

A young tree with green leaves is positioned on the left side of the frame, reaching towards the top. The background is a bright blue sky with scattered white clouds. The text is overlaid on the right side of the image.

Restoration and Remediation of a Chlorinated Solvent Site in Oregon

**Lee Newman
and
Harry Compton**

The Tale of The Site

- **Originally farm land**
- **Horse pasture**
- **Apple orchard**
- **Changes in neighborhood**
- **Secluded access leads to trouble**

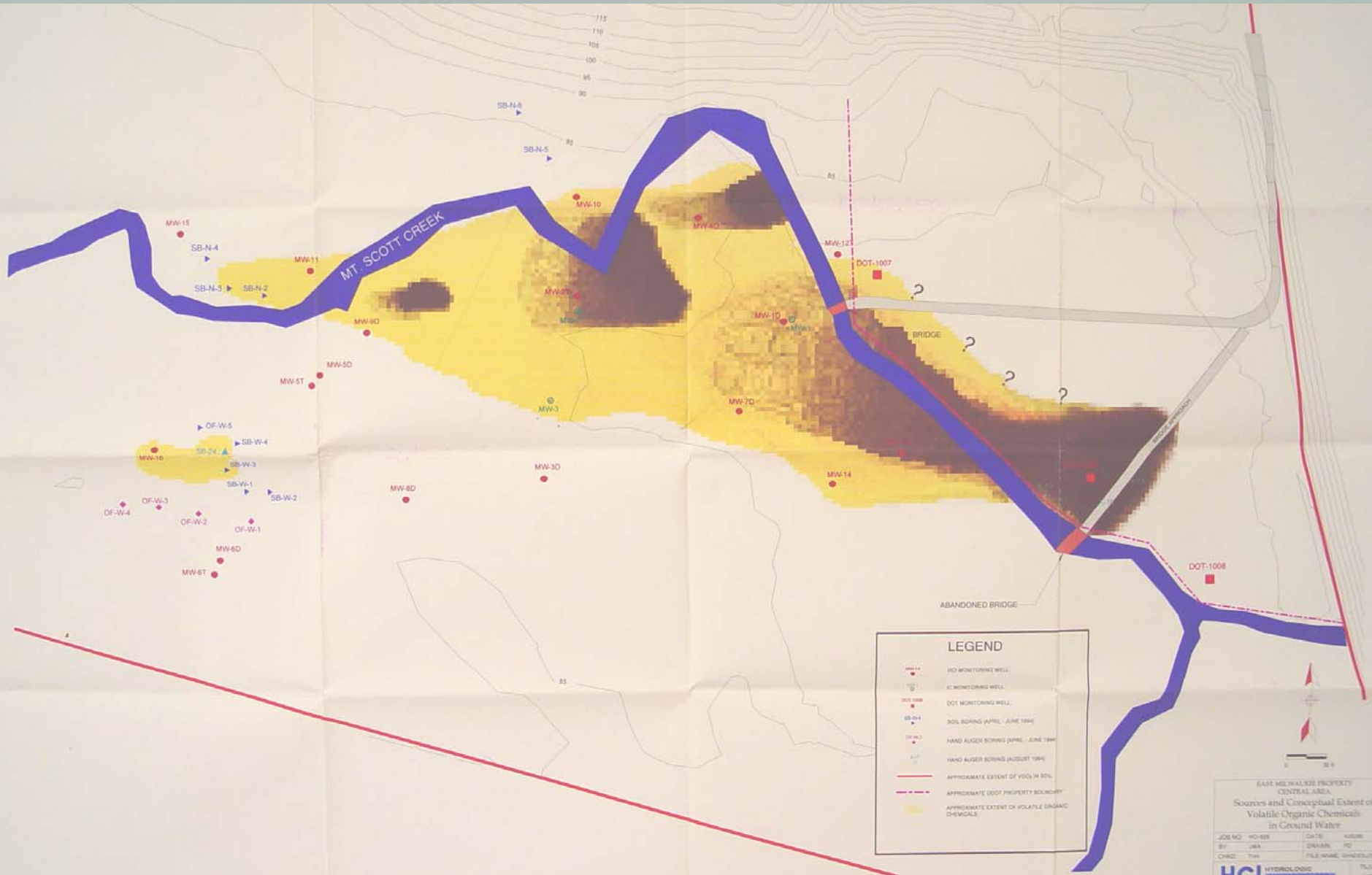
The Problem: Midnight Dumping

- **Exact nature, location and volume of contaminants unknown**
- **The potential for dumping to continue even as remediation is underway**
- **Previous unknown hot spots that are discovered during operations**

Future Plans

- **Site to become municipal park**
- **West side to be baseball fields and picnic areas**
- **East side to be returned to native woodlands**
- **Stream area to be revegetated with native plants**

Site Map



The West Side Solution

- **Excavation**
- **Aeration**
- **Covers *and* fans???**
- **Site impact**



Covered Piles



Stream Area

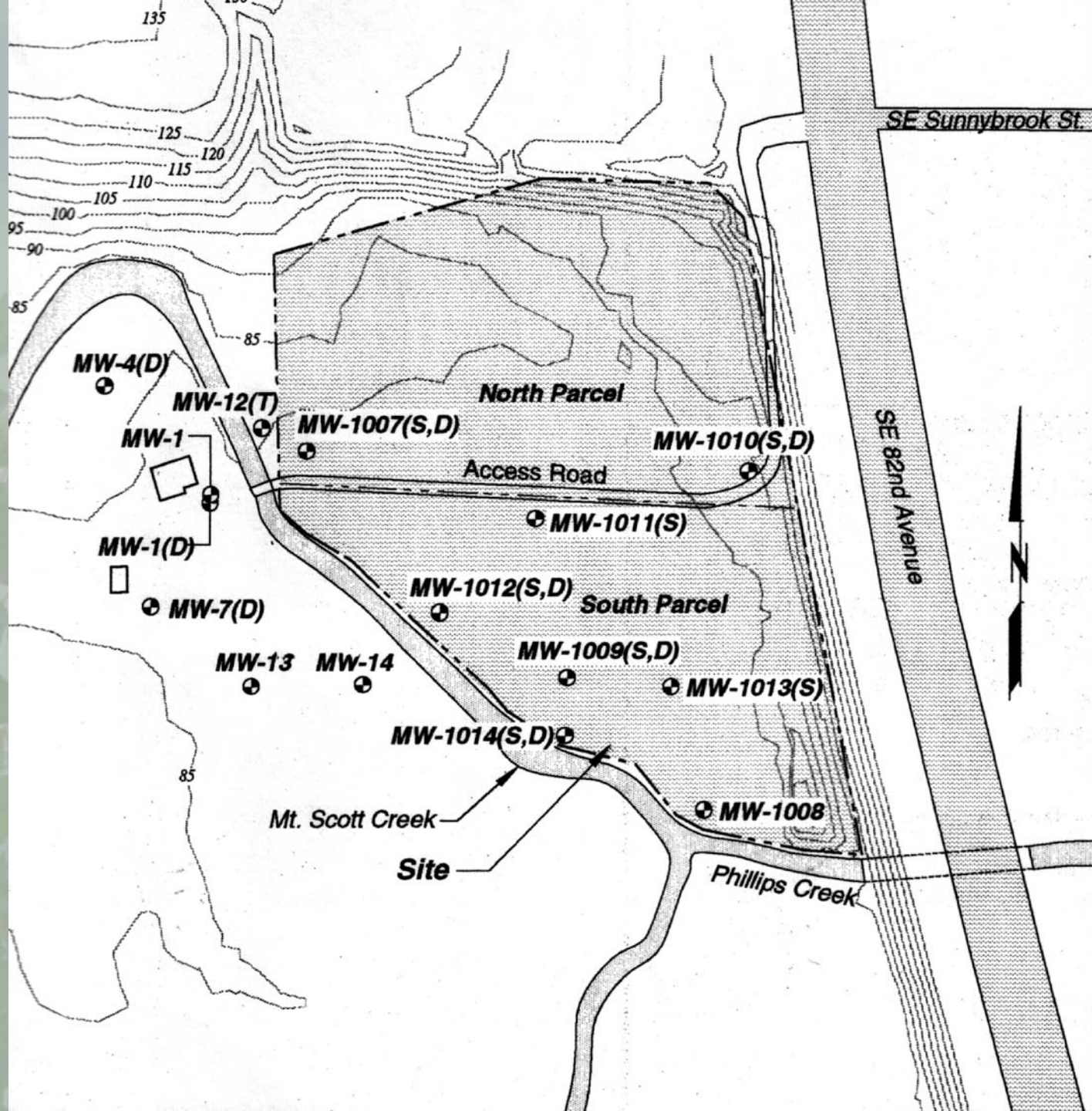
- **Native plant societies to provide the plants**
- **Local environmental groups to do planting**

The Stream



East Side Solution

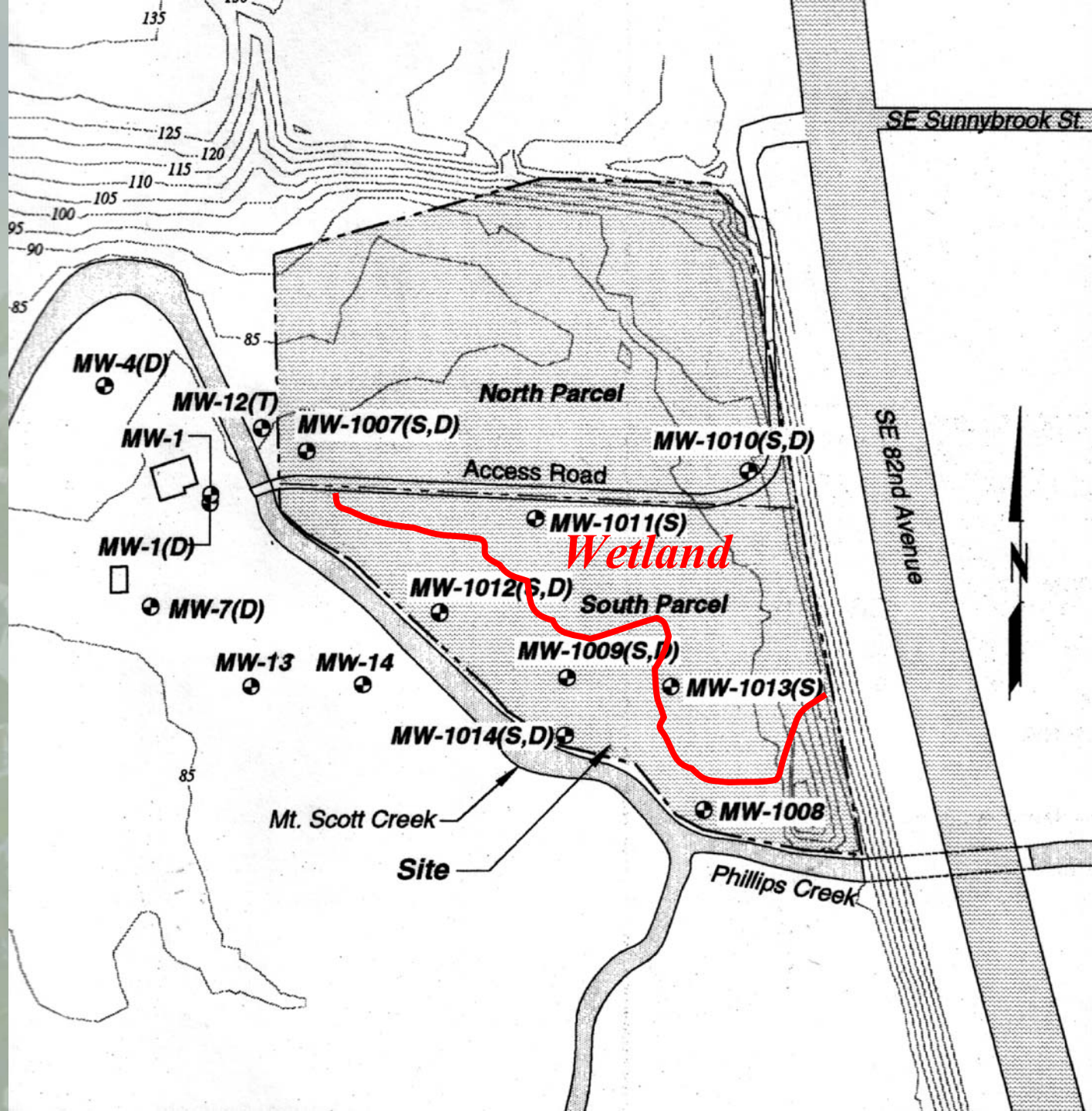
- **Phytoremediation, but...**
- **Desire for native vegetation to eventually take over site**
- **Wanting a ‘park-like’ setting, rather than designed for operations**
- **Use both native and hybrid trees from start**







Before Operations Start

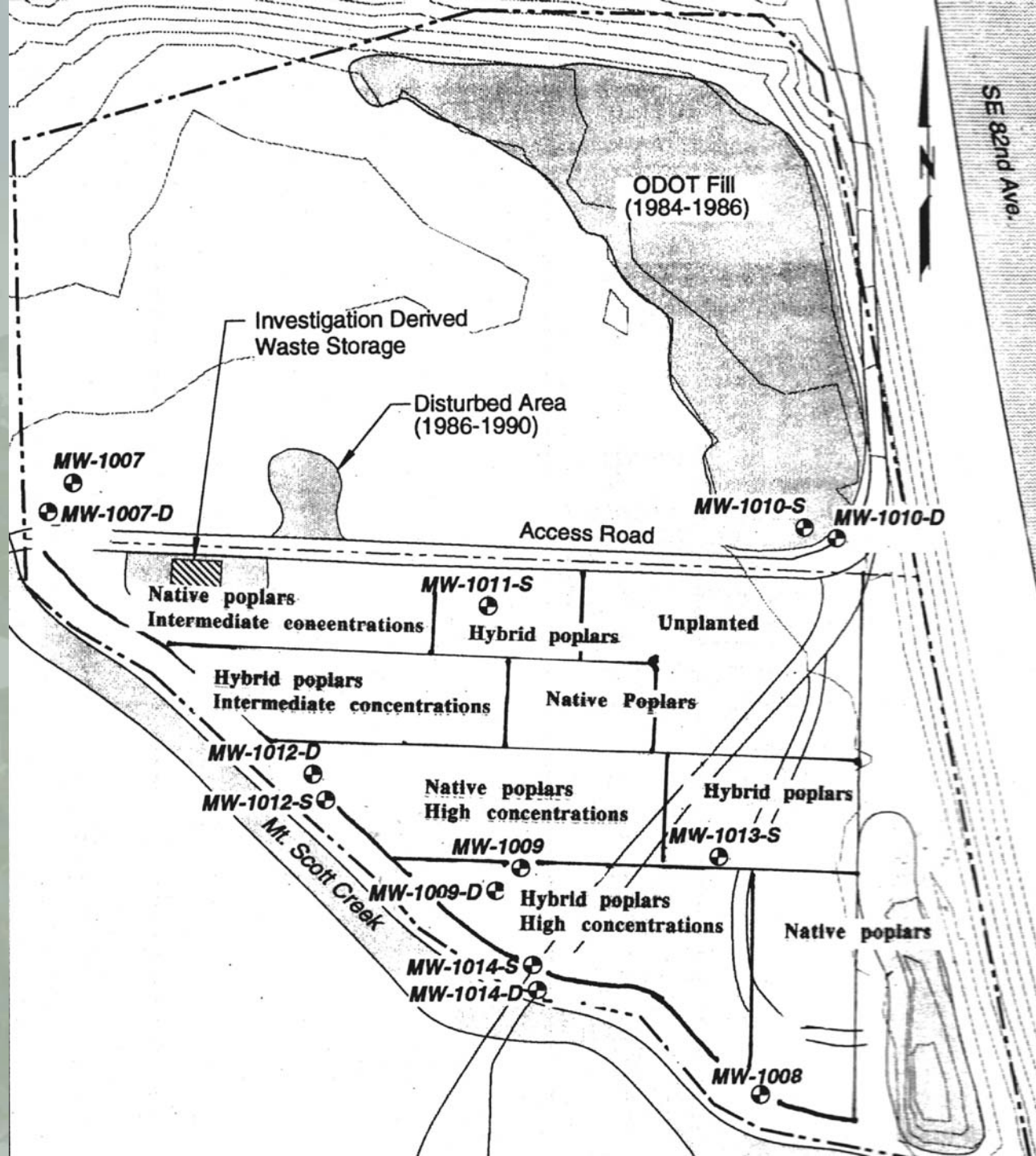


The Wetland Dilemma

- **Corps of Engineers, ODEQ and EPA differed in wetland delineation**
- **Needed to alter herbicide applications**
- **Design the planting plan to leave areas unplanted**
- **Justification of plant species**

Planting Constraints

- **Integrate native and hybrid plants**
- **Leave native vegetation whenever possible**
- **No straight rows and variation in spacing**
- **Material availability**
- **The Killdeer situation**
- **The dirtbike dilemma**
- **Voles and raptors**



????





The Raptor Perch

Planting Day



Early Summer and Suspicious Toxicity



Late Summer



Next Spring – Boarder Prep



Adobe, anyone?



Second Summer

- **Differences between hybrids and natives apparent**
- **Differences in soil prep areas had a big impact on the plants**



Native Trees







Hybrids

The Differences



And Still The Dumping...



Take-away Lessons

- **Need to work face-to-face with people who are involved with the project**
- **Develop ways plant in unconventional patterns**
- **Impress on workers that there are right and wrong times to work the field**
- **Improper herbicide applications can mimic contaminant toxicity**
- **Site security can be a major issue**

Paul Heilman

