ROLLANS ***Soil & Environmental Services, PA.***
P.O. Box 832, Mooresville, NC 28115 Phone: (704) 278-0989 Fax: (704) 278-0989

Ashley Rollans, NC Licensed Soil Scientist, Cert. Installer, Cert. Operator & Cert. Inspector
Mobile: (704) 746-5046
Email: rollans.ashley@yahoo.com

Attached is a proposed system upgrade for a PPBPS Septic System with low pressure distribution from a 4 bedroom to a 5 bedroom single family residence at 128 Ballston Dr, Iredell County, North Carolina.

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May 11, 2012
Project #: 01-1674
Design By: Rollans Soil & Environmental Services, PA.

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: Heather Davis

Address: 128 Ballston Dr
Mooresville, NC 28117

Phone: 704-402-4409
County: Iredell
Location: 128 BALLSTON DR / THE POINT LOT 433

Source of Wastewater Flow: 5 Bedroom Single Family Residence
Estimated Gallons Per Day Flow: 600
System Flow: 37.72

Design Specifications

Drainfield Size: 320
Loading Rate (gpd/ft.^{2}): 0.25
Depth of Gravel in Trench: NA (PPBPS)
Gravel Size: NA (PPBPS)
Trench Depth: 30 in.
Trench Width: 36 in.
Existing Septic Tank Size: 1500 gal.
Existing Pump Tank Size: 1000 gal.
~~[redacted]~~ SAR
Estimated Supply Line Length: 180
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 31.32
Dosing Volume: 221.90
Supply Manifold: N/A
Supply Manifold Length: N/A
Supply Manifold Volume: N/A

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: 5.45
Elevation Head: 18.50
Total Dynamic Head: 31.14

Threaded Union: In Tank
Gate Valves: 1 in Tank
1 per lateral
Check Valves: In Tank
Anti-Siphon Hole: NA
Additional Comments: Soil suitability was performed by Iredell County Health Department

128 BALLSTON DR / THE POINT LOT 433
LP PPBPS

DESIGN FLOW (gpd): 600
SOIL APPLICATION RATE (gpd/ft.^{2}): 0.25
TOTAL AREA TRENCH BOTTOM: 960

TOTAL LATERAL LENGTH: 320
NUMBER OF FIELDS: 1
LATERAL LENGTH REQUIRED PER FIELD: 400

SUPPLY LINE LENGTH: 180
TOTAL DYNAMIC HEAD: 31.14
MANIFOLD SIZE: N/A

DOSING VOLUME: 221.90
PUMP TANK DRAW DOWN*: [redacted] 11.1 SAR
EXISTING SEPTIC TANK SIZE: 1500 gal.
EXISTING PUMP TANK SIZE: 1000 gal.
[redacted] SAR

**Pump tank draw down based on a volume basis of* 20 *gallons per inch.*

128 BALLSTON DR / THE POINT LOT 433

Project #: 01-1674

LAYOUT FOR 5 BEDROOM HOME

May 11, 2012

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		3.8			100.00		
INSTR. 1			103.80				
HOUSE CNR				14.20	89.60		
P. TANK				14.60	89.20		
1	***ORANGE***			***1.10***	***102.70***	***58***	***30***
2	***BLUE***			***1.80***	***102.00***	***52***	***50***
3	***RED EXISTING***			***2.40***	***101.40***	***100***	***100***
4	BLUE			2.60	101.20	47	47
5	ORANGE			3.20	100.60	26	26
6	***PINK EXISTING***			***3.20***	***100.60***	***110***	***110***
7	***BLUE EXISTING***			***4.00***	***99.80***	***110***	***110***
					Total	**503**	**473**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
****System***	***320***	***0.250***	***MOD.***	***0.250***	***PPBPS***	***LOW PRESSURE***
Partial Repair	73	0.250	MOD.	0.250	PPBPS	LOW PRESSURE
Repair	3000' or 6000SF	0.100	ALT.	0.100	Drip Irrigation	LOW PRESSURE

Notes:

** TBM located top of ground at EIP at corner of lot (see site plan)
**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

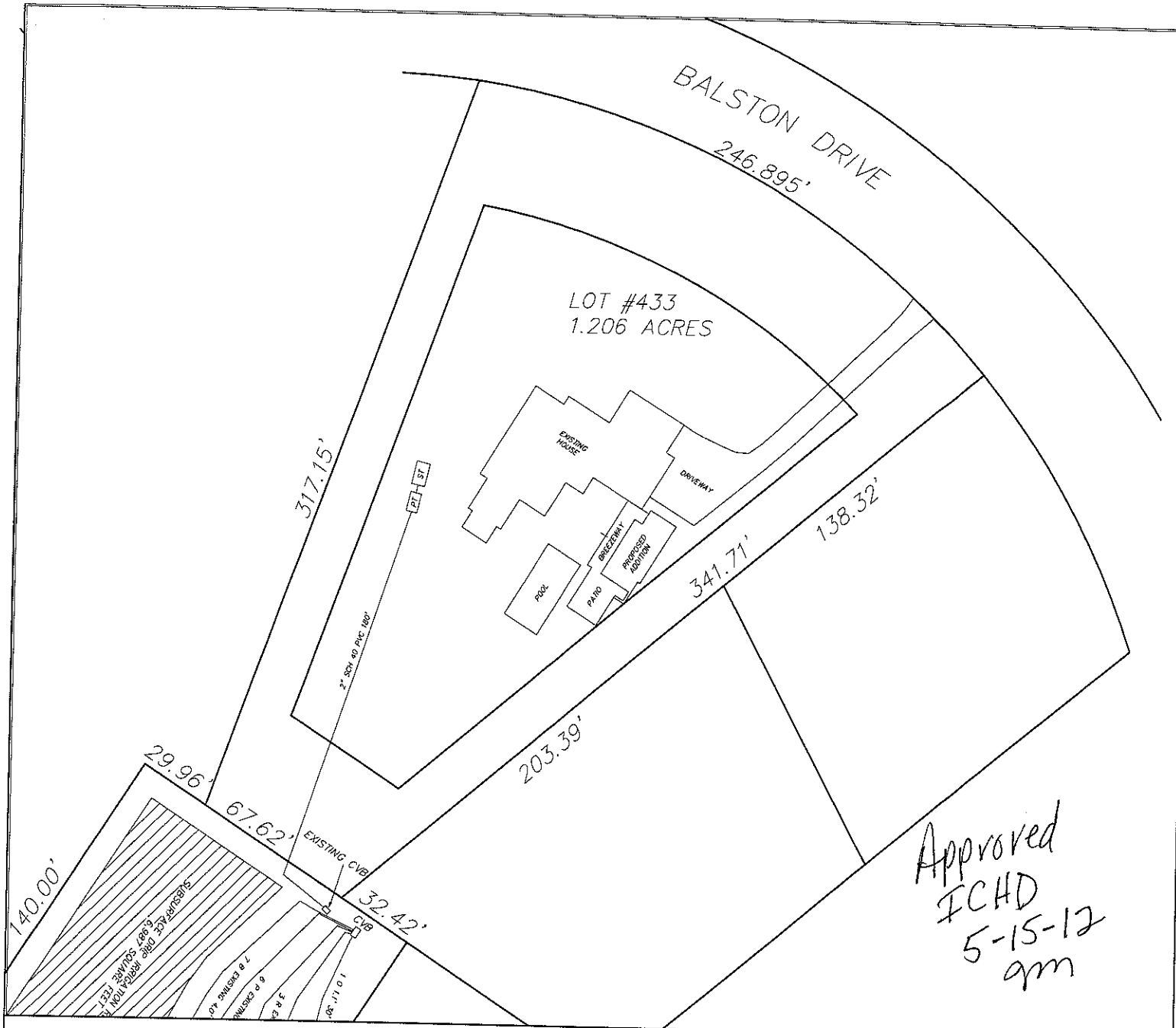
LP PPBPS TAPSHEET -128 BALLSTON DR / THE POINT LOT #433

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
1	*ORANGE*	*102.70*	*30*	0.156	**0.41**	90	7
2	*BLUE*	*102.00*	*50*	0.156	**0.41**	150	12
3	*RED EXISTING*	*101.40*	*100*	0.156	**0.41**	300	23
6	*PINK EXISTING*	*100.60*	*110*	0.156	**0.41**	330	25
7	*BLUE EXISTING*	*99.80*	*110*	0.156	**0.41**	330	25
							92
	total	**feet =**	**320**	**gal/min =**	**37.72**		

Des. Flow	**600**
Pump Run=	**5.88**
soil LTAR	**0.25**
LTAR +5%	**0.2625**
LTAR with mod.	**0.5**
LTAR with mod.. + 5%	**0.525**

.156 equals 5/32 inch hole



LEGEND

- Areas contain soils with at least 24 inches of useable material and have potential for low-pressure pipe (lpp) and subsurface drip irrigation systems.
- House Footprint
- System lines.
- Repair lines.
- Temporary Bench Mark (TBM)
- Well Location.
- (25) Pit Location.

GRAPHIC SCALE
1" = 60'

60 0 60 120

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.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

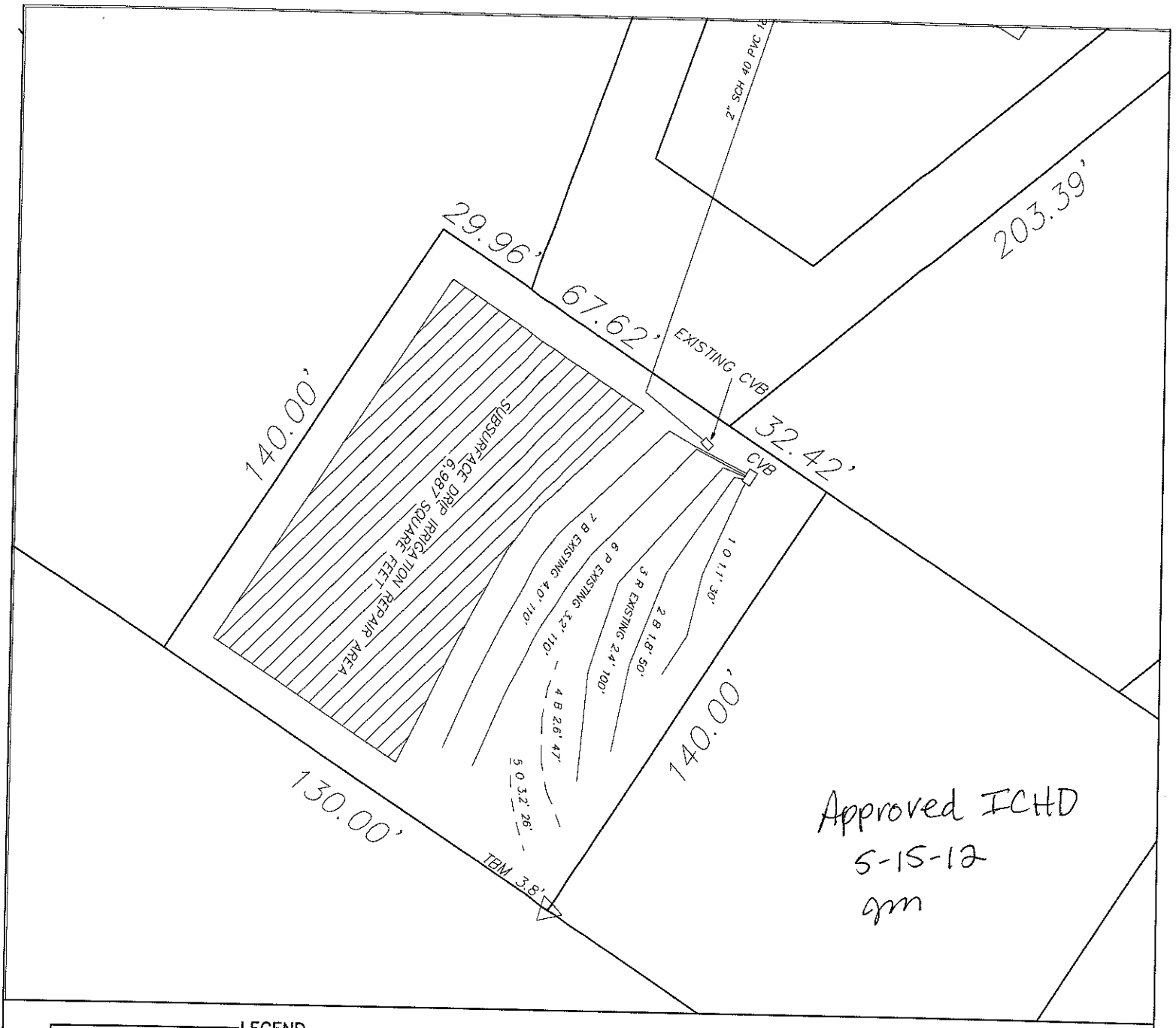
ROLLANS SOIL & ENVIRONMENTAL SERVICES, PA
P.O. BOX 832
MOORESVILLE, NC 28115
PHONE/FAX: (704) 278 - 0989
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746 - 5046
EMAIL: rollans.ashley@yahoo.com

MAP TITLE: "FAST-TRACK" SITE PLAN

PROJECT NAME: HEATHER DAMS / 128 BALSTON DRIVE

LOCATION/DATE: 128 BALSTON DRIVE IREDELL COUNTY, NORTH CAROLINA MAY 2012

JOB # :	01-1674
FILE:	C:\JOBS\01-1674
PROJECT MGR.:	S.A.R.
FIELD WORK:	S.A.R.
DRAWN BY:	S.A.R.



LEGEND

- Areas contain soils with at least 24 inches of useable material and have potential for low-pressure pipe (lpp) and subsurface drip irrigation systems.
- House Footprint
- System lines.
- Repair lines.
- Temporary Bench Mark (TBM)
- Well Location.
- (25) Pit Location.

GRAPHIC SCALE
1" = 40'

40 0 40 80

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MOBILE: (704) 746-5046
EMAIL: rollans.ashley@yahoo.com

MAP TITLE: "FAST-TRACK" SITE PLAN

PROJECT NAME: HEATHER DAVIS / 128 BALSTON DRIVE

LOCATION/DATE: 128 BALSTON DRIVE, IREDELL COUNTY, NORTH CAROLINA, MAY 2012

JOB # :	01-1674
FILE:	C:\JOBS\01-1674
PROJECT MGR.:	S.A.R.
FIELD WORK:	S.A.R.
DRAWN BY:	S.A.R.

CALCULATIONS

Location 128 BALLSTON DR

Project Number 01-1674

Lot No: Lot 433

No. of Bedrooms 5

Design Flow 600 $^{gal}/_{day}$

LTAR 0.250 $^{gal}/_{ft^2\ day}$

PPBPS? (YES OR NO) YES

Supply Line Length 180 ft.

Supply Line Volume 31.32 gal.

Required Feet of Line 400 ft.
Amount of Line from Layout 320 ft.

Gallons per Minute 37.72 $^{gal}/_{min}$

Required Septic Tank Capacity 1250 gal.
Existing Septic Tank Size 1500 gal.

Panel Volume 3.6 gal.
# of Panels 92
Dosing Volume 221.90 gal.

Note: Dosing Volume based on 67% of # of panels times 3.6 gal/panel

Tank Draw Down [redacted] *Draw Down of [redacted] gal.per in.*

Pump Run Time 5.88 minutes

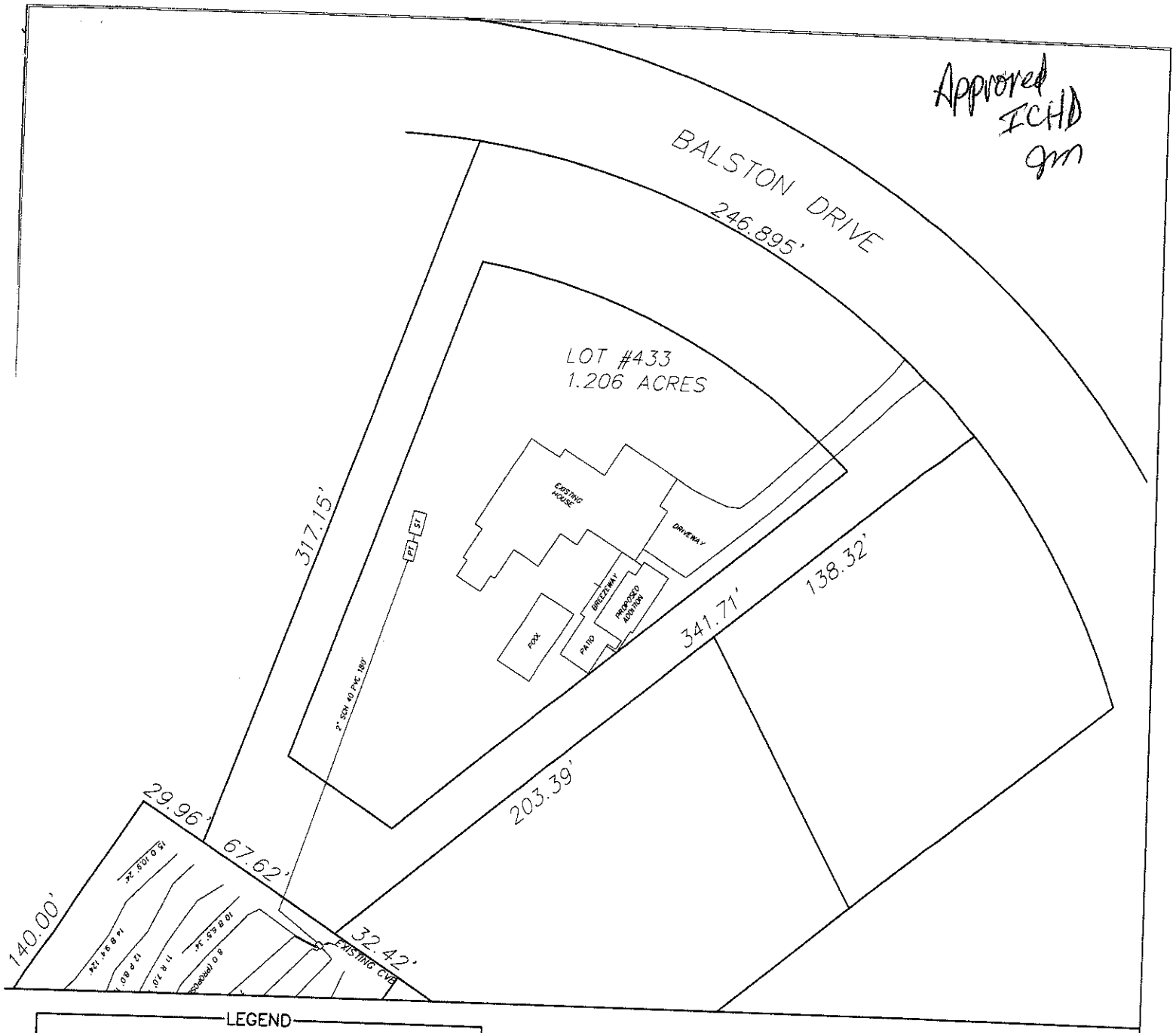
Elevation Head 18.5 ft.
Pressure Head 2 ft.
Friction Factor 3.03 ft./100 ft. *(From the interpolater.)*
Friction Head 5.45 ft.

Total Dynamic Head (+20%) 31.14 ft.

FRICTION FACTOR
INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42

Approved
ICHD
gm



LEGEND

- Areas contain soils with 24 inches or more of useable material and have potential for conventional, modified conventional and low-pressure pipe (lpp) septic systems.
- House Footprint
- System lines.
- Repair lines.
- Temporary Bench Mark (TBM)
- Well Location. (25) Pit Location.

GRAPHIC SCALE
1" = 60'

60 0 60 120

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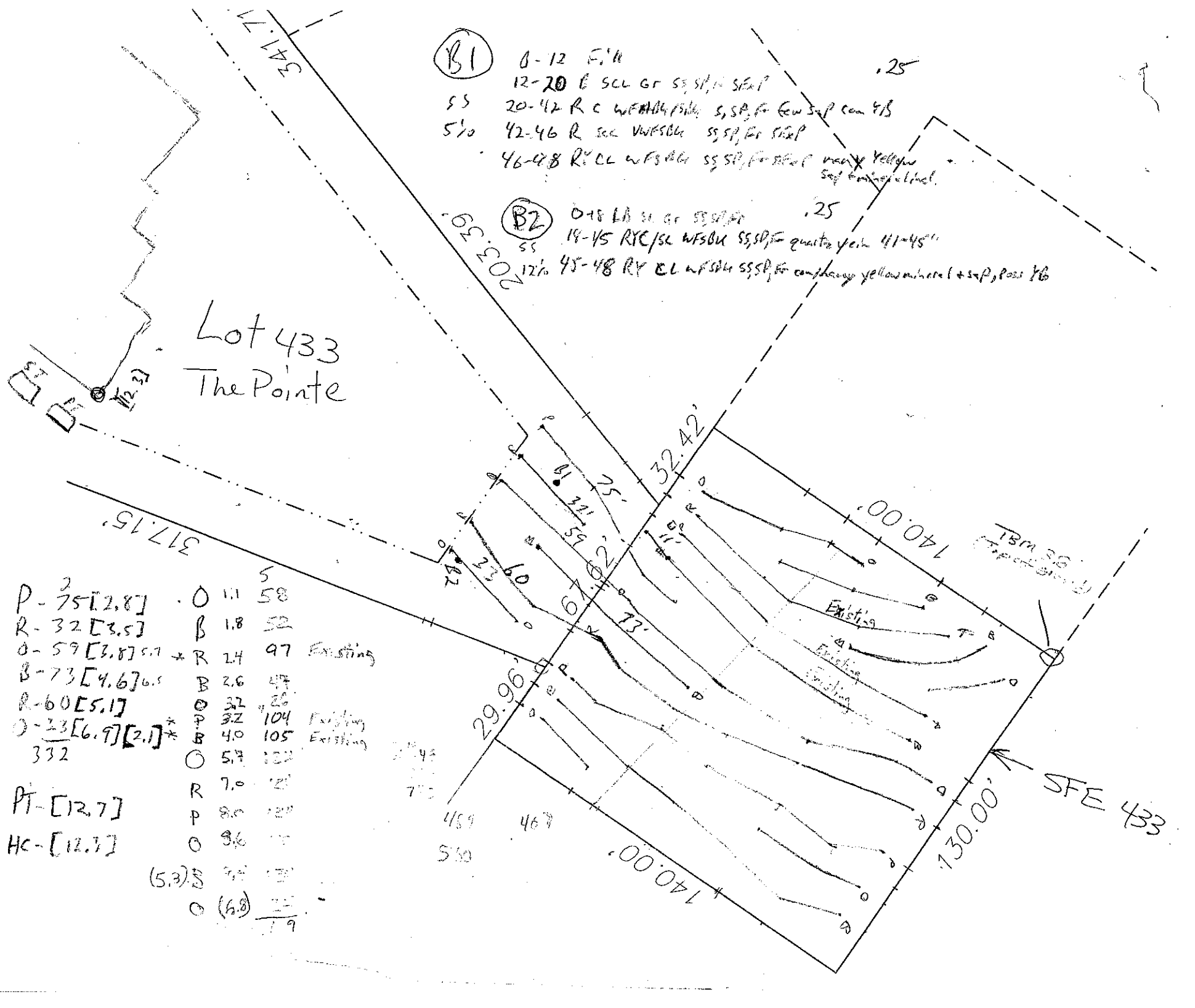
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LOCATION/DATE: 128 BALSTON DRIVE, IREDELL COUNTY, NORTH CAROLINA, MAY 2012

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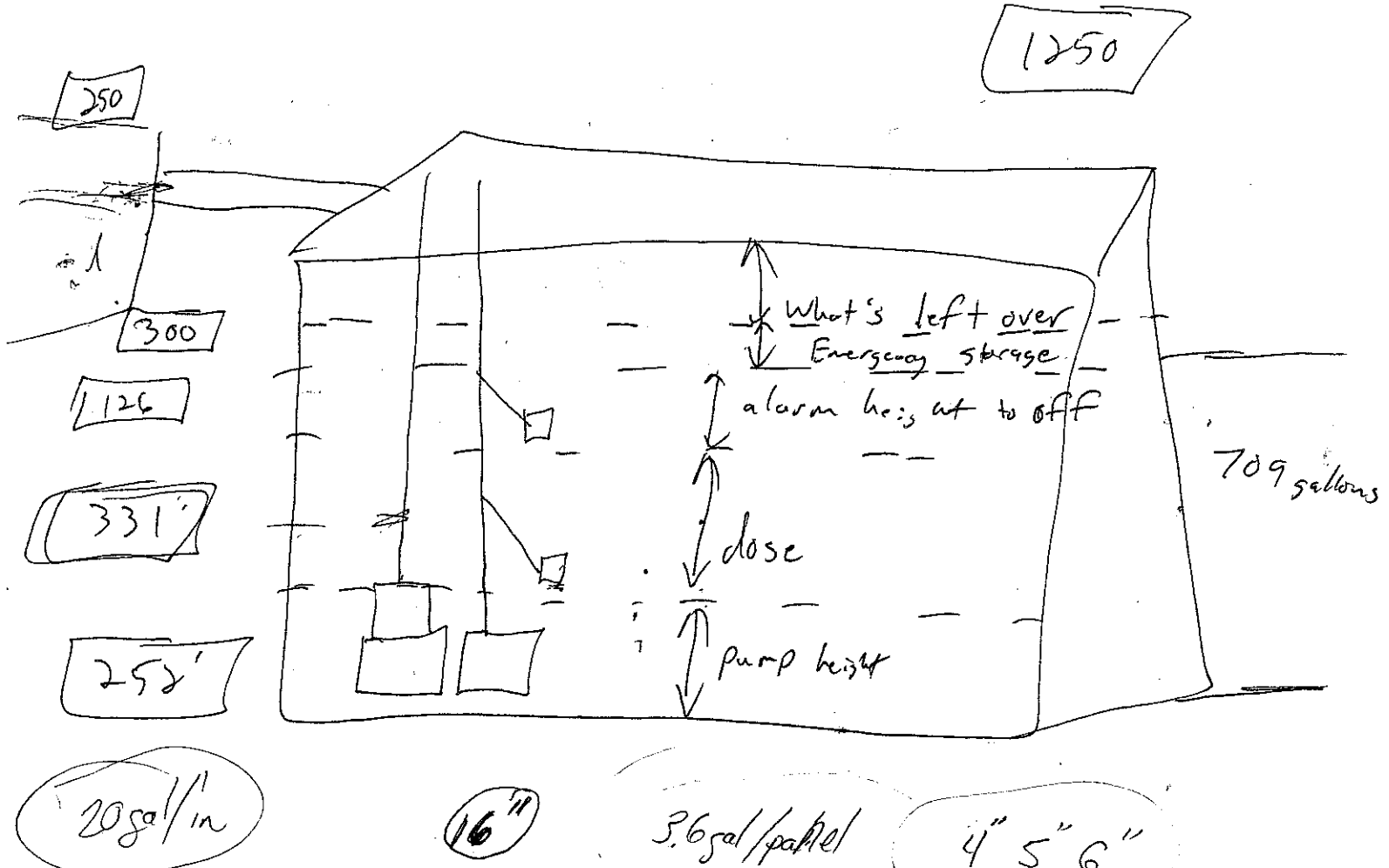

B1
0-12 F.'11
12-20 C SCL Gr SS, SI/F SLT
SS
20-42 R C WFSBGR SS, SP, Fe Stn SLP con YB
5'0
42-46 R SCL VWFSGR SS, SP, Gr SLP
46-48 RY CL WFSGR SS, SP, Fe STN C many Yellow Soft Feldspathic Lithic
B2
SS
0-18 LR SL Gr SS SP/F
18-45 RYC/SL WFSBR SS, SP/F quartz vein 41-45"
12'0 45-48 RY CL WFSBR SS, SP, Fe conchoidal yellow mineral + SLP, Poss YB
Lot 433
The Pointe
.25
.25
202.39'
137.15'
32.42'
140.00'
140.00'
130.00'
29.96'
60.27'
25'
73'
59'
60'
33'
24'
22'
IBM SF
SFE 433
P - 75 [2.8]
R - 32 [3.5]
O - 59 [3.8] 5.1
B - 73 [4.6] 6.5
R - 60 [5.1]
O - 33 [6.9] [2.1]
332
PT - [12.7]
HC - [12.7]
O 1.1 58
B 1.8 52
R 2.4 97 Existing
B 2.6 47
O 3.2 26
P 3.7 104 Existing
B 4.0 105 Existing
O 5.7
R 7.0
P 8.0
O 9.6
(5.3) S
O (6.8)

1952(0)

Questions Ashley

- What is existing hole size? - (Contact David Clark)
- What are tank ~~dimensions~~ size? ~~s~~
  Dimensions? both ST & PT
- Where is alarm set?

- Where did 35' come from?
- What is ~~ht~~ height of pump?



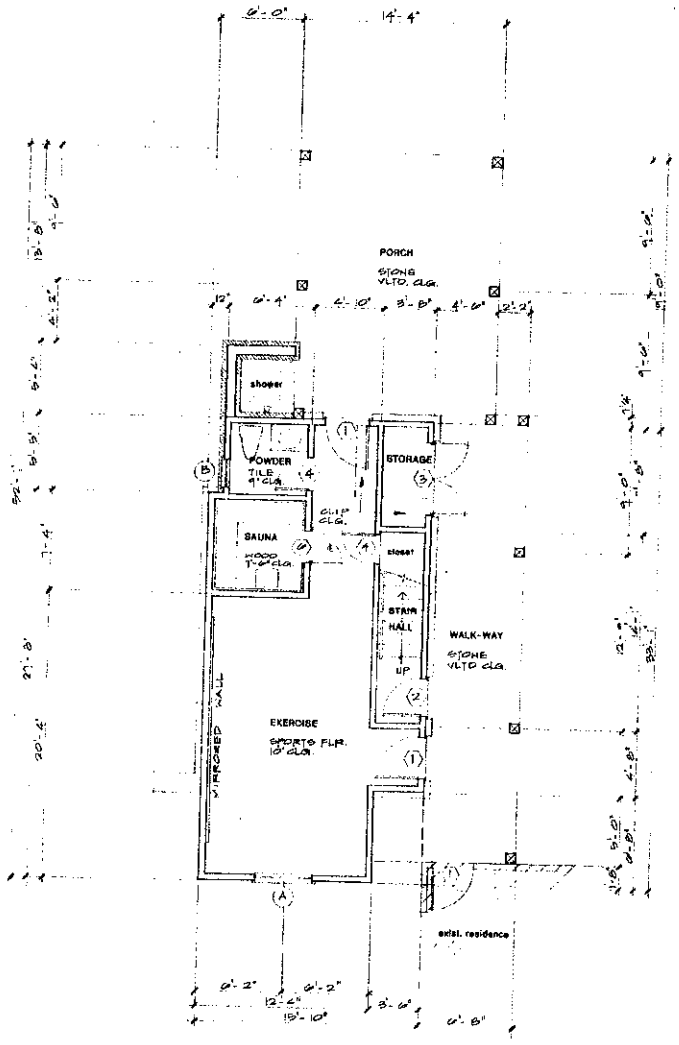
20 gal/in

16"

3.6 gal/pallet

4" 5" 6"

10

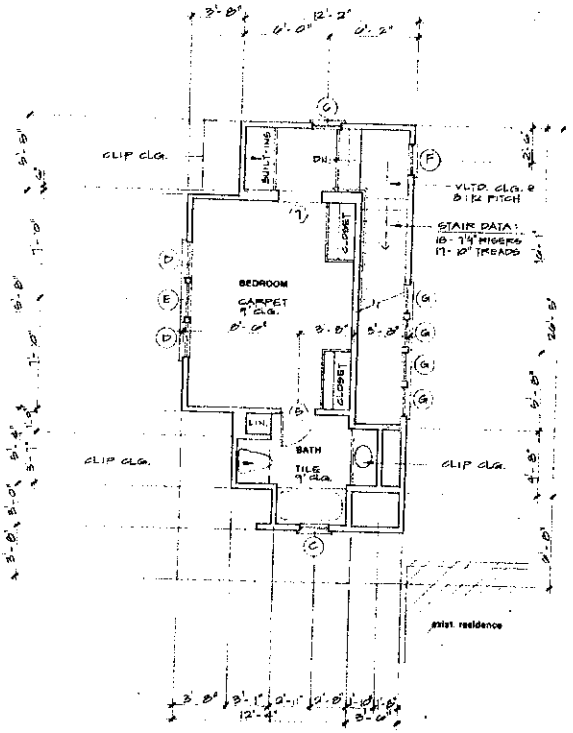


MAIN LEVEL FLOOR PLAN

467 S.F. —— LIVING AREA
518 S.F. —— WALK-WAY & PORCH

DOOR SCHEDULE		
	size	description
1	36 96	HALF GLASS EXT. PANEL DR.
2	32 96	HALF GLASS EXT. PANEL DR.
3	2-30 84	EXT. PANEL PAIR
4	28 96	INT. PANEL DR.
5	28 84	INT. PANEL DR.
6	28 80	CEDAR SAUNA DR. W/GL. INSERT
7	36 84	CASED OPENING

WINDOW SCHEDULE		
	size	description
A	47 13	CASEMENT
B	23 29	CASEMENT
C	21 21	FIXED
D	21 65	CASEMENT
E	29 65	FIXED
F	29 36	CASEMENT
G	29 36	FIXED



UPPER LEVEL FLOOR PLAN

331 S.F. —— LIVING AREA

Acknowledgement Of
Plans Submittal ONLY!
Date 5-10-12
Date 5/15/12

Jim Phelps, AIBD
Luxury Home Designer
(310) 230-5372
JIM PHELPS COLLECTION

A New Proposed
Arts & Crafts Addition
For
The Davis Family
Nestled in the Romantic Neighborhood
of the Point

Submittal and Revision Dates
Description
Date

DRAWN BY: DATE:

DRAWING TITLE:

SCALE: 1/4" = 1'-0"

SHEET: A-2

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PUMP TANK CALCULATIONS

Available Septic Tank Storage	1500 gal.
Required Septic Tank Storage	1250 gal.
Available Storage for Pump Tank	250 gal.
Collection Sewer Storage 4"	35ft x .661gal/ft = 23.13 gal
~~Volume for Risers (2) in Septic Tank~~	~~32.39 gal~~
~~Volume for Riser in Pump Tank~~	~~47.05 gal~~
	273.13 gal
Volume above Alarm Level	300 gal
Total Emergency Storage Available	[redacted] 573.13 gal
Required Emergency Storage	300
**12 hours required [redacted] WS IV Watershed	

Existing 1000 gallon Pump Tank can be utilized without additional storage requirement.

Samuel A Tollen