WISSAHICKON PARK

INFILTRATION BASINS & RIPARIAN CORRIDOR

Borough of Lansdale, PA

PROJECT TEAM

- **OWNER** – LANSDALE BOROUGH PARKS & RECREATION
- **LEAD CONSULTANT** - WALLACE ROBERTS & TODD, LLC – PHILADELPHIA, PA
- **CIVIL ENGINEER** - METZ ENGINEERS – LANSDALE, PA
- **WETLANDS CONSULTANT** – CONESTOGA-ROVERS & ASSOCIATES – EXTON, PA
- **STRUCTURAL ENGINEER** - ELTON & THOMPSON, P.C. – GLENSIDE, PA

Project Objectives

1. Create storm water Infiltration Basins:

- Improve water quality
- Provide temporary storage and infiltration of stormwater runoff
- Maintain base flow in the Wissahickon Creek watershed

2. Establish a riparian buffer zone using native plants to:

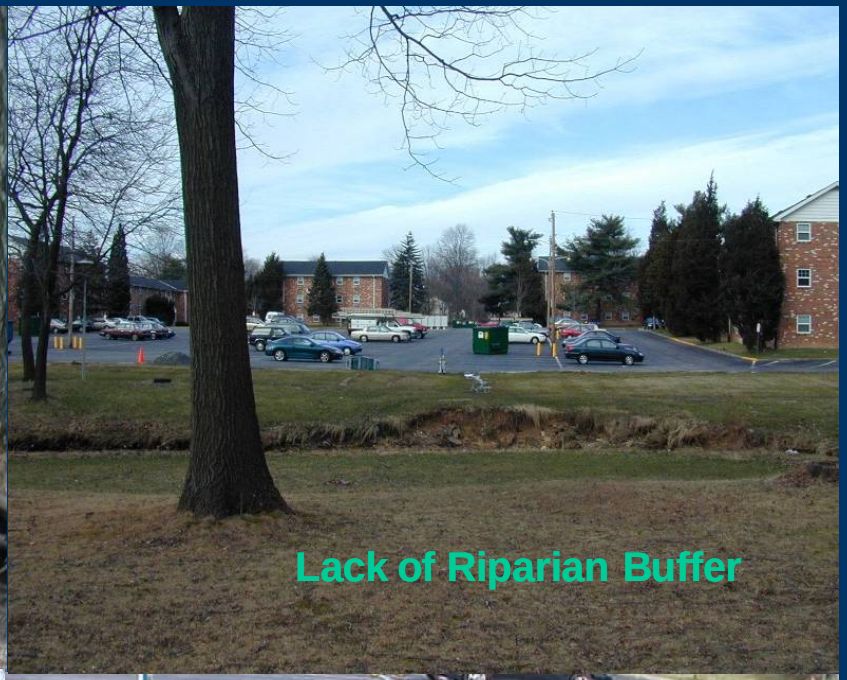
- Improve water quality of sheet runoff from neighboring parking lot
- Prevent erosion along the stream channel
- Enhance stream corridor habitat diversity.

3. Enhance Park Aesthetics & Experience: integrated stormwater features streams, basins and landscaping of the park.

4. Provide opportunities for community environmental education

Aerial View of the Site


Outfall directly into Stream


Lack of Riparian Buffer


High Stormwater
Volume leads to bank
destablization


Stream bank erosion

OFFSITE DRAINAGE AREA MAP

Approach

- **Meet Water Quality Criteria**

  90 % of the disturbed site area is controlled by a BMP

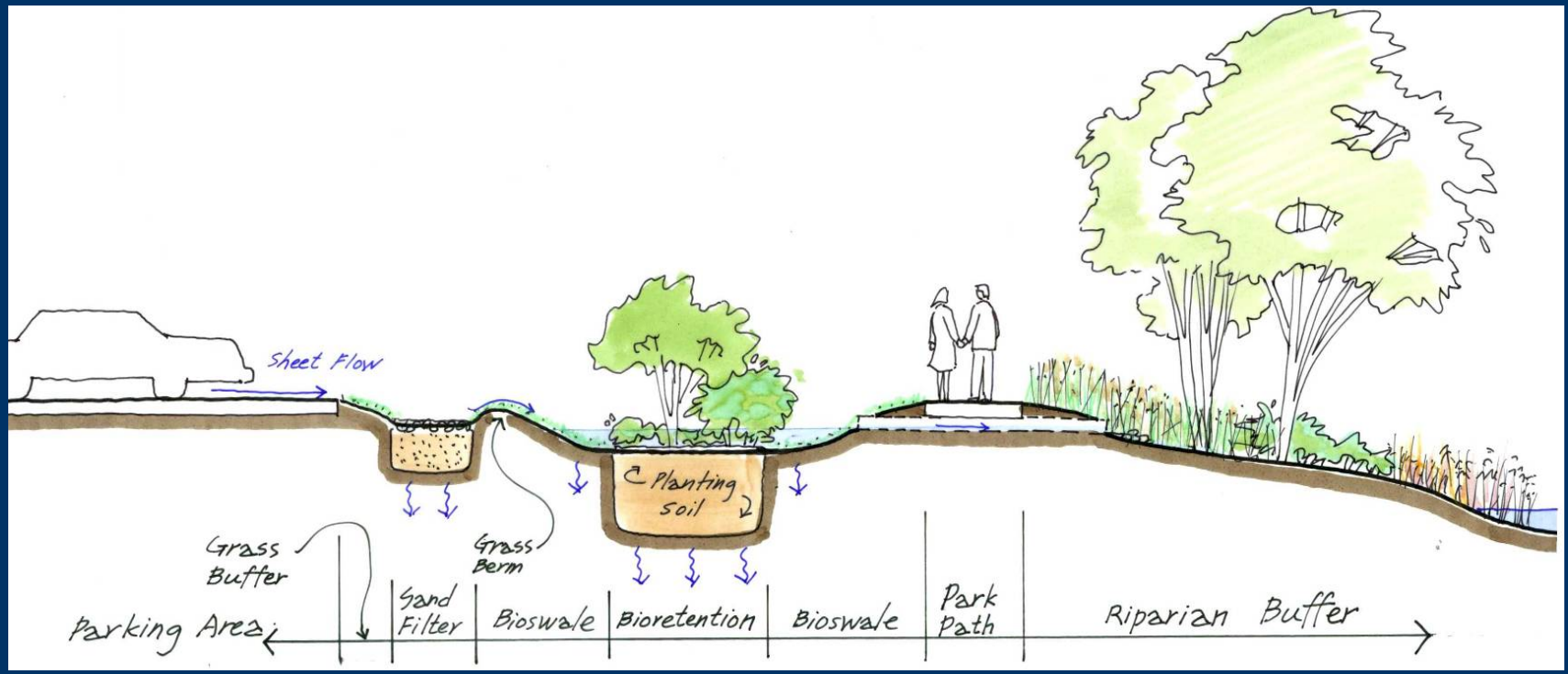
- **Natural Structural Infiltration Methods**

  Include vegetation and soils mechanisms as part of their functioning.

- **Integrated Design**

  Many BMPs: *Infiltration Basins, Settling Basins, Vegetated Swale, Soils Amendment and Restoration, etc.*

Preliminary Concept Plan – North of Stream Infiltration Basins & Riparian Corridor



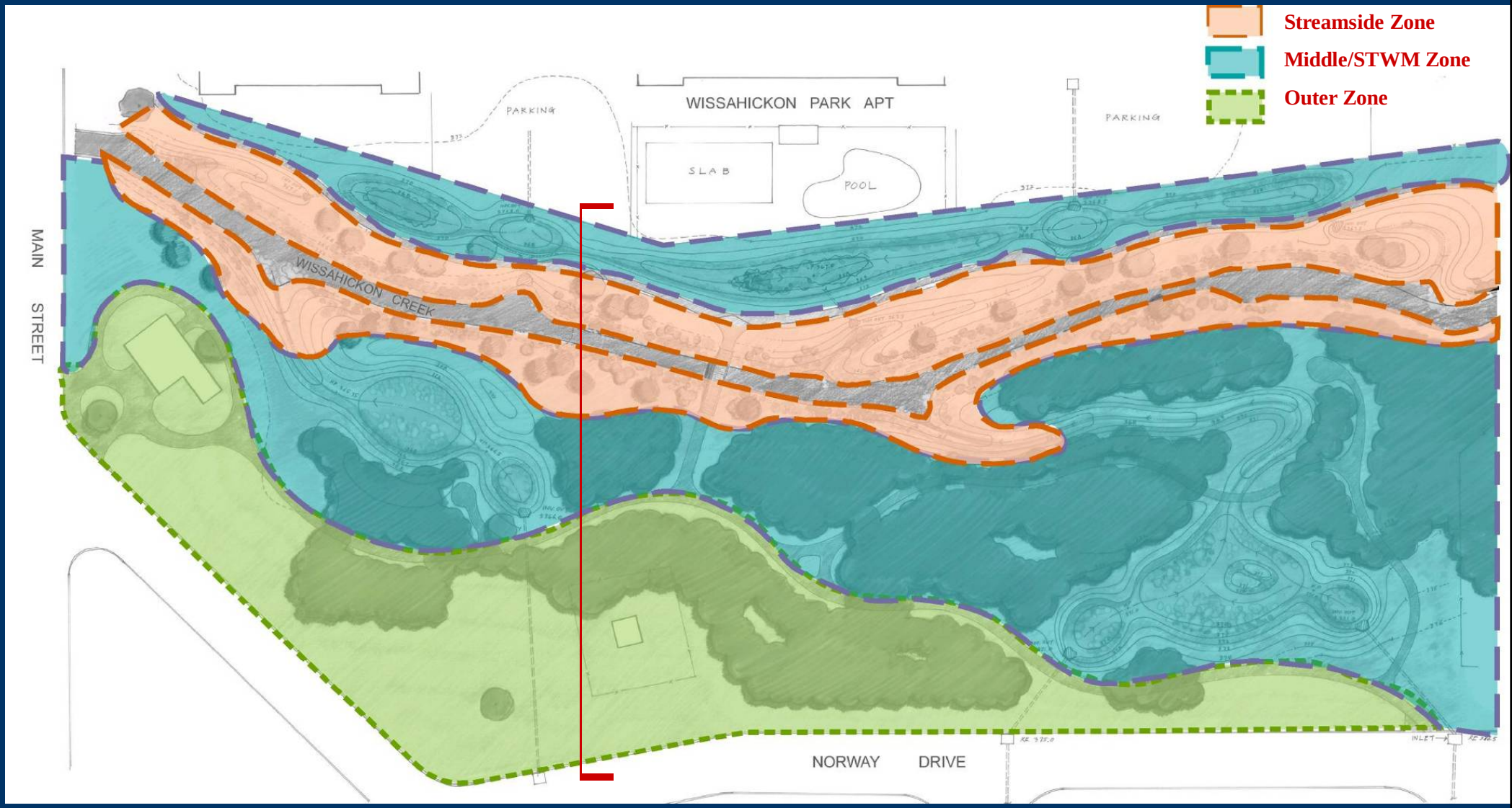
Preliminary Concept Plan – South of Stream Infiltration Basins & Riparian Corridor

Riparian Corridor - 3 Zone Buffer System

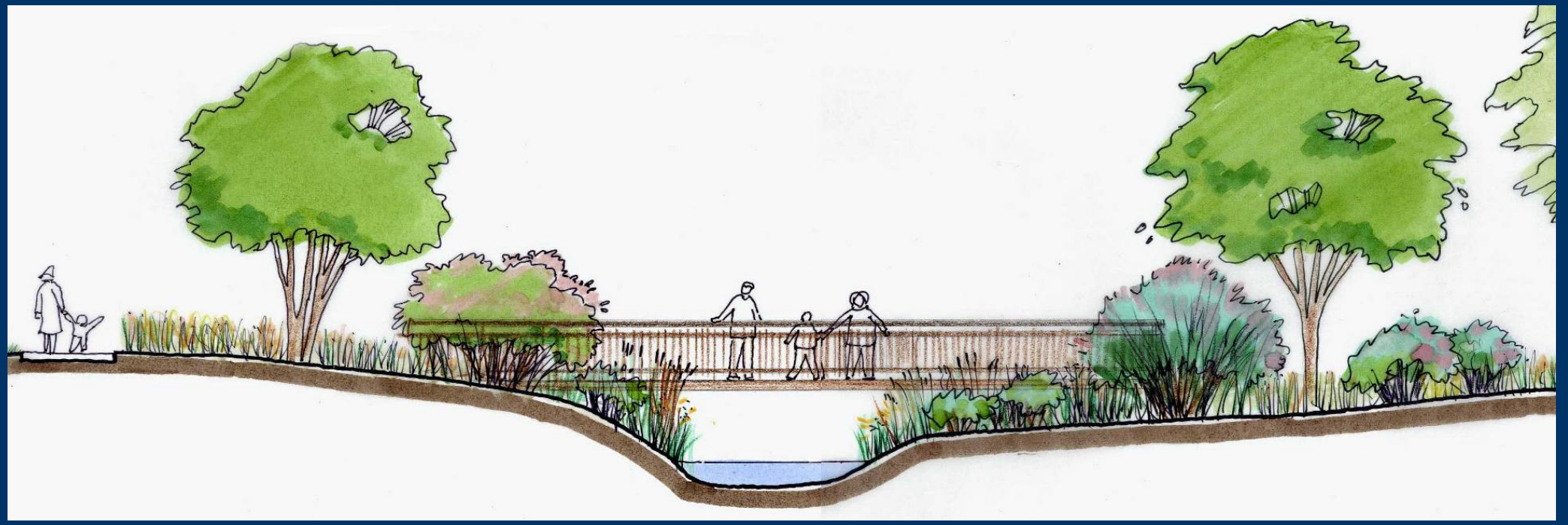
Stream side zone:
Woody shrubs and roots help stabilize the stream bank
Trees provide shade and habitat

Middle Zone/STWM Zone:
Woodland and Meadow purify surface water

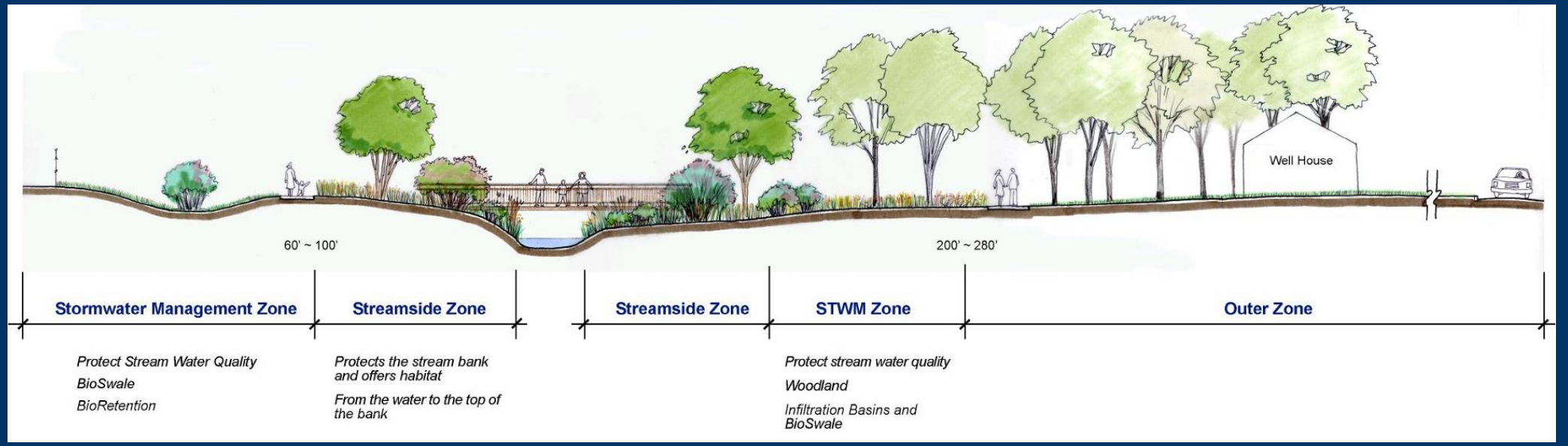
Outer Zone
Grasses help control runoff and improve infiltration and water storage



Riparian Corridor - 3 Zone Buffer System



Detailed Section of Streamside Zone



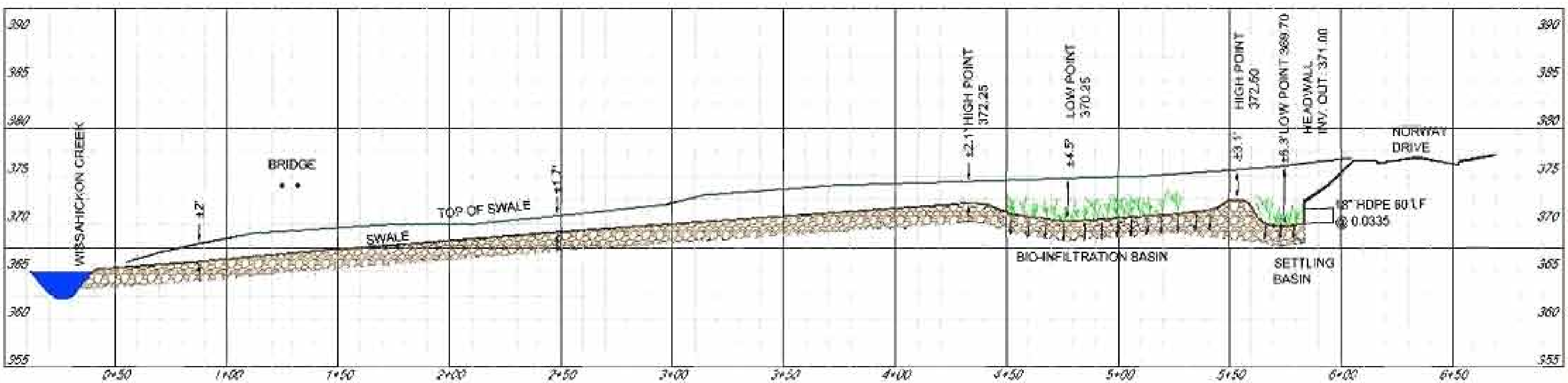
Site Cross Section of three Riparian Buffer Zones

FINAL DESIGN

REQUIRED AGENCY PERMITS

- **JOINT PERMIT** – (WATER OBSTRUCTION & ENCROACHMENT FOR BRIDGE CROSSING)
- **DEP GENERAL PERMIT** – (PASPGP-3 FOR OUTFALL MODIFICATIONS AND BANK REHIBILATATION)
- **NPDES PERMIT** – (FOR POINT SOURCE DISCHARGS S AND EARTH DISTURBANCE FROM MONTGOMERY COUNTY CONSERVATION DISTRICT)

SCALE
H: 1:=20'



SCALE
H: 1:=20'
V: 1"=5'

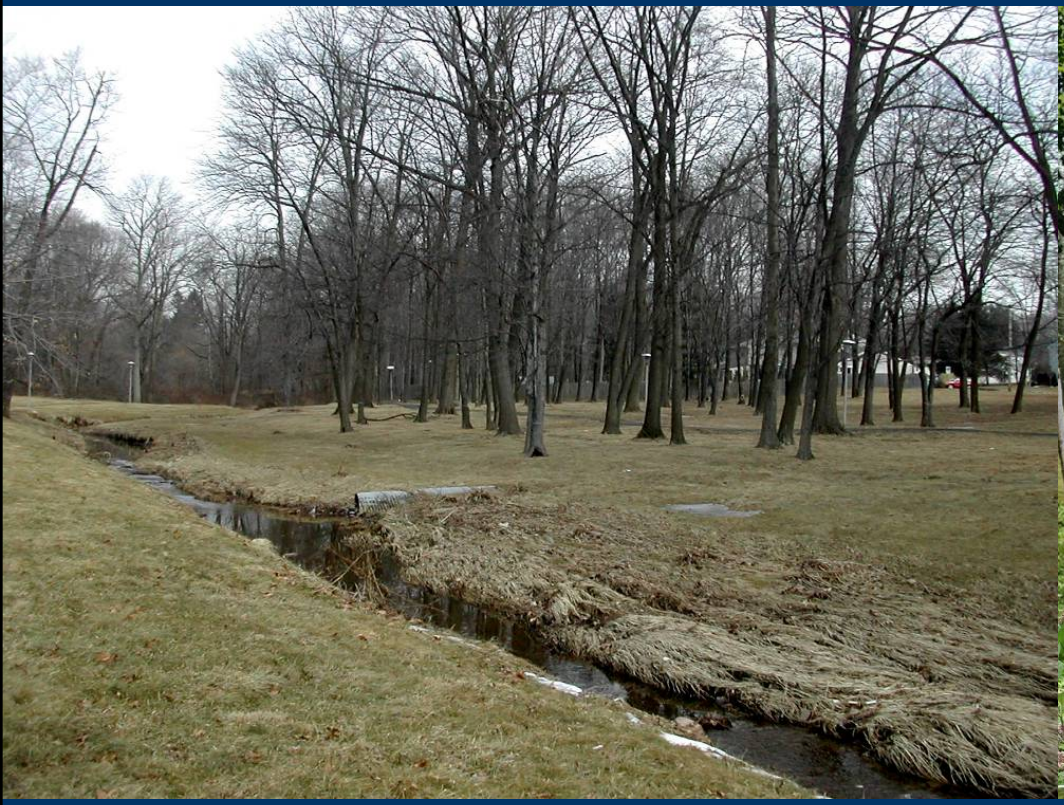
03-06-06

SETTLING AND BIO-INFILTRATION BASIN
PROFILE

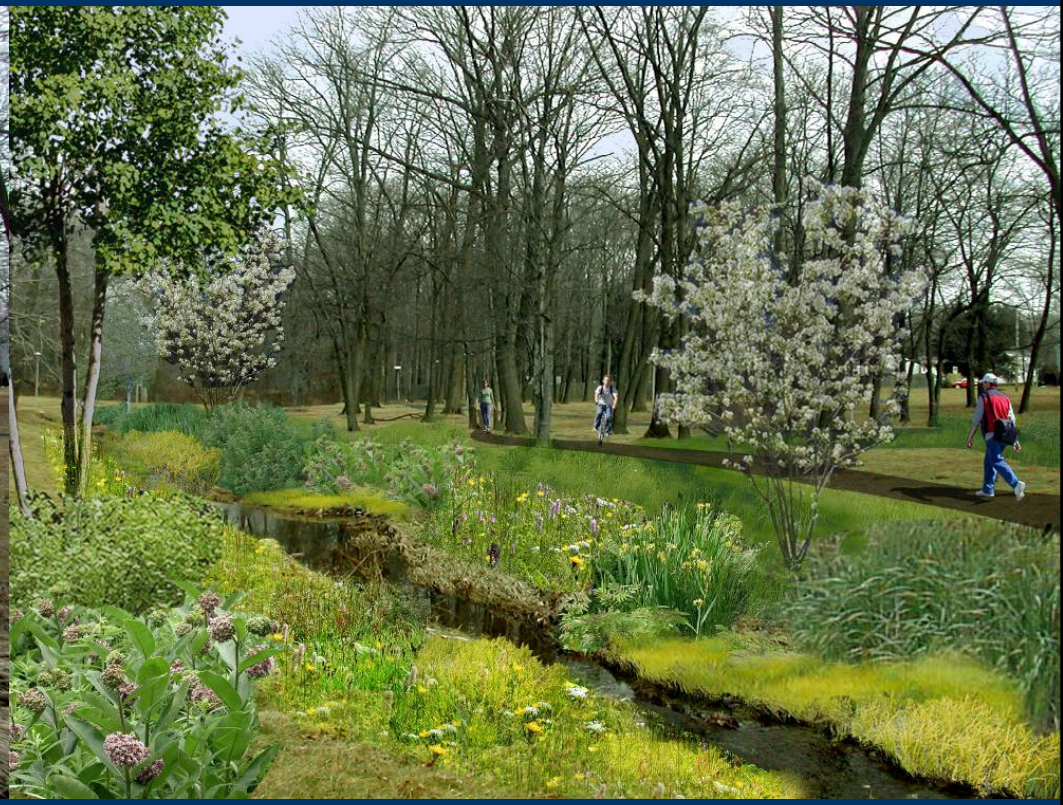
SYSTEM "C"

Metz Engineers

Before

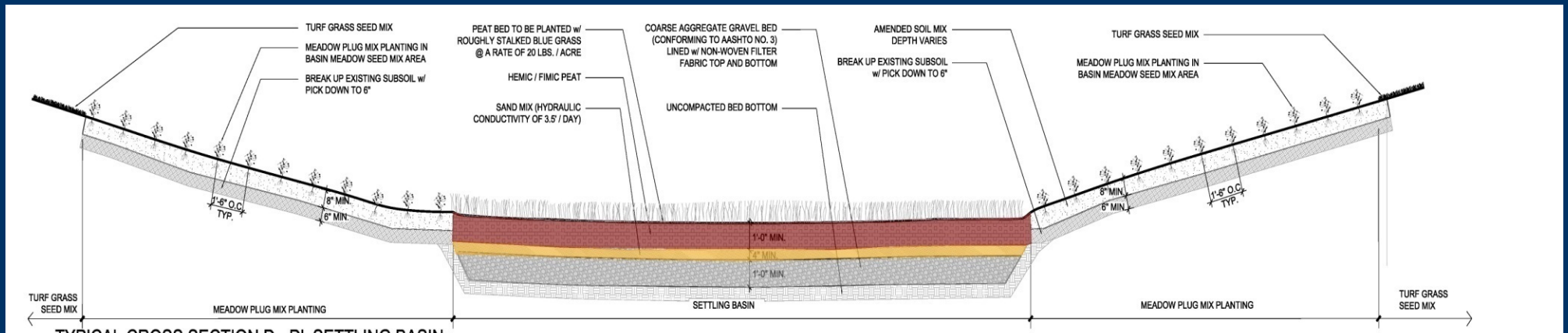


After



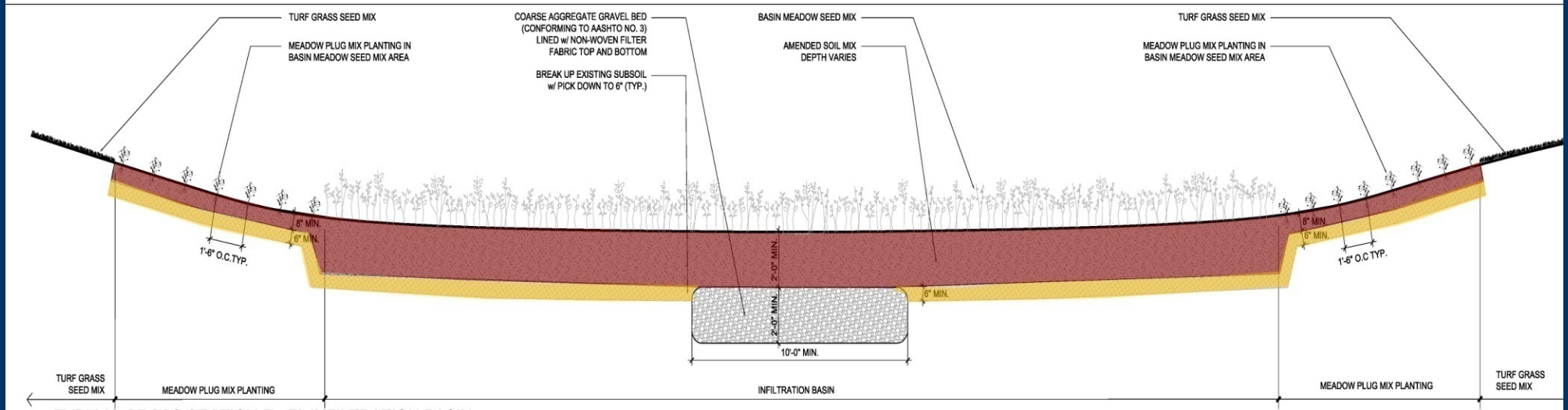
RIPARIAN CORRIDOR

BASIN DESIGN COMPONENTS



TYPICAL CROSS SECTION D - D' SETTLING BASIN

NOT TO SCALE



TYPICAL CROSS SECTION E - E' INFILTRATION BASIN

NOT TO SCALE


TYP. BASIN
CONSTRUCTION
KOMATSU


SYSTEM “A”


SYSTEM “A”

SYSTEM “B”


SYSTEM “B”
10.09.2009 12:40


SYSTEM “C”
10.09.2009 12:42


SYSTEM “D”

SYSTEM “D”


BIORETENTION BASIN

PARK AMENITIES

Educational Information Sign in Boardwalk


07.22.2009 10:39


07.22.2009 10:16


Wissahickon Park
Borough of Lansdale, PA
The Montgomery County Open Space Grant Program
The Community Conservation Partnerships Program
07.22.2009 09:41

PLANTING SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
TREES				
AA	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	8-10' HGT.	B & B
AmC	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	6-8' HGT. MULTI	B & B
AR	ACER RUBRUM	RED MAPLE	2.5 - 3" CAL.	B & B
AS	ALNUS SERRULATA	SMOOTH ALDER	2.5 - 3" CAL.	B & B
BN	BETULA NIGRA	RIVER BIRCH	12-14' MULTI	B & B
CF	CORNUS FLORIDA	FLOWERING DOGWOOD	8-10' HGT.	B & B
CFR	CORNUS FLORIDA RUBRA	PINK FLOWERING DOGWOOD	8-10' HGT.	B & B
CC	CERCIS CANDENSIS	EASTERN REDBUD	8-10' HGT.	B & B
FA	FRAXINUS AMERICANA	WHITE ASH	2.5 - 3" CAL.	B & B
LS	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	2.5 - 3" CAL.	B & B
NS	NYSSA SYLVATICA	BLACK GUM	2.5 - 3" CAL.	B & B
PO	PLATANUS OCCIDENTALIS	SYCAMORE	2.5 - 3" CAL.	B & B
QB	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5 - 3" CAL.	B & B
QP	QUERCUS PHELLOS	WILLOW OAK	2.5 - 3" CAL.	B & B
SaD	SALIX DISCOLOR	PUSSY WILLOW	6-8' HGT.	B & B
ViP	VIBURNUM PRUNIFOLIUM	BLACKHAW	6-8' HGT.	B & B
MEDIUM SHRUBS				
CoA	CORNUS AMOMUM	SILKY DOGWOOD	30-36" HGT.	B & B
CoR	CORNUS RACEMOSA	GRAY DOGWOOD	30-36" HGT.	B & B
IlV	ILEX VERTICILLATA	WINTERBERRY	30-36" HGT.	B & B
MyF	MYRICA PENSYLVANICA	BAYBERRY	30-36" HGT.	B & B
RhG	RHUS GLABRA	SMOOTH SUMAC	30-36" HGT.	B & B
SaC	SAMBUCUS CANADENSIS	COMMON ELDERBERRY	30-36" HGT.	B & B
ViD	VIBURNUM DENTATUM	ARROWWOOD	24-30" HGT.	B & B / CONT.
ViN	VIBURNUM NUDUM	POSSUMHAW	24-30" HGT.	B & B / CONT.
ViT	VIBURNUM TRILOBUM	AMERICAN CRANBERRYBUSH	24-30" HGT.	B & B / CONT.
SMALL SHRUBS				
ArA	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	15-18" HGT.	CONT.
CeA	CEANOTHUS AMERICANUS	NEW JERSEY TEA	15-18" HGT.	CONT.
CrA	CORNUS SERICEA	REDTWIG DOGWOOD	18-24" HGT.	CONT.
EuF	EUONYMUS FORTUNEI 'EMERALD GAIETY'	EMERALD EUONYMUS	15-18" HGT.	CONT.
IGC	ILEX GLABRA 'COMPACTA'	DWARF INKBERRY HOLLY	12-15" HGT.	CONT.
RlA	RHODODENDRON PERICLYMENOIDES	PINXTERBLOOM AZALEA	12-15" HGT.	CONT.
RhA	RHUS AROMATICA	FRAGMENT SUMAC	6-9" HGT.	CONT.
RoC	ROSA PAULUSTRIS	SWAMP ROSE	12-15" HGT.	CONT.
VoN	VIBURNUM TRILOBUM 'COMPACTUM'	AMERICAN CRANBERRYBUSH 'COMPACT'	12-15" HGT.	CONT.

WISSAHICKON PARK PROJECT

Funding for the project

EPA through the Partnership for the Delaware Estuary ---------- $ 87,000
State Dept of Conservation & Natural Resources ---------- $223,000
Montgomery County Open Space Grant Program ---------- $437,000
Tree Vitalize ---------- $ 13,320
Borough of Lansdale ---------- $ 16,222

Total $776,542

Project costs

Engineering, Design, Permitting ---------- $148,052
Implementation ---------- $628,490

Total $776,542