DISTRIBUTION OF EXPLOSIVES IN SOILS AND GROUND WATER AT MMR

Jay Clausen, AMEC

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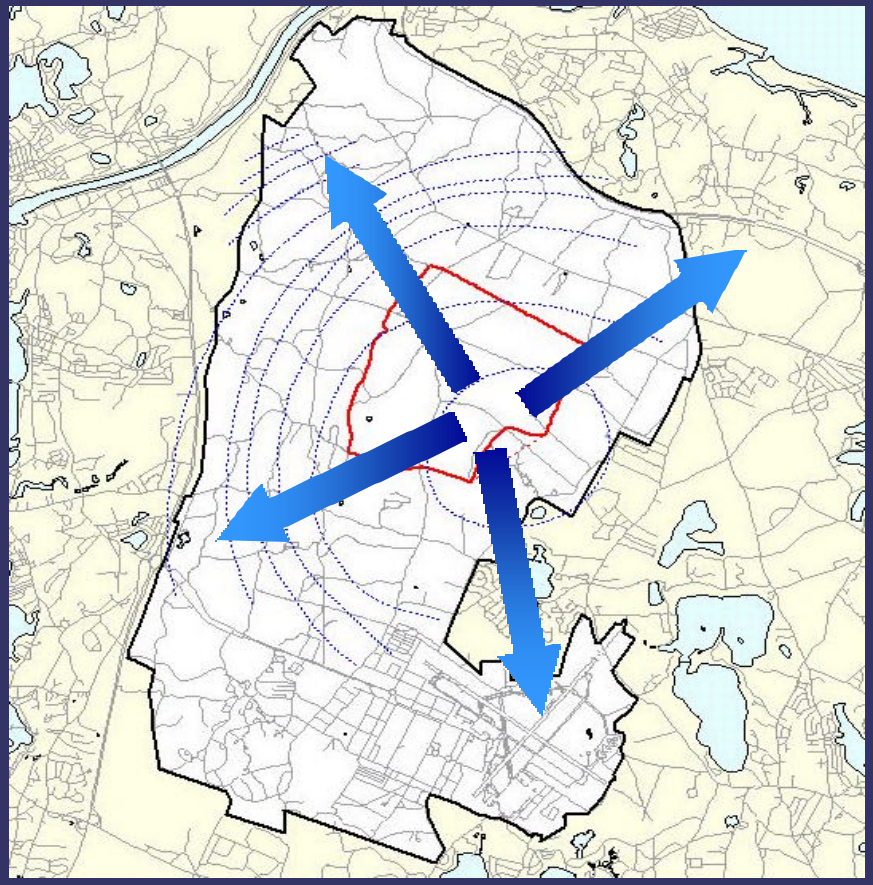
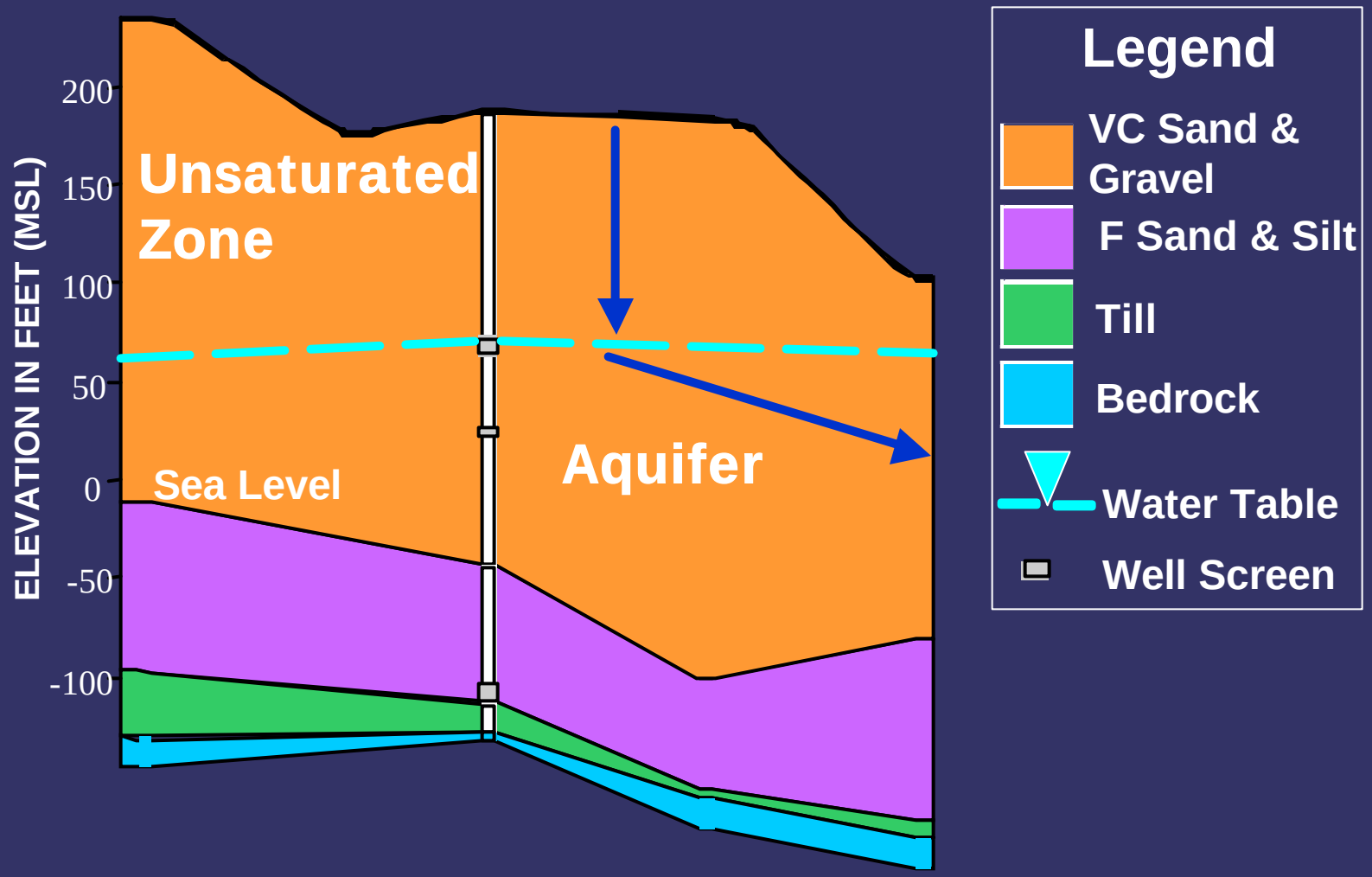
Hydrogeology



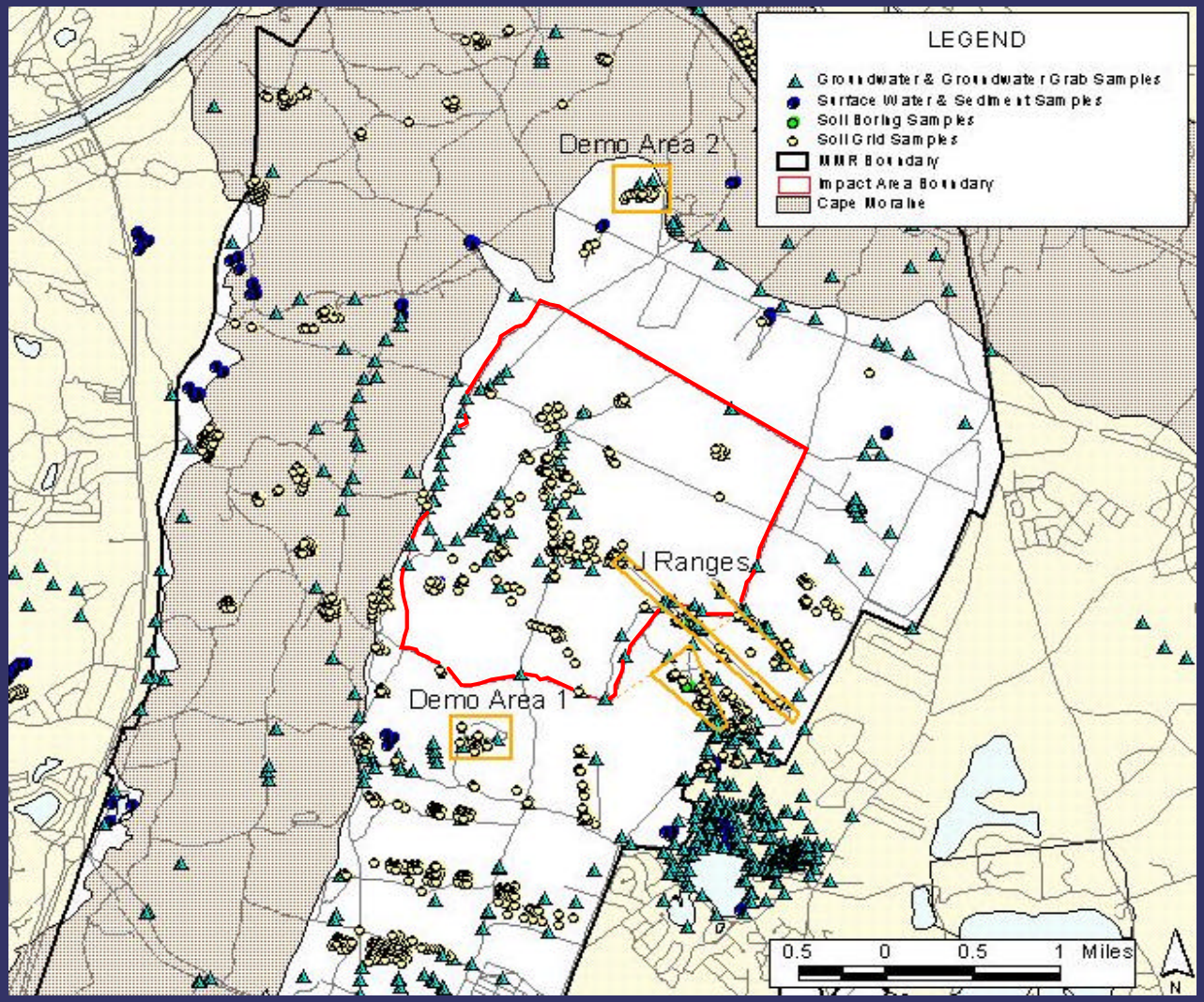
- Groundwater flow is radial with the mound to the southeast of the Impact Area in the J Range Area
- Groundwater flow is

  < 1 ft/day

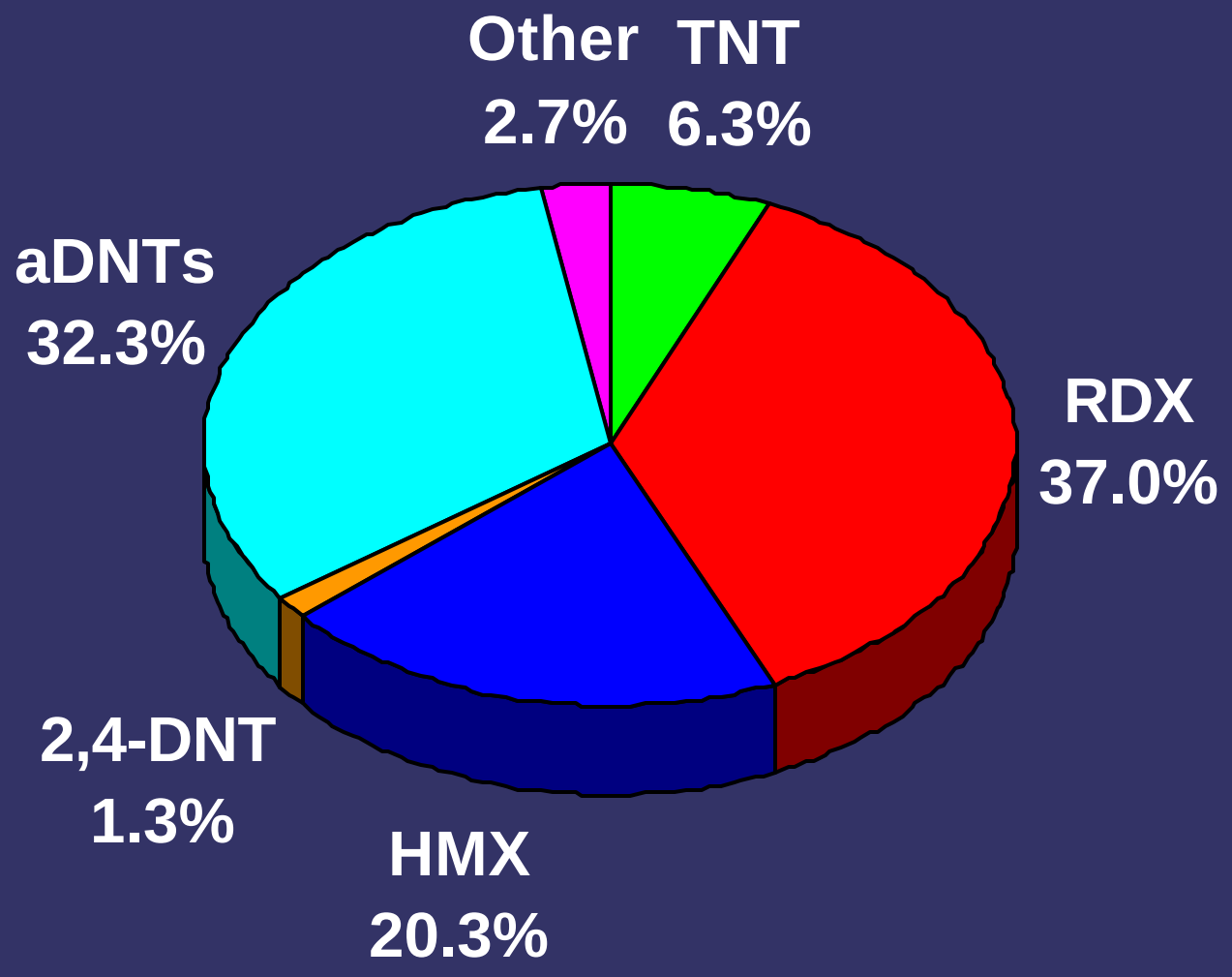
Lithology


ELEVATION IN FEET (MSL)
200
150
100
50
0
-50
-100
Unsaturated Zone
Sea Level
Aquifer
Legend
VC Sand & Gravel
F Sand & Silt
Till
Bedrock
Water Table
Well Screen

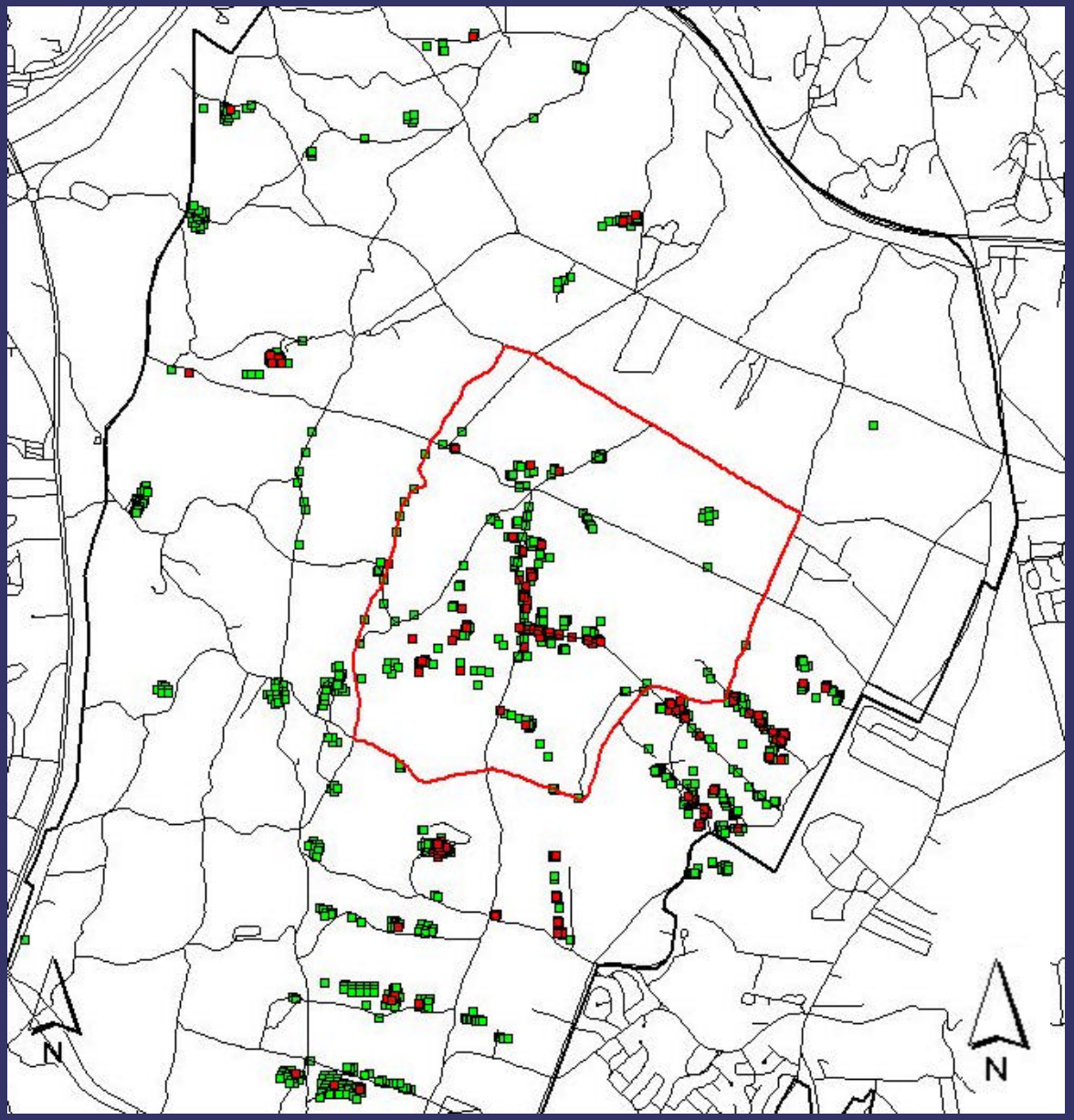
Areas of Investigation



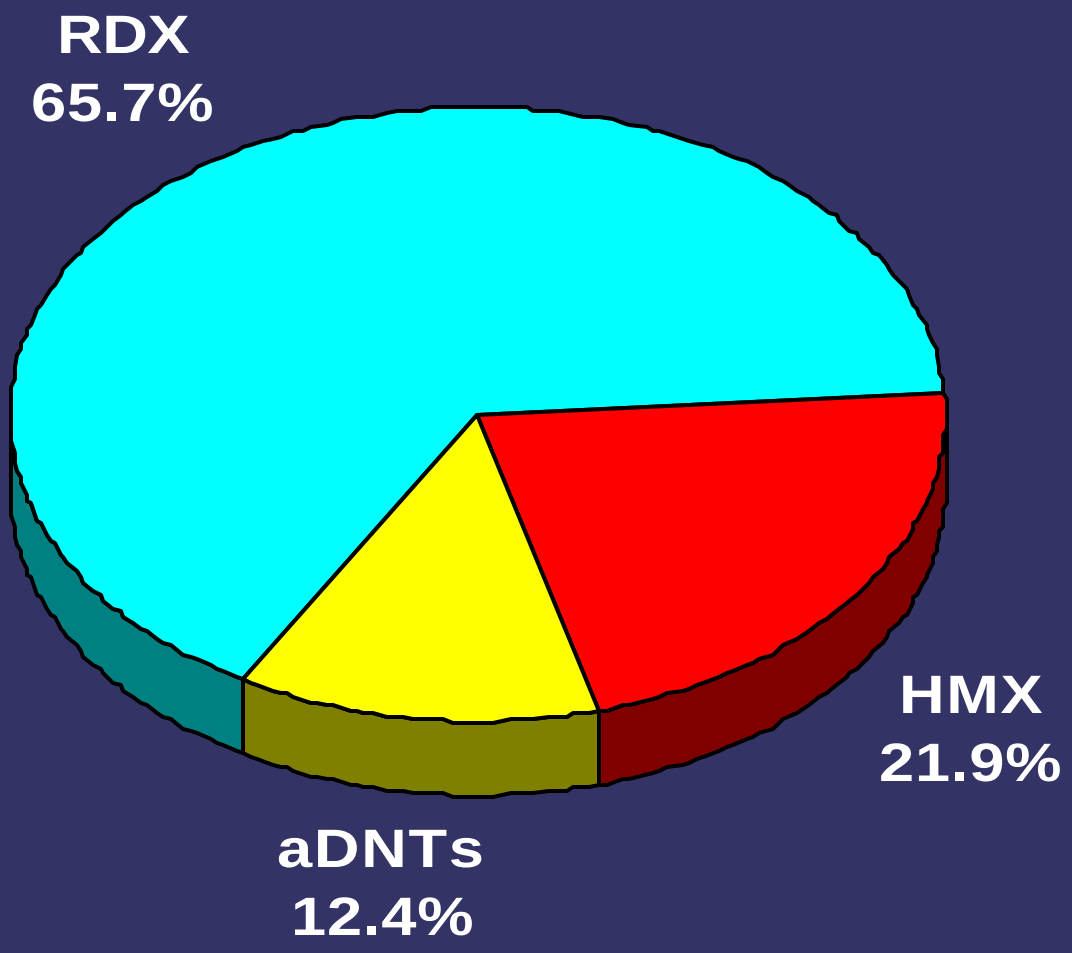
Surface Soil Findings (explosives)



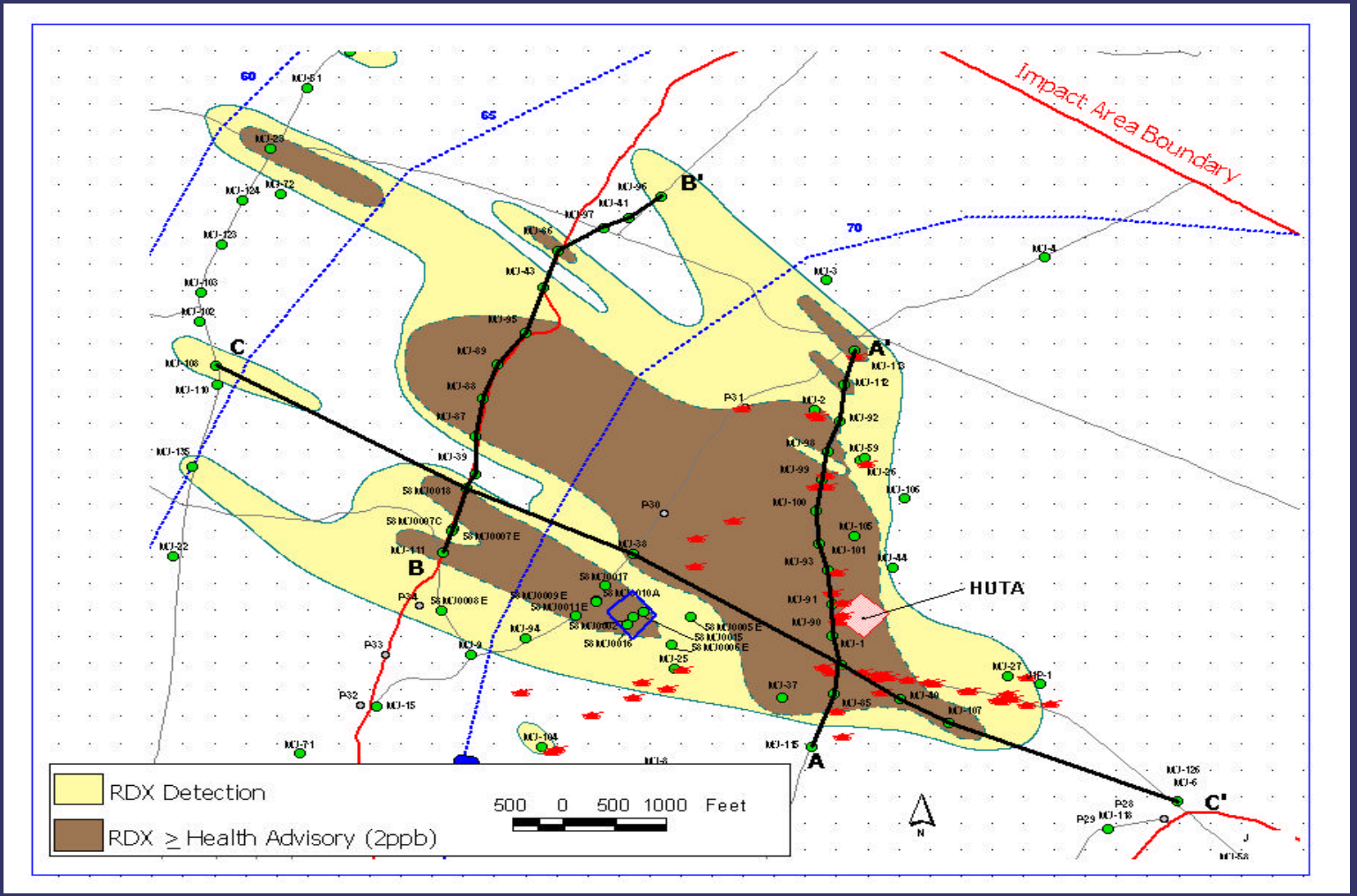
Soil Results (explosives)



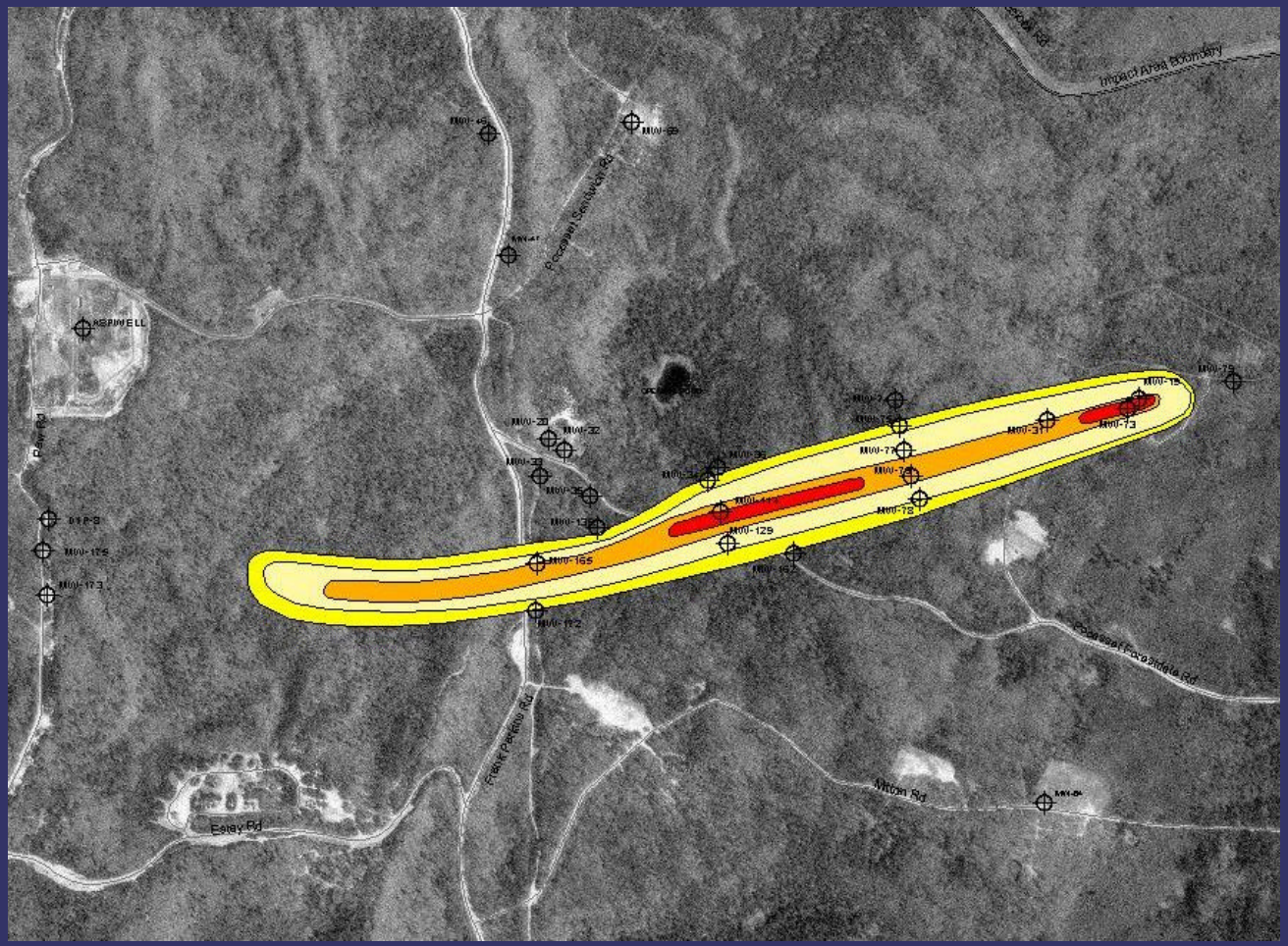
Groundwater Findings (explosives)



RDX Detections in the Impact Area



Demo 1 RDX PLUME MAP



0.25 - 2 ug/L

2 - 50 ug/L

50 - 100 ug/L

> 100 ug/L

Conclusions

- Demolition/disposal activities had largest groundwater impact
- RDX and HMX present in surface soil adjacent to artillery and mortar targets
- RDX and HMX present in groundwater downgradient of primary target area (i.e. Tank Alley) within the Impact Area
- TNT which is a component of the munitions appears to be degraded before reaching groundwater

Conclusions (cont.)

- Firing HE artillery and mortar rounds (UXO, detonation, or both) appears to have resulted in explosives in groundwater at MMR
- Some metals, PAHs, and pesticides/herbicides present in surface soil but no evidence of significant impacts to groundwater
- PCNs may be an issue for soil and perchlorate is now being found in groundwater