Managing Stormwater:
Gustine Lake Interchange Project
Who we are...

- Founded in 1940
- Provides Professional Engineering, Architectural and Construction Services
- Over 3,000 employees in over 100 office locations
- Ranked by ENR in the Top 10% of Professional Design Services Firms

17 Baker Employees are Villanova Graduates
About Me...

Julia Rosenbloom, P.E.

- 8+ Years of Experience
- Masters from Villanova ('10)
- B.S. from Lafayette ('05)
- Water Resources Focus
- CPESC
- CPSWQ

More than Engineers

- Planners
- Environmental Scientists
- Financial Analysts
- Marketing/Business Developers
- Human Resources
- Digital Services
Project Highlight:
Gustine Lake Interchange Project

Project of the Year
The Gustine Lake Interchange Project was awarded the 2012 ASHE Delaware Valley Section Project of the Year ($10 Million or more)
Gustine Lake - Swimming Spot
ROADWAY DESIGN

Ramp F/J
Ramp G
MPT.
AFTER
OTHER FEATURES
Regulations & Permits

National Pollutant Discharge Elimination System (NPDES)
The National system for the issuance of permits under section 402 of the Federal Clean Water Act

NPDES Permit for Stormwater Discharges Associated With Construction Activities
A permit required for the discharge or potential discharge of stormwater into waters of this Commonwealth from construction activities involving 1 acre or more of earth disturbance activity

TITLE 25. PART I. Subpart C. ARTICLE II. CHAPTER 102. EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT
This chapter requires persons proposing or conducting earth disturbance activities to develop, implement and maintain BMPs to minimize the potential for accelerated erosion and sedimentation and to manage post construction stormwater
Scope and Purpose

Chapter 102 requires persons proposing or conducting earth disturbance activities to develop, implement and maintain BMPs to minimize the potential for accelerated erosion and sedimentation and to manage post construction stormwater.

The BMPs shall be undertaken to protect, maintain, reclaim and restore water quality and the existing and designated uses of waters of this Commonwealth.
PCSM Goals

- Prevent an increase in stormwater runoff FLOW RATE
- Minimize any increase in stormwater runoff VOLUME
- Preserve the integrity of stream channels and maintain and protect the physical, biological and chemical QUALITIES of the receiving stream
- An identification of potential thermal impacts to surface waters and BMPs to avoid, minimize or mitigate potential pollution from THERMAL IMPACTS.
GUSTINE LAKE INTERCHANGE

Impervious Area Reduced By 0.23 ac
Flow Rate & Volume

1. Determine pre-development and post-development conditions

2. Size BMPs to store volume

3. Design Outlet Structures to reduce Flow Rates & Volumes
2. Size BMPs to store volume
3. Design Outlet Structures to reduce Flow Rates & Volumes
Water Quality & Thermal Impacts

Native Plants

Amended Soil Filter

Stone Filter

PERENNIAL GRASS & FORMULA B SEEDING

SHRUBS

EXISTING GROUND

MAX PONDED WATER DEPTH

SHRUBS

TREES (SEE PLANTING GUIDELINES BELOW)

PROPOSED GROUND SLOPE VARIES

2" TRIPLE SHREDDED HARDWOOD MULCH

NON-WOVEN GEOTEXTILE FABRIC

SIDE SLOPE

BIO-2 - 2:1
BIO-4 - 3:1

6" UNDERDRAIN (PERFORATED)

24" MIN AMENDED SOIL MIX, FURNISHED & PLACED

NO. 57 COARSE AGGREGATE
66 street trees
Graded sidewalks towards grass
6 Vegetated Bioretention Sites
2 Vegetated Swales
Lessons Learned

- Conduct stringent Construction Inspection
- Include flexibility in design
- Anticipate construction delay impacts
- Specify native soils or minimize soil amendments
I'd love to hear from you....

www.mbakercorp.com

jrosenbloom@mbakercorp.com