



*Time Critical Removal Action (TCRA)*

*Rocket Ridge Area of Open Demolition Area  
#2 (ODA2)*

*Restoration of Stream Diversion Channel*

Ravenna RAB Presentation

February 20, 2013



# Project Review - Site Description

- Rocket Ridge is a steep embankment along Sand Creek within Open Demolition Area #2 (ODA2) .
- ODA2 was used for detonation of munitions for demilitarization purposes.
- Rocket Ridge slope was used for disposal of the demilitarized munitions at ODA2; although not all munitions were completely demilitarized.
- Rocket Ridge was used during late 1940's to early 1950's.
- TCRA operations were completed September 2011.
- Restoration of the stream diversion channel is the final phase of the project.

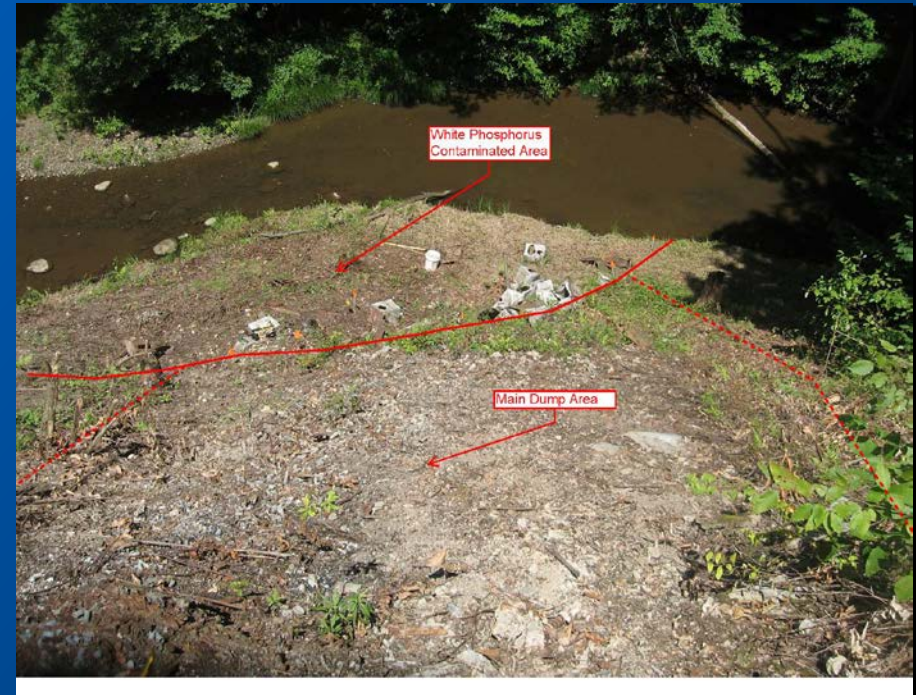


# Objectives of TCRA

- Removed all Munitions and Explosives of Concern (MEC) and Munitions Debris (MD).
- Removed all white phosphorus contaminated materials.
- Collected confirmation soil samples to verify removal.
- Restored the site.
- Prepared Removal Action Report (RAR) to describe in detail the actions taken to remove the MEC, MD and white phosphorus contamination at the site.
- Restoration of stream diversion to be completed spring 2013.



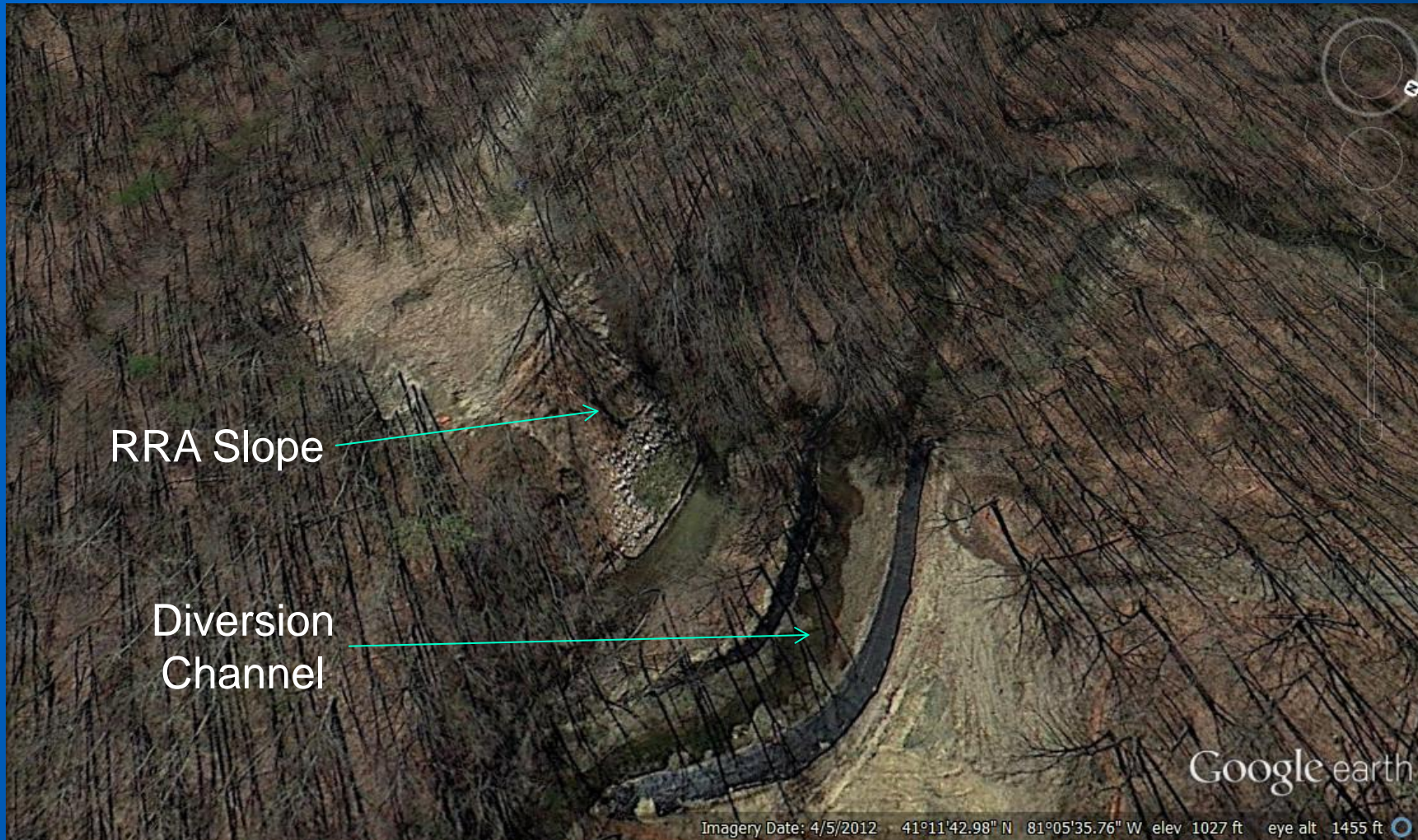
# Views of Rocket Ridge Site







# Stream Diversion Operations Completed December 2011







# Excavation and Removal - Completed February 2011







# Restoration of RRA Slope Completed September 2011







# Restoration of Stream Diversion Channel Planned for April – May 2013







# Conceptual Restoration Plan

### General notes

1. Geotextile fabric will be removed from the south and north banks utilizing an extended reach excavator which will remain based on the north bank. This will help preserve and protect the existing established channel vegetation that includes numerous sedges, grasses, willows, and cottonwoods.
2. The south bank will be roughly re-graded (using the excavator bucket) and immediately seeded and mulched with C125BN Erosion control blanket or biodegradable jute mat equivalent.
3. The north bank will be roughly re-graded and the outside meander bend laid back flatter (approximately as shown).
4. Seeding will commence on the north bank following grading and log weir placement. It will be seeded and then mulched with C125BN Erosion control blanket or jute mat equivalent.
5. The erosion control blanket will be secured with staples per manufacture specifications and the bottom and top edges trenched or tacked in as appropriate. The top edge of the north bank will be installed with a 250 foot length of Filtrex Sox ©

### Proposed seed mixes

#### Ohio Prairie Nursery (Woodland edge (modified) seed mix)

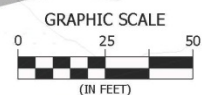
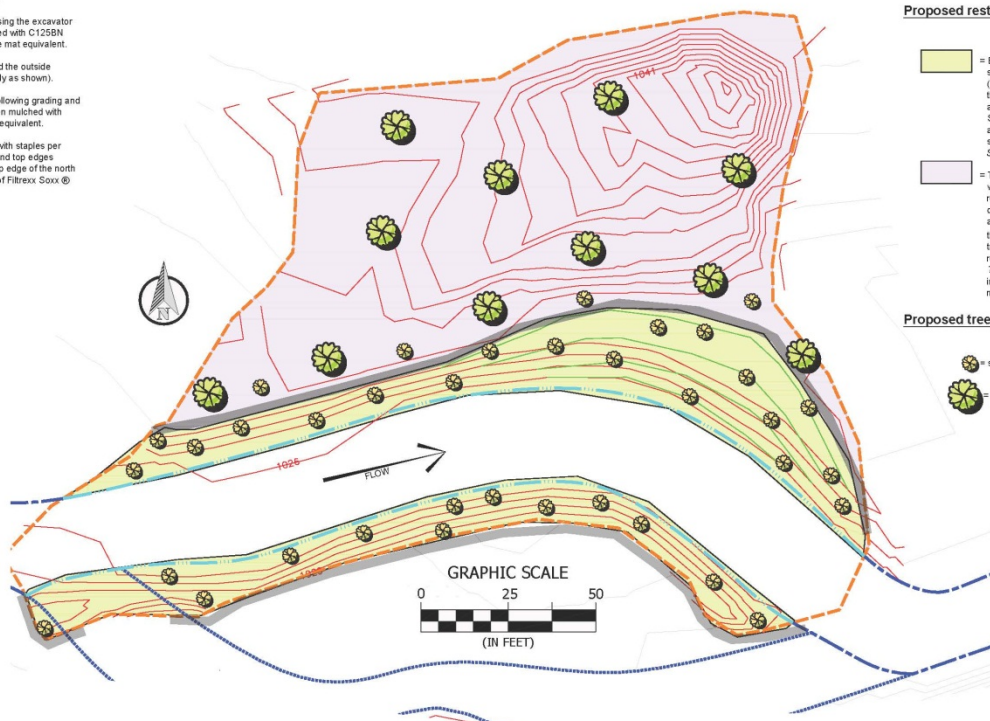
- Elymus virginicus* - Virginia Wild Rye
- Hydrix patula* - Bottlebrush Grass
- Chamaecrista fasciculata* - Partridge Pea
- Helopsis helianthoides* - Ox Eye Sunflower
- Echinacea purpurea* - Purple Coneflower
- Ratibida pinnata* - Grey-Headed Coneflower
- Rudbeckia hirta* - Black-eyed Susan
- Rudbeckia triloba* - Brown-eyed Susan
- Asclepias tuberosa* - Butterfly Weed
- Solidago* sp. - Goldenrod species
- Monarda fistulosa* - Wild Bergamot
- Eupatorium purpureum* - Sweet Joe Pye
- Aster novae-angliae* - New England Aster
- Aster* sp. - Aster species

#### Ohio Prairie Nursery (Ohio Floodplain (modified) seed mix)

- Grasses and grass-like**
- Elymus canadensis*-Nodding Wild Rye
- Elymus virginicus*-Virginia Wild Rye
- Carex crinita*-Fringed Sedge
- Carex lurida*-Shallow/Lurid Sedge
- Glyceria grandis*-Reed Mannia Grass
- Scirpus atrovirens*-Dark Green Bulrush
- Scirpus validus*-Great/Soft-stemmed Bulrush
- Forbs**
- Astragalus altemifolia*-Wingstem
- Asclepias incarnata*-Swamp Milkweed
- Eupatorium perfoliatum*-Common Boneset
- Lobelia cardinalis*-Cardinal Flower
- Mimulus ruginosus*-Monkey Flower
- Rudbeckia laciniata*-Green-headed Coneflower
- Verbena hastata*-Blue Vervain
- Veronicastrum virginicum*-Culver's Root

- - - - - Approximate project area (0.6 acre)
- - - - - Perennial stream (existing)
- - - - - Relocated stream channel
- - - - - Original stream channel to remain
- - - - - Proposed bank shaping contour

- - - - - Approximate Filtrex Sox © location, 250 linear feet on the north bank and 225 linear feet on the south bank (as needed).



## Conceptual Restoration Plan

### Proposed restoration areas

= Bank restoration area will be seeded with a floodplain seed mix and stabilized with erosion control blanket (0.16 acre). After seeding and the fabric is installed this area will be planted with 110, 3-gallon shrubs, approximately 8-foot on center in the Spring, 2013. Shrubs will include *Cornus amomum* (sisky dogwood) and native *Salix* species (willows). This area will be supplemented with a 2013 spring installation of 400 *Salix* live stakes.

= This re-graded open area will be seeded with a woodland edge seed mix (0.30 acre). This area will be re-shaped and roughly re-graded. Grading will be done to create a flatter mound while keeping soils away from existing trees and wet areas. After shaping this area will be planted with ten 1 1/2 to 2-inch caliper trees. Trees will include five *Quercus rubra* (northern red oak), three *Q. bicolor* (swamp white oak), and two *Tilia americana* (American Linden). After tree planting in Spring, 2013 the area will be seeded and straw mulch applied at the appropriate rate.

### Proposed trees and shrubs

- = shrub plantings
- = tree plantings

NOT TO SCALE: Actual locations and numbers of trees and shrubs will be dependent on availability and specific site conditions.

NOTE: Seeding rates will be 10 lbs. per acre for both the native seed mixes. In addition to the native seed mixes, *Lolium multiflorum* (annual rye grass) at a rate of 20 lbs. per acre and/or *Secale cereale* (winter rye) at rate of 1-bushel (56 lbs.) per acre will be broadcast over all the restored areas prior to mulching.

As noted on the September 1, 2011 site visit, the existing seed bank is very viable as evidenced by the current vegetation regeneration observed. Herbaceous as well as numerous tree seedlings were seen. It is anticipated that the viability of the native seed bank will readily colonize the entire restoration area.



Rocket Ridge Stream Diversion Site Restoration

September 24, 2012

Sheet 1 of 1



# Restoration of Stream Diversion Channel



QUESTIONS?