



# VILLAGE OF ORLAND PARK

14700 Ravinia Avenue  
Orland Park, IL 60462  
www.orland-park.il.us

## Department Requested Action

File Number: 2014-0568

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**Agenda Date:** 11/11/2014

**Version:** 0

**Status:** IN COMMITTEE  
/COMMISSION

**In Control:** Plan Commission

**File Type:** MOTION

### **Title/Name/Summary**

14232 Ashford Court Geothermal Project - Appearance Review

### **History**

#### **QUICKFACTS**

### **Project**

14232 Ashford Court Geothermal Project - 2014-0568

### **Petitioner**

Mahendra Patel

### **Purpose**

The purpose of this petition is to install and maintain a residential geothermal heat pump renewable energy system at the private residence of 14232 Ashford Court.

*Requested Actions:* Site Plan, Appearance Review

### **Project Attributes**

**Address:** 14232 Ashford Court

**P.I.N.(s):** 27-05-309-010

**Size:** 19,598 square feet

**Comprehensive Plan Planning District:** Orland Grove Planning District

**Comprehensive Land Designation:** Single Family Residential

**Existing Zoning:** R-2 Residential District

**Existing Land Use:** Single Family Home

### **Surrounding Land Use:**

North: R-2 Residential District - (across Ashford Court) Single Family Home

South: Not in Orland Park - (across 143rd Street) Single Family Home

East: R-2 Residential District - Single Family Home

West: R-2 Residential District - Single Family Home

*Preliminary Engineering:* N/A. The engineering of geothermal renewable energy systems are regulated through state licensing criteria.

### **PROJECT DESCRIPTION & CONTEXT**

The petitioner proposes to install a geothermal renewable energy system in the rear yard of the single family home at 14232 Ashford Court. Geothermal renewable energy systems boost building heating and cooling performance for higher efficiencies and lower utility costs. In the summer, geothermal systems act as heat sinks to cool buildings via the constant temperature of the Earth (typically 65 degrees at depth). In the winter, the systems channel the Earth's constant temperature (again typically 65 degrees at depth) to provide a heating boost to the structure. As a result, heating and cooling mechanical systems are not required to operate as much to attain desired heating and cooling levels since the Earth is providing a 65 degree base line temperature for the building.

The petitioner does not request any variances for this project.

The recommendation motion includes the following conditions:

- 1) Meet all Building Code related items.
- 2) Obtain necessary permits from the State prior to issuance of a building permit.
- 3) Maintain the required 10 foot setback from all public utilities and infrastructure.
- 4) All mechanical equipment must be screened at grade level with landscaping.

Overall, the project conforms to the Village's Comprehensive Plan, Land Development Codes and policies for this area.

### **SITE PLAN**

The petitioner proposes to install the geothermal system in the rear yard of 14232 Ashford Court. The installation will consist of a five (5) loop header (wells) approximately 55 feet to the south of the single family home. The headers will be connected to the house via two 1.5 inch mains. Each loop will be  $\frac{3}{4}$  inch in size and a depth of 200 feet (type 5).

The system will be vertically drilled for five (5) well heads at 200 foot depth. The heads will be connected to the house via bore holes in which the loop and grout will be routed. The loop system will penetrate the house at the rear of the property and connect to an interior geothermal heat pump (5 Series 500A11 by Water Furnace).

#### *Depth*

Section 6-314.F.1.a of the Land Development Code does not regulate the depth of the geothermal wells, only that they must be below the frost line.

#### *Utility Setbacks*

Section 6-314.F.1.b states that geothermal systems must maintain a minimum distance of ten (10) feet from "existing storm water, sewer and water main utilities". There is a ten (10) foot drainage and utility easement along the west property line. The petitioner/ resident must ensure that the geothermal system maintains the required ten (10) feet from any public utility within that easement.

There is also a utility easement approximately 20 feet to the south of the proposed geothermal system. Depending on field measures, changes and installations, the petitioner must ensure that the system maintains the required ten (10) foot setback from any public utility within that easement.

## **DETAILED PLANNING DISCUSSION**

### **Natural Features**

The geothermal system does not impact any natural features or any trees. Though the system is predominantly underground, there is no vegetation that will be disturbed in the installation process (according to aerials).

### **Preliminary Engineering**

The State of Illinois regulates the installation of geothermal energy systems via licensing.

### **Land Use/Compatibility**

Geothermal heat pump systems are highly compatible renewable energy systems for single family residential dwellings. They do not have a visual impact to the surrounding properties as they are located underground.

### **Lot Coverage**

Lot coverage remains unchanged. Geothermal system do not require additional hardscape.

### **Mechanicals/Utility Conduits**

If the connection to the house necessitates any housing or other assembly prior to penetration, all mechanical equipment must be screened at grade level with landscaping.

This is now before Plan Commission for consideration.

### **Recommended Action/Motion**

I move to accept as findings of fact of this Plan Commission the findings of fact set forth in this staff report, dated November 11, 2014,

And

I move to recommend to the Village Board to approve the appearance (environmental clean technology) review for a geothermal heat pump system at 14232 Ashford Court as depicted on the plat of survey titled "Plat of Survey", prepared by the petitioner M. Patel, dated received on September 12, 2014, subject to the following conditions:

- 1) Meet all Building Code related items.
- 2) Obtain necessary permits from the State prior to issuance of a building permit.
- 3) Maintain the required 10 foot setback from all public utilities and infrastructure.
- 4) All mechanical equipment must be screened at grade level with landscaping.

