

Windy Run Stream Restoration and Trail/Slope/Infrastructure Repair

**Woodmont Civic Association Meeting
January 20, 2011**

Stormwater Challenges

- **Existing Development.** Most of Arlington was built before stormwater regulations existed. County streams are heavily impacted.
- **New state and federal regulations** to reduce water pollution.
- **Aging Infrastructure.** More than half of the storm sewer network is over 50 years old.
- **System Capacity.**
- **Climate change.** Climate models predict heavy rainfall events could increase sharply.

Stormwater Strategy – in brief

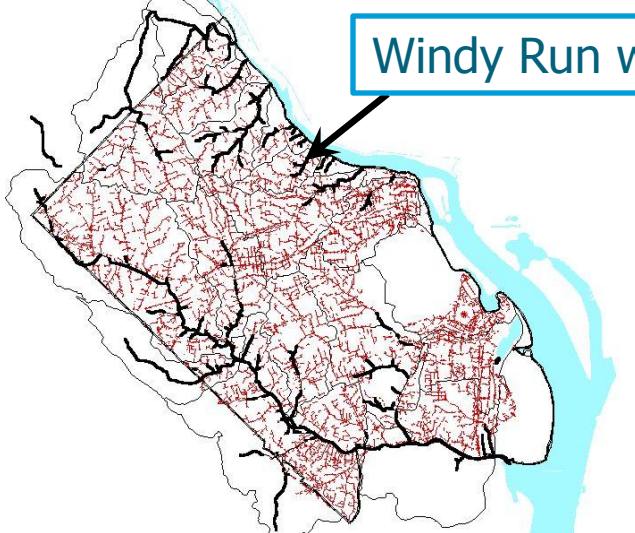
- Maintain & replace stormwater infrastructure
- Improve existing, and add new, stormwater treatment facilities
- Stormwater controls for new development
- Reduce risks from flooding
- Restore stream corridors
- Implement urban housekeeping best practices (such as street sweeping)
- Outreach, education, and monitoring

Stormwater Master Plan Update

Stormwater Master Plan (1996) and Watershed Management Plan (2001) will be updated and combined into a comprehensive Master Plan.

- **Storm Sewer Capacity Analysis** to study the County's current storm sewer pipes.
- **County-wide stream inventory** to assess stream conditions and prioritize stream restoration projects.
- **Watershed retrofit plans** to identify locations where stormwater treatment facilities can be added to help slow down and filter stormwater runoff.

Windy Run watershed



Windy Run
317 acres (0.5 square miles)
2005 impervious cover = 36%
County-wide 2005 impervious cover = 41%

Land Use:
75% single-family residential
6% medium/high density residential
16% public/semi-public (parks, schools, etc.)
<1% commercial/industrial
3% 'vacant' land



**Stream erosion,
tree damage, and habitat
degradation**





**Stream erosion near
sanitary sewer
pump station**



Exposed sewer lines



Trail and slope damage

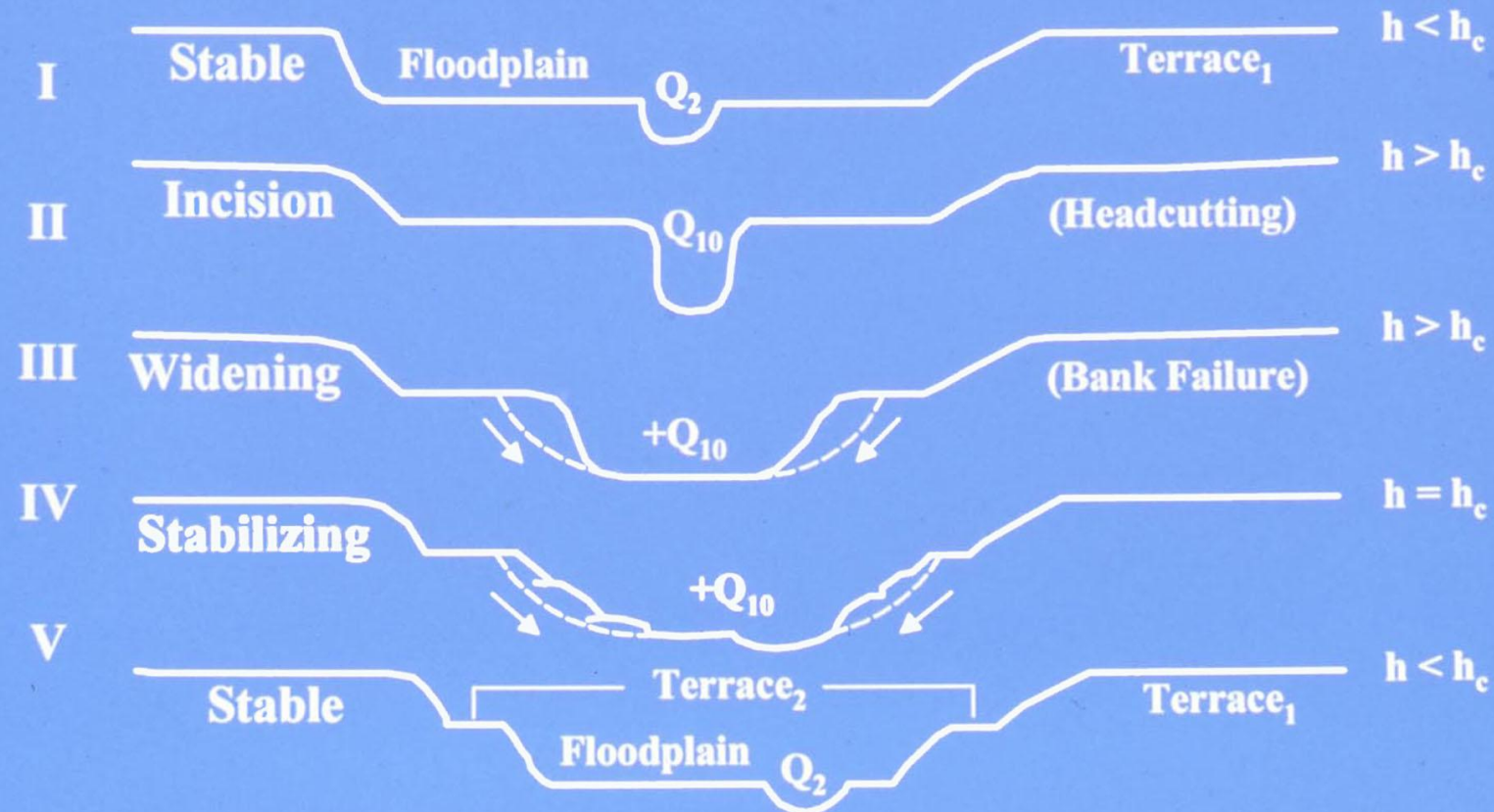


Failed storm sewer endwall & gully erosion

Restoration/Repair Plan

Channel Evolution Model (Schumm, Harvey, Watson, 1984)

h =bank ht
 h_c =critical bank ht.



Windy Run stream restoration design elements

- Create 'active' or 'bankfull' channel
- Floodplain benches
- Retain existing stream alignment
- Grade controls
- Vegetation for stabilization and habitat



Grade Control/Habitat Creation

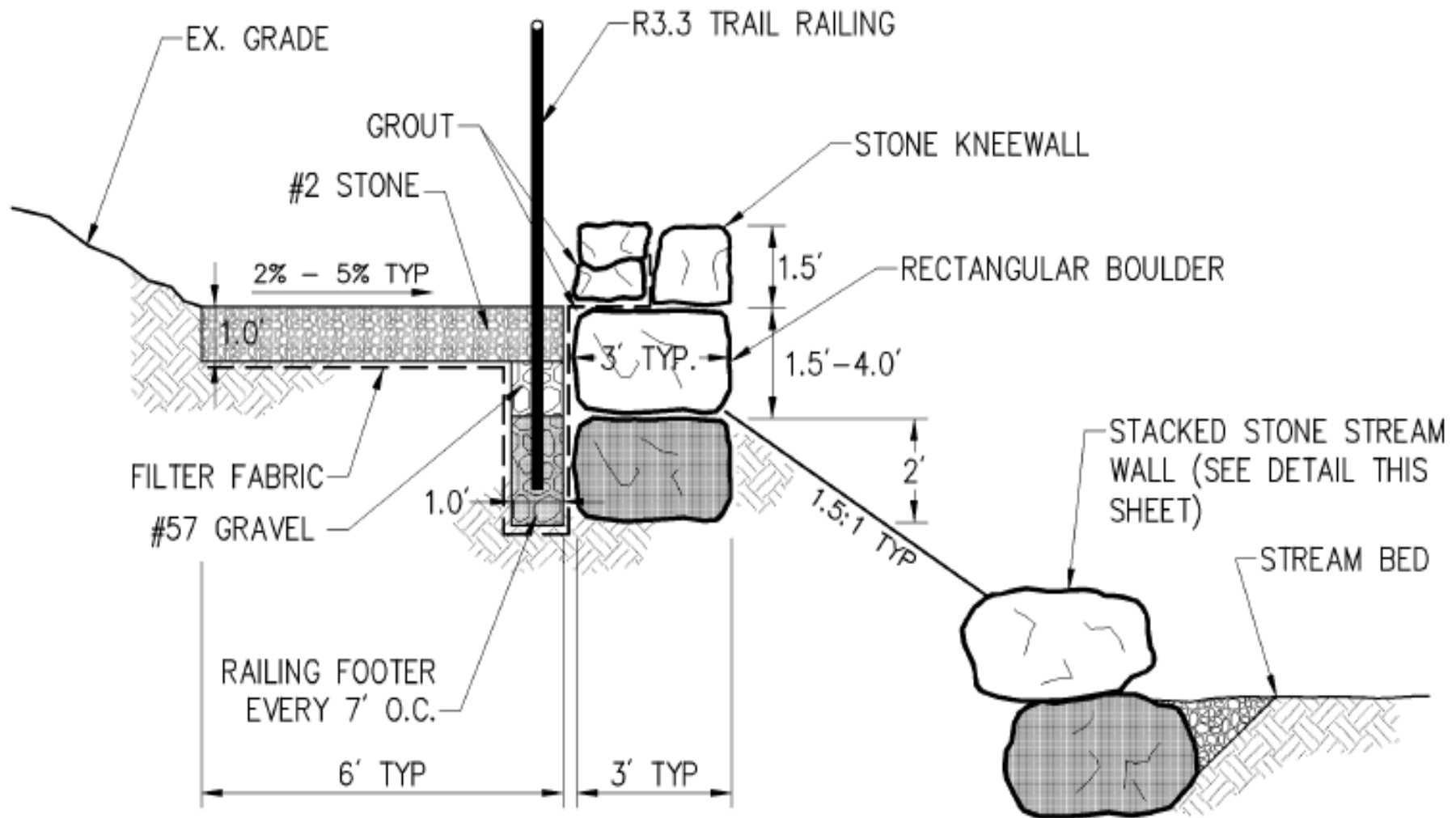
Floodplain Connection

Photo of Donaldson Run

APR 21 2008

Infrastructure Repair

- Re-align sanitary sewer to eliminate 'hanging' crossing
- Stabilize bottom and top of slope below trail with stacked stone
- Extend storm sewer under trail to connect to stream at stabilized outfall
- Repair failed storm sewer endwall & gully
- Reconfigure two other existing storm sewer outfalls for improved stream connection/stability



Stacked Stone Trail Wall Detail



Trees

Trees

- ~17 trees >15” diameter to be removed
 - Many already threatened or compromised
 - 11 of 17 with condition rating below 70 out of 100
 - 5 of 17 with condition rating below 60
- 43 trees overall
- Trees with reasonable survival chance will be saved, and some design adjustments may be made
- Minimum tree replacement = 68 trees

Planting Plan

- Canopy and understory trees
- Shrubs and native plants

Carya glabra
Carya tomentosa
Nyssa sylvatica
Prunus serotina
Quercus alba
Quercus coccinea

Pignut Hickory
Mockernut Hickory
Black Gum
Black Cherry
White Oak
Scarlet Oak

Alnus serrulata
Euonymus americanus
Viburnum dentatum
Hamamelis virginiana

Common Alder
American Strawberry Bush
Arrowwood
Witchhazel

Dichanthelium clandestinum
Leersia virginica
Rudbeckia hirta
Sanicula canadensis

Deertongue Grass
White Grass
Black-eyed Susan
Black Snakeroot

Elymus riparius
Eupatorium coelestinum
Eupatorium fistulosum
Glyceria striata
Helianthus decapetalus

Riverbank Wild Rye
Mistflower
Hollow Joe-pye-weed
Fowl Manna Grass
Thin-leaved Sunflower

- **Invasive plant management** English ivy, porcelain berry, privet, winged euonymous, creeping euonymous, bush honeysuckle, Japanese honeysuckle, wineberry

VOLUNTEERS NEEDED!

Next Steps

- Complete design and specifications
- Acquire easement (1)
- Issue construction solicitation
- Anticipated construction start – depends upon easement acquisition (Fall?)
- Estimated construction duration – 2 months
- Trail will be closed for most of construction period

Questions, comments, more information

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Project website:

www.arlingtonva.us - click on 'watershed management'