1 of 2

Penninger Soil Consulting, PLLC
Ph: 704-996-6330 Email: pgpenninger@gmail.com

October 17, 2015

Nest Homes
PO Box 3965
Mooresville, North Carolina 28117

Attention: Mr. Michael Wetter, Project Manager

Reference: **Technical Assistance with Septic Permitting**
Lot 2 Mary Collins Subdivision
164 Big Indian Loop
Iredell County, North Carolina
Project No. 15-114H

Dear Mr. Wetter:

Penninger Soil Consulting, PLLC has provided technical assistance to obtain a possible new, 4-bedroom septic system Improvement Permit on the above referenced lot from the Iredell County Health Department (ICHD). The technical assistance was performed in general accordance with our written proposal dated October 10, 2015.

Lot 2 was recently subdivided and you have requested Penninger Soil Consulting, PLLC to assist with a obtaining a new Fast Track ICHD Improvement Permit for a 4-bedroom house pad house pad and a well permit. We described five backhoe pits in the proposed septic area and flagged a proposed 25 Percent Reduction, Pressure Manifold Distribution primary system and a T&J Panel repair area as shown on the attached site plan. Your surveyor staked the property corners, the lot lines, the house pad, and located the neighbor's well and the backhoe pits.

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. Any foundation drain should be at least 15 feet from the septic and pump tanks and the drainfield. Any minor depressions in the former garden area should be smoothed with clean soil material.

Penninger Soil Consulting, PLLC appreciates the opportunity to provide these services to you. The attached information is not an Improvement Permit or Authorization to Construct, and is only to assist you with the Fast Track site evaluation. The ICHD may show any changes or modifications they deem necessary to the proposed system on the ICHD Permits or attached site plan. The ICHD must approve each lot and only the ICHD can issue these permits. The ICHD should verify all soil suitability 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,

Penninger Soil Consulting, PLLC

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

Attachments:

1. Septic Permit Application and Zoning Permit
2. Proposed Site Plan and System Information

C:\Users\Paul G. Penninger\Documents\2015 Projects\15-114 Nest Homes\15-114H Bluefield Road Septic Permitting\Nest Homes - Bluefield Road Lot 2 FT Summary Letter.doc

APPROVED OCT 21 2015

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Mary Collins Sub. Lot 2 Fast Track System Information (10-17-15) Pg 1 of 2

Nest Homes, LLC

Number of Bedrooms	**4**
Basement or Crawl	**Crawl**
Design Flow (gpd)	**480**
Primary System LTAR (gpd/ft2)	**0.3**
Primary System Type	**25% Reduction**
No. Lines	3 at 100ft., 2 at 50 ft. (see site plan)
Total Linear Feet	400
Trench Width	3' min.
Trench Spacing	9' min.
Trench Depth	30 inch max.
Pump Required	Yes
Distribution Device	Pressure Manifold with one drop box
Maintenance Agreement Required	No
Length and Diameter of Supply Pipe	~100' of 2" SCH 40 PVC
Flow Rate through the system	22 gpm
Elevation head	*Approx. 11'
Pressure head	2.0'
Friction head	Approx. 2'
20% Contingency	2.8'
Total Head	17.8'
Pump Requirements	22 gpm @ 18 of head

***To be designed by installer after final tank placement.**

Maximum Dosing Volume	240 gal - 2.0 doses/day @ design flow
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. 11 min.
Check Valve	Yes
Siphon Break hole	no
Repair System	**LP PPBPS**
Total Linear Feet	302' shown *267' Required*
Repair Loading Rate	0.3

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Mary Collins Sub. Lot 2 Fast Track System Information (10-17-15) Pg 2 of 2
Nest Homes, LLC

Table: Summary of Primary Nitrification Lines

Line No.	Use	Line Color	System Type	Line Length (Ft.)	*Rod Reading (Ft.)
1	System	red	25% Reduction	100	5.9
2	System	blue	25% Reduction	100	6.7
3	System	white	25% Reduction	100	7.7
4	System	blue	25% Reduction	50	9.0
5	System	red	25% Reduction	50	9.4
				Total System: 400'	

Tank	white	1000 gal (2 compartment)	*Rod Reading (ft)
Pump Tank	white	1000 gal.	8.2
House		right rear	6.7

Manifold Information	
Tap Size (In.)	1/2
Tap Material	SCH 80 PVC
No. Taps	4
Barrel Size (In.)	4
Barrel Material	SCH 80 PVC
Flow (gpm)/Tap	5.5

NOTES:

* Elevations must be verified by installer at installation and final tank placement.
Connect two 50 ft lines with drop box or equivalent for 100 ft total.
Install system per ICHD permits and policies.
Smooth any minor depressions with clean imported soil material.
Fast Track System information tables must accompany Penninger Soil Consulting written report dated October 17, 2015.

Mary Collins Sub. Lot 2 Fast Track System Information (Revised 7-21-16 per request by Nest Homes and ICHD)

Summary of Primary Nitrification Lines

Line No.	Trench Type	Line Color	Line Length (ft.)	Manifold Tap Size	Flow per tap (gpm at 2 ft head)	Flow per line at 10.6 min pump run dose (gal)	gallons per ft line
1	25 % reduction	red	86	3/4 in SCH 80			
2	25 % reduction	blue	86	connected by serial distribution to line 1			
		Sub Total	**172**		**10.10**	**107.06**	**0.62**
3	25 % reduction	white	98	3/4 in SCH 40			
4	25 % reduction	red	65	connected by serial distribution to line 3			
5	25 % reduction	blue	65	connected by serial distribution to line 3 and 4			
		Sub Total	**228**		**12.50**	**132.50**	**0.58**
		System Total	**400**		**22.6**	**239.56**	

NOTES:

- Redesign table assumes 240 gallon dose volume and 10.6 min. run time
- Calculations show approximate 6.5% differential in line loading for two tap sizes which is less than 10% allowed.
- * Elevations must be verified by installer at installation and final tank placement.
- Install system per ICHD permits and policies.
- Smooth any minor depressions with clean imported soil material.
- This information must accompany Penninger Soil Consulting written report dated October 17, 2015.
- Septic lines re-flagged in field by R&H and reviewed by ICHD.

Table: Summary of Primary Nitrification Lines

Line No.	Trench Type	Line Color	Line Length (Ft.)		Pressure Manifold Tap	Flow per tap pgm at 2 ft head	Flow per line @ 2 ft head (gpm)	gallon per ft line
1	25 % reduction	red	86		3/4 in SCH 80	10.1	51.712	0.601
2		blue	86		3/4 in SCH 80	10.1	51.712	0.601
3		white	98		3/4 in SCH 40	12.5	64.000	0.653
4		red	65		1/2 in SCH 40	7.1	36.403	0.560
5		orange	65		1/2 in SCH 80	7.1	36.403	0.560
			400		Total	46.92	240.2304	30

14.3%

Discard

3 gpm flow

240 gpm Duck

EXAMPLE DISCUSSED in FIELD → FOR REVIEW ; NOT TO BE INSTALLED

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

Sheet 1 of 2
PROPERTY ID #:
COUNTY:

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

APPROVED OCT 21 2015

OWNER: West Homes - Meg Collins
ADDRESS: 164 Ross Lane
PROPOSED FACILITY: SFR
PROPOSED DESIGN FLOW (.1949): 4BR
LOCATION OF SITE:
APPLICATION DATE
DATE EVALUATED: 9-13
PROPERTY SIZE: 30.63 Ac
PROPERTY RECORDED: NO

WATER SUPPLY: ☒ Private ☐ Public ☒ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☐ Auger Boring ☒ Pit ☐ Cut
TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
A	B C 5-10	0-19	WEAK SBK	FR SS/SP					
		19-34	ABK C	FI SS/P			4 B		
		34-48	SBK CL	FR SS/SP			SAP		PS .3
		48-58	WEAK SBK/MASS CL	FR SS/P		48	PS	0	
			36" SOIL ~ 36" WATER			W) SOIL	L. S (E		
B	B C 5-10	0-31	ABK/SBK C	FI SS/P					
		31-58	SBK CL	FR SS/P					PS .3
						55			
					0		0	0	
C	C 5-10	0-14	ABK C	FI SS/P					
		14-49	SBK CL	FR SS/P					PS .3
		49-60	MASSIVE CL	FR SS/P		49	PS	0	
			NO SOIL		0				
D	C 5-10	0-28	ABK C	FI SS/P					
		28-44	SBK CL	FR SS/P					PS .3
		44-58	MASSIVE CL W/ FR	FR SS/P		44	PS	0	
			OF FINE		0				

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	PS	PS
System Type(s)	Conv.	PRPBS
Site LTAR	.3	.3

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: Pat
OTHER(S) PRESENT: Rusty Lee Agent by ICHD

COMMENTS:

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

Sheet 2 of 2
PROPERTY ID #:
COUNTY:

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

APPROVED OCT 2 1 2015

OWNER: Mary Collins - Nest Homes is Applicant
APPLICATION DATE 10-17-15
ADDRESS: Big Indian Loop
DATE EVALUATED:
PROPOSED FACILITY: SFR
PROPOSED DESIGN FLOW (.1949): 480
PROPERTY SIZE:
LOCATION OF SITE: Big Indian Loop
PROPERTY RECORDED: not

WATER SUPPLY: ☒Private ☐ Public ☐ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☐ Auger Boring ☒Pit ☐ Cut
TYPE OF WASTEWATER: ☒Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P1	L 5-10 10-21-15	0-11	fr sa lo sd	fr	1r				
		11-32	massive C	fr sl/e	1				
		32-62	w sbk D	fr sl/e	4a 1/2	f-c sap			
					3	62	2	3	PS-3
2									
3									
4									

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)		
System Type(s)	SBE	RC J
Site LTAR		

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948):
EVALUATED BY:
OTHER(S) PRESENT:

COMMENTS:

L4	N 22°06'56" W	36.50'
L5	N 22°06'56" W	40.55'
L6	N 21°48'04" W	91.65'
L7	N 21°41'39" W	25.59'

G.S. 47-30, AS AMEND

WITNESS MY HAND AND
_____ A.D. 2

APPROVED OCT 21 2015

BLUEFIELD OF LKN LLC
2332\1532

DB1704 PG394

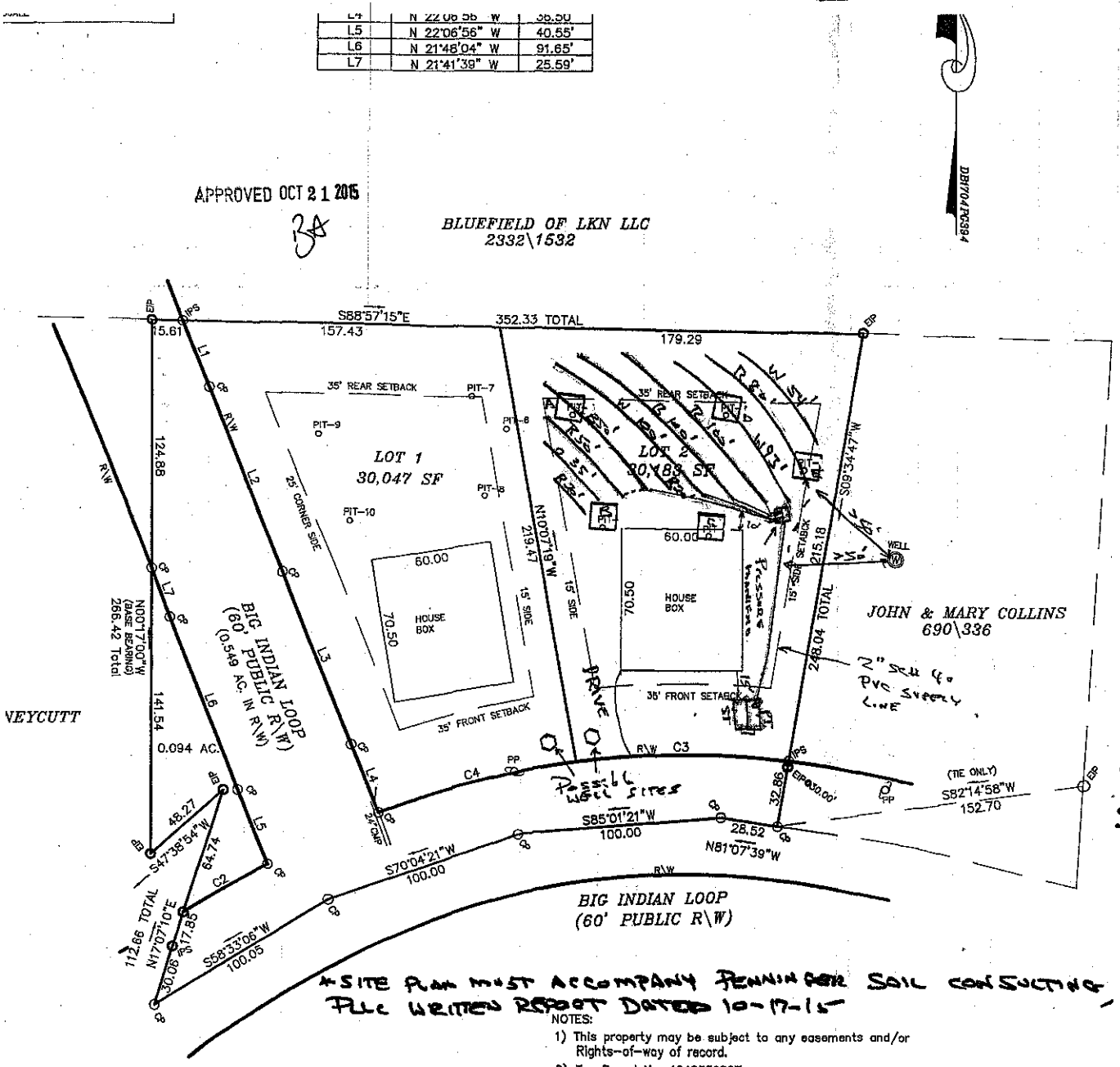
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No. Taps	4
Barrel Size (in.)	4
Barrel Material	SCH 80 PVC
Flow (gpm)/Tap	5.6

CURVE TABLE			
CURVE	RADIUS	LENGTH	BEARING
C1	409.49'	205.88'	S 82°33'18" W
C2	777.88'	48.13'	S 59°28'01" W
C3	409.49'	105.18'	S 89°40'12" W
C4	409.49'	101.70'	S 75°11'48" W



VEYCUTT

Nest Homes LLC
Lot 2 Mary Collins Sub.
Septic Site Plan
1" = 50'
10-17-15

* SITE PLAN MUST ACCOMPANY PENNINGTON SOIL CONSULTING, PLLC WRITTEN REPORT DATED 10-17-15

NOTES:
1) This property may be subject to any easements and/or Rights-of-way of record.
2) Tax Parcel No. 4648532807
3) Deed Ref. 1704\394

PRELIMINARY
OF
MARY HELEN COL
(PARCEL # 46