Inspecting Stormwater Projects

Jon Lenglade, Project Manager & Eric Everett, Project Manager
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Stormwater Program Background

The MCSWMD

- Legal Entity since 2001

Funding Source

- User fees
- Mostly locally funded projects
Assets

Public Drainage & Flood Control Infrastructure

- 1000’s of miles of pipe and ditches
- 100,000+ inlets and manholes
- 2 high hazard dams
- 35+ miles of levee/floodwall
- 8 Stormwater Pump Stations
- 18 Regional Detention Basins
Typical Types of Projects

• Sewers & Ditches - SD
• Levees & Dams- LD
• Culverts & Small Structures - CL
• Lift Stations - LS
• Detention Basins – Typically in SD
• Drainage components added to Transportation project
What does it take to keep our assets in good shape?

• Planning
• Design
• Construction
• O&M
Planning

• Complaint driven program
• Screened through Maintenance
• Priority Rating System

Diagram:
- Drainage Complaint → Mayor’s Action Center (MAC) → CEG Call Center 924-3311 Option *2 → CEG Staff investigates and assigns a Hansen Service Request (SR) Number → CEG Passes SR to DPW Engineering Staff for Review → DPW Engineering Staff determines how to resolve the SR → DPW requests City Operations Staff to resolve the issue → Dept. of Code Enforcement handles the issue → Private Property issue, no City responsibility
Planning

Highest priorities are scoped to define:

- Recommended Solution
- Cost
- R/W Needs
Planning

Non-discretionary Projects

- Capital O&M on levees and dams
- Safety and regulatory driven
Standards

• Levee Design mirrors USACE Standards
• 2011 City Stormwater Design Manual (update soon)

Design

Types of Permits You May See

• BMP Requirements (>0.5 AC Disturbance)
• Rule 5 (>1 AC Disturbance)
• 401/404 Permits
• Bat Restrictions (4/1-9/30)
Construction

Process

• Pre-bid Meeting
• Bid & Award
• Pre-construction Meeting
• Active Construction
• Construction Wrap Up
• FCR
Pre-bid, Bid, & Bid Award

Prebid Items of note;

• Any issues found in plans, contractor questions, engineer’s remarks, addenda

Bid Items of note;

• Bid tabs, exceptions

Award

• PO typically 45 days or less from bid date
Construction – Other Tips

Future Project Prevention

• Question the design, mistakes happen!!!
• Try to figure out a common sense resolution to keep progressing.
• Lowest level resolution management.
Pre-construction Meeting

• A link for the template is within the latest RPR manual.

• Fill in the particulars, be prepared to lead meeting.

• Covers almost all foreseeable circumstances.

• UTILITIES – Always be aware.

• Pre-construction site visit.
Active Construction

Erosion Control

• Key reason we’re on-site is to improve drainage and erosion issues.
• Dirty water is a giveaway.
• Following erosion control plan and common sense.
Erosion Control

- Must maintain throughout construction.
- Check after rain event.
- Swales must have 80% germination before inlet baskets can be removed.
Active Construction

MOT

• Make sure we accommodate residents, businesses, and traffic.
• 2 weeks – On/After Signage
Active Construction

MOT

Even though we’re usually off the road somewhat, MOT and resident safety still critical. We’re in peoples front yard, leave the site at the end of the day safe.
Active Construction

Utilities

• Coordination is the contractor’s responsibility.
• Notify ASAP.
• Coordinate with school busses.
• Public outreach help
Active Construction

Stormwater projects can have any and every other type of work included within a package (ditches, sewer, equipment, paving, striping, etc.). Must know the proper way to do all aspects of a project.

ASK QUESTIONS IF YOU DON’T KNOW.
Active Construction

- Traditional Storm Sewer
  - Water quality BMP’s
- Detention Basins
- Hybrid Ditch
- Pavers
- Culverts
- Levees
- Lift Stations
Active Construction

Storm Sewers

• Check for conflicts.
• Watch TOC elevations.
• Does it make sense?
Active Construction

Detention Basins

- Detention Basins
- Armoring
Active Construction

Hybrid Ditches

• Designed to slow flow of water at outlets
• Designed to “treat” the water
• Design solution in extremely flat areas
Active Construction

Hybrid Ditches

• Concept
• Inlets offset from drives.
• SLOPES!
• Vegetation
Active Construction

Permeable Pavers

- Similar concept to hybrid ditch.
- Clean subgrade and smooth joints.
- COMPACTION!
Active Construction

Culverts

- Stone bedding and cap
- Bypass pumping
Active Construction

Levees, Lift Stations, and Repairs

• Repair and rehabilitation work
• Levee Design mirrors USACE Standards
• Ease of maintenance
Construction – Other Tips

PAY ATTENTION TO PAVEMENT GRADES
Construction – Other Tips

Customer Service

• Be ready to encounter all types!
• You represent DPW, so be respectful
• Fixing residents’ infrastructure is rewarding
Construction - Final Inspection

- Inspect all structures for cleanliness & grade
- Inspect grading on pavement & ditches
  - Check after a rain to ensure no standing water
- May have to re-inspect seeding in the Spring
- Check as-builts for legibility, accuracy, completeness
Close-out

As-buils very important to Storm Staff

• Crucial for O&M coordination
• RPR to review as-buils from contractor, sign, and return to design engineer and PM.
• File signed copy within FCR.

Submittals (By Designer)

• Refer to DDSS for full detail;
  • https://www.indy.gov/activity/public-works-specifications-and-manuals
FCR

• Accurate As-Builts.
• Follow latest RPR Manual, use the latest file tree
• Work with designer and contractor to ensure accurate records.
Questions?

Jon Lenglade
Stormwater Project Manager (Contractor)
(317) 327-2319  Jon.Lenglade@indy.gov

Eric Everett, PE
Stormwater Project Manager (Contractor)
(317) 327-2385  Eric.Everett@indy.gov