



VAPOR INTRUSION INVESTIGATION

**Ron's Discount Energy Mart
2509 Philadelphia Pike
Claymont, DE
Project ID # N8811068**

Scope of Services

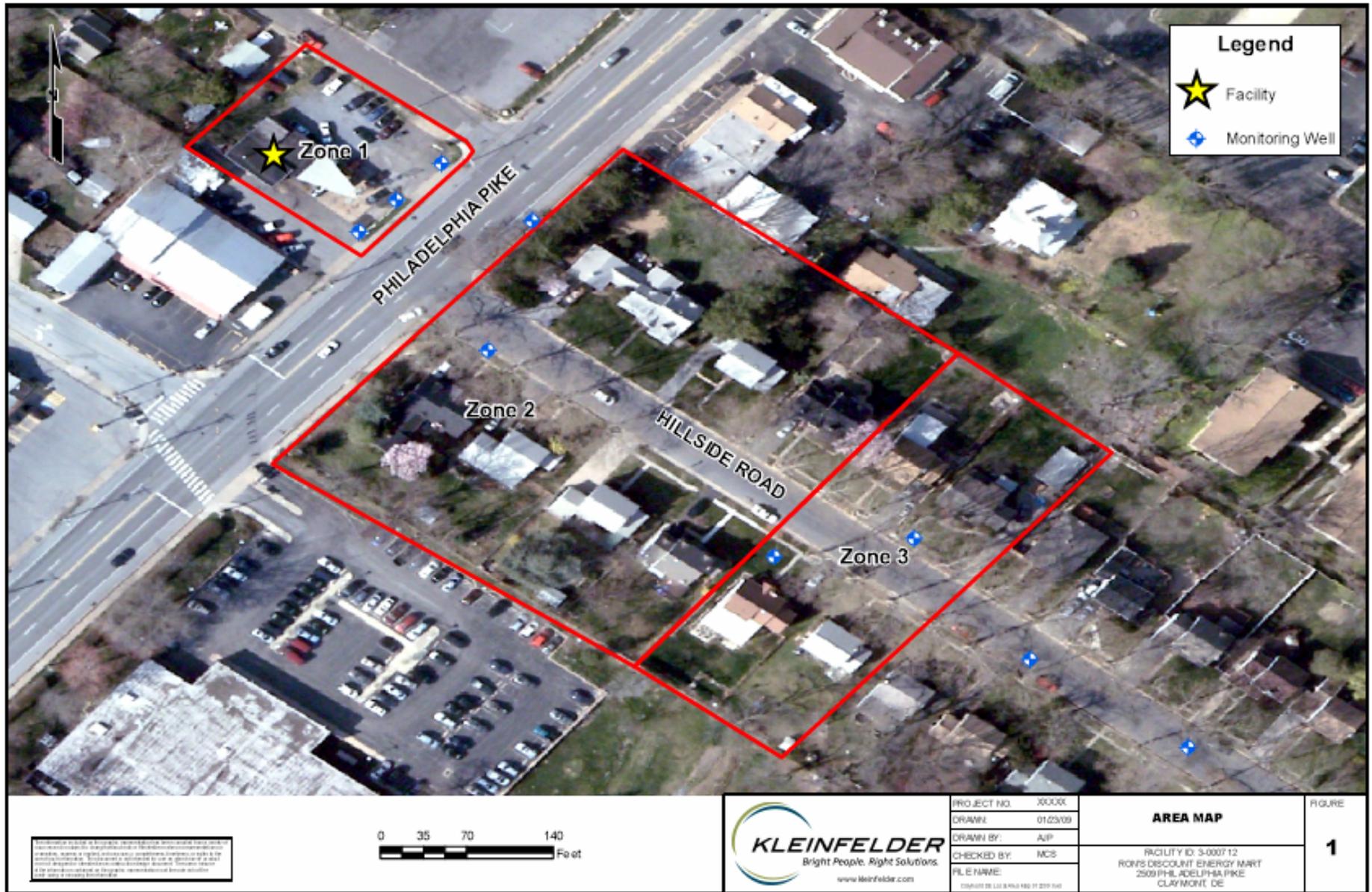
1. Participate in public meeting with DNREC – TMB and interface with property owners in the Hillside Road neighborhood.
2. Assess health hazards that may be associated with petroleum vapor migration into future structures within the boundaries of Ron's Discount Energy Mart (the Site) associated with the proposed future redevelopment, and provide recommendations regarding appropriate remedies.
3. Assess the potential for petroleum vapor migration into the off-site residences along Hillside Road, and if appropriate, provide recommendations for vapor mitigation.
4. Continue the quarterly groundwater monitoring and reporting program for the existing network of monitoring wells.

Technical Approach

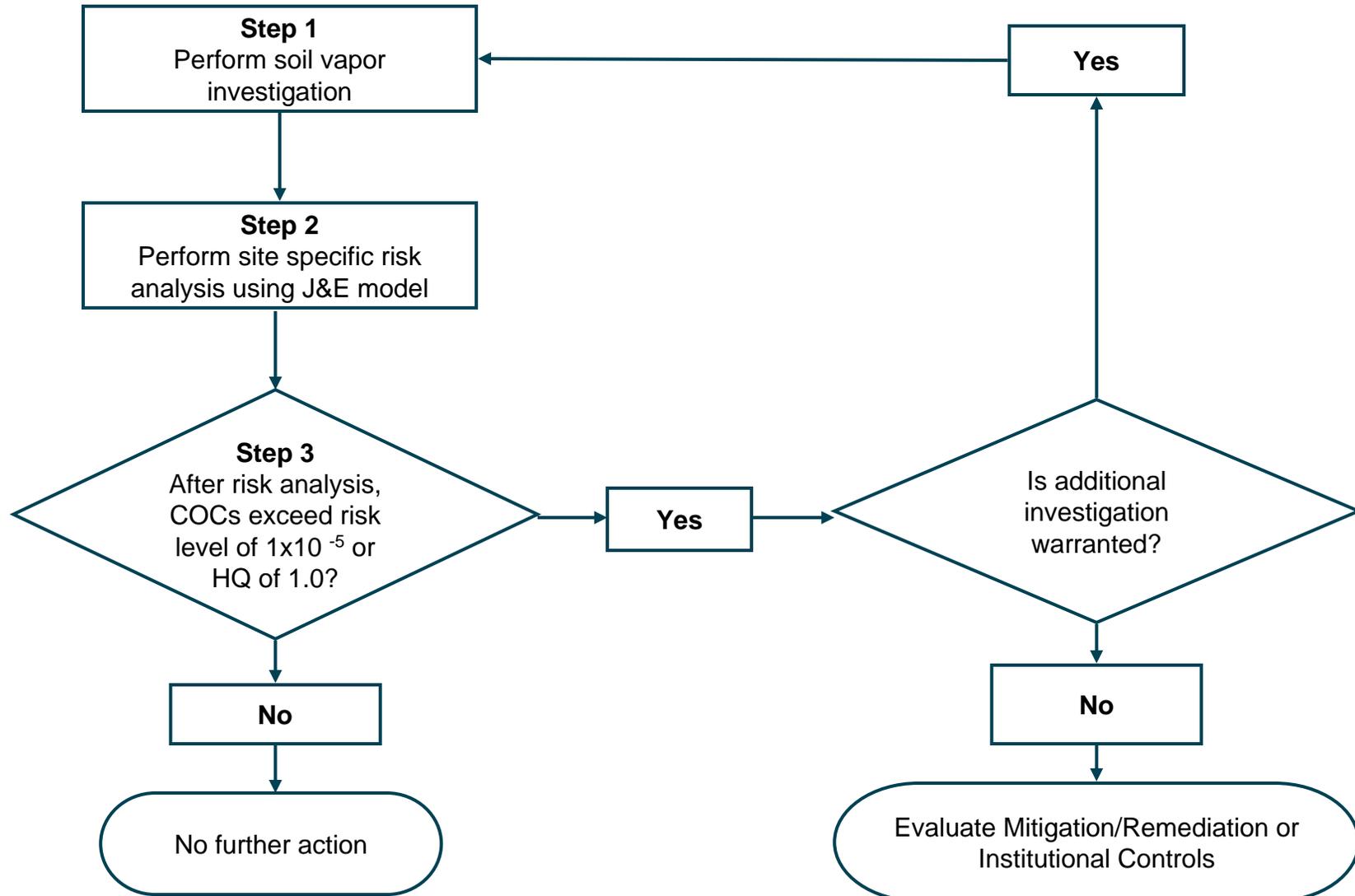
Table 1 - Investigation Summary

Designation	Area	Conceptual Site Model	Risk Scenario	Proposed Scope of Work
Zone 1	On-Site Facility	Future Vapor Intrusion	Commercial	Soil Vapor Investigation
Zone 2	2-8 Hillside Road	Vapor Intrusion	Residential	Soil Vapor Investigation
Zone 3	9-12 Hillside Road	Groundwater Intrusion / Preferential Pathway	Residential	Indoor Air Sampling

Area Map



Zone 1
Decision Making Flow Chart for
Evaluation of Vapor Intrusion Pathway



Zone 1 – Facility Soil Vapor Investigation

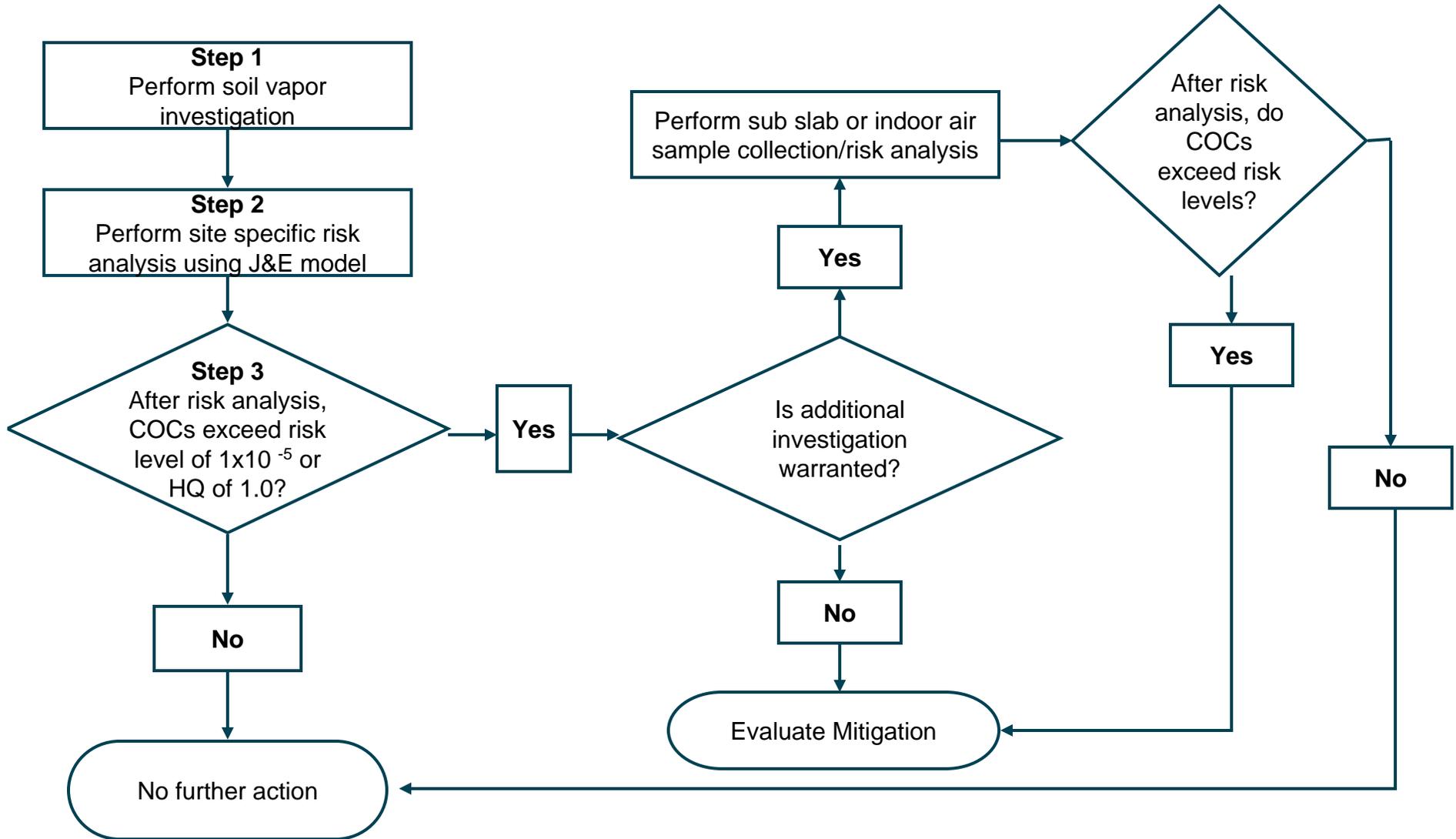
- Four proposed soil vapor points for initial assessment of vapor conditions
- Points installed with geoprobe to 8 feet below grade
- Sample collection with summa canisters and analysis for VOCs and methane
- Ambient air sample included for background conditions
- Risk analysis using J&E Model under commercial scenario



Proposed SVMP Location Plan



Zone 2 Decision Making Flow Chart for Evaluation of Vapor Intrusion Pathway



Zone 2 – Residential Soil Vapor Investigation

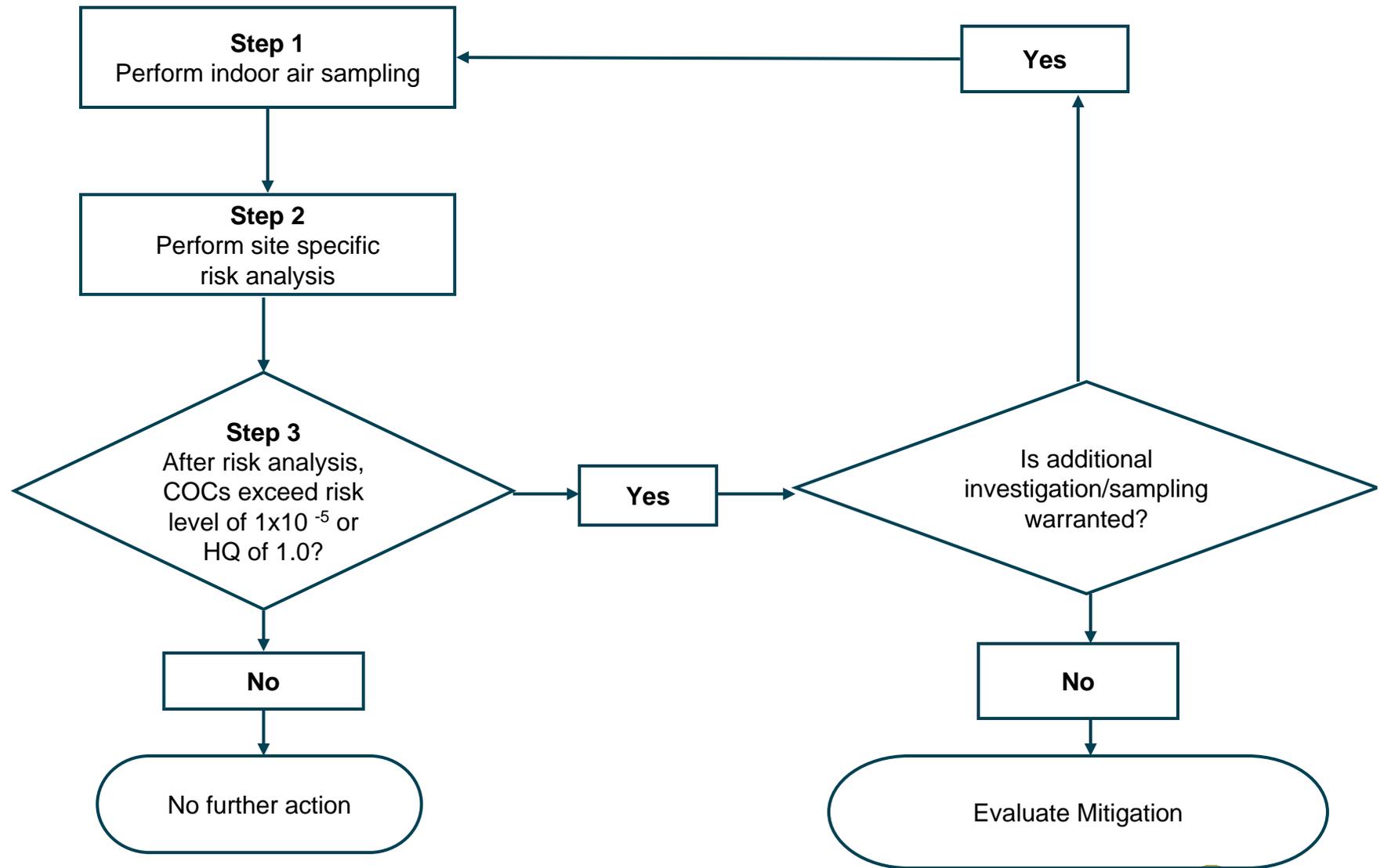
- Soil vapor investigation of 2-8 Hillside Road residences
- Fourteen proposed soil vapor points (two per residence) for initial assessment of vapor conditions
- Points installed with geoprobe to basement depth ~7 - 8 feet below grade
- Sample collection with summa canisters and analysis for VOCs and methane
- Ambient air sample included for background conditions
- Risk analysis using J&E Model under residential scenario



Zone 2 – Proposed SVMP Map



Zone 3
Decision Making Flow Chart for
Evaluation of Vapor Intrusion Pathway



Zone 3 – Residential Indoor Air Sampling

- Indoor air sampling of 9-12 Hillside Road residences
- Comprehensive pre-sampling building survey
- Ambient, basement and first floor samples for 24 hrs are proposed
- Sample collection with summa canisters and analysis for VOCs and methane



Zone 3 – Area Map



Fee and Schedule

Table 2 – Fee and Schedule

Task	Estimated Fee	Time Period
Quarterly Sampling and Reporting	\$10,600	March 2009 – March 2010
Public Meeting	\$4,100	March 2009
Off-Site Access	\$3,000	April 2009
Zone 1 (Facility) Investigation	\$5,700	May 2009
Zone 2 (Residential) Investigation	\$17,800	May 2009
Zone 3 (Residential) Indoor Air Sampling	\$7,200	May 2009
Data Analysis and Reporting	\$9,000	June – July 2009
Project Coordination	\$2,000	March – July 2009

