

LENAWEE COUNTY HEALTH DEPARTMENT

1040 SOUTH WINTER STREET, SUITE 2328, ADRIAN, MICHIGAN 49221-3871

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Director, Environmental Health Division

MICHAEL ERNST, B.B.A.
Business Office Coordinator

December 11, 2006

Lee Spohr Trust
4400 Holloway Rd
Tecumseh, MI 49286

Re: Health Department Approval of:
Preliminary Plat of High Country Estates
Phase 1

Dear Mr. Spohr,

This department has completed preliminary review of the Preliminary Plat of High Country Estates, Phase 1 development. The Preliminary Plat of High Country Estates, Phase 1 development is comprised of four (4) lots for construction of single-family homes on 5.73 acres located in Section 26 of Tecumseh Township. Authority for review of subdivisions and site condominiums utilizing onsite sewage disposal systems and/or onsite well water supplies is established in Section 105(g) of Michigan Act 288 of the Public Acts of 1967, as amended.

The proposed development is listed under Tecumseh Township parcel identification number TEO 126 2100 00. Utilization of individual well water supplies and individual sewage disposal systems is proposed for the development. Surface relief in the area is listed at 0 to 7 percent. A typical lot area consists of 43,560 square feet with a minimum width at the building line of 150 feet.

Sewage Disposal:

According to the USDA Soil Conservation Service - Soil Survey Map for Lenawee County, the following five (5) soil series are located within or immediately adjacent to the proposed development:

<u>Map</u>	<u>Soil Series</u>	<u>Soil Type</u>	<u>Suitability for Use</u>
CbB	Cadmus	Sandy Loam	Marginal
CaB	Cadmus	Loam	Unsuitable
BpA	Brookston	Loam	Unsuitable
NbB2	Nappanee	Silt Loam	Unsuitable
CgA	Conover	Loam	Unsuitable

Individual onsite sewage disposal systems are proposed for each home. Evaluation of the soil to determine suitability for construction of onsite sewage disposal systems was completed in April 2006. Two (2) or more acceptable soil borings have been verified on or adjacent to lots #1 - 4. Four (4) feet or more of isolation between the seasonal high ground water table elevation and bottom of each drainfield will be provided. The engineer, employed by the developer, reached a similar conclusion in his subdivision site report submitted to this department.

The developer has established lot configurations, which provide a suitable area for construction of a drainfield and replacement system on each of the four (4) lots. Soil boring locations are noted on a drawing provided by the project engineer.

Soil borings conducted in the proposed Preliminary Plat of High Country Estates, Phase 1 development showed slightly elevated water table elevations. Therefore, some lots will be utilizing elevated drainfield installations due to the higher water table, which will increase the amount of material hauled onto the site. Rule 421 (3) of the above authority, states that fill is allowed only if there is a minimum of 2 feet below the natural unaltered ground surface and only over soils specified in Table 3 of Rule 421. Fill will be provide with a medium/coarse (2NS) sand to the proper elevation above parent grade as described below. The following lots will require "elevated drainfield installations" above the suitable soils:

Lot 2 with 18 inches of 2NS sand fill.

Lot 3 with 21 inches of 2NS sand fill.

(Lot 2 and lot 3 will require excavation to soils at four to five feet below grade and backfill with 2NS sand to an elevation 18 to 21 inches above parent (existing) grade. This would elevate the final cover of the drainfield area 38 to 43 inches above the parent grade.)

The importance for the placement of the sewage disposal system in the area as shown on the set of approved plans and meeting all isolation distances is critical. Therefore this department will require that at the time of application, that all corners of the proposed house, the drainfield area, septic tank location, well, and the proposed drive way will be flagged or staked to be verified by a representative of the Lenawee County Health Department.

Water Supply:

A survey of twenty-two (22) records for well water supplies in the area indicates that wells are finished thirty-nine (39) to two hundred five (205) feet below grade. Test wells were drilled on proposed lots #10, 20 and 32 of Phases 2, 3 and 4 of the proposed Preliminary Plat of High Country Estates Development and existing test wells at 3332 Leeomi Drive. Data from the test well pumps records disclosed the following:

Note: All below measurements are in feet

	WELL #1 High Country Phase No. 2 Lot # 10	WELL # 2 High Country Phase No. 3 Lot # 20	WELL #3 High Country Phase No.4 Lot # 32	WELL #4 3332 Leeomi Drive
DEPTH:	139	134	84	83
STATIC WATER	77	88	52	48
WELL SCREEN SUBMERGENCE	46	35	21	27
gpm (4 hr.pump)	12 gpm	12 gpm	15 gpm	20 gpm*
FINAL PUMP LEVEL	118'	120	52	63
CLAY LAYER (1) (Thickness of Layer)	79-119 (40)	29-41 (12)	23-49 (26)	27-75 (48)
SCREEN SET AT:	123-134	123-134	73-84	75-83

* Existing test well (3332 Leeomi Dr.) from 2001 that only had a 2 hour pump test conducted.

The test wells meet the following criteria established within Michigan Administrative Rules R 560.408 and R 560.411 for development of on-site well water supplies in subdivisions:

- penetration of an impervious layer which is of sufficient aerial extent, but which is not less than 10 feet thick; or
- demonstrate that water can be withdrawn from an on-site water supply well for drinking and household purposes at a sustained pumping rate that is not less than 10 gpm and which meets or exceeds peak water demand for at least a 4 hour period of time.

A water sample, non-detect for coliform bacteria, was obtained from each test well. Laboratory analysis of water from each test well was conducted for eight parameters in a routine testing procedure referred to as a partial chemical analysis. The eight test parameters include iron, sodium, nitrate, nitrite, hardness, sulfate, chloride and fluoride. An additional test was conducted for arsenic. Results from partial chemical and the other chemical analyses are:

<u>Parameter</u>	<u>Maximum Desired Level</u>	<u>Level In Test Well(s)</u>
Chloride	SMCL = 250.0 mg/L	0.0 to 8.0 mg/L
Fluoride	MCL = 4.0 mg/L	0.11 to 0.29 mg/L
Hardness	SMCL = 250.0 mg/L	177.0 to 255.0 mg/L
Iron	SMCL = 0.3 mg/L	0.0 to 0.3 mg/L
Nitrate	MCL = 10.0 mg/L	0.0 to 0.0 mg/L
Nitrite	MCL = <1.0 mg/L	0.0 to 0.0 mg/L
Sodium	SMCL = <250.0 mg/L	6.0 to 11.0 mg/L
Sulfate	SMCL = 250.0 mg/L	13.0 to 60.0 mg/L
Arsenic	MCL = 0.05 mg/L	0.0020 to 0.0050 mg/L 1 st draw
Arsenic	MCL = 0.05 mg/L	0.0020 to 0.0020 mg/L 2 nd draw

***MCL:** (Maximum Contaminate Level) The Maximum permissible level established for drinking water by the USEPA and/or MDEQ for safe drinking water.

***SMCL:** (Secondary Maximum Contaminate Level) Suggested non-enforceable limits for parameters found in drinking water which may affect the aesthetic qualities and the public's acceptance of drinking water.

Based on the plat drawing submitted by the project engineer, the lot configurations proposed for this development provides the necessary land area for a well with 50 feet of isolation and installation of two (2) drainfields designed for one (1) to four (4) bedroom homes. If a problem develops within the project due to planning or failure to develop lots as represented on the engineer's site plan, this department will switch to a well first permitting process.

Due to the level of hardness, the following advisories shall be submitted for my signature then recorded with the Lenawee County Register of Deeds by the developer or developer's agent:

- Results of the partial chemical analyses of water from test wells in the Preliminary Plat of High Country Estates for water hardness measured as CaCO₃ were between 177 and 255 mg/l. The Secondary Maximum Contaminate Level for hardness is 250 mg/l. A Secondary Maximum Contaminate Level is a suggested non-enforceable limit for parameters found in drinking water that may affect the aesthetic qualities and the public's acceptance of drinking water.

Water Hardness is primarily due to calcium and magnesium carbonates and bicarbonates, calcium sulfate, calcium chloride, magnesium sulfate and magnesium chlorides. Generally water softer than 50 mg/l is corrosive, whereas water harder than 80 mg/l leads to use of more soap. Excessive hardness leads to boiler scale deposits in pipes, heaters, boilers, reducing thermal efficiency and eventually plugging piping. Hardness may be treated by installation of a water softener.

Lenawee County Health Department restrictions for the Preliminary Plat of High Country Estates are as follows:

- 1.) Development shall be limited to construction of single-family homes.
- 2.) Each home shall be served by an onsite sewage disposal system, located on the home owners property.
- 3.) Each home shall be served by an individual well water supply located on the home owners property.
- 4.) Each lot utilizing an individual onsite sewage disposal system and/or well water supply is subject to review by the Lenawee County Health Department. Each property owner shall demonstrate compliance with Lenawee County Health Department requirements before construction permit(s) are issued. Permits for construction of wells and/or onsite sewage disposal systems shall be obtained from the Lenawee County Health Department prior to securing a building permit.
- 5.) Lot 2 and lot 3 will require excavation to soils at four to five feet below grade and backfill with 2NS sand to an elevation 18 to 21 inches above parent (existing) grade. This would elevate the final cover of the drainfield area 38 to 43 inches above the parent grade.
- 6.) Wells shall:
 - a.) be finished below a depth of 58';
 - b.) penetrate a impervious clay layer of 10' feet thick; and,
 - c.) be isolated 50' or more from onsite sewage disposal systems.
- 7.) If a well drilling contractor drills below 250' without obtaining adequate quantities of water and the depth is verified by the Lenawee County Health Department, the department may approve other specifications meeting criteria established by the Michigan Department of Environmental Quality for wells in Michigan Subdivisions.
- 8.) Health Department restrictions shall run with the land and shall be binding upon all owners.

The restrictions, listed above, shall be submitted for my signature then recorded by the developer or developer's agent. Verification shall be provided from the developer that the enclosed advisories and advisories have been recorded with the Lenawee County Register of Deeds.

The Preliminary Plat of High Country Estates Phase 1 Project has been reviewed by this department to determine suitability for development of single-family homes utilizing individual well water supplies and on-site sewage disposal systems. Based on our review, the project has been found to be suitable for development with the restrictions and advisories listed above. The seller should provide the buyer with a copy of this letter on initial transfer of ownership. **This letter shall serve as local health department approval for the High Country Estates Phase 1 Development.**

Construction permits for wells and onsite sewage disposal systems in the development will not be approved until the required health advisories and restrictions have been submitted for my signature then recorded with the Lenawee County Register of Deeds by the developer or developer's agent. Should you have further questions regarding this matter you may contact me by calling (517) 264-5216.

Sincerely,


Paul Nelson, Director
Environmental Health Division

c. Carl Wagner, Raisin Township Supervisor
Scott Merilatt, Project Engineer

Sean Nalepka R.S. – MDEQ

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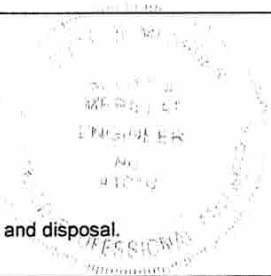


MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER AND RADIOLOGICAL PROTECTION DIVISION

SUBDIVISION AND SITE CONDOMINIUM SITE REPORT

This information is required under authority of 1978 PA 368, 1978 PA 59, and 1967 PA 288.
Review cannot be completed without providing this information.

1. SUB CONDO <input checked="" type="checkbox"/>	2. NAME OF PROPOSED SUB/CONDO	3. COUNTY	4. SECTION & TOWNSHIP
<input type="checkbox"/>	High Country Estates	Lenawee	Section 22, Raisin Township
5. PROPRIETOR		ADDRESS	
Lee & Naomi Spohr Trust		4400 Holloway Road, Tecumseh, MI 49286	
7. INTENDED USE: Single Family <input checked="" type="checkbox"/> Two Family <input type="checkbox"/> Multiple Family <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other <input type="checkbox"/>			
8. ADJACENT PROPERTY: (a) Same Ownership? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (b) Public Ownership? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (c) Developed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, type of development <u>Single Family</u>			
9. NUMBER OF ACRES:	10. NUMBER OF LOTS/UNITS	11. MINIMUM LOT/UNIT AREA (Ft ²):	
5.73	4	43,560	
12. WATER SUPPLY: Distance to nearest existing public water system <u>3.5 miles</u> Is a public water system intended to be utilized for this development? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, type: <input type="checkbox"/> Municipal: Name _____ or <input type="checkbox"/> Community System Serving Proposal <input checked="" type="checkbox"/> This development will utilize individual wells. Attach information to support suitability of the water supply such as well record data, water sample results, yield or performance testing data, and other hydrogeological information. (See Rules 404 thru 415) COMMENTS: <u>See attached test well data.</u>			
13. WASTEWATER TREATMENT AND DISPOSAL: Distance to nearest existing public sewer system <u>3.5 miles</u> Is a public sewer system intended to be utilized for this development? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, type: <input type="checkbox"/> Municipal: Name _____ or <input type="checkbox"/> Community System Serving Proposal <input checked="" type="checkbox"/> This development will utilize individual on-site systems. Attach or record on the preliminary plat, a report of soil profile evaluations to a minimum of six (6) feet (using the USDA classification system). The report shall include soil horizon depths, soil texture, soil structure, soil mottling, and depth to high groundwater elevation or bedrock. (See Rules 416, 420, and 421) COMMENTS: <u>See attached soil test for on site system.</u>			
14. ENGINEER/SURVEYOR COMPLETING SITE REPORT FORM: Name: Scott A. Merillat LICENSE #: 41010 Firm: Associated Engineers & Surveyors, Inc. Address: 237 N. Main Street Adrian, MI 49221 Engineer/Surveyor statement of site suitability for on-site water supply and/or on-site sewage treatment and disposal. See Rule 403(g). Include statement below or attach.			
On site water supply meets criteria for well protection and is acceptable with Health Department advisories and restrictions. On site water supply is provided by a lower aquifer that has no direct connection with the deep cut excavations. On site sewage treatment and disposal is in accordance with soil suitability for conventional systems and deep cut excavations.			
Signed: <u>Scott A. Merillat</u>		Date: <u>11/14/06</u>	



The Department of Environmental Quality, Environmental Health Section, or authorized local health department, receives 3 copies of the site report if a public water or public sewerage system is not available.