Supervisor/Administrative Professional Checklist

New Septic [X] **New Well** [ ] **Use Existing** [ ] **Alteration** [ ] **Modified Plot Plan** [ ]

New Septic Fees Paid:

IP ($250.00) 5/1/15 VW Initials/Date

CA ($200.00) 5/1/15 VW Initials/Date

OP ($200.00) 5/1/15 VW 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
OK to generate CA

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. [✓] LE

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 #: 91828 WASPS App #: 7464

Primary ES assigned to project: Brad Hallman

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: 4			
	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: _____

OP issued date: _____

Review performed by: JAM _____ Date performed: _____

9/82B

Application # 7464

MECKLENBURG COUNTY
HEALTH DEPARTMENT

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

3. **JOB LOCATION INFORMATION:**

TAX PARCEL NUMBER: 13928217
STREET ADDRESS: 8509 Aspen Court
CITY: Mint Hill
STATE: NC ZIP: 28227
SUBDIVISION NAME: Oak Bridge @ Water Leaf
LOT #: 27 LOT SIZE (acres): 0.73

TOWNSHIP:
○ MECKLENBURG ○ CORNELIUS ○ HUNTERSVILLE
○ DAVIDSON ○ CHARLOTTE ○ PINEVILLE
○ MATTHEWS ◉ MINT HILL

4. **BUILDING INFORMATION:**

BUILDING TYPE:
○ SINGLE MOBILE HOME ○ MODULAR HOME
○ DOUBLE WIDE ○ MULTIPLE FAMILY
◉ HOUSE ○ OTHER _____
HEATED SQUARE FOOTAGE: 3,038
NUMBER OF BEDROOMS: 4
NUMBER OF OCCUPANTS: 6

FOUNDATION TYPE:
○ CONCRETE SLAB ○ BASEMENT WITH PLUMBING
◉ CRAWL SPACE ○ BASEMENT 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 _____

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 _____

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?** _____ ☑ N/A

12. **PROPERTY OWNER:**

NAME: True Homes
ADDRESS: 2649 Brekonridge Centre Dr.
CITY: Monroe
STATE: NC ZIP: 28110
WORK PHONE: (704) 238-1229
MOBILE PHONE: _____
FAX: (704) 731-0839
E-MAIL: mpatrick@truehomesusa.com

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

NAME: Melody Patrick
ADDRESS: same
CITY: _____
STATE: _____ ZIP: _____
WORK PHONE: _____
MOBILE PHONE: _____
FAX: _____
E-MAIL: _____

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

Revised on: 12/15/10

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. MLP (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.

_____ (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. A PROPOSED PLOT PLAN is required to be submitted with each application.

Melody L. Patrick — Property Owner's or Owner's Legal Representative Signature

4/16/15 — Date

OFFICE USE ONLY

○ SURVEY PLAT TO SCALE SUBMITTED ○ SCALED SITE PLAN SUBMITTED ○ UN-SCALED SITE PLAN SUBMITTED

SEPTIC APPLICATION FEE RECEIVED: $ 250.00 DATE FEE RECEIVED: 5/1/15

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

APPLICATION PROCESSED BY: _____

GWS FILE NUMBER ASSIGNED: _____

APPLICATION ID NUMBER ASSIGNED: _____

COMMENTS:

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

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 #: **30007464** GWS File #: **9182B**

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.
- This type of repair system requires the installation of a pump tank and all associated components. This type of system will require routine inspections by our office. The system owner is responsible for all fees associated with these inspections.
- This type of repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- This type of repair system requires periodic inspections 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.
- 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 STATE OF NORTH CAROLINA, 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 a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

Authorized Agent: Brad Hallman

Signature: _____

Date Issued: 7/10/2015

Owner/Legal Agent: _____
Print Name

Signature: _____

s

FEE: 200.00
DATE:7/22/2015

MECKLENBURG COUNTY
GROUNDWATER & WASTEWATER SERVICES

FILE NUMBER: 9182B

PERMIT NUMBER: 30007464

PARCEL NUMBER: 13928217

JOB LOCATION INFORMATION

ADDRESS: 8509 ASPEN CT

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

ISSUED TO: True Homes

CONSTRUCTION AUTHORIZATION ISSUANCE DATE: 7/22/2015

CONSTRUCTION AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 30007464, 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.

21 JUL 15 AM 7:40

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 #: **30007464** GWS File #: **9182B** Tax Parcel #: **139-282-17**

- 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):** 7/10/2020

Type of Installation: Residential - New System Lot Number: 27

Structure Type: HOUSE Size (ft^2): 3038 # Bedrooms: 4 # Occupants: 6

Building Foundation: Crawl Space Water Supply: Municipal

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

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.275	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	1000
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1309	Total Trench Length (ft):	436
Maximum Trench Depth (in):	36	Depth of Media (in):	12	Distribution Device:	Pressure Manifold		

III. Repair System Type: Pretreatment with Drip Irrigation **System Classification:** Vd

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.125	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	1000
Trench Width (ft):	1	Trench Spacing (ft):	2	Absorption Area (ft^2):	3840	Total Trench Length (ft):	1920
Maximum Trench Depth (in):	12	Depth of Media (in):	N/A	Distribution Device:	Headworks (Drip Irr.		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the STATE OF NORTH CAROLINA, 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 a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

Authorized Agent: Brad Hallman Owner/Legal Agent: Meredith Aguilar
Print Name

Signature: Signature: Meredith Aguilar

Date Issued: 7/10/2015

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 #: **30007464** GWS File #: **9182B**

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.
- This type of repair system requires the installation of a pump tank and all associated components. This type of system will require routine inspections by our office. The system owner is responsible for all fees associated with these inspections.
- This type of repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- This type of repair system requires periodic inspections 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.
- 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 STATE OF NORTH CAROLINA, 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 a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

Authorized Agent: Brad Hallman

Signature:

Date Issued: 7/10/2015

Owner/Legal Agent: Meredith Aguilar
Print Name

Signature: Meredith Aguilar

Attached is a proposed design for a Pressure Manifold Septic System for a 4 bedroom single family residence on lot 27 Oakbridge at Waterleaf in Mecklenburg County, North Carolina.

Contents: **Page**

Information for the Installer---------- 1

Design Information
- Design Specifications---------- 2
- Layout Specifications---------- 3
- System Tapsheet---------- 4

Site Plan/System Plan---------- 5

Septic Tank Diagram---------- 6

Pump Tank Diagram---------- 7

Pressure Manifold Diagram---------- 8

Control Panel Specifications---------- 9-13

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

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

Maintenance---------- 17-20

November 17, 2014
Design By: Eric Bailey

GWS Septic System Design Review

	Approved	Disapproved
GWS File #: 9182B		
Design Review:	☐	☐
Field Review:	☑	☐

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



CWS Septic System Design Review

	Approved	Disapproved
CWS File #:_____		
Design Review:_____	☐	☐
Field Review:_____	☐	☐

"[illegible] considered "APPROVED" until [illegible] sections above
[illegible] APPROVED [illegible]

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 structure.
- 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 for installation.
- Elevations at pinflag locations should be checked by the installer prior to beginning trenches.
- 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 is specified as an accepted 25% reduction installation
- Repair is specified as a drip system (partal repair area will support 25% reduction systems)

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: True Homes

Address:

Phone:
County: Mecklenburg
Location: Oakbridge at Waterleaf
Source of Wastewater Flow: 4 bedroom Residence
Estimated Daily Wastewater Production: 480gpd
System Flow GPM: 28.44

Design Specifications

Drainfield Size Ft: 448
Loading Rate: 0.275
Depth of Gravel in Trench: N/A
Gravel Size: N/A
Trench Depth: 35"
Trench Width: 36"
Septic Tank Size: 1500
Pump Tank Size: 1500
Estimated Supply Line Length: 79'
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume Gal: 13.75
Dosing Volume Gal: 193.08
Supply Manifold: 4 in. SCH 80 PVC
Supply Manifold Length: 3.5 ft. (minimum)

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: 1.28
Elevation Head: 8.00
Total Dynamic Head: 12.97
Threaded Union: In Tank
Gate Valves: 1 in Tank
1 at Pressure Manifold
Check Valves: In Tank
Anti-Siphon Hole: NA
Recommended Pump: Myers Model ME50 or County Approved Effluent Rated Pump Capable of Delivering ~12.97 ft.of Head at ~28.44 gpm Total Flow

Additional Comments: Soil suitability was performed by CEC and Mecklenburg County Health Department.

Oakbridge at Waterleaf Lot 27

LAYOUT FOR 4 BEDROOM HOME — November-14

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH
TBM		1.0			100.00	
INSTR. 1			103.20			
			System			
1	Red			3.50	99.70	112
2	Yellow			3.60	99.60	112
3	Blue			4.20	99.00	112
4	Red			4.90	98.30	112
					Total	**448**

Repair

~5000 Sq. Ft Drip Repair

	LINE LENGTH	LTAR GPD/FT	SYSTEM TYPE	DISTRIBUTIOI	TRENCH DEPTH
SYSTEM	448	0.275	Accepted	P. Manifold	35"
			25%		
REPAIR	Drip	0.1	Drip	Drip	

Notes: **TBM is assumed to be 100'; all measures in feet

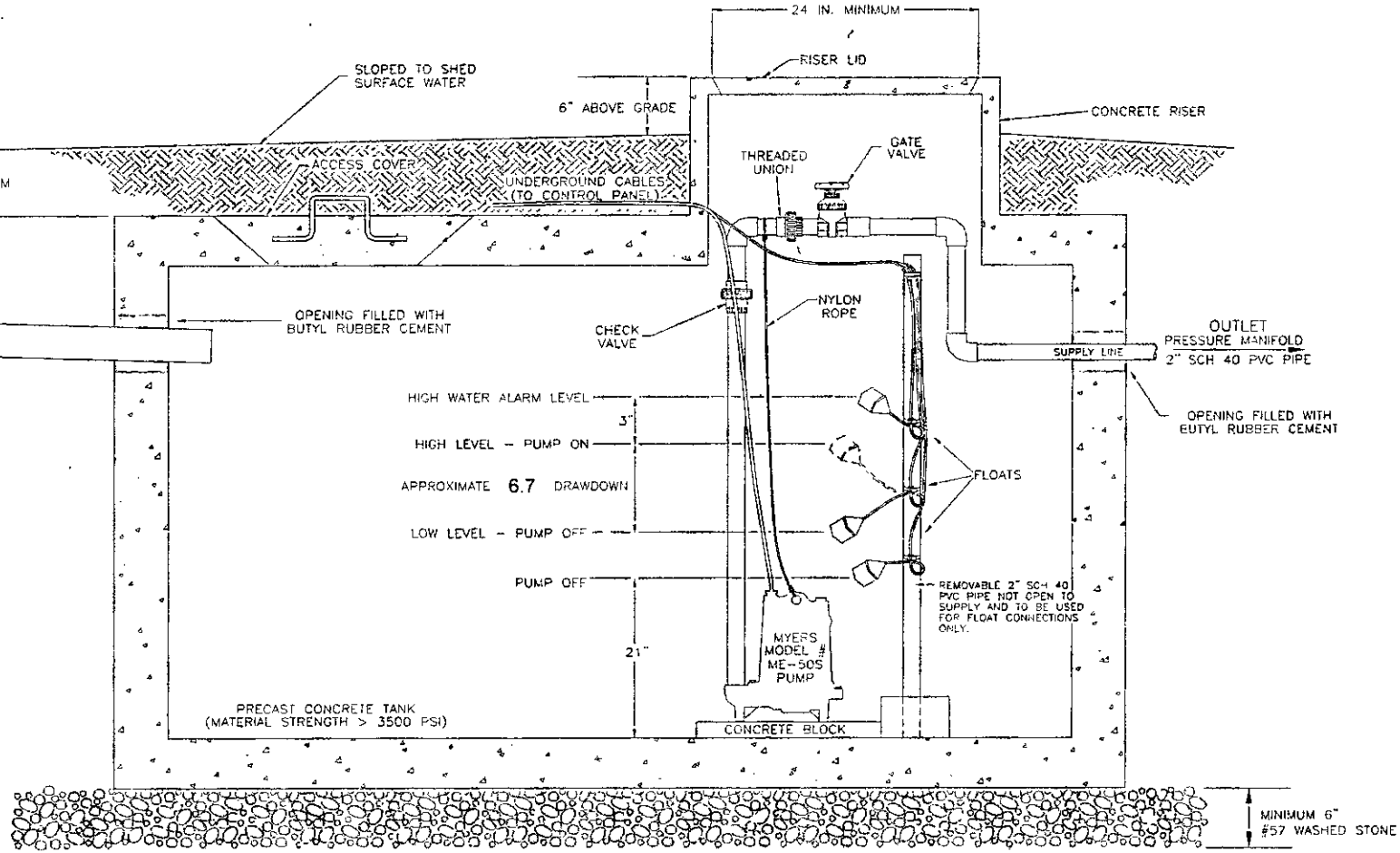
**Nitrification lines are demonstrated on contour via colored pin flags

**BS, HI, and FS indicate rod readings

Oakbridge at Waterleaf lot 27

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	gpd	Trench Area	Gal/ft
1	Red	99.70	112	SCH 40 1/2	7.11	120.00	336	0.071
2	Yellow	99.60	112	SCH 40 1/2	7.11	120.00	336	0.071
3	Blue	99.00	112	SCH 40 1/2	7.11	120.00	336	0.071
4	Red	98.30	112	SCH 40 1/2	7.11	120.00	336	0.071
	total	feet =	448	gal/min =	28.44			0% Variation
			Des. Flow	480				
	100 % Pump. Run (not actual)=			16.88				
			soil LTAR	0.275				



NOTES

1. TANK DIMENSIONS VARY BY MANUFACTURER
2. DRAWDOWN WILL VARY WITH TANK DIMENSIONS. DRAWDOWN SHOWN BASED ON 21 GALLONS PER INCH.

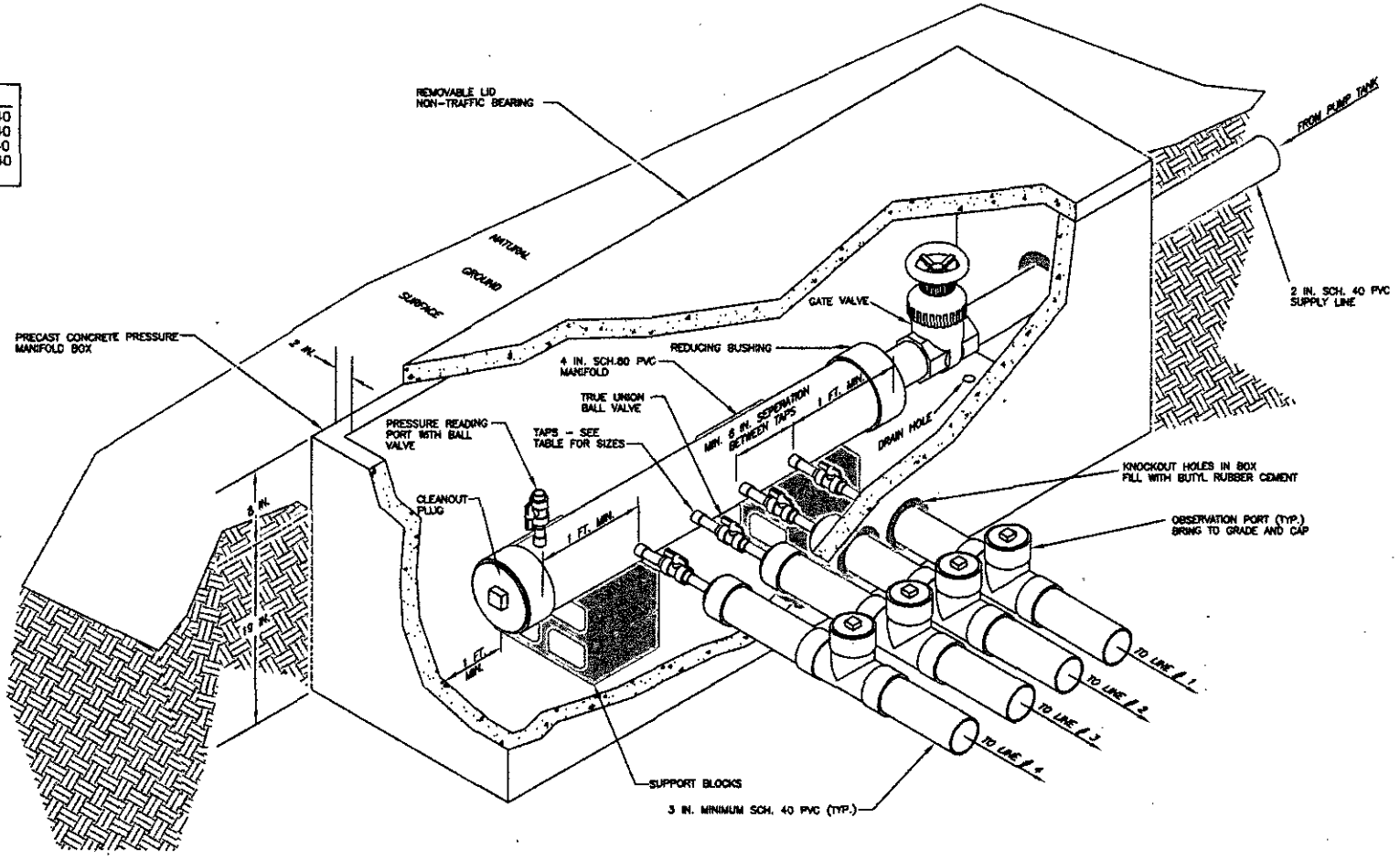
1500 GALLON PUMP TANK

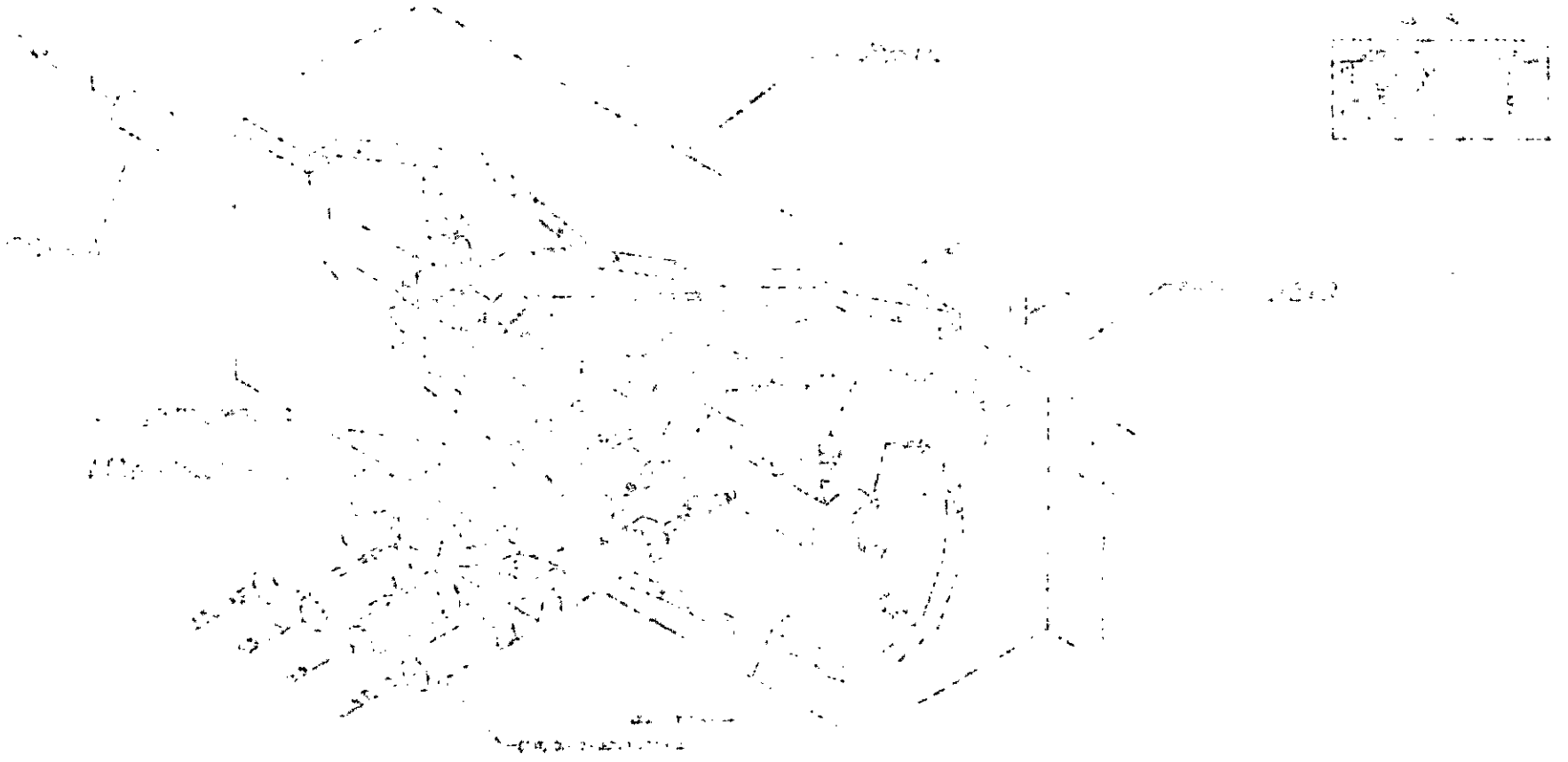
PROJECT NO.	PROJECT NAME: Oakbridge at Waterleaf Lot 27
PROJECT MGR.	
SCALE: NTS	SHEET TITLE: PUMP TANK DIAGRAM

PRESSURE MANIFOLD DETAILS
FOR
Oakbridge at Waterleaf Lot 27

TAP SIZES

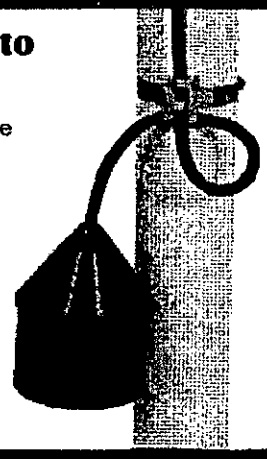
LINE No.	TAP SIZE
1	1/2" SCH. 40
2	1/2" SCH. 40
3	1/2' SCH. 40
4	1/2" SCH. 40





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 83N2

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 (8.58 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

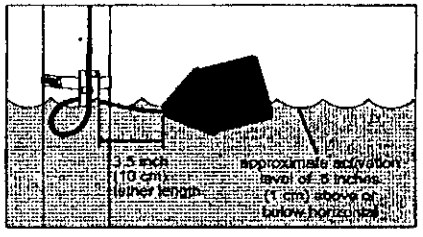
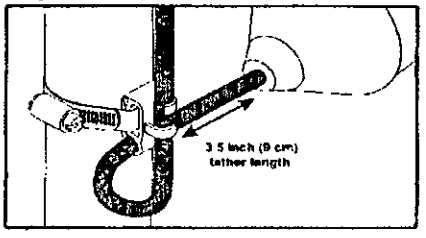


Figure B



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

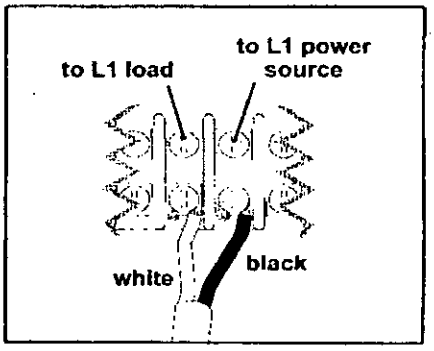
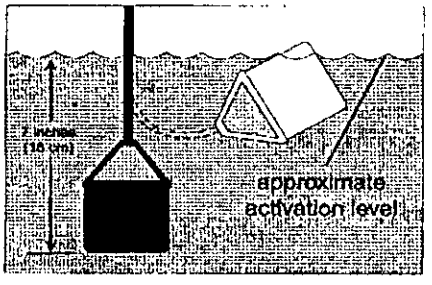


Figure D



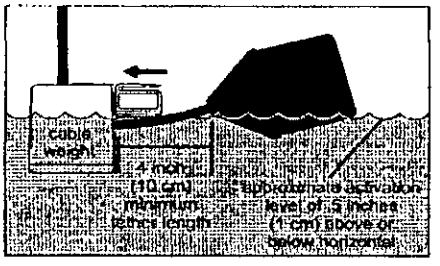
CABLE WEIGHT

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: sjc@sjerhombus.com

Instl. Instr. PN 1009646A
Cat. Page PN 1009509A

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Printed in USA 03/00



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

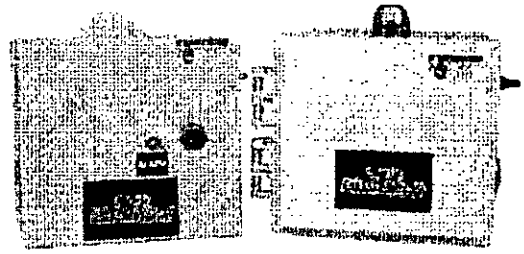
MODEL	112	1	W	9	1	4	H	3A 8A
Alarm Package								
Enclosure Rating								
Starting Device								
Pump Full Load Amps								
Pump Disconnect								
Float Switch Application								
Options: Alarm Flasher, Elapsed Time Meter								

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MODEL 112 Control Panel

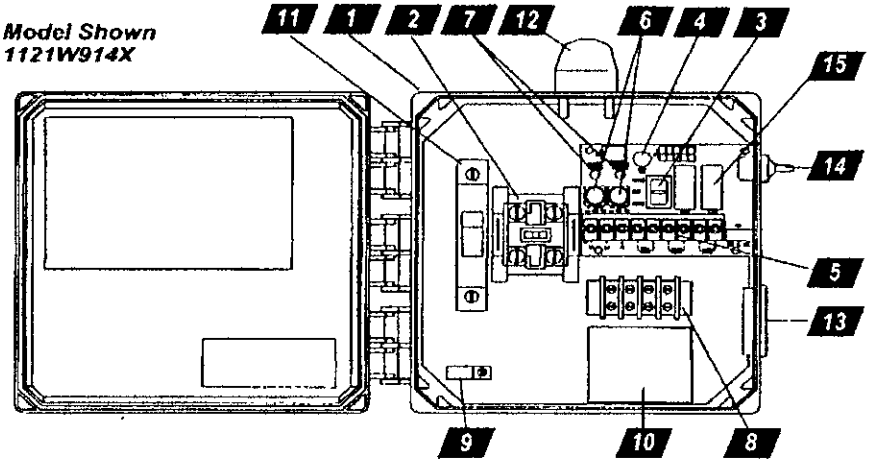
Single phase, simplex motor contactor control.

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).

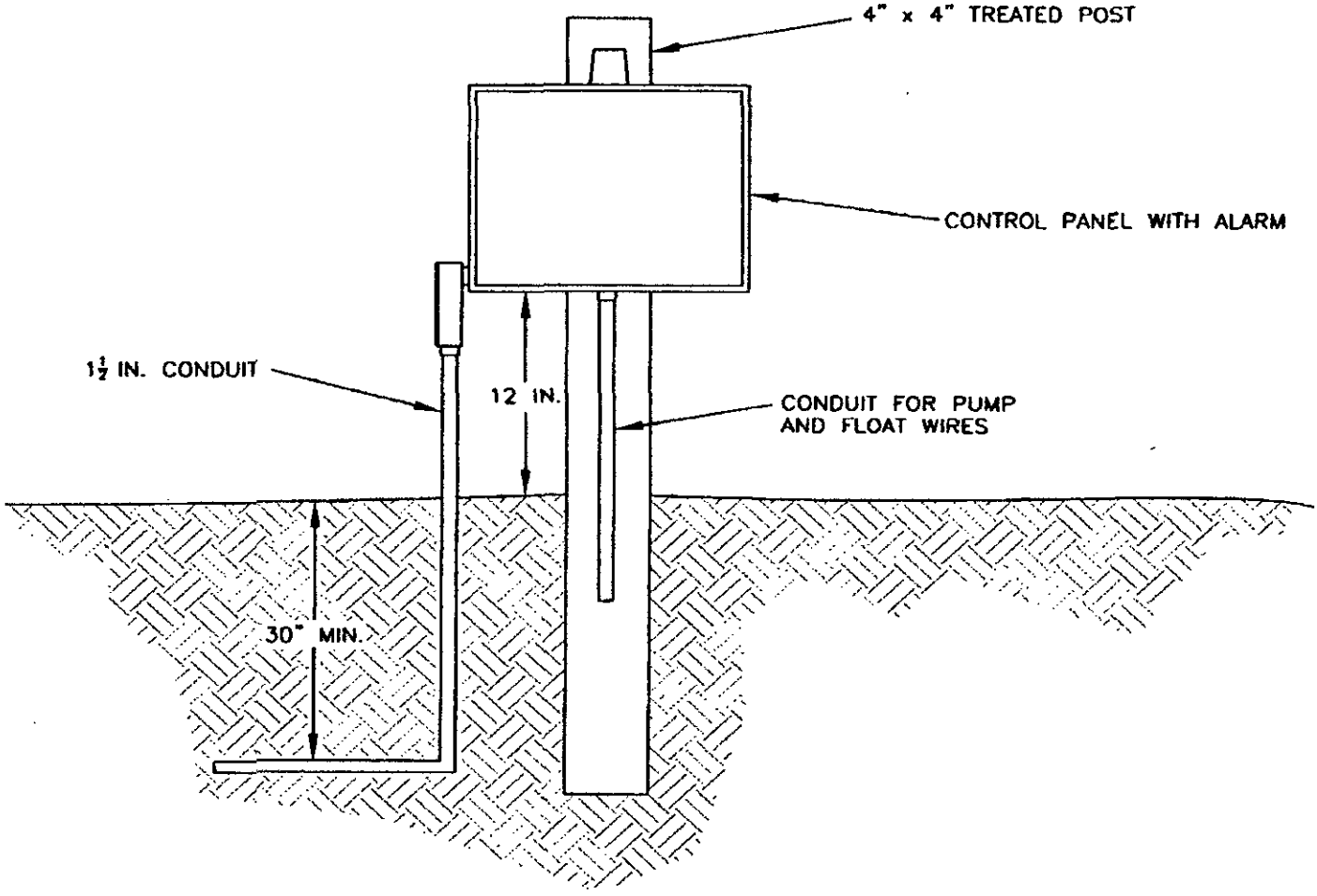
FEATURES

- 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

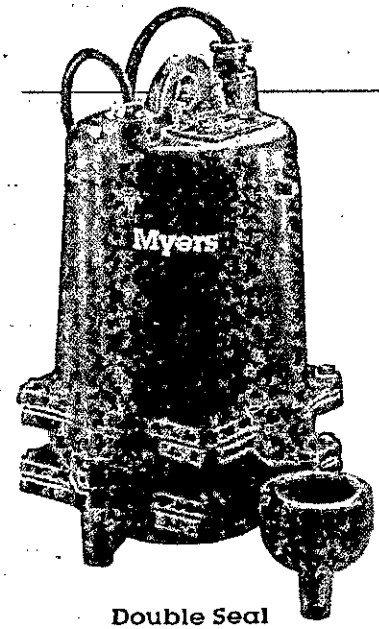
ELECTRIC BOX



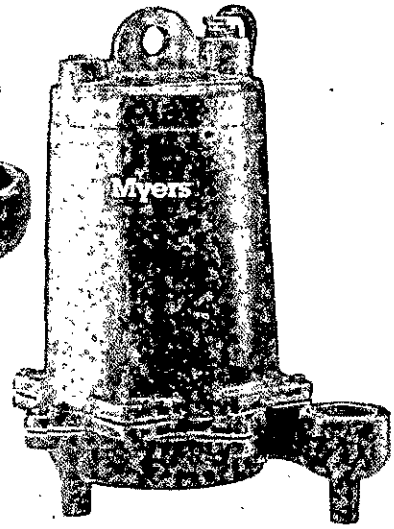
NOTES: ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED TO MEET OR EXCEED MINIMUM REQUIREMENTS SPECIFIED IN THE ELECTRICAL COME. ALL WIRING SHALL BE #12 MINIMUM, AND RATED FOR DIRECT BURY. PROVIDE GROUNDING AS REQUIRED, AND PROVIDE 30" MINIMUM BURY ON CABLES. PROVIDE ONE 20 AMP, DOUBLE POLE, 230 VOLT CIRCUIT BREAKER (FOR PUMP), AND ONE 20 AMP, SINGLE POLE, 115 VOLT CIRCUIT BREAKER (FOR ALARM) IN MAIN PANEL.

ME SERIES

1/2 through 1-1/2-HP
Effluent Pumps



Double Seal



Single Seal

THE MYERS ME SERIES EFFLUENT PUMPS ARE DESIGNED SPECIFICALLY FOR TODAY'S EFFLUENT PRESSURE DISTRIBUTION MOUNDS, TRENCHES AND HIGH FLOW DRAINAGE APPLICATIONS. The ME Series effluent pumps with their efficient two vane, enclosed impellers, provide the ideal performance for optimum dosing. ME Series pumps are constructed of only corrosion resistant materials like cast iron, stainless steel and thermoplastics to assure that they will perform for years to come in the harsh effluent environment and drainage applications. For more information, call your Myers distributor today or the Myers Ashland, Ohio sales office at 419/289-1144.

ADVANTAGES BY DESIGN

IDEAL FOR USE IN MOUND AND TRENCH PRESSURE DISTRIBUTION SYSTEMS

- High efficiency, two vane, enclosed impeller provides ideal performance for most efficient dosing.
- Impeller passes full ¾ inch solids.
- Enclosed impeller design eliminates possibility of jamming or corrosion between impeller and volute.

DURABLE MOTOR WILL DELIVER MANY YEARS OF RELIABLE SERVICE

- Oil-filled motor for maximum heat dissipation and constant bearing lubrication.
- High torque, permanent split capacitor (PSC), single phase motors. No starting switches or relays to wear out.
- Optional seal leak probe warns of seal leak condition. (Dual seal motors only.) Helps prevent costly motor damage.
- Motors have on winding current and temperature sensitive overload. (Single phase only.)

THE ME SERIES EFFLUENT PUMPS ARE DESIGNED FOR YEARS OF MAINTENANCE FREE OPERATION

- Volute seal ring is replaceable. Restores pump to original performance if wear should occur.
- Motor is held in place by 4 screws. Easily removed if service is ever needed.

PRODUCT CAPAILITIES

Capacities To	120 GPM	454 LPM
Heads To	95 ft.	28.9 m
Max. Spherical Solids	¾ in.	19 mm
Liquids Handling	domestic effluent & drain water	
Intermittent Liquid Temp.	up to 140° F	up to 60° C
Motor Electrical Data	1/2 HP 115 volts, 1 ph 1/2 to 1-1/2 HP 230 volts, 1 ph 208, 230, 460, 575 volts, 3 ph oil-filled, permanent split capacitor type, 1 ph, 3450 rpm, 60 Hz	
Motor Insulation	Class B (130° C)	
Third Party Approvals	UL, CSA	
Acceptable pH Range	6-9	
Specific Gravity	.9-1.1	
Viscosity	28-35 SSU	
Discharge, NPT	2 in.	50.8 mm
Min. Sump Dia. Simplex	24 in.	61 cm
Duplex	36 in.	91.4 cm

Construction Materials	
Motor Housing, Volute	cast iron, Class 30, ASTM A48-76
Enclosed Two Vane Impeller Standard	engineered thermoplastic
Optional	bronze
Impeller Wear Ring	304 SST
Volute Sealing Ring	Buna-N
Shaft	416 SST
Power Cord	
1/2 HP 1 Ph	20 ft. 16/3 SJOW/SJOW-A
3/4 - 1-1/2 HP 1 Ph	20 ft. 14/3 SJOW/SJOW-A
All 3 Ph	20 ft. 14/4 SOW/SOW-A
Shaft Seals Standard	single carbon & ceramic
Optional	tandem carbon & ceramic
Opt. Lower	tungsten carbide
Fasteners	300 Series SST

WHERE INNOVATION MEETS TRADITION

ISO 9001 Certified Company

Myers
PENTAIR PUMP GROUP

ME SERIES

1/2 through 1-1/2 HP
Effluent Pumps

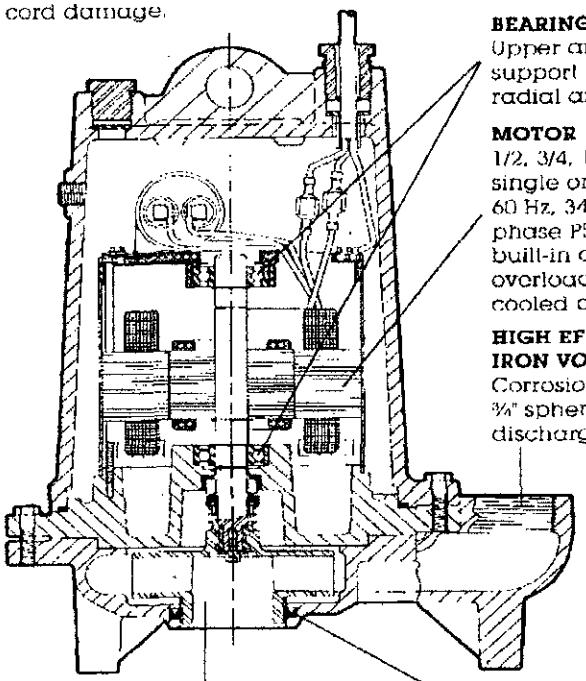
POWER CORD
Jacket sealed with compression fittings. Individual wires potted with epoxy to prevent wicking in case of cord damage.

MOTOR HOUSING
Cast iron for efficient heat transfer and corrosion resistance.

BEARINGS
Upper and lower ball support rotor. Take radial and thrust loads.

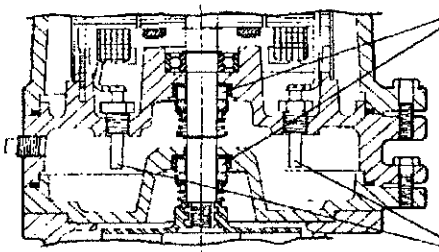
MOTOR
1/2, 3/4, 1 and 1-1/2 HP single or three phase. 60 Hz, 3450 RPM. Single phase PSC motors have built-in on winding overload protection, oil-cooled and lubricated.

HIGH EFFICIENCY CAST IRON VOLUTE
Corrosion resistant. Passes ⅜" spherical solids. 2" NPT discharge.



ENCLOSED TWO VANE IMPELLER
high efficiency. Passes ⅜" spherical solids with stainless steel wear ring. Optional bronze construction available.

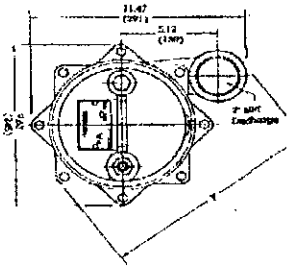
VOLUTE/IMPELLER SEAL RING
Maintains high efficiency and reduces recirculation. Replaceable.

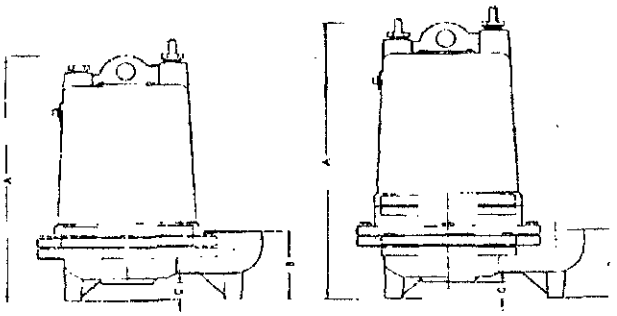


SHAFT SEAL(S)
Carbon and ceramic faces. Optional dual tandem seals. Extends motor life.

SEAL LEAK PROBES
Optional probes (dual seal only) detect water leakage in seal housing. Activates warning light.

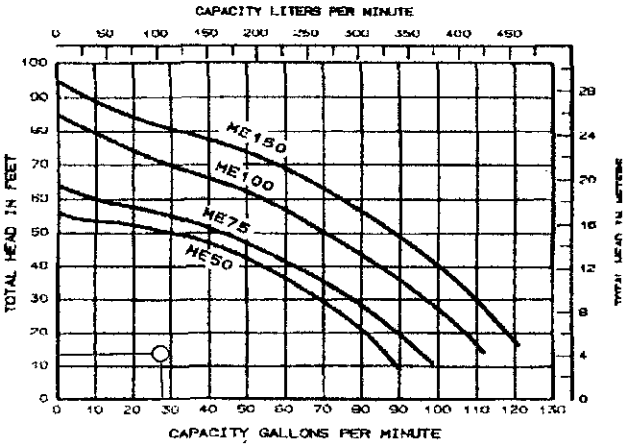
DIMENSIONS





Model Series	Inches (millimeters) A	B	C	F
ME50S	16.8 (427)	4.09 (104)	1.03 (26)	12.13 (308)
ME50D	18.6 (472)	4.09 (104)	1.03 (26)	12.13 (308)
ME75S, ME100S, ME150S	16.8 (427)	4.0 (102)	1.06 (27)	12.5 (318)
ME75D, ME100D, ME150D	18.6 (472)	4.0 (102)	1.06 (27)	12.5 (318)

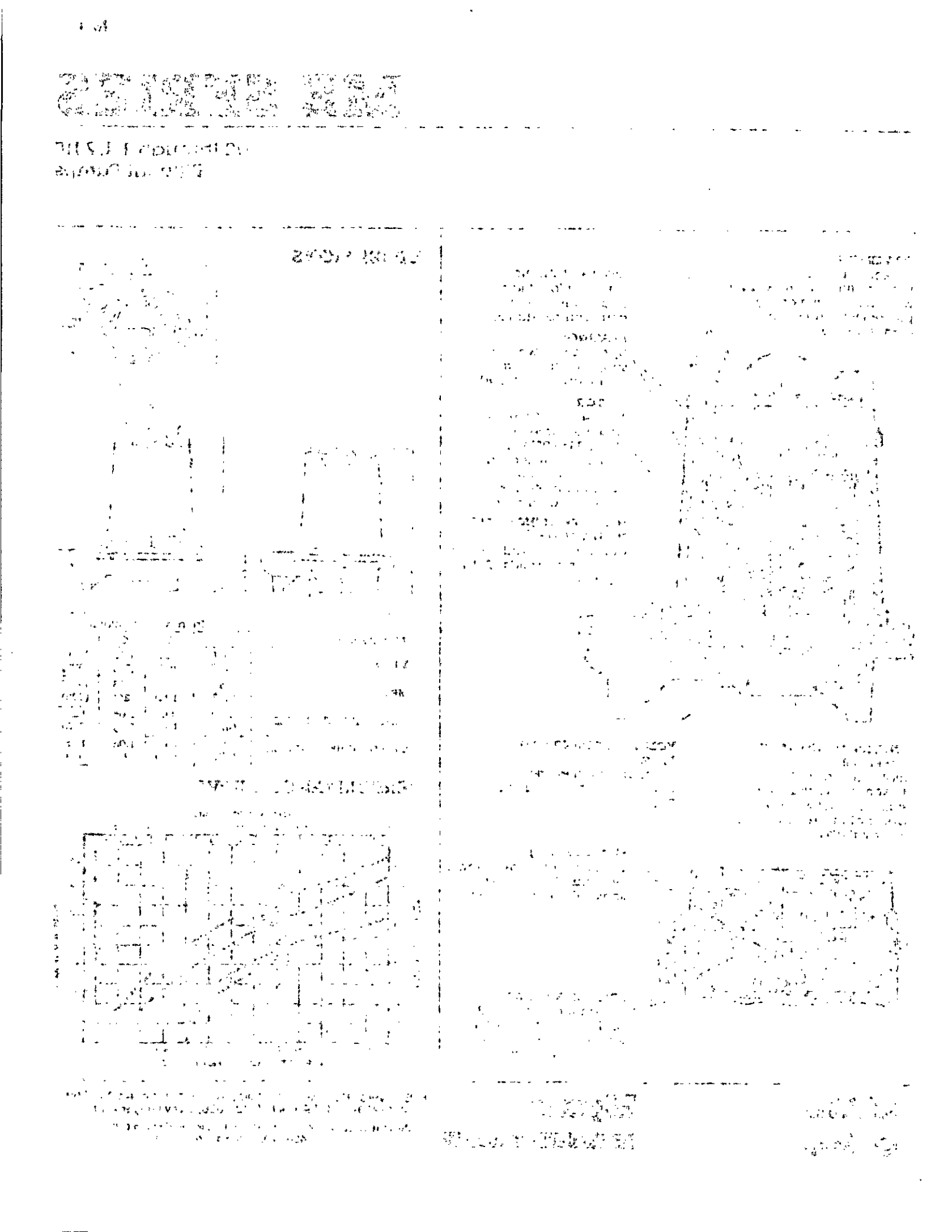
PERFORMANCE CURVE



K3320 9/98
Printed in U.S.A.

Myers
PENTAIR PUMP GROUP

F. E. Myers, 1101 Myers Parkway, Ashland, Ohio 44805-1969
419/289-1144, FAX: 419/289-6658, www.femyers.com
Myers (Canada), 269 Trillium Drive, Kitchener, Ontario N2G 4W5
519/748-5470, FAX: 519/748-2553



CALCULATIONS

Location Oakbridge at Waterleaf

Project Number

Lot No: 27

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.275	$^{gal}/_{ft^2\,day}$
25% REDUCTION (YES OR NO)	yes	
Supply Line Length	79	ft.
Supply Line Volume	13.746	gal.
Required Feet of Line	436	ft.
Amount of Line from Layout	448	ft.
Gallons per Minute	28.44	$^{gal}/_{min}$
Required Septic Tank Capacity	1500	gal.
Minimum Standard Tank Size	1500	
Lateral Line Volume	292.544	gal.
Dosing Volume	193.08	gal.

Note: Dosing Volume based on 66% of the lateral line volume.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
21.33	0.95
25	1.27
28.44	1.62
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
40.67	3.13
45	3.77
48.14	4.28
50	4.58
57.11	5.89
58.47	6.14
60	6.42

Tank Draw Down	6.7	*Generic Draw Down of 29 gal.per in.*
Pump Run Time	6.79	minutes
Estimated Elevation Head	8	ft.
Pressure Head	2	ft.
Friction Factor	1.62	ft./100 ft. *(From the interpolater.)*
Friction Head	1.28	ft.
Total Dynamic Head (+15%)	12.97	ft.

15A NCAC 18A .1959 PRIVY CONSTRUCTION

An "approved privy" shall consist of a pit, floor slab, and seat assembly housed in a building which affords privacy and reasonable protection from the weather.

(1) The pit shall consist of an excavation at least 42 inches square and in no case shall the bottom of an excavation be closer than one foot from the seasonally high water table or rock.

(2) The pit shall be properly curbed to prevent caving. In sandy or loose soil, the curb should extend the full depth of the pit. In tight soils, partial curbing is acceptable if it prevents caving.

(3) The privy floor slab shall be constructed of reinforced concrete. Where it is impractical to secure or construct reinforced concrete floor assemblies, wood construction shall be acceptable provided the floor slab is made of rough sub-flooring and covered with tight tongue-and-groove flooring or other type flooring materials to provide strength and prevent entrance of flies and mosquitoes to the privy pit. Where wood construction is used, floors shall be anchored to at least four-inch by four-inch sills.

(4) Wood used for riser, seat assemblies, and the floor slab shall be tongue-and-groove or plywood (exterior or marine) material.

(5) Privies shall not be used for the disposal of water-carried sewage.

History Note: *Authority G.S. 130A-335(e);*
Eff. July 1, 1982;
Amended Eff. December 1, 1990.

15A NCAC 18A .1960 MAINTENANCE OF PRIVIES

(a) Any person owning or controlling the property upon which a privy is located shall be responsible for these requirements:

(1) The privy building shall afford a reasonable degree of protection from bad weather conditions.

(2) When the pit becomes filled to within 18 inches of the top of the ground, the privy building shall be moved to a new pit and the old pit completely covered with earth.

(3) If the pit caves in, a new pit shall be provided.

(b) The tenant or person occupying the property shall be responsible for these requirements:

(1) The walls, floors, and seat of the privy and grounds immediately adjacent to the building shall be kept in a clean and decent condition.

(2) Fowl and other animals shall not be harbored in the privy building.

(3) Seat cover shall be hinged and closed at all times when the privy is not in use.

(4) Flies shall be excluded from the pit at all times.

(5) Ashes, garbage, and trash shall be kept out of the pit.

History Note: *Authority G.S. 130A-335(e) and (f);*
Eff. July 1, 1982;
Amended Eff. January 1, 1990.

15A NCAC 18A .1961 MAINTENANCE OF SEWAGE SYSTEMS

(a) Any person owning or controlling the property upon which a ground absorption sewage treatment and disposal system is installed shall be responsible for the following items regarding the maintenance of the system:

(1) Ground absorption sewage treatment and disposal systems shall be operated and maintained to prevent the following conditions:

(A) a discharge of sewage or effluent to the surface of the ground, the surface waters, or directly into groundwater at any time; or

(B) a back-up of sewage or effluent into the facility, building drains, collection system, or freeboard volume of the tanks; or

(C) a free liquid surface within three inches of finished grade over the nitrification trench for two or more observations made not less than 24 hours apart. Observations shall be made greater than 24 hours after a rainfall event.

The system shall be considered to be malfunctioning when it fails to meet one or more of these requirements, either continuously or intermittently, or if it is necessary to remove the contents of the tank(s) at a frequency greater than once per month in order to satisfy the conditions of Parts (A), (B), or (C) of this Paragraph. Legal remedies may be pursued after an authorized agent has observed and documented one or more of the malfunctioning conditions and has issued a notice of violation.

(2) 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.

(b) System management in accordance with Tables V(a) and V(b) of this Rule shall be required for all systems installed or repaired after July 1, 1992. After July 1, 1992, system management in accordance with Tables V(a) and V(b) shall be required for all existing Type V and Type VI systems.

(c) No Improvement Permit or Construction Authorization shall be issued for Type IV, Type V, or Type VI systems, unless a management entity of the type specified in Table V(b) is specifically authorized, funded, and operational to carry out this management program in the service area where the proposed system is to be located.

(d) A local health department may be the public management entity only for systems classified Type IV, V(a) and V(b) and only when specifically authorized by resolution of the local board of health.

(e) A contract shall be executed between the system owner and a management entity prior to the issuance of an Operation Permit for a system required to be maintained by a public or private management entity, unless the system owner and certified operator are the same. The contract shall include the specific requirements for maintenance and operation, responsibilities of the owner and system operator, provisions that the contract shall be in effect for as long as the system is in use, and other requirements for the continued proper performance of the system. It shall also be a condition of the Operation Permit that subsequent owners of the system execute such a contract.

(f) Inspections of the system shall be performed by a management entity at the frequency specified in Table V(b). The management entity shall report the results of their inspections to the local health department at the specified reporting frequency. However, where inspections indicate the need for system repairs, the management entity shall notify the local health department within 48 hours in order to obtain a Construction Authorization for the repairs.

(g) The management entity shall be responsible for assuring routine maintenance procedures and monitoring requirements in accordance with the conditions of the Operation Permit and the contract.

(h) Sewage systems with multiple components shall be classified by their highest or most complex system type in accordance with Table V to determine local health department and management entity responsibilities.

(i) Sewage systems not identified in this Rule shall be classified by the Division of Environmental Health after consultation with the appropriate commission governing operators of pollution control facilities.

(j) The local health department shall routinely review the performance and operation reports submitted in accordance with Table V(b) of this Rule and shall perform an on-site inspection of the systems as required in Table V(a).

(k) The certified operator shall hold a valid and current certificate from the appropriate commission, and nothing in this Section shall preclude any requirements for system operators, in accordance with Article 3 of G.S. 90A.

TABLE V(a)

LOCAL HEALTH DEPARTMENT RESPONSIBILITIES

System Classification	System Description	Permits Required	Minimum System Review Frequency
Type I	a. Privy b. Chemical toilet c. Incinerating toilet d. Other toilet system e. Grease trap	Improvement Permit, Construction Authorization, and Operation Permit	N/A
Type II	a. Conventional septic system	Improvement	N/A

		(single-family or 480 GPD or less) b. Conventional septic system with 750 linear feet of nitrification line or less c. Conventional system with shallow placement	Permit, Construction Authorization, and Operation Permit	
—	Type III	a. Conventional septic system > 480 GPD (excluding single-family residence) b. Septic system with single effluent pump or siphon c. Gravity fill system d. Dual gravity field system e. PPBPS system, gravity dosed f. Large diameter pipe system g. Other non-conventional trench systems	Improvement Permit, Construction Authorization, and Operation Permit	5 yrs. (IIIb only)
—	Type IV	a. Any system with LPP distribution b. System with more than 1 pump or siphon	Improvement Permit, Construction Authorization, and Operation Permit	3 yrs.
—	Type V	a. Sand filter pretreatment system b. Any > 3,000-GPD septic tank system with a nitrification field designed for > 1500 GPD c. Aerobic Treatment Unit (ATU) d. Other mechanical, biological, or chemical pretreatment plant (< 3000 GPD)	Improvement Permit, Construction Authorization, and Operation Permit	12 mos.
—	Type VI	a. Any > 3,000 GPD system with mechanical, biological, or chemical pretreatment system plant b. Wastewater reuse/recycle	Improvement Permit, Construction Authorization, and Operation Permit	6 mos.

TABLE V(b)

MANAGEMENT ENTITY RESPONSIBILITIES

System Classification	Management Entity	Minimum System Inspection/Maintenance Frequency	Reporting Frequency

	Type I	Owner	N/A	N/A
	Type II	Owner	N/A	N/A
	Type III	Owner	N/A	N/A
	Type IV	Public Management Entity with a Certified Operator or a private Certified Operator	2/yr.	12 mos.
	Type V	Public Management Entity With a Certified Operator or a private Certified Operator	a. 2/yr (0-1500 GPD) 4/yr (1500-3000 GPD) 12/yr (3000-10000 GPD) 1/wk (> 10000 GPD) b. 12/yr (3000-10000 GPD) 1/wk (> 10000 GPD) c. 4/yr. d. 12/yr.	6 mos.
	Type VI	Public Management Entity With a Certified Operator	a. 1/wk(3000-10000 GPD) 2/wk(10000-25000 GPD) 3/wk(25000-50000 GPD) 5/wk(> 75000 GPD) b. 12/yr.	3 mos.

(l) A sewage collection, treatment, and disposal system that creates or has created a public health hazard or nuisance by surfacing of effluent or discharge directly into groundwater or surface waters, or that is partially or totally destroyed shall be repaired within 30 days of notification by the state or local health department unless the notification otherwise specifies a repair period in writing. If a system described in the preceding sentence has for any reason been disconnected, the system shall be repaired prior to reuse. The state or local health department shall use its best professional judgement in requiring repairs that will reasonably enable the system to function properly. If, for any reason, a sewage collection, treatment, and disposal system is found to be nonrepairable, or is no longer required, the system shall not be used, and may be required to have any contents removed, collapse any components and backfill, or otherwise secured as directed by the authorized agent to protect the public health and safety.

(m) When necessary to protect the public health, the state or local health department may require the owner or controller of a malfunctioning system to pump and haul sewage to an approved wastewater system during the time needed to repair the system.

History Note: *Filed as a Temporary Amendment Eff. July 3, 1991, for a period of 180 days to expire on December 30, 1991;*
Filed as a Temporary Amendment Eff. June 30, 1990, for a period of 180 days to expire on December 27, 1990;
Authority G.S. 130A-335(e),(f);
Eff. July 1, 1982;
Amended Eff. August 1, 1991; October 1, 1990; January 1, 1990; August 1, 1988;
Temporary Amendment Eff. January 20, 1997;

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Sheet 1 of 2
PROPERTY ID #: _____
COUNTY: Mecklenburg

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: True Homes _____ APPLICATION DATE _____
ADDRESS 2649 Brekonridge Centre Dr Monroe. NC 28110 DATE EVALUATED:
PROPOSED FACILITY: 4 bedroom Residence PROPOSED DESIGN FLOW (.1949): 480gpd PROPERTY SIZE: ac
LOCATION OF SITE: Oakbridge at Waterleaf lot 27 PROPERTY RECORDED: _____
WATER SUPPLY: ☐ Private X Public Well ☐ Spring ☐ Other _____
EVALUATION METHOD: XAuger Boring x Pit ☐ Cut TYPE OF WASTEWATER: ☒Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1	LS 8%	0-11	WFSBK/CL	SS SP FR SEXP	10YR7/1 @ 23"	35"+	NA	PS	PS IV 0.1 DRIP
		11-35	MFSBK/C	SS SP FI SEXP					
2	LS 6%	0-5	WFSBK/CL	SS SP FR SEXP	>48" Mn Conc. In Bt and BC	>48"	NA	S	PS IV 0.275
		5-40	MMSBK/C	SS SP FI SEXP					
		40-48	WFSBK/CL	SS SP FR SEXP					
3	LS 4%	0-3	WFSBK/CL	SS SP FR SEXP	>48"	48"	NA	S	PS IV 0.3
		3-33	MMSBK/C	SS SP FI SEXP					
		33-48	WFSBK/CL	SS SP FR SEXP					
4	LS 6%	0-8	WFSBK/CL	SS SP FR SEXP	>48"	48"	NA	S	PS IV 0.275
		8-34	MMSBK/C	SS SP FI SEXP					
		34-48	WFSBK/CL	SS SP FR SEXP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	448 LF	2400LF DRIP
System Type(s)	IIIBG	DRIP
Site LTAR	0.275	0.1

OTHER FACTORS (.1946): PS _____
SITE CLASSIFICATION (.1948): PS _____

EVALUATED BY: EB _____
OTHER(S) PRESENT: _____

COMMENTS: _____

SOIL/SITE EVALUATION

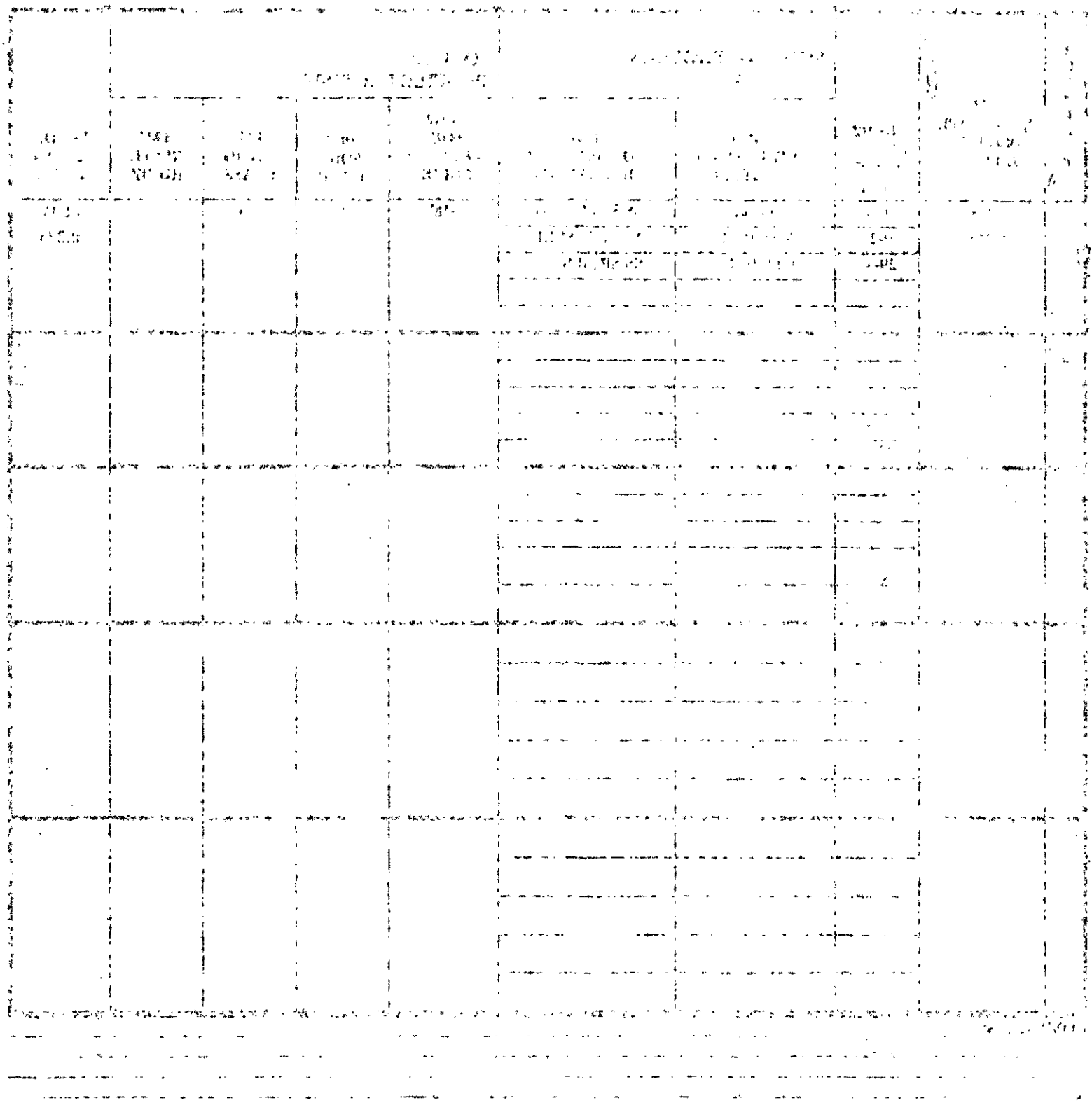
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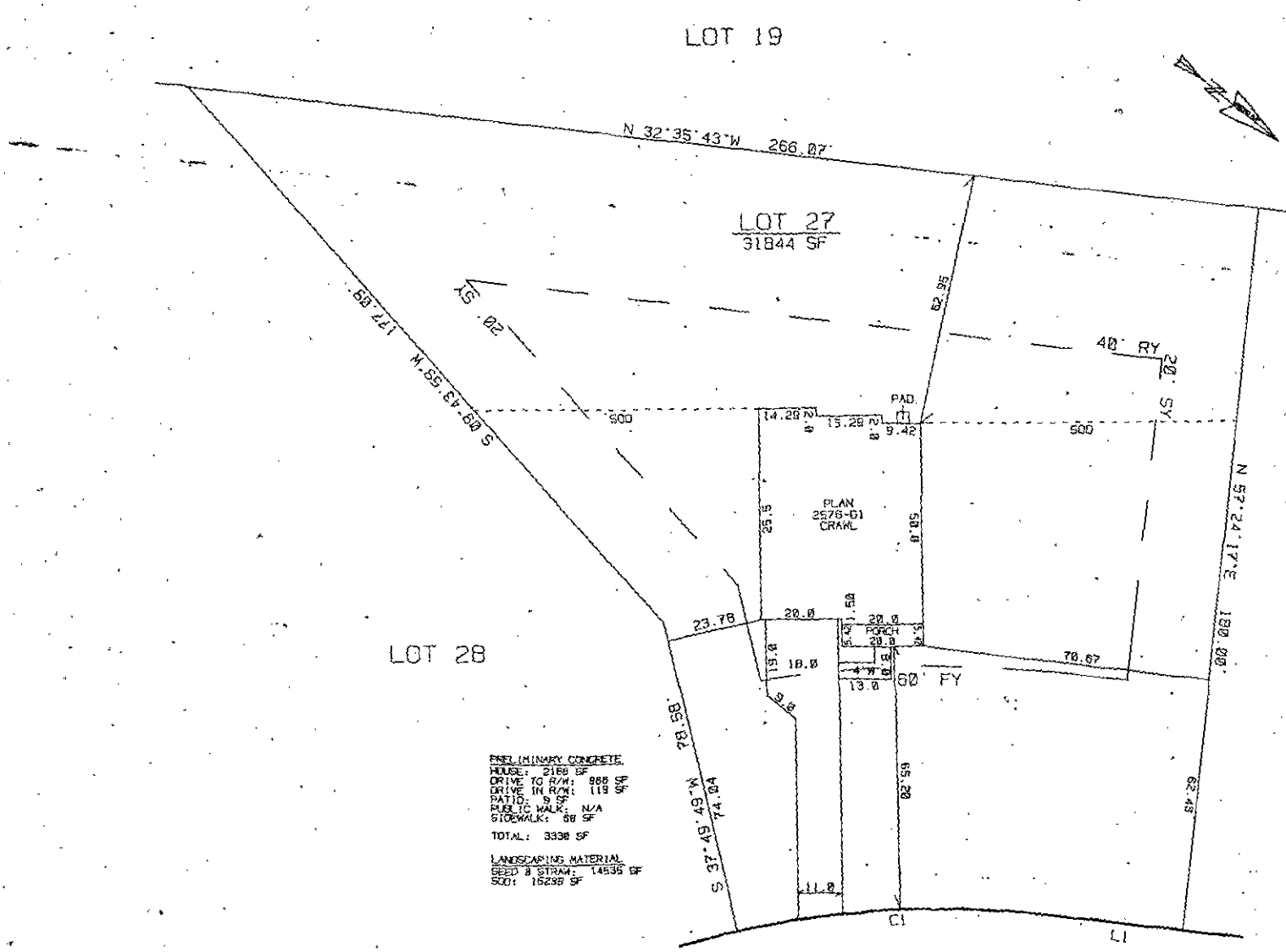
DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

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

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
5	LS 5%	0-9	WFG/L	SS SP FR SEXP	>48"	48"	NA	S	PS IV 0.275
		9-29	MMSBK/C	SS SP FI SEXP					
		29-48	WFSBK/CL	SS SP FR SEXP					
6									
7									

COMMENTS: _____





ASPEN COURT

60' PUBLIC R/W

LINE	BEARING	DISTANCE
L 1	S 32°35'43"E	31.76'

CURVE	DELTA ANGLE	RADIUS	ARC	TANGENT	CHORD	CHORD BEARING
C 1	19°34'32"	230.00'	78.58'	39.68'	78.20'	S 42°22'57"E

TRUE HOMES

PLOT PLAN

OF

8509 ASPEN COURT

LOT 27 OF OAKBRIDGE AT WATERLEAF FINAL PLAT

TOWNSHIP OF MINT HILL, MECKLENBURG COU

SCALE - 1" = 40'

0 60 80

MAP RECORDED IN BOOK 56

CA GEO

DATE: 04

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 #: **30007464** GWS File #: **9182B** Tax Parcel #: **139-282-17**

- 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):** 7/10/2020

Type of Installation: Residential - New System Lot Number: 27

Structure Type: HOUSE Size (ft^2): 3038 # Bedrooms: 4 # Occupants: 6

Building Foundation: Crawl Space Water Supply: Municipal

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

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.275	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	1000
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1309	Total Trench Length (ft):	436
Maximum Trench Depth (in):	36	Depth of Media (in):	12	Distribution Device:	Pressure Manifold		

III. Repair System Type: Pretreatment with Drip Irrigation **System Classification:** Vd

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.125	Septic Tank Size (gal):	1000	Pump Tank Size (gal):	1000
Trench Width (ft):	1	Trench Spacing (ft):	2	Absorption Area (ft^2):	3840	Total Trench Length (ft):	1920
Maximum Trench Depth (in):	12	Depth of Media (in):	N/A	Distribution Device:	Headworks (Drip Irr.		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the STATE OF NORTH CAROLINA, 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 a Pre-Construction meeting has been completed by the Department.
- The septic system installer shall be a licensed septic contractor with the North Carolina Wastewater Contractor Inspector Certification Board.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

Authorized Agent: Brad Hallman Owner/Legal Agent: _____
Print Name

Signature: _____ Signature: _____

Date Issued: 7/10/2015

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	05/01/15	**Amount:**	200.00
Receipt #:	94594	**Tendered:**	200.00
Check / Auth #:	CHECK 6086	**Returned:**	0.00
Received By:	WALKEVA		

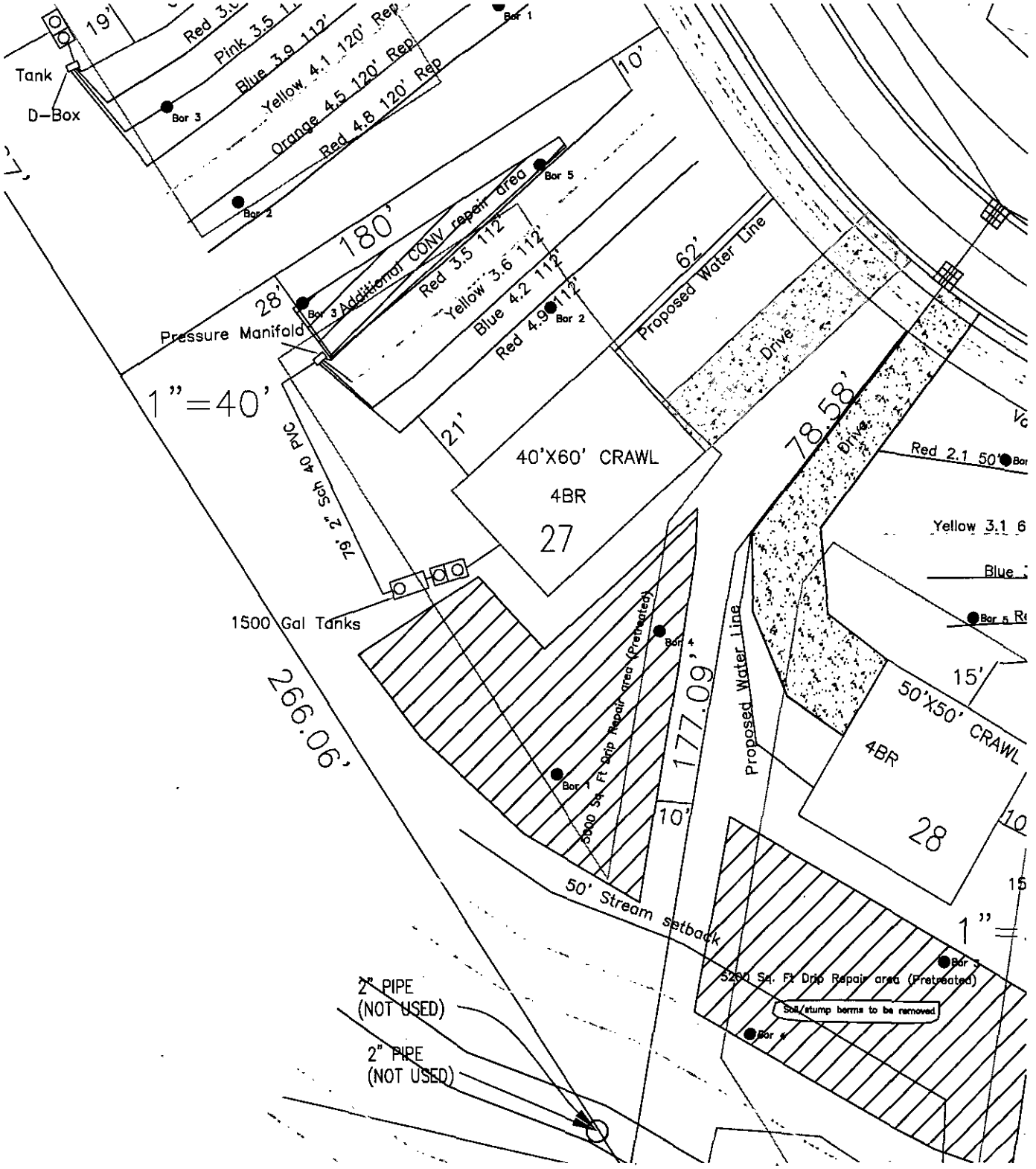
Account Information

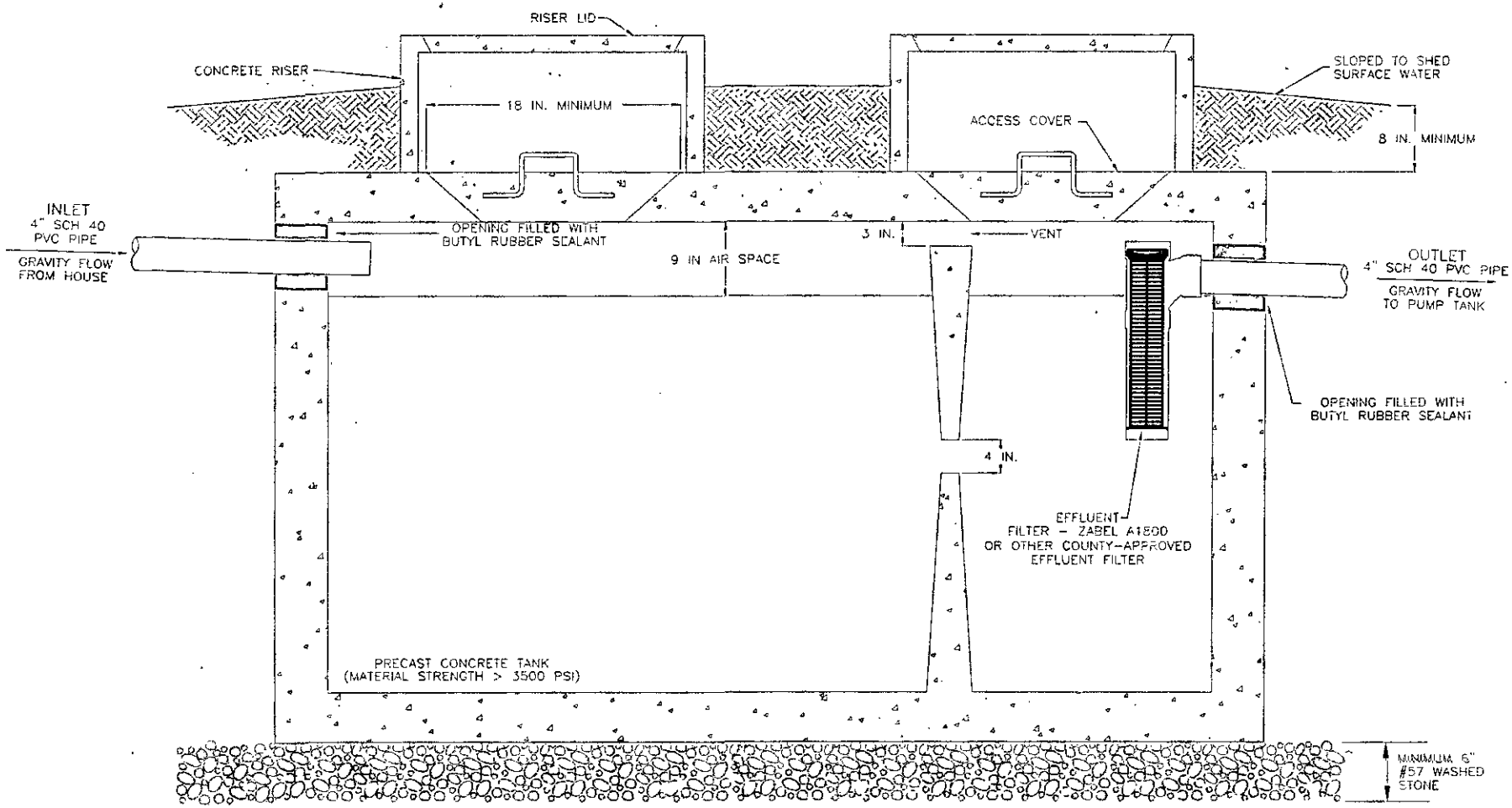
Account #: 200000
Contractor: TRUE HOMES
Attn:
Address: 2649 BREKONRIDGE CENTRE DRIVE
Address: SUITE 104
City/State/Zip: MONROE, NC 28110

Item	Description	Permit#	Quantity	Unit Price	Total Price
0734	Septic Construction Authorizat 8509 ASPEN COURT		1	200.00	200.00

----------Outstanding Balances----------

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance


Tank
D-Box
19'
Red 3.0
Pink 3.5 1..
Blue 3.9 112'
Yellow 4.1 120' Rep
Orange 4.5 120' Rep
Red 4.8 120' Rep
Bor 1
Bor 2
Bor 3
Bor 5
10'
180'
28'
Pressure Manifold
Additional CONV repair area
Red 3.5 112'
Yellow 3.6 112'
Blue 4.2 112'
Red 4.9 112'
62'
Proposed Water Line
Drive
1"=40'
21'
40'X60' CRAWL
4BR
27
78.58'
Drive
Red 2.1 50'
Yellow 3.1 6
Blue
Bor 6
94.2' Sch 40 PVC
1500 Gal Tanks
266.06'
Bor 4
5200 Sq. Ft Drip Repair area (Pretreated)
177.09'
10'
Proposed Water Line
15'
50'X50' CRAWL
4BR
28
10
15
50' Stream setback
1"=
Bor 7
5200 Sq. Ft Drip Repair area (Pretreated)
Soil/stump berms to be removed
Bor 4
2" PIPE
(NOT USED)
2" PIPE
(NOT USED)



NOTES

1. TANK DIMENSIONS VARY BY MANUFACTURER.

1500 GALLON SEPTIC TANK

PROJECT NO: 4591	PROJECT NAME: **Oakbridge at Waterleaf Lot 27**
PROJECT MGR.	
SCALE: NTS	SHEET TITLE: SEPTIC TANK DIAGRAM

File #: _____

PROPOSED PLOT PLAN

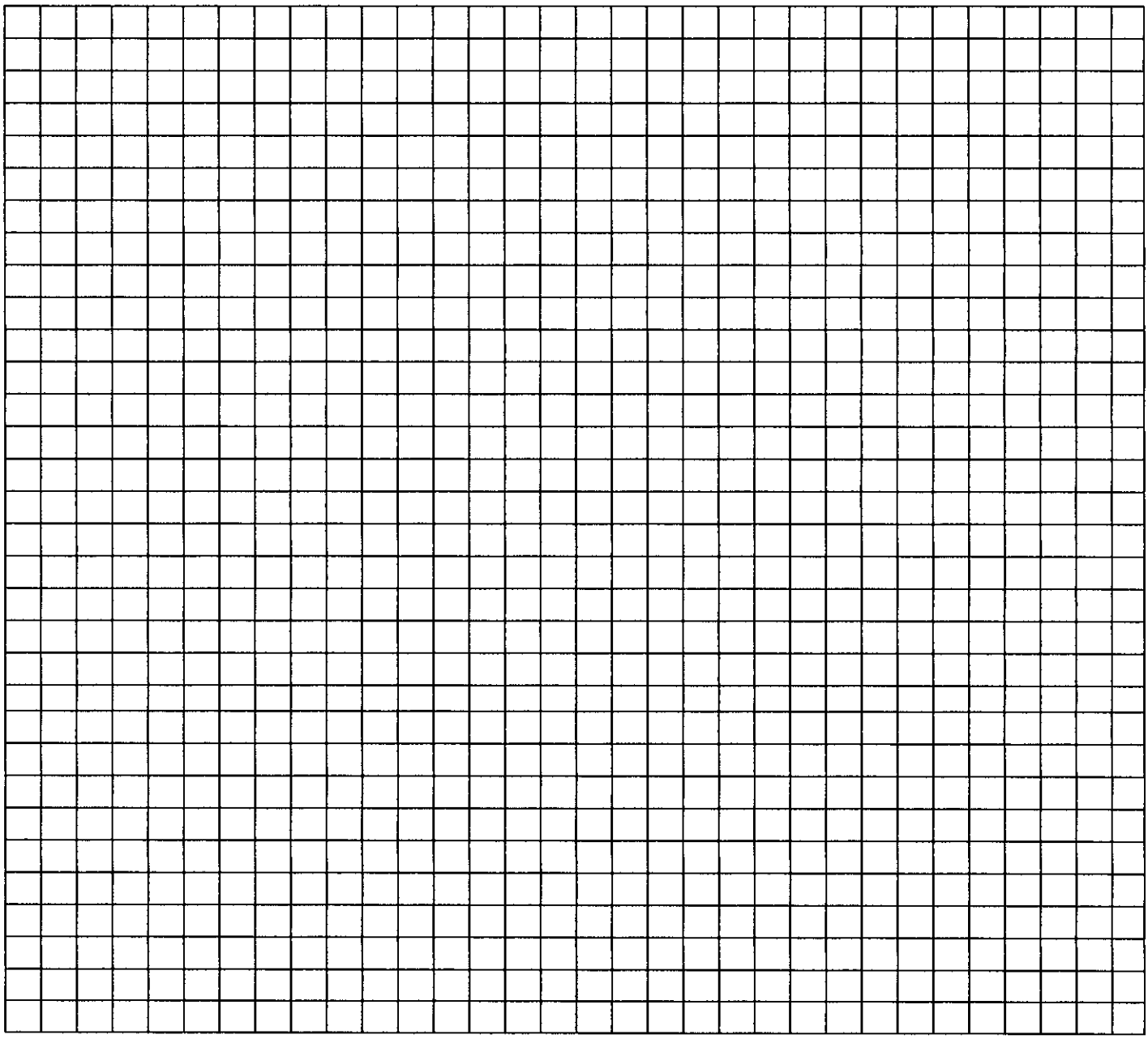
A drawing showing the locations of the following items is required: existing and proposed property lines with dimensions, easements or right-of-ways, proposed building pad(s) or existing building footprint(s), all appurtenances (garage, driveway, deck, pool, etc.), location of existing or proposed well(s), location of existing or proposed sewer lines and sewage disposal systems, surface water bodies, and any aboveground or underground storage tanks. Provide names for all roads that adjoin the property.

Street Address: 8509 Aspen Court

Tax Parcel #: 13928217

Subdivision Name: Oak Bridge @ Water Leaf

Lot #: 27



Melody R. Patrick

Property Owner's or Owner's Legal Representative Signature

4/16/15

Date

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

Revised on: 12/15/10

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

Property ID: 139-282-17
Lot #: 27
File #: 9162B
AppID: 7464

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: True Homes
Applicant:
Address: 2649 Brekonridge Centre Dr., Monroe, NC 28110
Date Evaluated: 5/20/2015
Proposed Facility: 4BR House
Design Flow (.1949): 480 GPD
Property Size: 0.73 ac
Location of Site: 8509 Aspen Ct, Mint Hill, NC 28227
Property Recorded: Unknown
Water Supply: [X] Public [X] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [X] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [X] Sewage [ ] Industrial Process [ ] Mixed

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
Boring #1	LS 4%	0 - 3	Fill		>49"	49	NA	NA	saprolite inclusions 30 - 49"	PS IV 0.275	36"
		3 - 22	wfsbk CL	SS SP FR SEXP							
		22 - 42	mmsbk C	S P FI SEXP							
		42 - 49	mfsbk CL	SS SP FR SEXP							
Boring #2	LS 4%	0 - 12	wfsbk CL	SS SP FR SEXP	>49"	49	NA	NA	saprolite inclusions 40 - 49"	PS IV 0.3	36"
		12 - 40	mfsbk C	S P FR SEXP							
		40 - 49	mfsbk CL	SS SP FR SEXP							
Boring #3	LS 4%	0 - 10	wfsbk CL	SS SP FR SEXP	>49"	49	NA	NA	saprolite inclusions 40 - 49"	PS IV 0.275	36"
		10 - 40	mfsbk C	S P FR SEXP							
		40 - 49	mfsbk CL	SS SP FR SEXP							
Boring #4	LS 4%	0 - 16	wfsbk CL	SS SP FR SEXP	>49"	49	NA	NA		PS IV 0.275	36"
		16 - 43	mfsbk C	S P FR SEXP							
		43 - 49	mfsbk CL	SS SP FR SEXP							

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	IIIbg	Va
Site LTAR (gpd/sq ft)	0.275	0.275 (Drip 0.125)

Other Factors (.1946):
Soil Evaluation By: Jacob Presley, LSS, REHS
Others Present:
Site Classification (.1948): Provisionally Suitable
Site Evaluation By: Jacob Presley, LSS, REHS
Others Present:

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		CL-Clay Loam		Sap-Saprolite
FP-Flood Plain		SCL-Sandy Clay Loam		**Structure Prefixes**
D-Drainage Way		SiL-Silt Loam		w-weak
				m-moderate
				s-strong
				f-fine
	IV	SC-Sandy Clay	0.4 - 0.1	m-medium
		SiC-Silty Clay		c-coarse
		C-Clay		

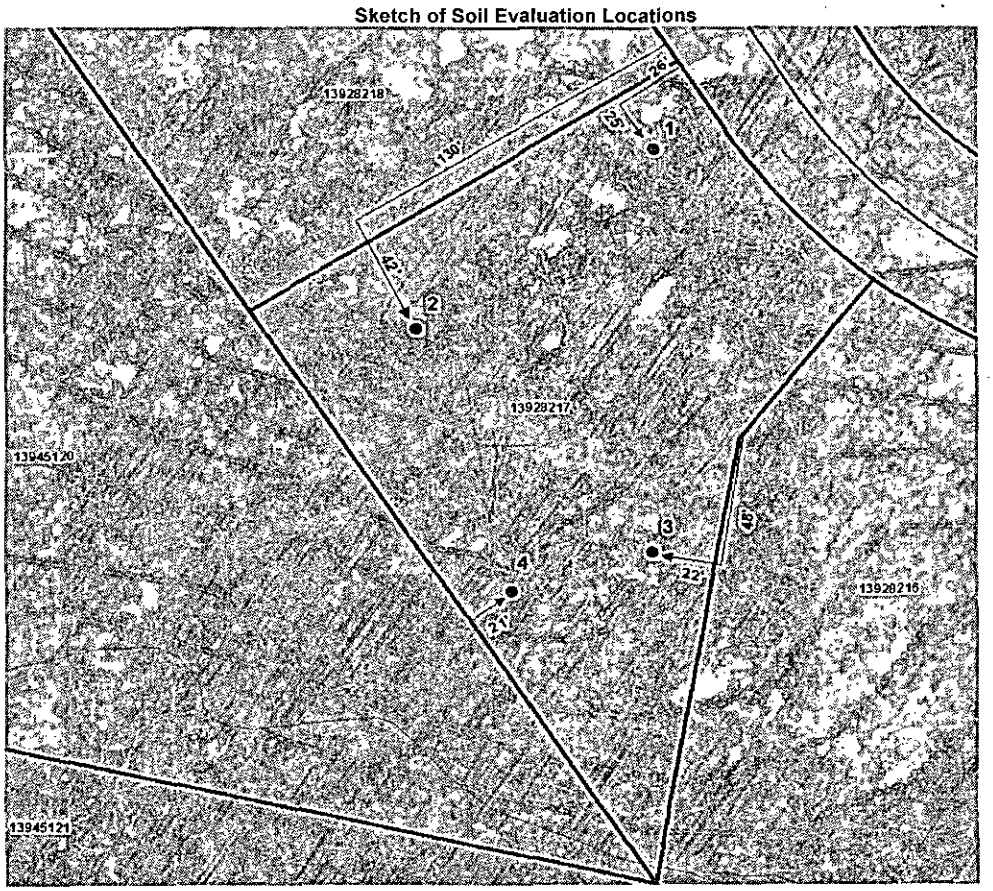
Consistence
Moist
VFR-Very Friable
FR-Friable
FI-Firm
VFI-Very Firm
EFI-Extremely Firm

Consistence
Wet
SS-Slightly Sticky
S-Sticky
VS-Very Sticky
NP-Non-Plastic
SP-Slightly Plastic
P-Plastic
VP-Very Plastic

Mineralogy
SEXP-Slightly Expansive
EXP-Expansive

Classification
US-Unsuitable
PS-Provisionally Suitable
S-Suitable
NA-Not Applicable

Sketch of Soil Evaluation Locations



MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	05/01/15	**Amount:**	200.00
Receipt #:	94593	**Tendered:**	200.00
Check / Auth #:	CHECK 6086	**Returned:**	0.00
Received By:	WALKEVA		

Account Information

Account #: 200000
Contractor: TRUE HOMES
Attn:
Address: 2649 BREKONRIDGE CENTRE DRIVE
Address: SUITE 104
City/State/Zip: MONROE, NC 28110

Item	Description	Permit#	Quantity	Unit Price	Total Price
0703	Septic Operational Permit 8509 ASPEN COURT		1	200.00	200.00

----------Outstanding Balances----------

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date:	05/01/15	**Amount:**	250.00
Receipt #:	94592	**Tendered:**	250.00
Check / Auth #:	CHECK 6118	**Returned:**	0.00
Received By:	WALKEVA		

Account Information

Account #: 200000
Contractor: TRUE HOMES
Attn:
Address: 2649 BREKONRIDGE CENTRE DRIVE
Address: SUITE 104
City/State/Zip: MONROE, NC 28110

Item	Description	Permit#	Quantity	Unit Price	Total Price
0701	Improvment Permit App-Residen 8509 ASPEN COURT LOT#27		1	250.00	250.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance