

# The Smith Residence



*Matt Dennis, Home Energy Advisor*

# Smith Residence



502 West Maple Ave  
Newark, NY, 14513

# Life's Good



This is a video

# Why We Feel This Project is Top-Job Worthy



- Retrofit job, not new construction. If we are going to bring geothermal to scale, there are a lot more homes to be retrofitted than new homes being built.
- Whole home makeover following historical guidelines, including major shell work.
- Tight village application for horizontal ground loop
- 20 ton 3 phase VRF with heat recovery
  - 30 ductless heads
  - Hydro kit for domestic hot water

# Challenges



- Design challenges due to historical significance
- Tight lot
- Existing 2 pipe steam system not compatible with geo
- Needed cooling
- Future bed and breakfast, need individual heating and cooling abilities
- Carriage house converted to apartment



# Other Benefits to Electrification



- Removing boiler means removing chimney, used chase for elevator
- Finished walk up attic with 7 bedrooms



# Addressing the building envelope



- Attic-
  - Walk up attic converted into living space
  - Spray foam roof deck and wall

# Addressing the building envelope





# Addressing the building envelope



- Windows
  - Old period specific leaded glass windows
  - Installed insulated interior storms to maintain the period look of the house

# Envelope Improvements



- Blower door
  - Test in and test out blower doors completed
  - Made significant improvements



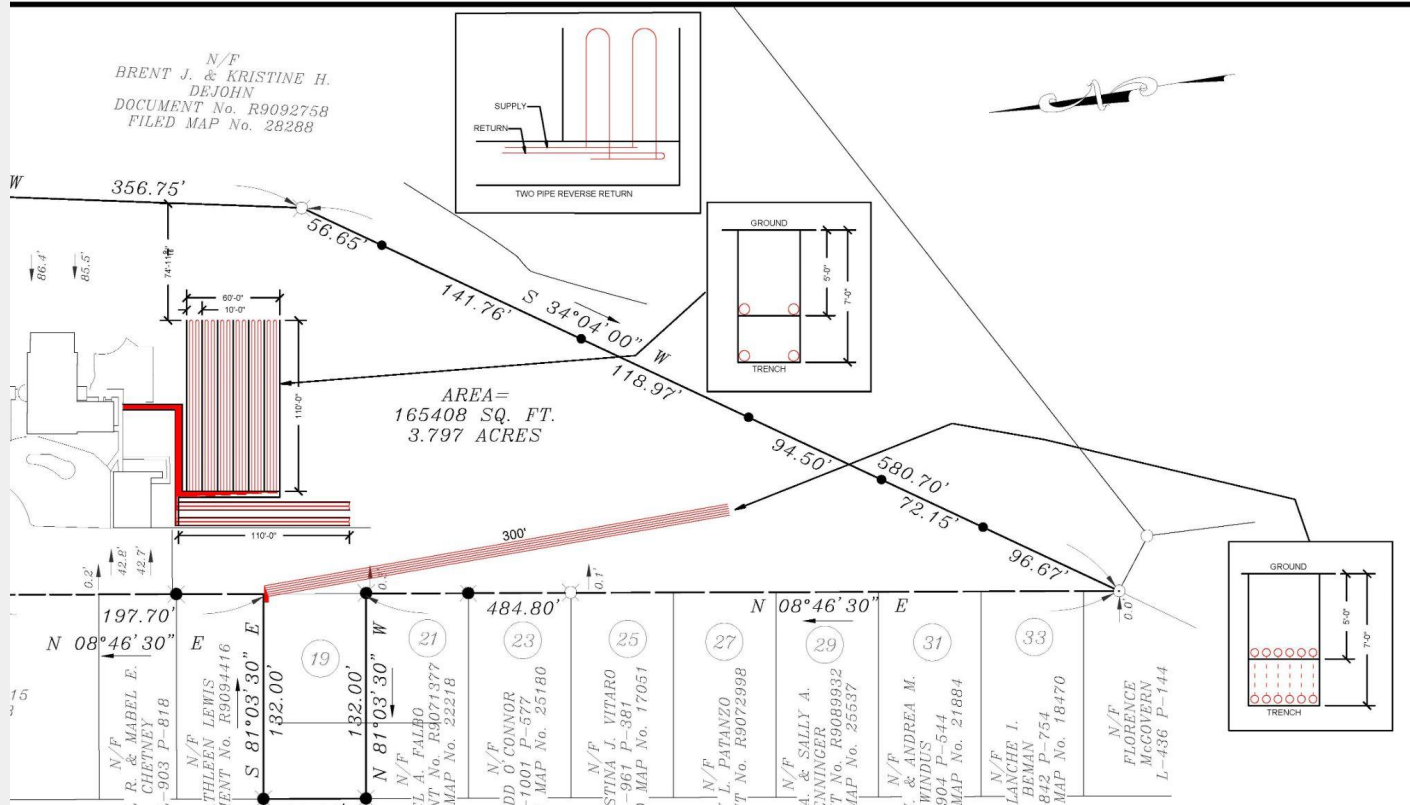
# Ground Loop



- 20-ton system
- 3 separate loop fields
- 9,000 feet of  $\frac{3}{4}$ " HDPE



# Digging





# Digging





# GSHP Heating and Cooling



- LG ARWM240BAS5 20 ton VRF with heat recovery GSHP
- (6) Heat Recovery Units
- Installed in the basement
- 30 ductfree heads from 5k-15k btu
- Individual controls for simultaneous heating and cooling
- 2 large Energy Recovery Ventilators

# GSHP Heating and Cooling



# GSHP Heating and Cooling



# GSHP Domestic Hot Water



- LG ARNH763K3B2 Hydro Kit
- (3) 120 gallon storage tanks
- Installed in the basement
- Heat recovery makes domestic water nearly free for parts of the year
- Serves 18 bathrooms



# GSHP Domestic Hot Water





## In Conclusion...

Hal Smith, Owner and CEO of Halco has taken to heart our message and goal of energy efficacy and electrification and has chosen to lead by example

Halco works diligently every day to make homes large or small, simple or complex to be the most efficient they can be and we embrace the “Whole House Approach” to make sure everything we do is as efficient as possible.

We take pride in our customers for life policies and hope to continue to be the industry leaders in home efficacy and electrification

Thank you!

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