S&ME

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June 24, 2014

Bonanza Development Company
816-G Brawley School Road
Mooresville, North Carolina 28117

Attention: Mr. Scott Needham

Reference: **Technical Assistance with Fast Track Septic Permitting**
Lot 21 The Villages at Isle of Pines Subdivision
Iredell County, North Carolina
S&ME, Inc. Project No. 1588-05-047A

Dear Mr. Needham:

S&ME, Inc. (S&ME) has provided technical assistance to obtain a possible Septic Improvement Permit from the Iredell County Health Department (ICHD) for the above referenced lot. The technical assistance was performed in general accordance with S&ME Proposal No. 43-1400508 dated June 3, 2014.

The S&ME assisted you in 2005 with obtaining a Septic Improvement Permit for the above referenced lot. This permit will expire soon and you requested that S&ME assist you with a Fast Track application so a new permit can be issued before the existing permit expires. Based on conversations with Mr. Brady Freeman and Mr. Adrian Pruett with the ICHD, the application will be accepted as an "Intermediate Relayout" and require a $195 county fee.

You and others flagged the property lines, corners, and house pad. S&ME and you flagged the proposed septic lines for the application submittal as approximately shown on the attached site plan. Attached is the application package you submitted to S&ME which includes a record plat along with a site plan so the new permits can be issued as non-expiring permits. Once the septic area is permitted, it should be fenced off for protection during home construction. Access to the lot should only be by the proposed drive. There shall not be cuts of 2 feet or greater within 15 feet of any part of the permitted septic system.

This lot utilizes an off-site septic area. We understand you have installed a 2 inch PVC pipe from the lot to the off-site septic area. For this application, we are requesting a pressure manifold 25 Percent Reduction system with a T&J Panel repair.

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S&ME appreciates the opportunity to provide these services to you. No additional soil work was provided for the application submittal. The ICHD may show any changes or modifications they want to the proposed system on the attached site plan. The ICHD must approve each lot and only the ICHD can issue Improvement Permits. The ICHD should verify all soils and system specifications, required setbacks, and whether a professional engineer plan is required before permitting and/or septic system installation. Soil evaluations and system layouts are done based on interpretations of the rules governing wastewater treatment and disposal systems and are not guarantees for site approval or future septic system performance.

If you have any questions or require additional information please contact us at your convenience.

Sincerely,

S&ME, Inc.

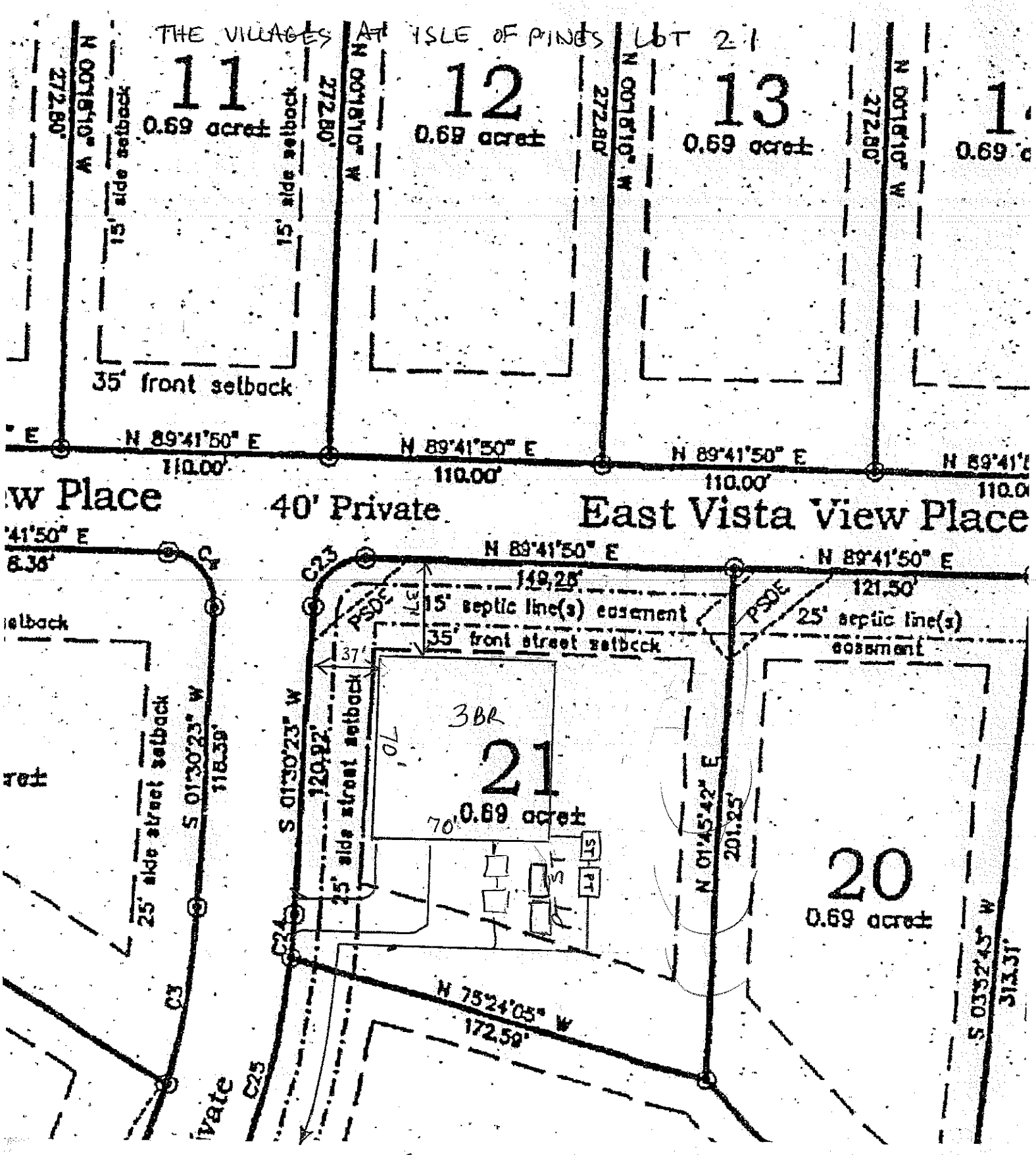
Paul G. Penninger, L.S.S.
Licensed Soil Scientist

Rob Willcox, L.S.S.
Senior Project Manager

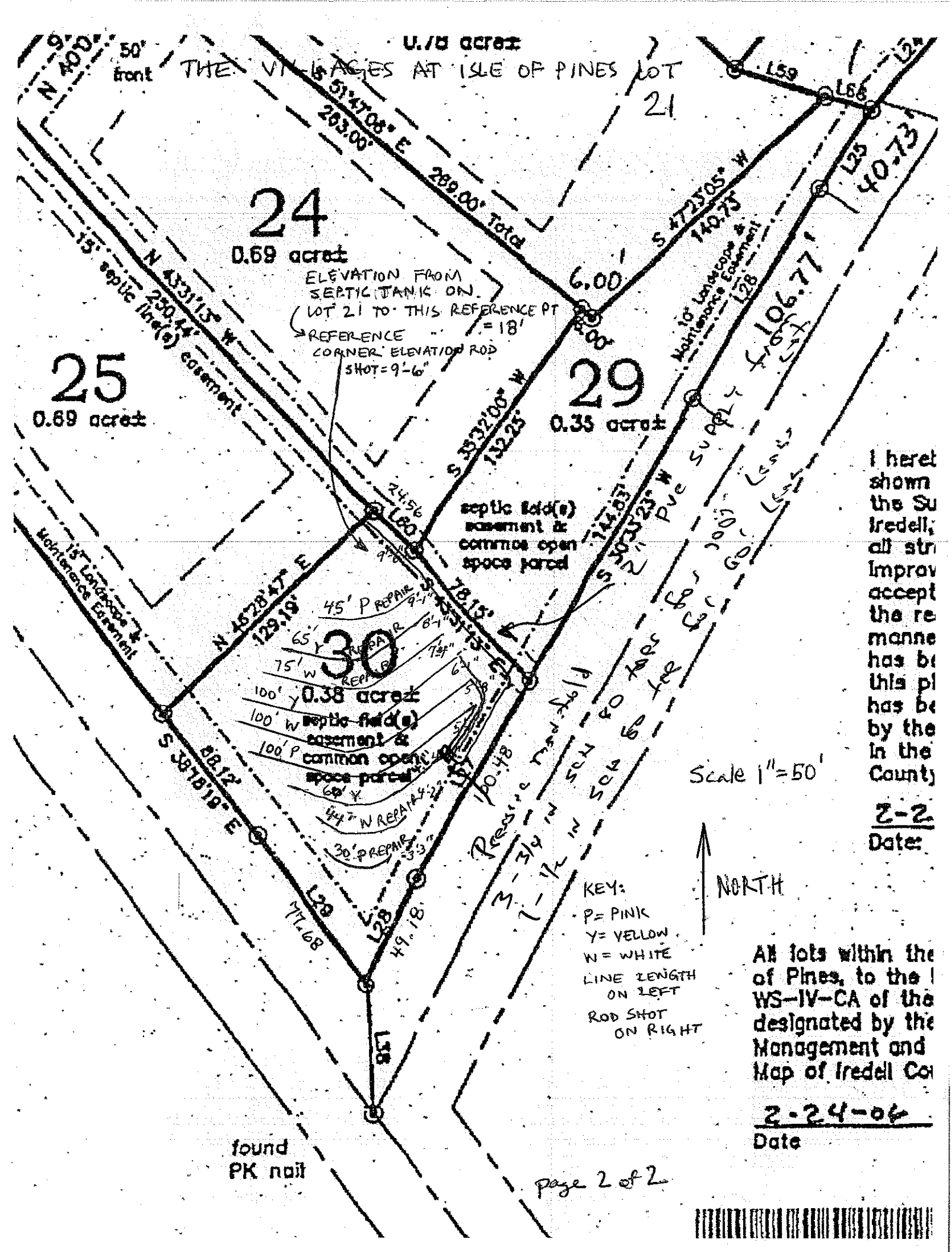
Attachments: Fast Track Package compiled by Bonanza Development.

Copy: ICHD

S:\1588\1588 REPORTS\Reports.05\1588-05-047A Bonanza Development - New Isle of Pines IPs\1588-05-047 The Villages at Isle of Pines Lot 21 Summary Letter.doc



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ALP


U.75 acre±
THE VILLAGES AT ISLE OF PINES LOT 21
50' front
N 40°0'
S 51°47'08" E 263.00'
289.00' Total
24
0.69 acre±
ELEVATION FROM SEPTIC TANK ON LOT 21 TO THIS REFERENCE PT = 18'
REFERENCE CORNER ELEVATION ROD SHOT = 9'-6"
15' septic line(s) easement
N 43°31'15" W 230.44'
25
0.69 acre±
6.00'
S 47°23'05" W 140.73'
10' Landscape & Maintenance Easement
L28
L59
L66
L25
40.73
106.77'
29
0.35 acre±
S 33°32'00" W 132.25'
L60
septic field(s) easement & common open space parcel
S 30°23'23" W 214.83'
78.15'
N 45°28'47" E 129.19'
15' Landscape & Maintenance Easement
45' P REPAIR
65' Y
75' W
100' Y
100' W
100' P
60' Y
44' W REPAIR
30' P REPAIR
30
0.38 acre±
septic field(s) easement & common open space parcel
S 38°18'19" E 88.12'
77.68
L29
L28
49.18'
L27
150.48'
L26
Scale 1"=50'
NORTH
KEY:
P= PINK
Y= YELLOW
W = WHITE
LINE LENGTH ON LEFT
ROD SHOT ON RIGHT
found PK nail
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by the
in the
County
2-2
Date:
All lots within the
of Pines, to the
WS-IV-CA of the
designated by the
Management and
Map of Iredell Co
2-24-06
Date
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The Villages at Isle of Pines Lot 21 Fast Track Information
Bonanza Development June 24, 2014

Number of Bedrooms	3
Basement or Crawl	**Crawl/Slab Garage**
Design Flow (gpd)	360
LTAR (gpd/ft2)	0.25-0.3 per existing permit
Primary System Type	**25% Reduction**
No. Lines	3@100' and 1@60'
Total Linear Feet	360
Trench Width	3' min.
Trench Spacing	9' min.
Pump Required	Yes
Distribution Device	Pressure Manifold
	(use 3/4 in. SCH 80 taps on 100' lines and 1/2 in. SCH 80 tap on 60' line)
Maintenance Agreement Required	No
Length and Diameter of Supply Pipe	approx. 800' of 2 " SCH 40 PVC**
Flow Rate through the system	35.8 gpm
Elevation head	Approx. 31'
Pressure head	2'
Friction head	approx. 24'
10% Contingency	5.7'
Total Head	62.7'
Pump Requirements	35.8 gpm @ 63' of head** To be verified by installer and ICHD.
Maximum Dosing Volume	180 gallons
Volume of water pumped per dose	Calculated to specific tank by measure or dealer engineering specifications (1 cubic ft. of water equals 7.48 gal.)
Pump Run per dose	approx. 5 min.
Check Valve	yes
Siphon Break hole	yes
Repair System	**LP PPBPS**
Total Linear Feet	259 shown (240 required)
Repair LTAR	0.25-0.3

**The difference in pump requirements for 2" v/s 3" pipe in 2005 S&ME Fast Track Package

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Pressure Manifold Calcs
Lot 21 Village

For 2" Head Pressure & SCH 80 Taps →

$\frac{3}{4}$" tap = 10.1 gpm

$\frac{1}{2}$" Tap = 5.48 gpm

$\frac{60'}{100'} = 0.6$

$\frac{5.48 \text{ gpm}}{10.1 \text{ gpm}} = 0.54$

$$\frac{10.1 \text{ gpm}}{100' \text{ line}} = 0.101 \frac{\text{gpm}}{\text{ft}}$$

$$\frac{5.48 \text{ gpm}}{60' \text{ Line}} = 0.091 \frac{\text{gpm}}{\text{ft}}$$

* USE $\frac{3}{4}$" SCH 80 taps on 100' line

USE $\frac{1}{2}$" SCH 80 taps on 60' Line