BMPS – REALITY VS. THEORY

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SESSION H- 6

NJDEP BUREAU OF FRESHWATER AND BIOLOGICAL MONITORING

WATER MONITORING AND STANDARDS

THE INSTALLATION OF STORMWATER BMPS WAS SUPPOSED TO AID IN THE PROTECTION OF SURFACE WATER QUALITY AND STREAM BIOTA. BUT ARE THESE SO CALLED "STATE OF THE ART" PRACTICES REALLY PROVIDING THE BENEFITS THEY WERE EXPECTED TO? PROVIDE?

LET US LOOK AT WATER QUALITY CONCERNS FIRST

MAJOR PROBLEM AREAS INCLUDE:

1) THE OVERUSE OF LOW FLOW CHANNELS

2) LITTLE OR NO MAINTENANCE

NOTE CLOSENESS OF INLET TO OUTLET
LOW FLOW CHANNEL CONDITIONS DURING LESS THAN THE DESIGN STORM

INLET
WE CAN THROW IN A LITTLE MORE THERMAL SHOCK ALONG THE WAY THANKS TO THE HEATED CONCRETE
INLET
OUTLET

ANOTHER ITERATION OF THE LOW
FLOW CHANNEL CONFIGURATION

A BREACHED LEVEL SPREADER WITHIN A DRY EXTENDED DETENTION BASIN
BASIN BREACHED DUE TO GRASS CLIPPINGS GOING ANAEROBIC UNDER RESIDUAL WATER
BREACH

ANOTHER
UNMAINTAINED
LOW FLOW
CHANNEL

WITH EXPECTED RESULTS – WAITING TO BE FLUSHED OUT WITH THE NEXT STORM

MORE LOW FLOW CHANNELS – BORING ISN'T IT?
SEE CLOSEUP OF OUTLET IN NEXT SLIDE

AGAIN SOLIDS
BUILDUP
WAITING FOR
THE NEXT
STORM

RUNOFF DURING LESS THAN THE DESIGN STORM
LITTLE RETENTION HERE – INTO THE CONCRETE CHANNEL AND OUT IT GOES

HYDROGEN SULFIDE IS A
GREAT MOTIVATOR FOR
PROPER MAINTENANCE

STORMWATER RETENTION / DETENTION POND IN MIDDLE OF MULTI – MALL COMPLEX

ADD A LITTLE SALT
ON THE WAY!

STORMWATER OUTFALLS AT
MALL

CHEMICAL SAMPLING RESULTS AT THE OUTFALL OF MALL

- SEDIMENT ACUTELY TOXIC
- SEDIMENT PETROLEUM HYROCARBONS = 1,430 MG/KG
- FOUND ANTHRACENE, PYRENE, CHRYSENE AMONG OTHER PAHs

WATER **QUANTITY** ISSUES ARE EQUALLY AS IMPORTANT

SEE NEXT SLIDE FOR
OUTLET DETAIL

CHANNEL WIDTH UPSTREAM OF OUTFALL

CHANNEL WIDTH
DOWNSTREAM OF OUTFALL

MULTIPLE DRY EXTENDED DETENTION BASINS FROM THIS INDUSTRIAL AREA ALL EVENTUALLY END UP IN THIS TRIBUTARY

STREAM CHANNEL FURTHER
DOWNSTREAM

IN SPITE OF ALL THOSE DETENTION BASINS UPSTREAM THIS IS THE END RESULT

SOME RECOMMENDATIONS

- ELIMINATE CONCRETE LOW FLOW CHANNELS TOTALLY OR AS MUCH AS POSSIBLE AND SUBSTITUTE SAND OR FRENCH DRAINS NEAR OUTLET.
- REQUIRE A MINIMUM PATH LENGTH OF 90% THROUGH DRY EXTENDED DETENTION BASINS TO STOP SHORT-CIRCUITING BETWEEN INLETS AND OUTLETS.
- REQUIRE SOME EXAMINATION OF DOWNSTREAM RECEIVING CHANNEL AND BANK SOIL STABILITY.