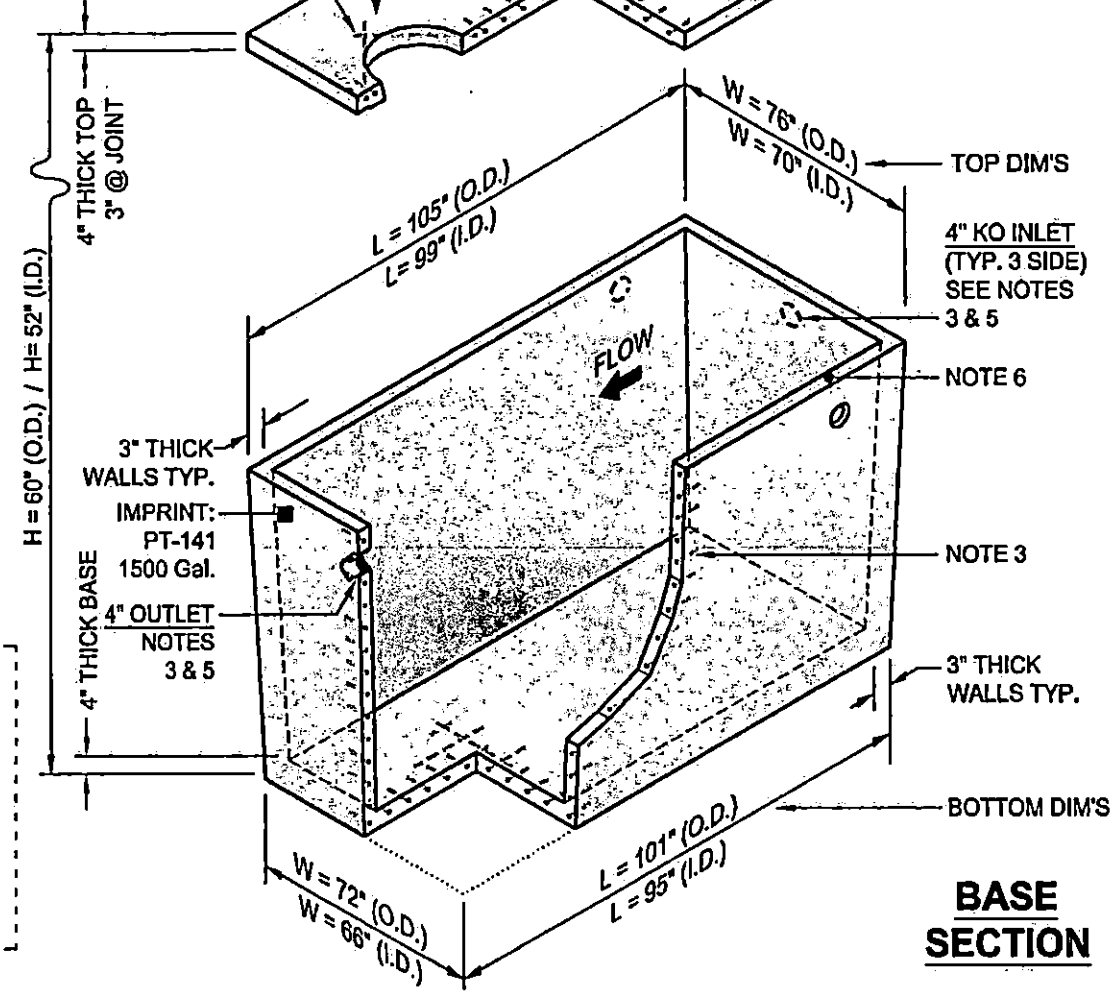


ELEVATION





TOP SLAB



BASE SECTION

OPTIONAL ROUND LID



1,500 Gallon (Top Slab) PUMP TANK

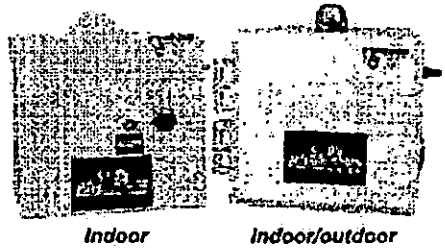
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Revision Date: February 2008
Detail # PT-1,500-TS

DELLINGER PRECAST
4531 North Hwy 16 • Denver, N.C. 28037 • Phone: 800-948-1666 • 704-483-2868 • Fax: 704-483-2363

MODEL 112 Control Panel

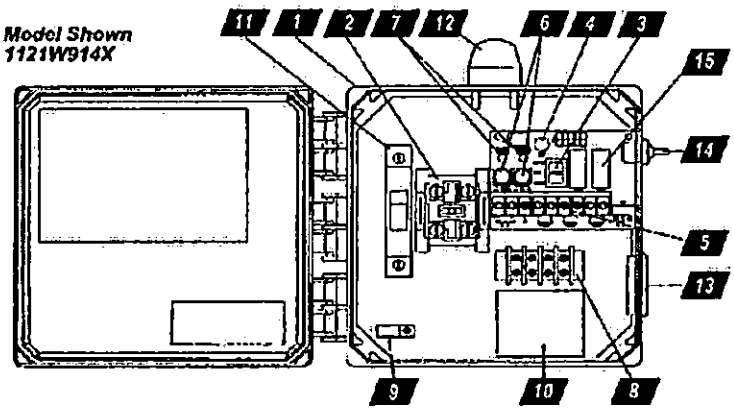
Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single-phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.



Indoor *Indoor/outdoor*

Model Shown
1121W914X



1. **Enclosure** measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).

   * Options selected may increase enclosure size and change component layout.

2. **Magnetic Motor Contactor** controls pump by switching hot electrical lines.
3. **HOA Switch** for manual pump control (mounted on circuit board).
4. **Green Pump Run Indicator Light** (mounted on circuit board).
5. **Float Switch Terminal Block** (mounted on circuit board).
6. **Alarm and Control Fuses** (mounted on circuit board).
7. **Alarm and Control Power Indicators** (mounted on circuit board).
8. **Pump Input Power and Pump Connection Terminal Block**
9. **Ground Lug**
10. **Terminal Block Installation Label**
11. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection.

STANDARD ALARM PACKAGE (other options available)

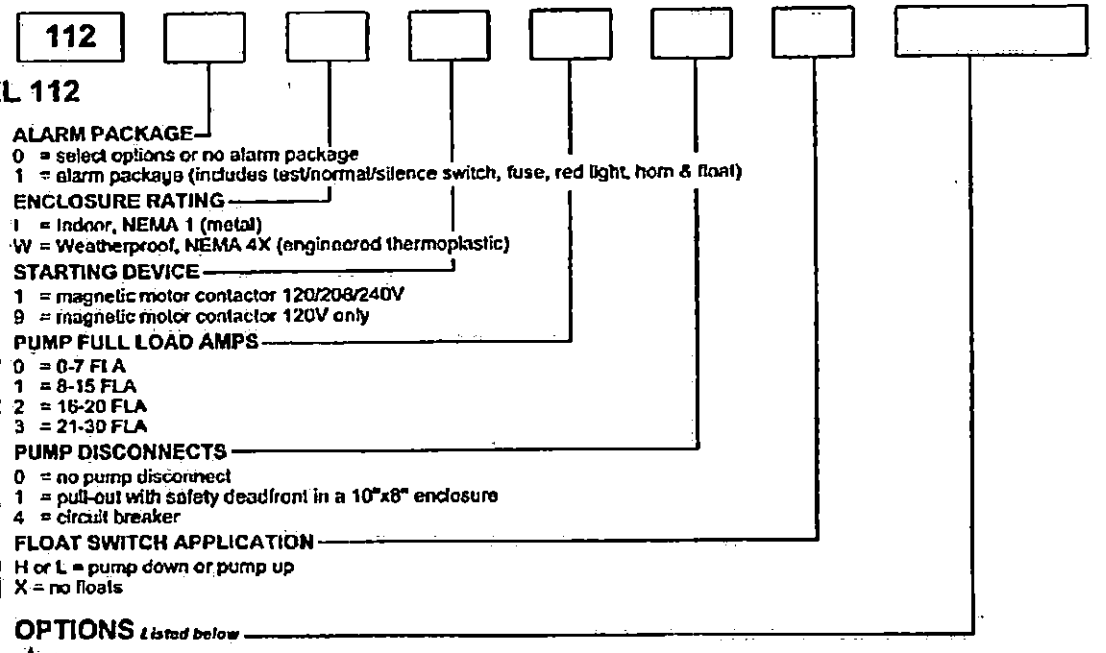
12. **Red Alarm Beacon** provides 360° visual check of alarm condition. Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
13. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating). Note: NEMA 1 style utilizes an internally mounted buzzer (83 to 85 decibel) in lieu of horn.
14. **Exterior Horn Test/Normal/Silence Switch** allows alarm horn to be silenced and testing of horn and light to ensure proper operation of alarm system.
15. **Horn Silence Relay** automatically resets alarm after alarm condition has been resolved (mounted on circuit board).

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty

c UL us
LISTED

SJE Rhombus CONTROLS
SJ ELECTRO SYSTEMS, INC.
PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE · 1-218-847-1317
1-218-847-4617 Fax
email: sje@sjerhombus.com
www.sjerhombus.com



MODEL 112

ALARM PACKAGE
- 0 = select options or no alarm package
- 1 = alarm package (includes test/normal/silence switch, fuse, red light, horn & float)

ENCLOSURE RATING
- I = Indoor, NEMA 1 (metal)
- W = Weatherproof, NEMA 4X (engineered thermoplastic)

STARTING DEVICE
- 1 = magnetic motor contactor 120/208/240V
- 9 = magnetic motor contactor 120V only

PUMP FULL LOAD AMPS
- 0 = 0-7 FLA
- 1 = 8-15 FLA
- 2 = 16-20 FLA
- 3 = 21-30 FLA

PUMP DISCONNECTS
- 0 = no pump disconnect
- 1 = pull-out with safety deadfront in a 10"x8" enclosure
- 4 = circuit breaker

FLOAT SWITCH APPLICATION
- H or L = pump down or pump up
- X = no floats

OPTIONS *Listed below*

★ Options selected may increase enclosure size and change component layout.

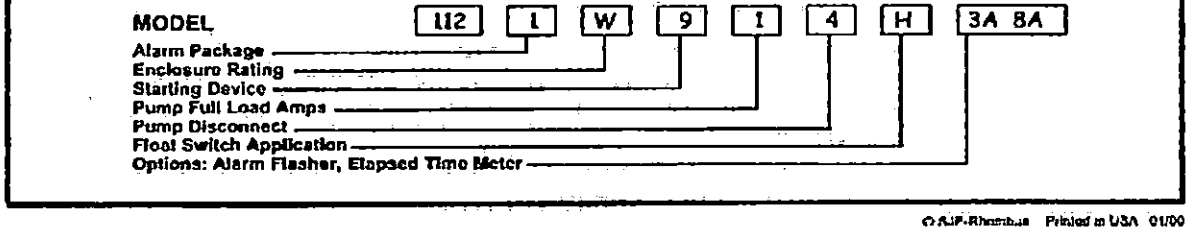
If additional features are required, call the factory for a quote on either a Pro-Line or Engineered Custom control panel system.

CODE	DESCRIPTION
1A	Red beacon only / no audio *must select 1E if floats included*
1C	Horn only / no visual *must select 1E if floats included*
1E	Alarm float
3A	Alarm flasher
★ 4A	Low level cutout *select option 4D if floats included*
★ 4B	Red low-level indicator & alarm *must select 4A also*
4D	Low-level float
6A	Auxiliary alarm contact, form C type
★ 8A	Elapsed time meter
★ 8C	Event (cycle) counter
10E	Lockable latch - NEMA 4X
10E	Lockable latch - NEMA 1
★10F	Lightning arrester
★10K	Anti-condensation heater

CODE	DESCRIPTION
11C	NEMA 1 alarm panel *must select option 6A*
11D	NEMA 4X alarm panel *must select option 6A*
15A	Control / alarm circuit breaker *Does not include the circuit board as in standard.*
16A	10' cord in lieu of 20'
16B	15' cord in lieu of 20'
16C	30' cord in lieu of 20'
16D	40' cord in lieu of 20'
17A	SJE SignalMaster® / mounting strap ●
17B	SJE SignalMaster® / externally weighted ●
17C	Sensor Float® / internally weighted ▲
17D	Sensor Float® / externally weighted ▲
17E	Sensor Float® Mini / pipe clamp ▲
17F	Sensor Float® Mini / externally weighted ▲
19X	Door mounted pump run indicator
21A	Pumpmaster® in lieu of on/off switches ●
21B	PumpMaster® Plus in lieu of on/off switches ●
21C	Super Single® in lieu of on/off switches ▲
21D	Double Float™ in lieu of on/off switches ▲

● Mechanically-activated ▲ Mercury-activated

SAMPLE



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SENSOR FLOAT® control switch

Mercury-activated, narrow-angle float switch designed to activate pump control panels and alarms.



This narrow-angle sensing device is used to accurately monitor liquid levels in sewage and non-potable water applications. The Sensor Float® control switch is not sensitive to rotation and is suitable for use with intrinsically safe circuits. Contact SJE-Rhombus regarding specific intrinsically safe applications.

Normally Open Model (high level)
The control switch turns on (closes) when the float tips slightly above horizontal signaling a high level, and turns off (opens) when the float drops slightly below horizontal.

Normally Closed Model (low level)
The control switch turns on (closes) when the float drops slightly below horizontal signaling a low level, and turns off (opens) when the float tips slightly above horizontal.

FEATURES

- Suitable for use with intrinsically safe circuits.
- Not sensitive to rotation.
- Control differential of .5 inches (1 cm) above or below horizontal.
- UL Listed for use in non-potable water and sewage.
- CSA Certified.
- Three-year limited warranty.

LR54245 LISTED 83N3

Hydraulic

OPTIONS

This switch is available:

- for normally open (high level) applications or normally closed (low level) applications.
- in standard cable lengths of 10, 15, 20, or 30 feet and 3, 5, 6, or 10 meters.
- with three mounting options that allow for flexibility in installation:

  Mounting Clamp: for applications where the switch can be attached to a discharge pipe or similar mounting device.

  Internally Weighted: for applications where the switch can be suspended from above.

  Externally Weighted: for applications where the switch can be suspended from above.

SPECIFICATIONS

CABLE: flexible 18 gauge, 2 conductor (UL,CSA) SJOW, water-resistant (CPE) jacket

FLOAT: 3.38 inch diameter x 4.55 inch long (8.59 cm x 11.56 cm), high-impact, corrosion resistant, PVC housing for use in sewage and non-potable water up to 140°F (60°C)

MAXIMUM WATER DEPTH: 30 feet (9 meters), 13 psi

MERCURY TILT SWITCH: single pole, single throw, mercury-to-mercury contacts, hermetically sealed in a steel capsule and epoxy sealed in the float housing

ELECTRICAL: 5 amp, 120/230 VAC, 50/60 Hz

SJE Rhombus CONTROLS
SJ ELECTRO SYSTEMS, INC.
PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE (1-218-847-1317
1-218-847-4617 Fax
email: sje@sjerhombus.com
www.sjerhombus.com

Sensor Float® control switch installation instructions

⚠WARNING ELECTRICAL SHOCK HAZARD
Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.

⚠WARNING EXPLOSION OR FIRE HAZARD
Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.

Failure to follow these precautions could result in serious injury or death. Replace product immediately if switch cable becomes damaged or severed. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, float housing, or cable.

MOUNTING THE SWITCH

1. Place the cord into the clamp as shown in Figure B.
2. Locate clamp at desired activation level and secure the clamp to the discharge pipe as shown in Figures A and B. **Note:** Do not install cord under hose clamp.
3. Tighten the hose clamp using a screwdriver. Over tightening may result in damage to the plastic clamp. Make sure the float cable is not allowed to touch the excess hose clamp band during operation.
4. Bring cable leads back to control device and wire according to Figure C.
5. Check installation. Allow system to cycle to insure proper operation.

Note: All hose clamp components are made of 18-8 stainless steel material. See your SJE-Rhombus supplier for replacements.

Figure A

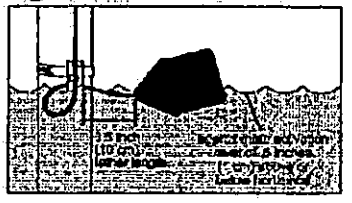
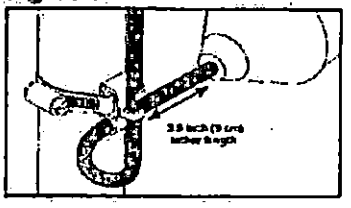


Figure B



INTERNAL WEIGHT

1. Determine desired activation level.
2. Suspend switch 7 inches (18 cm) below desired activation level as shown in Figure D. Switch remains partially submerged during the "on" tipping action. Switch can be totally submerged and still continue to operate properly.
3. Wire cable leads directly into control device as shown in Figure C.
4. Check installation. Allow system to cycle to insure proper operation.

Figure C - Wiring Diagram

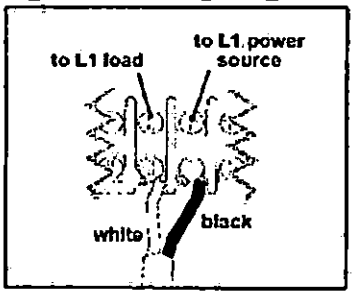
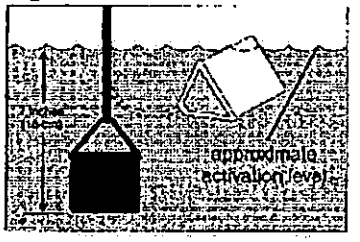


Figure D



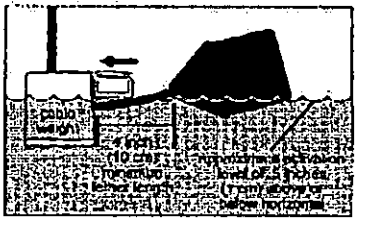
CABLE WEIGHT

1. Determine desired activation level.
2. Suspend switch and cable weight at desired activation level as shown in Figure E.
3. Wire cable leads directly into control device as shown in Figure C.
4. Check installation. Allow system to cycle to insure proper operation.

Cable weight is attached to switch cable at the factory. To adjust:

1. Release clip.
2. Adjust cable weight to desired position.
3. Lay switch cable in weight channel.
4. Align clip with weight channel and slide towards switch cable as shown in Figure E.
5. Snap clip snugly up to cable, moving clip to tightest possible position.

Figure E



CONTROLS
SJE Rhombus
SJ ELECTRO SYSTEMS, INC.
22650 County Highway 6 ■ P.O. Box 1708 ■ Detroit Lakes, Minnesota 56502 USA
1-888-DIAL-SJE (1-888-342-5753) ■ Phone: 218-847-1317 ■ Fax: 218-847-4617
E-mail: sje@sjerhombus.com

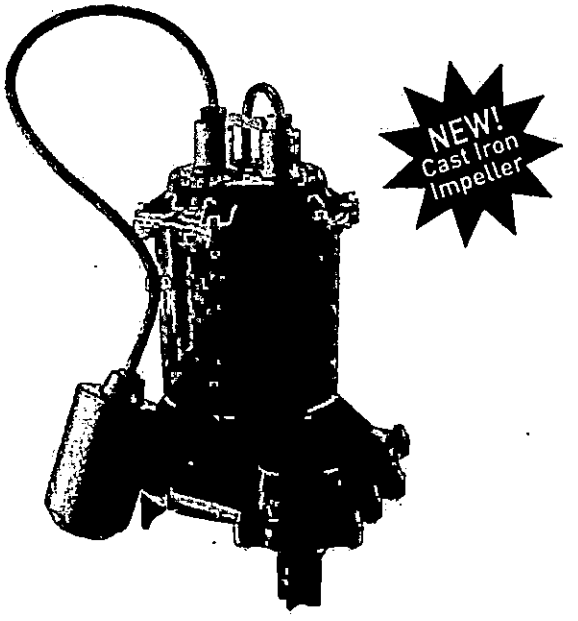
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Cat. Page PN 10095CBA

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MYERS® ME40 SERIES

The Myers® ME40 series effluent pumps are one of the industry's most efficient models featuring a 4/10 HP motor. This powerful pump provides the flow and head required for demanding dosing systems and drainage applications. The ME40 incorporates cast iron, engineered thermoplastic and stainless steel in combination to produce a powerful and highly durable pump.

Available with automatic float switch or manual models for use with external controls for precision dosing installations.



APPLICATIONS

Effluent removal, sump drainage, water transfer, flood control

SPECIFICATIONS

Capacities – 80 GPM (303 LPM)
Shut-off Head – 32' (9.75 m)
Operation – Manual or automatic
Max. Spherical Solids – 3/4" (19 mm)
Liquids Handling – Domestic effluent and drain water
Intermittent Liquid Temperature – Up to 140°F (60°C)
Motor/Electrical Data – 4/10 HP, 1650 RPM, oil-filled, permanent split capacitor type, 115V, 12A, 1Ø, 60Hz; 230V, 6A, 1Ø, 60Hz
Acceptable pH Range – 5-9
Specific Gravity – .9-1.1
Viscosity – 28-35 SSU
Discharge, NPT – 1-1/2" (38 mm)
Housing – Cast iron
Minimum Sump Diameter –
Simplex: 24" (61.0 cm)
Duplex: 36" (91.4 cm)
Power Cord – 10' or 20', 16/3, SJTW

FEATURES

NEW!

Efficient Dosing
Two-vane cast iron impeller design provides maximum dosing efficiency

Powerful Torque
High-torque, permanent split capacitor (PSC) motor; no starting switches or relays to wear out

Rugged and Cool
Rugged-built, oil-filled motor for continuous bearing lubrication and maximum heat dissipation

Water-tight Fit
Positive sealing, quick-connect float and switch cords make replacement easy

Seal Protection
Lower ball bearing and heavy duty Type 6 seal for added pump life

Automatically Better
Field-tested, wide-angle, mercury-free float switch provides maximum drawdown (automatic models only)

Dual Operation
Automatic float switch or manual operation by plugging directly into outlet

Thermal Protection
Heat sensor overload protection with automatic reset when motor cools to a safe operating temperature

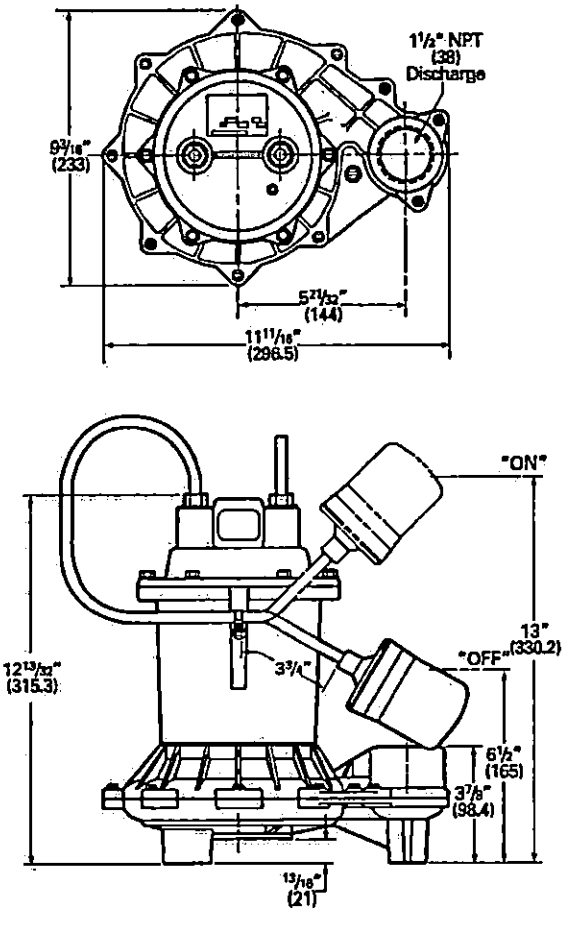
MYERS® ME40 SERIES

ORDERING INFORMATION

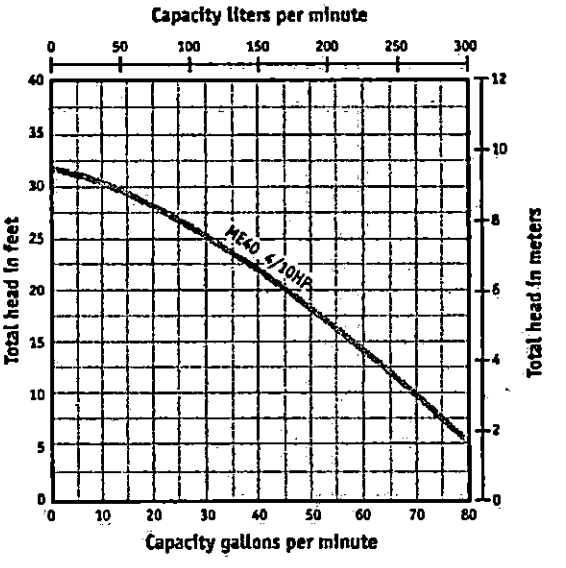
Catalog Number	HP	Volts	Phase/ Cycles	Amps	Discharge Size	Switch Type	Approx. Cord Length	Wt. Lbs.
ME40A-11	4/10	115	1/60	12.0	1-1/2"	Tethered Automatic	10'	27
ME40AC-11	4/10	115	1/60	12.0	1-1/2"	Tethered Automatic	20'	28
ME40M-11	4/10	115	1/60	12.0	1-1/2"	Manual	10'	26
ME40MC-11	4/10	115	1/60	12.0	1-1/2"	Manual	20'	27
ME40AC-21	4/10	230	1/60	6.0	1-1/2"	Tethered Automatic	20'	28
ME40MC-21	4/10	230	1/60	6.0	1-1/2"	Manual	20'	27
ME40P-1	4/10	115	1/60	6.0	1-1/2"	Tethered Automatic*	10'	28
ME40PC-1	4/10	115	1/60	6.0	1-1/2"	Tethered Automatic*	20'	29
ME40PC-2	4/10	230	1/60	6.0	1-1/2"	Tethered Automatic*	20'	29

*Piggyback

DIMENSIONS



PUMP PERFORMANCE



CALCULATIONS

Location	Stonebridge	
Project Number	13-1025	
Lot No:	83	
No. of Bedrooms	5	
Design Flow	600	$^{gal}/_{day}$
LTAR	0.275	$^{gal}/_{ft^2\ day}$
Innovative? (YES OR NO)	yes	
Supply Line Length	150	ft.
Supply Line Volume	26.1	gal.
Required Feet of Line	545	ft.
Amount of Line from Layout	546	ft.
Gallons per Minute	21.33	$^{gal}/_{min}$
Required Septic Tank Capacity	1500	gal.
Minimum Standard Tank Size	1500 gal.	
Lateral Line Volume	356.538	gal.
Dosing Volume	249.58	gal.
Tank Draw Down	8.6	in.
	Generic Draw Down of 29 gal.per in.	
Pump Run Time	11.70	minutes
Elevation Head	11	ft.
Pressure Head	2	ft.
Friction Factor	0.95	ft./100 ft. *(From the interpolater.)*
Friction Head	1.43	ft.
Elevation Head +15%	12.65	
Total Dynamic Head	16.08	ft.

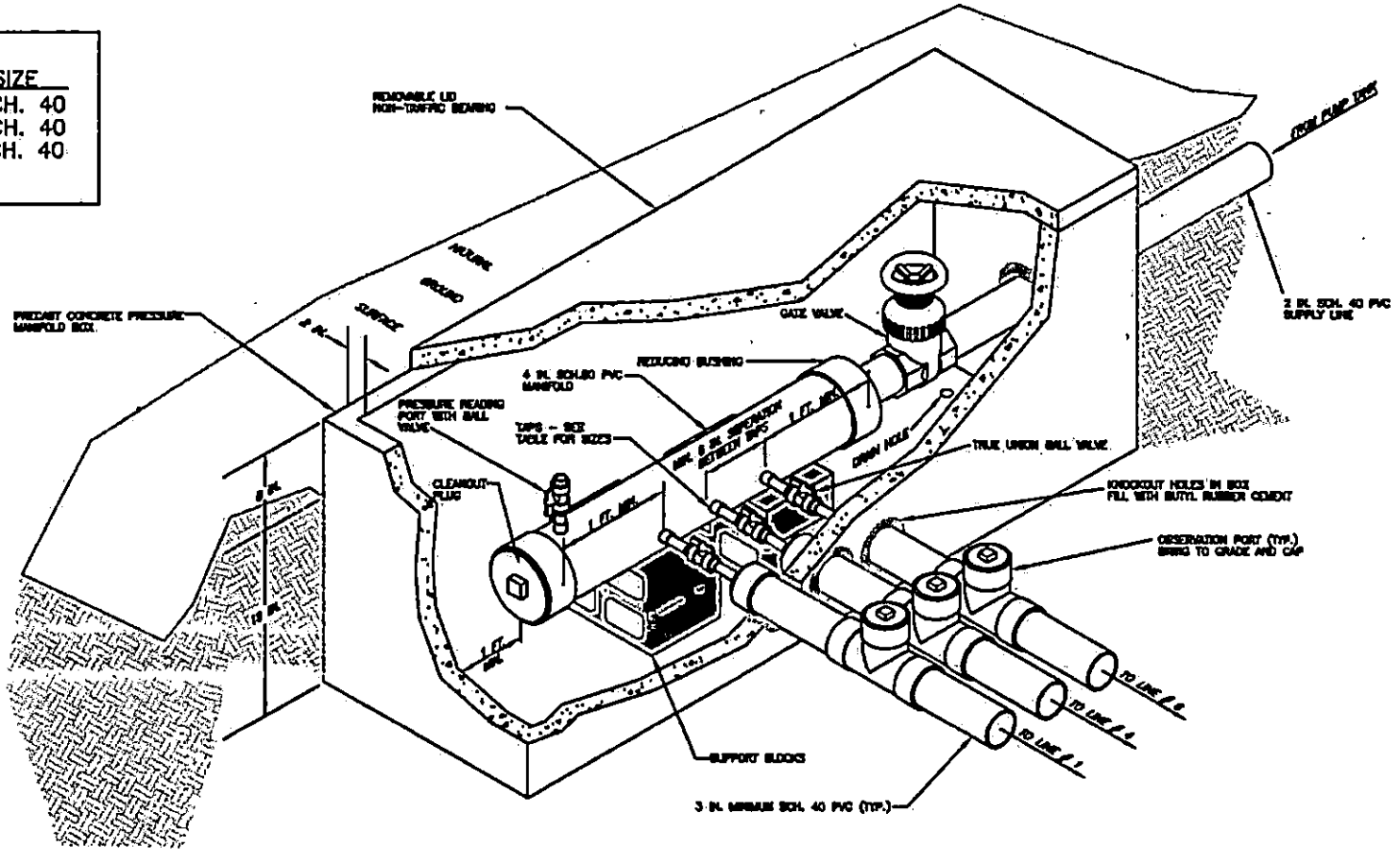
FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	f
20	0.84
21.33	0.95
25	1.27
26	1.37
30	1.78
	-1.76
35	2.37
37	2.63
40	3.03
42.4	3.39
45	3.77
46.51	4.01
50	4.58
57.11	5.89
60	6.42

PRESSURE MANIFOLD DETAILS
FOR
LOT 83 STONEBRIDGE

TAP SIZES

LINE No.	TAP SIZE
1	1/2" SCH. 40
4	1/2" SCH. 40
6	1/2' SCH. 40



Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St., Suite 211 Charlotte, NC 28202
Phone: (980) 314-1680 Fax: (704) 336-6894

Septic System Pre-Construction Meeting Checklist

File # 90248 App # 7079 Tax Parcel # 139-034-02

Property Owner: Live Well Homes

Job Location Address: 7911 Deerbridge St

City: Mint Hill State: NC Zip Code: 28227

1. **Does System design match facility, flow & wastewater characteristics?**

   ☑ YES ☐ NO

   Comments: _____

2. **Is there sufficient available space for the septic systems initial and repair areas?**

   ☑ YES ☐ NO

   Comments: _____

3. **Can the septic system be installed per the permit conditions and drawing on file?**

   ☑ YES ☐ NO

   Comments: _____

* If "NO" is checked for any of the above the existing permit may need to be revoked.

Permission is hereby given to ☑ install ☐ alter ☐ repair an on-site wastewater treatment & and disposal system, with subsurface soil absorption and effluent discharge meeting all of the construction requirements of 15A NCAC 18A .1900 which are in effect on the date of granting this approval. **System shall not be installed while soils are in wet condition.**

April Bumgarner — Authorized Agent

7-27-17 — Date

RCS — Others Present

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St., Suite 211 Charlotte, NC 28202
Phone: (980) 314-1680 Fax: (704) 336-6894

NC DHHS
Division of Environmental Health
On-Site Wastewater Section

OPERATION PERMIT for an ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 9024B Permit #: 7079 Tax Parcel #: 139-034-02

Property Owner: Live Well Homes

Job Location Address: 7911 Deerbridge St.

City: Mint Hill State: NC Zip Code: 28227

Operation Permit Issuance Date: 8/25/17 Contractor Name: RCS

Permitted Design Flow: 600 GPD Liquid Capacity of Dosing Tank: 1500 gallons

Liquid Capacity of Septic Tank: 1500 gallons Manufacture JFS STB-112 Effluent Pump Model: Goulds 1/2hp

9-21-16 JFS-PT538 3-30-17

Drainfield Installation ☐ N/A

Trench Depth: 24" inches

Trench Width: 3' feet

Line Spacing: 9' feet (O.C.)

Total line length: 554' feet

# of Lines: 7 @ Various feet

Depth of Media: 12" inches (Type) Quick4

Depth of Cover: 12" inches

Distribution Device: Pressure Manifold

Bed Installation *(For Repair Installations ONLY.)* ☒ N/A

Bed Depth: _____ inches

Bed Width: _____ feet

Total line length: _____ feet

# of Lines: _____ @ _____ feet

Depth of Media: _____ inches (Type) _____

Depth of Cover: _____ inches

Distribution Device: _____

Water Supply Source

☒ Municipal ☐ Private Well ☐ Community Well

☐ Other _____

System Installation Setbacks

Distance from Building Foundation: 7' feet

Distance from Property Line: 10' feet

Distance from Water Supply Source: 10'+ feet

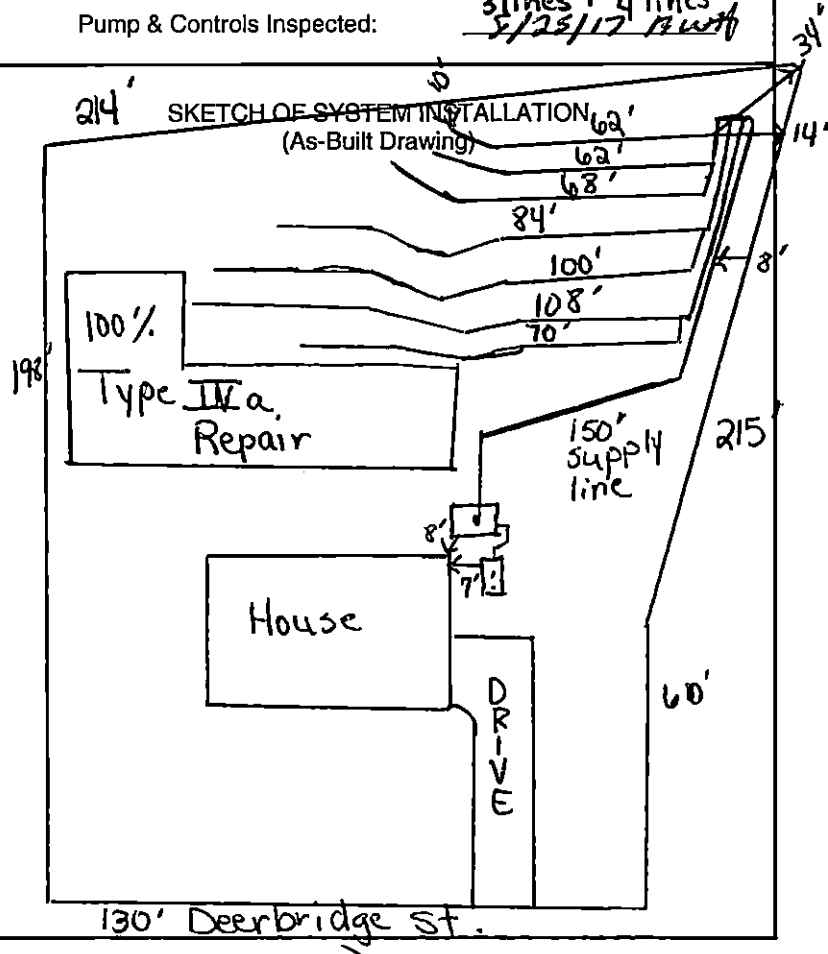
Inspection Dates

Tank(s) Inspected: 8-11-17

Excavation Inspected: 8-11-17 | 8-14-17

Pump & Controls Inspected: 3 lines | 4 lines 8/25/17 BWH

SKETCH OF ~~SYSTEM~~ INSTALLATION (As-Built Drawing)



The undersigned has inspected the Septic Tank System described above, and certifies it has been ☒ installed ☐ altered ☐ repaired ☐ as detailed in the plot above ☐ in accordance with the permit issued and meets the provisions of 15A NCAC 18A. 1900, "Laws and Rules for Sewage Treatment and Disposal Systems" in effect on the date of issuance of the permit. The issuance of this Operation Permit does not in any way guarantee that the system will operate properly or relieve any person now or hereafter owning, controlling, or using such system from any liability resulting from the failure of the system to operate properly. This document is issued subject to those restrictions and conditions shown on the permit(s) and the provisions of 15A NCAC 18A. 1900 in addition to those listed below under "Comments." This document shall be null and void if any information contained in the application is untrue or if any additions are made to the property which would increase the requirements for said system.

Notice: Disturbance of the designated repair area may result in the Suspension or Revocation of this permit.

Comments: System Classification & Type: IIIb/IQ4/p/NA/NA

Draw Down conducted @ 2ft head. Run time 2:00 min w/ 2" drawn (11.7 min)

DHHS Authorized Agent: Bradley W. Hallman Signature: _____

56 gal X 4.5 = 252 gal

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St., Suite 211 Charlotte, NC 28202
Phone: (980) 314-1680 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

OPERATION PERMIT for an
ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 9024B Permit #: 7079 Tax Parcel #: 139-034-02

Property Owner: Live Well Homes

Job Location Address: 7911 Deerbridge St

City: Mint Hill State: NC Zip Code: 28227

OPERATION PERMIT CONDITIONS:

I. Performance: System shall perform in accordance with 15A NCAC 18A .1961.

II. Monitoring: System shall be monitored as required by 15A NCAC 18A .1961.

III. Maintenance: Ground absorption sewage treatment and disposal systems shall be checked, and the contents of the septic tank removed, periodically from all compartments, to ensure proper operation of the system. The contents shall be pumped whenever the solids level is found to be more than 1/3 of the liquid depth in any compartment.

IV. Operation: System shall be operated in accordance with 15A NCAC 18A .1961.

System Classification: IIIb

*Operation Permits for Type V and VI systems expire five (5) years from the date of issuance (in accordance with Table V(a)). The system owner must contact GWS six (6) months prior to expiration for permit renewal.

Subsurface system operator required: Yes ☐ No ☑

☐ This type of system requires the system owner to maintain a contract with a certified operator to perform system inspection, maintenance, and reporting as required in 15A NCAC 18A .1961. and Table V(a). The system owner is responsible for all fees associated with these services.

☐ System does not require inspection by GWS on a routine frequency.

☑ System requires inspection by GWS once every five (5) years. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every three (3) years. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every twelve (12) months. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every six (6) months. The system owner is responsible for all fees associated with the inspection.

V. Other:

DENR Authorized Agent: Bradley W. Hallman Date: 8/25/17

Signature:

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date: 09/09/16
Receipt #: 101694
Check / Auth #: CHARGE
Received By: ELLISLW

Amount: 200.00
Tendered: 200.00
Returned: 0.00

Account Information

Account #: X44709
Contractor: LIVE WELL HOMES LLC
Attn:
Address: 501 SPRINGCREST DR
Address:
City/State/Zip: FORT MILL, SC 29715

Item	Description	Permit#	Quantity	Unit Price	Total Price
0703	Septic Operational Permit 7911 DEERBRIDGE STREET		1	200.00	200.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
2,280.97	11,080.95				

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	09/19/14	**Amount:**	250.00
Receipt #:	90821	**Tendered:**	250.00
Check / Auth #:	CHECK 1615	**Returned:**	0.00
Received By:	BEACHMS		

Account Information

Account #: 200000
Contractor: LIVE WELL HOMES, LLC
Attn:
Address: PO BOX 1345
Address:
City/State/Zip: FT MILL, SC 29716

Item	Description	Permit#	Quantity	Unit Price	Total Price
0701	Improvment Permit App-Residen 7911 DEERBRIDGE STREET		1	250.00	250.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
	587.40		270.00	1,859.65	

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	09/09/16	**Amount:**	200.00
Receipt #:	101695	**Tendered:**	200.00
Check / Auth #:	CHARGE	**Returned:**	0.00
Received By:	ELLISLW		

Account Information

Account #: X44709
Contractor: LIVE WELL HOMES LLC
Attn:
Address: 501 SPRINGCREST DR
Address:
City/State/Zip: FORT MILL, SC 29715

Item	Description	Permit#	Quantity	Unit Price	Total Price
0734	Septic Construction Authorizat 7911 DEERBRIDGE STREET		1	200.00	200.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
2,480.97	11,080.95				

Ellis, Loretta

From: Cindy Hafer <chafer@livewellhomes.net>
Sent: Wednesday, September 07, 2016 10:22 AM
To: Ellis, Loretta
Subject: 7911 Deerbridge Street
Attachments: ST83 3663 Isabella Elev D Brick 3car SL Sunroom Master Ext Tall Crawl SEALED.pdf

Good morning Loretta, I just submitted for permit for this address. Please take the $400 fee for our account X44709. Thanks and have a great day!

Thank you,

Cindy Hafer
Permit Coordinator
Live Well Homes, LLC
chafer@livewellhomes.net
803-984-6611

9024B

S

FEE: 200.00

DATE:9/9/2016

MECKLENBURG COUNTY
GROUNDWATER & WASTEWATER SERVICES

FILE NUMBER: 9024B

PERMIT NUMBER: 30007079

PARCEL NUMBER: 13903402

JOB LOCATION INFORMATION

ADDRESS: 7911 DEERBRIDGE ST

CITY: CHARLOTTE **STATE: NC** **ZIP:** 28227

ISSUED TO: Redus Charlotte Housing LC

CONSTRUCTION AUTHORIZATION ISSUANCE DATE: 9/9/2016

CONSTRUCTION AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 30007079, AND THE ATTACHED SITE PLAN WITH SYSTEM DETAILS. CONSTRUCTION AND INSTALLATION MUST ALSO MEET ALL REQUIREMENTS SET FORTH IN THE RULES GOVERNING SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL AND ANY OTHER APPLICABLE RULES AND LAWS.

2. A PRE-CONSTRUCTION MEETING MUST BE SECURED PRIOR TO INSTALLATION OF THE SEPTIC TANK SYSTEM. THE INSTALLER OF THE SYSTEM SHALL BE A LICENSED SEPTIC TANK CONTRACTOR WITH THE NORTH CAROLINA ONSITE WASTEWATER CONTRACTOR INSPECTOR CERTIFICATION BOARD.

3. ANY ALTERATION IN SITE OR SOIL CONDITIONS (INCLUDING LOCATION OF STRUCTURES AND APPURTENANCES) OR MODIFICATION IN USE, DESIGN WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS AS SPECIFIED IN THE ASSOCIATED IMPROVEMENT PERMIT AND APPLICATION, MAY SUBJECT THIS CONSTRUCTION AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. THIS CONSTRUCTION AUTHORIZATION AS PROVIDED IN G.S. 130A-335(f) AND G.S. 130A-336(b) SHALL BE VALID FOR A PERIOD EQUAL TO THE VALIDITY OF THE IMPROVEMENT PERMIT, NOT TO EXCEED 60 MONTHS.