The National Center for Phytoremediation Research, Practice, and Implementation

In association with the Environmental Protection Agency and the University of Louisville

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...a modern facility on the cutting edge of phytoremediation technology, leading by example, for a more efficient, responsible, natural, and cost effective way to clean polluted and otherwise contaminated soils worldwide

Program

National Center for Phytoremediation Research and Implementation

- Research Center: labs, offices, and public education; a few retail shops/cafes
- Test Plots: research different plants effectiveness towards different contaminants
- Remediation Plots: used to test plants while actually cleaning the soil on site
- Saleable Plots: nursery for sale and implementation throughout city and country
- Greenhouse: nursery and research outside of the growing season
- Test Pools: research for cleaning w ater contaminants
- Green Practices: swales, bioretention, low maintenance landscaping, etc
- Involvement with University of Louisville

Phytoremediation

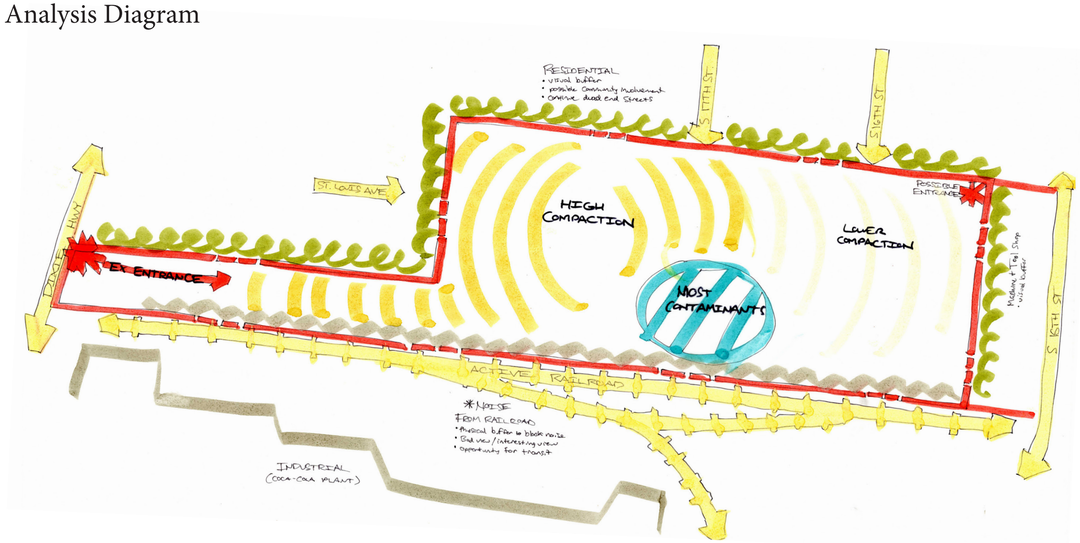
Using plants to naturally extract contaminants from soil

- cleans the soil on site
- no excavation cost
- no soil needs to be hauled away
- no replacement soil needs to be brought in
- considerably less expensive (100x-1000x)

10 Step Plan for Blackleaf Site

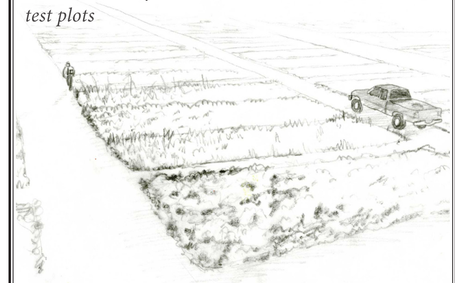
1. Materials Salvage
2. Demolition
3. Cleanup and Proper Disposal
4. Re-grading
5. Silt fences and other appropriate barriers
6. Initial phytoremediation plots planted
7. Construction or facilities and infrastructure
8. Remaining phytoremediation plots planted
9. Test to ensure site is safe to open
10. Open for operation

Analysis Diagram

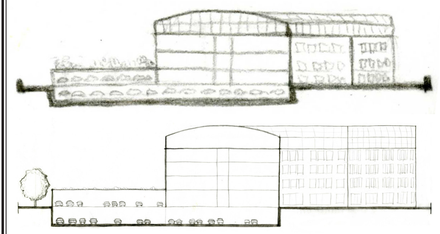


Preliminary Sketches

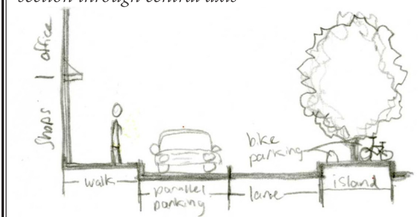
test plots



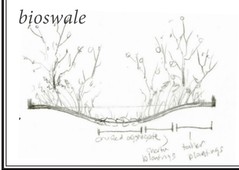
section through parking & building



section through central axis

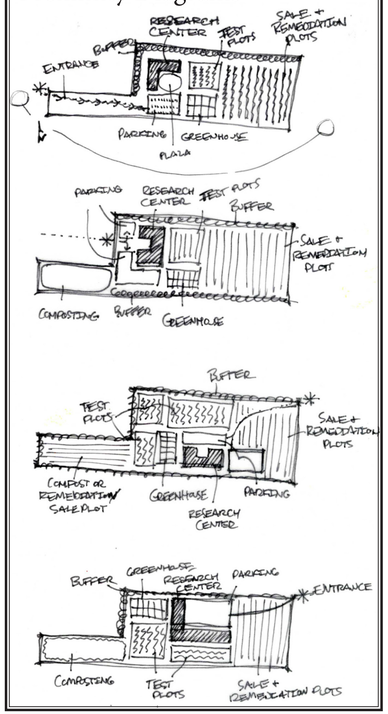


bioswale

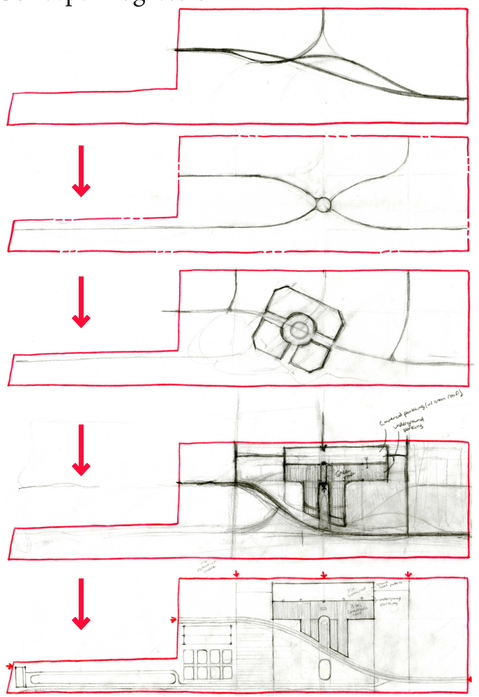


logo

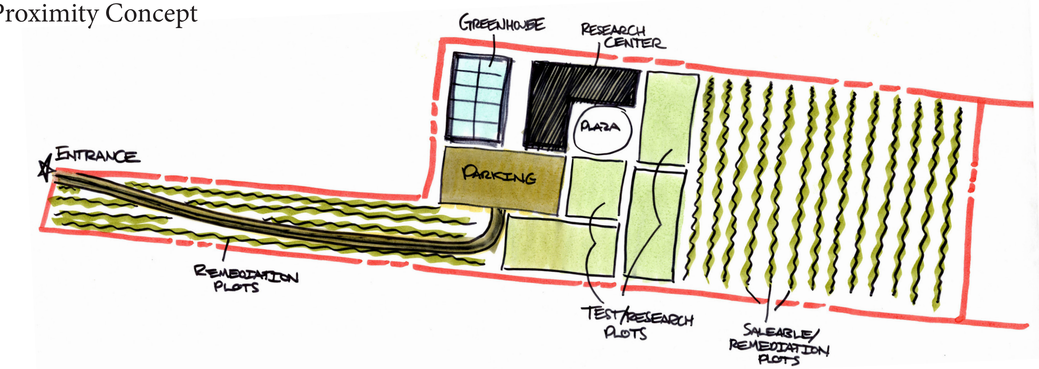
Proximity Diagrams



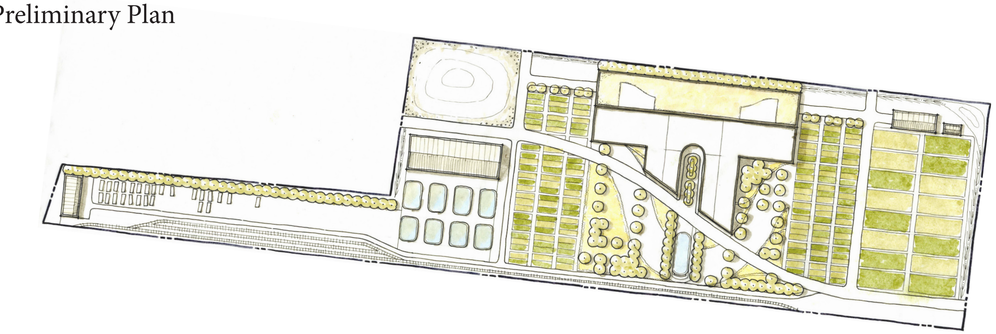
Concept Progression



Proximity Concept



Preliminary Plan



Phytoremediation References:

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Chaudhry, Q., et. al. 2002. Prospects and limitations of phytoremediation for the removal of persistent pesticides in the environment. ESPR – Environ Sci & Pollut Res. 9:4-17.

Chen, T-B. and C-Y. Wei. 2006. Arsenic accumulation by two brake ferns growing on an arsenic mine and their potential in phytoremediation. Chemosphere 63:1048-1053.

Seth, C.S., V. Misra, R.R. Singh, and L. Zolla. 2011. EDTA-enhanced lead phytoremediation in sunflower (Helianthus annuus L.) hydroponic culture. Plant Soil 347:231-242.

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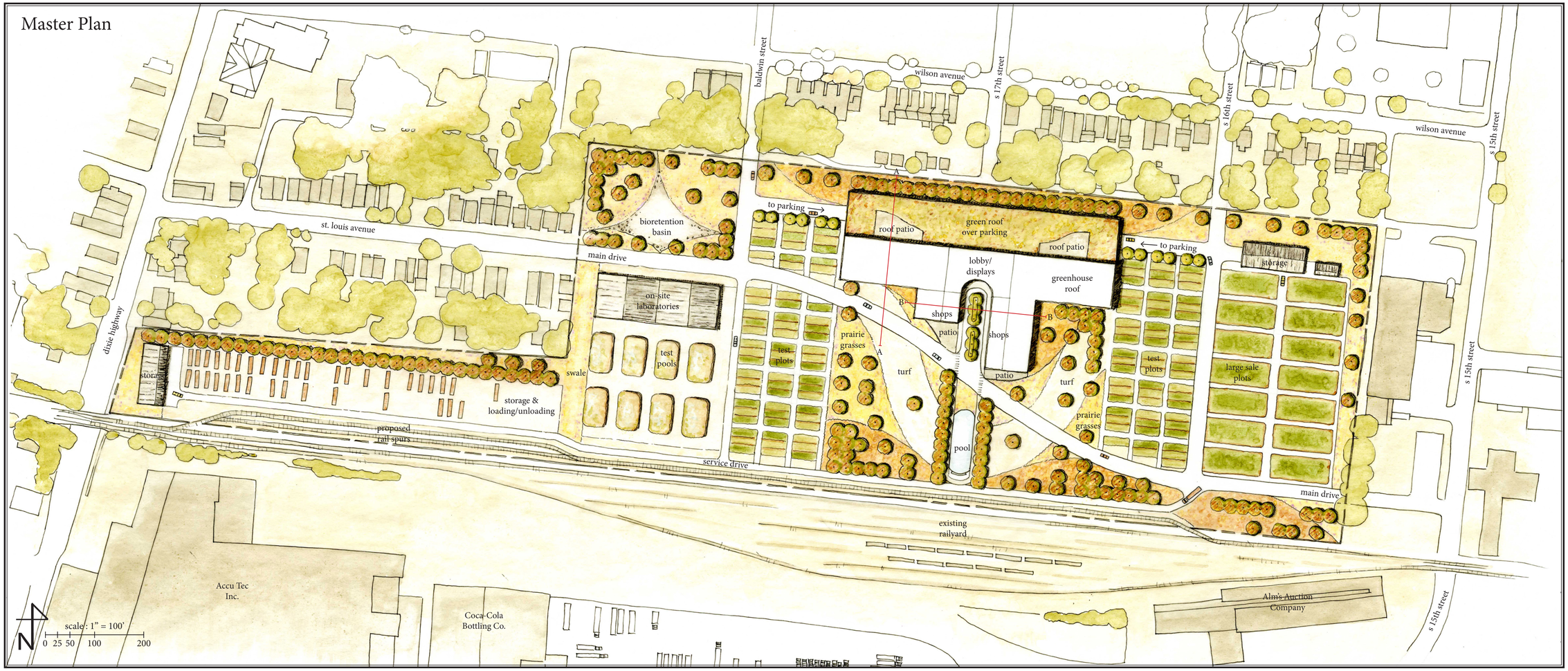
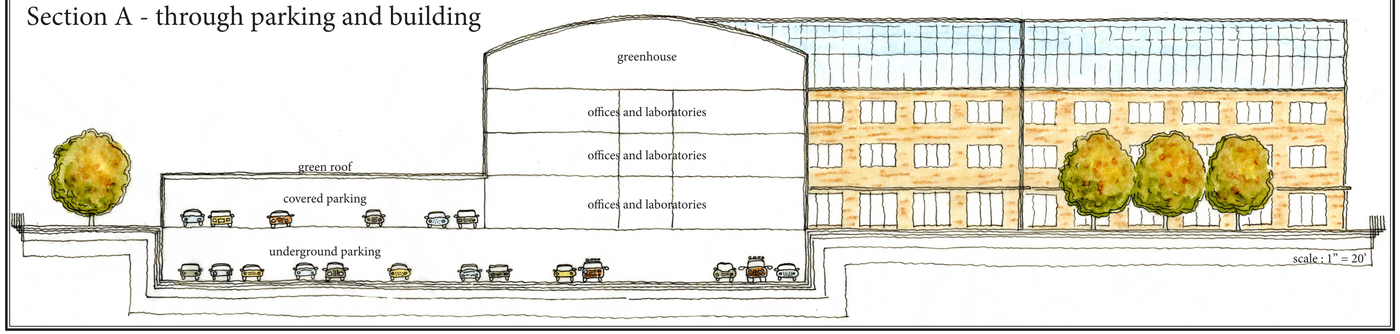
PLAN, SECTIONS, & PERSPECTIVES

Master Plan

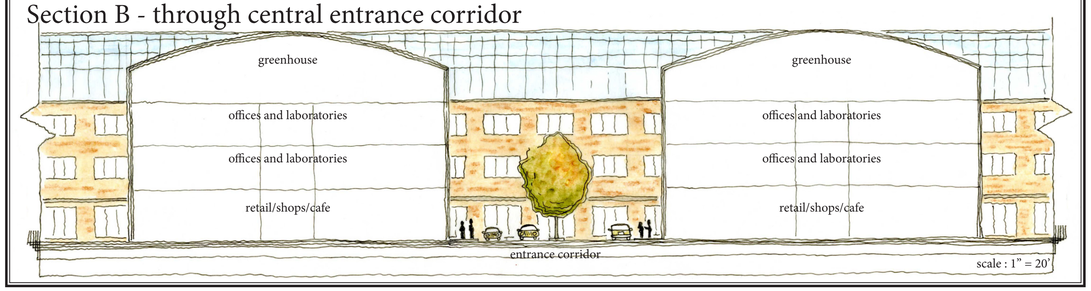


Perspective - looking northeast

Section A - through parking and building



Section B - through central entrance corridor



Perspective - entrance corridor