INDOT Designer Workshop
Storm Water Management

Environmental Services Division
Storm Water Permits Section
Indiana Department of Transportation
Agenda

- Regulatory Big Picture
- Mechanics of a Rule 5 Submittal
- New Regulations/MS4
- New Standard Specifications
- Questions/Wrap up
Storm Water Management

Why All the Expense and Effort?

- It’s the law
- Laws and regulations are becoming more strictly enforced
- More entities have jurisdiction over storm water creating more oversight of construction activities

On-time and on-budget

- Erosion issues are expensive and time-consuming to repair
- Erosion can lead to structure damage
- Can lead to hazardous road conditions
- Violations can be expensive
Rule 5

Rule 5 is the “Law” or “Permit” that gives an entity “Permission” to disturb land creating a situation where there is potential to discharge sediment. This permit must have a calculated plan to minimize sediment discharged during construction activities on one acre or more of soil disturbance.

Within the Rule 5 permit the entity (INDOT) explains exactly how they will construct the project in accordance with the law minimizing the potential to pollute.
327 IAC 15-5-5 NOI requirements
Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2; IC 13-18-3; IC 13-18-4
Affected: IC 13-12-3-1; IC 13-18-1

Sec. 5. (a) A complete NOI letter must contain the following:
(1) Name, mailing address, and location of the project site for which the notification is submitted.
(2) The project site owner’s name, address, telephone number, e-mail address (if available), ownership status as federal, state, public, private, or other entity.
(3) Contact person (if different than project site owner), person’s name, company name, address, e-mail address (if available),
Indiana Administrative Code Page 15
NPDES GENERAL PERMIT RULE PROGRAM
and telephone number.
(4) A brief description of the construction project, including a statement of the total acreage of the project site. Total acreage claimed in the NOI letter shall be consistent with the acreage covered in the construction plan.
(5) Estimated dates for initiation and completion of construction activities. Within forty-eight (48) hours of the initiation of construction activity, the project site owner must notify the commissioner and the appropriate plan reviewing agency of the actual project start date.
(6) The latitude and longitude of the approximate center of the project site to the nearest fifteen (15) seconds, and the nearest quarter section, township, range, and civil township in which the project site is located.
(7) Total impervious surface area, in square feet, of the final project site including structures, roads, parking lots, and other similar improvements.
(8) The number of acres to be involved in the construction activities.
(9) Proof of publication in a newspaper of general circulation in the affected area that notified the public that a construction activity is to commence, that states, "(Company name, address) is submitting an NOI letter to notify the Indiana Department of Environmental Management of our intent to comply with the requirements under 327 IAC 15-5 to discharge storm water from construction activities for the following project: (name of the construction project, address of the location of the
Parts of the Rule 5

- Notice of Intent
- Storm Water Pollution Prevention Plan (SWPPP)
- Sediment and Erosion Control Plans
- Notice of Sufficiency
- Storm Water Quality Control Plan (from Contractor) including sequencing
- Notice of Termination
In the State of Indiana, for any construction site that will disturb 1 acre or more of land, the project site owner must notify IDEM of their intent to operate their proposed construction project in a manner consistent with the Rule (Law). This is called Notice of Intent.
List all MS4s

Include Des. Number

List all receiving waters including UNTs

Project Site Owner

Proposed Land Disturbance
Acreage:

- What counts?
- How is it calculated?
- What if the project is .98 acres?
The Storm Water Pollution Prevention Plan addresses three issues:

1. First, the plan outlines how to control storm water in order to limit erosion to minimize the discharge of sediment off-site or to a jurisdictional waterway.

2. Second the plan addresses other pollutants that may be associated with construction activity. This can include disposal of building materials, management of fueling operations, concrete washouts, emergency spill plan, etc.

3. Finally, the plan should also address pollutants that will be associated with the post-construction land use.
There is no plan for any offsite construction activities related to this project. The contractor is required to follow INDOT Standards and Specific Project Requirements. The contractor will be responsible for all construction activities as outlined in the plans and specifications. The contractor will maintain each measure as it is shown. Temporary seeding will also be used to maintain each measure as it is shown. The contractor is required to follow all INDOT guidelines.

Collaborators that can be expected to be generated during construction include stormwater runoff, debris, and sediments. The contractor is responsible for complying with the requirements of the INDOT Standards. The contractor shall follow the requirements of the INDOT Standards. The INDOT Standards and INDOT Standard Drawings are located in the INDOT Library and are available for download.

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Guidance on Each of the 23 Basic Plan Elements:

A1 - Plan Index Showing Locations Of Required Items

The plan index should include a list of the required items in the rule and where they occur in the plan. Plan preparers often have their plan index mirror items in the IDEM standard plan review checklist.

A2 - 11 X 17 Inch Plat Showing Building Lot Numbers/Boundaries And Road Layout/Names

The reduced size plat of the project is intended to be a basic representation of the project layout. At a minimum it should include building lot boundaries, lot numbers, road layout, and road names. It is not intended to be a complete representation of the Construction Plan or the Storm Water Pollution Prevention Plan. The purpose of the reduced plat is primarily to provide staff a simplified layout of the project that can be used as an aide when conducting an inspection of the project site.

The plat should be legible, therefore based on the size of the project it is acceptable to have multiple sheets of 11 X 17.

(This item is not required for single-family residential developments of four lots or less and single-family residential strip developments.)

A3 - Narrative Describing Project Nature And Purpose:

The plan should include information regarding the nature and purpose of the project. Typically this information would appear in a narrative; however it is also acceptable for the narrative to include other plan requirements.

A4 - Vicinity Map Showing Project Location:

The plan should include a map that depicts the site in relation to other areas in the city or county and should be sufficient for someone not familiar with the area to find the project site location. Acceptable maps may include INDOT transportation map, county road maps.
Guidance can also be found right in the Rule 5 Law...

327 IAC 15-5-6.5 Requirements for construction plans.

<table>
<thead>
<tr>
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Sic. 65. (a) For project sites that do not meet the criteria in subsection (b), the project site owner shall develop a set of construction plans. Storm water quality measures included in the plan must achieve the minimum project site requirements specified in section 7 of this rule. The construction plans must include the following:

1. Project narrative and supporting documents, including the following information:
   a. An index indicating the location, in the construction plans, of all information required by this subsection.
   b. Description of the nature and purpose of the project.
   c. Legal description of the project site. The description should be to the nearest quarter section, township, and range, and include the civil township.
   d. Soil properties, characteristics, limitations, and hazards associated with the project site and the measures that will be integrated into the project to overcome or minimize adverse soil conditions.
   e. General construction sequence of how the project site will be built, including phases of construction.
   g. A reduced plot or project site map showing the lot numbers, lot boundaries, and road layout and names. The reduced map must be legible and submitted on a sheet or sheets no larger than eleven (11) inches by seventeen (17) inches for all phases or sections of the project site.
   h. Identification of any other state or federal water quality permits that are required for construction activities associated with the owner’s project site.

2. Vicinity map depicting the project site location in relationship to recognizable local landmarks, town, and major roads, such as a USGS topographic quadrangle map or county or municipal road maps.

3. An existing project site layout that must include the following information:
   a. Location and name of all wetlands, lakes, and water courses on or adjacent to the project site.
   b. Location of all existing structures on the project site.
   c. One hundred (100) year floodplains, floodway fringes, and floodways. Please note if none exists.
   d. Soil map of the predominant soil types, as determined by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey, or an equivalent publication, or as determined by a soil scientist. A soil legend must be included with the soil map.
   e. Identification and delineation of vegetative cover, such as grass, weeds, brush, and trees, on the project site.
   f. Land use of all adjacent properties.
   g. Existing topography at a contour interval appropriate to indicate drainage patterns.

4. Final project site layout, including the following information:
   a. Location of all proposed site improvements, including roads, utilities, lot definitions and identification, proposed structures, and common areas.
   b. One hundred (100) year floodplains, floodway fringes, and floodways. Please note if none exists.
   c. Proposed final topography at a contour interval appropriate to indicate drainage patterns.

5. A grading plan, including the following information:
   a. Delineation of all proposed land disturbing activities, including off-site activities that will provide services to the project site.
   b. Location of all soil stockpiles and borrow areas.
   c. Information regarding any off-site borrow, stockpile, or disposal areas that are associated with a project site and under the control of the project site owner.

6. A drainage plan, including the following information:
   a. An estimate of the peak discharge, based on the ten (10) year storm event, of the project site for both preconstruction and postconstruction conditions.
   b. Location, size, and dimensions of all storm water drainage systems, such as culverts, storm sewer, and conveyance systems.
SWPPP

- **Items to not to forget in the narrative of the SWPPP**
  - Inlet Protection: Secondary Containment
  - Concrete Washout: Pollutant of Concern
  - Include RSP 108-c-192d
  - Current Standard Specifications and Drawings
  - Special Provisions
  - MOUs
  - Stream impacts
  - Sequencing
Construction Plans

The construction plan or sediment and erosion control plan is also a requirement of the Rule 5. In this document, the applicant or site owner demonstrates on a plan set exactly how they plan on constructing their project in a way that minimizes erosion and controls the movement of sediment.
Construction Plans

- What’s Required (327 IAC 15-5-6.5)
  - Jurisdictional waterways are labeled
  - Wetlands are labeled
  - Topography
  - Direction of water/drainage flow
  - Erosion and sediment control measures at all phases of construction.
  - Quantities of Sediment and Erosion Control items
  - Stream impacts (pump around, crossings, etc.)
Jurisdictional Waterways

Jurisdictional Waterway?
Sequencing: Why Is It Important?

(7) A storm water pollution prevention plan associated with construction activities. The plan must be designed to, at least, meet the requirements of sections 7 and 7.5 of this rule and must include the following:

(E) Construction sequence describing the relationship between implementation of storm water quality measures and stages of construction activities.
Construction Plans

- Common Omissions on Plans
  - Adequate quantities of seed and mulch, or quantities of anything...
  - Scour protection from bridge deck drains
  - Haul roads to get equipment down under a bridge and associated sediment and erosion control
  - Protection for pipes such as driveway culverts
  - Protection at super-elevated curves
  - Stream impacts
Common Omissions on Plans (cont.)

- Correct sizing of measures such as sediment traps, show data
- Modified check dams
- Check dams spaced correctly; toe to crest
- Proper accounting for off-site drainage or watersheds
- Correct shaping of rock chutes
- Design for site conditions (consider stream’s behavior)
Super-Elevated Curve Protection
Super-Elevated Curve Protection
Super-Elevated Curve Protection
Rock Chutes
Slope Protection
Haul Roads
Site/Stream Conditions
Site/Stream Conditions
Site/Stream Conditions
Elements on the plan need to be drawn so that they are **legible** at a normal printed size per Rule 5 law. **11 x 17** is the largest size we are allowed to submit.

Over layering symbols and information can create a set of plans that are impossible to read.
Topographical Lines

I-69 (S)

Same page blown up 800%
Construction Plans Legend
LEGEND:

- SB: Temporary Check Dam, Traversable
  For Clear Zone (See INDOT Standard
  Drawing No. E 205-TECD-02)

- Geotextile Box (See INDOT Standard
  Drawing No. E 205-TECI-02)

- R: Seed Mixture, R

- S: Sodding

NOTE:
NOS: Notice of Sufficiency

After the Rule 5 application process is completed and approved by IDEM, IDEM issues a:

Notice of Sufficiency

This document, like the NOI, must be posted at the job site.
Dear Mr. Philabaum:

Re: Notice of Sufficiency
INR10G256
INDOT DES R0602007 I-468A-65
Interchange Modification & Added Travel Lanes
Marion County

The Notice of Intent (NOI) letter submitted for the project referenced above has been reviewed by the Indiana Department of Environmental Management (IDEM) to determine compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharge associated with construction activity (327 IAC 15-5). The items contained in the NOI are sufficient. This letter is being issued for 327 IAC 15-5 and does not constitute approval to conduct activities that are related to other local, state, or federal permits.

An NPDES general permit identification number has been assigned to this project. This number and the above referenced project name should be included on any correspondence or amended NOI information submitted to IDEM pertaining to this project. The general permit number assigned to this project is INR10G256.

It is important that all activities associated with your site are in compliance with the requirements of 327 IAC 15-5 (Rule 5) and any local storm water permits. In accordance with 327 IAC 15-5-10, you are required to implement your construction plan, implement and maintain all storm water quality measures, and monitor the effectiveness of the storm water quality measures until the project is complete.

All Notices of Intent submitted for Rule 5 NPDES general permit coverage are automatically limited to a maximum term length of 5 years (327 IAC 15-5-12). The General Permit issued for the project referenced above will expire on 2/22/2016. If this project requires coverage beyond this date the applicant must reapply for a new permit 90 days prior to the expiration date.
108.04 Amended Erosion Control Plan

- Amended SWPPP
- Contractor’s Erosion Control Plan
- Storm Water Quality Control Plan
- Storm Water Management Plan
Storm Water Quality Control Plan
Storm Water Quality Control Plan

- New Emphasis in the New RSP 205-R-636
- Developed by the contractor via a professional engineer called the **SWQCP Developer** (Designer)
- The contractor’s SWQCP Designer required to have CPESC or CPESC in-training or approved equivalent
- The SWQCP Designer shall issue clarifications, correct errors and omissions, and revise the SWQCP as required
- **Cannot substitute lesser BMPs from original plan.**
- The Contractor’s SWQCP shall be stamped by the SWQCP designer, as defined above
Storm Water Quality Control Plan

- Address phasing and sequencing of installation, maintenance and removal of storm water management measures
- Must include haul roads, stockpiles sites, equipment storage sites, concrete washout sites, plant sites, disposal of hydro demo waste water, and borrow and disposal sites, etc.
- Must be submitted to the INDOT Engineer 14 days prior to operations, but can be submitted in phases.
- Until in mandatory usage, follow 2016 Standard Specs 108.04, 205
Best Management Practices BMPs

- **Traversable Check Dams**
  - Clear Zone, low velocity flows only

- **Modified Check Dams**
  - One-quarter of check dams
  - Modified check dam nearest to sediment trap/basin
  - Need to be installed in areas where they can be maintained

- **Slope Drains**

- **Erosion Control Blanket**
  - Encouraged on Slopes 3:1 or greater, required on 2:1
  - Around wing walls and other weak spots
  - Stream banks
Standard Drawing Check Dam

NOTE:
1. Riprap ditch check dams shall be spaced such that the top of the downstream check dam is at the same elevation as the toe of the adjacent upstream check dam.

Indiana Department of Transportation
TEMPORARY CHECK DAM
REVENTMENT RIPRAP
SEPTEMBER 2012
STANDARD DRAWING NO. E 205-TECD-01

R. L. VanClave 09/04/12
SUPERVISOR, ROADWAY STANDARDS DATE

Mark R. Miller 09/04/12
CHIEF ENGINEER DATE
1. Additional Filter Stone

CHECK DAM MODIFIED

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Diagram of a modified check dam with additional filter stone. The diagram shows:
- 1'-0" Min. (12" minimum) thickness for the filter stone.
- Compacted #5 or #8 Stone.
- Revetment Riprap.
- Temporary Geotextile.
- Existing Ground.

Technical specifications and signatures for compliance.
BMPs

- Pipe Protection
BMPs

- **Sediment Traps**
  - Must show:
    - Storage required, storage provided
    - Drainage area
    - Spillway height
    - Spillway width
    - Remember a Sediment Trap is a perimeter protection - needs to be placed as close to receiving waters as possible with little to no unprotected area in between

- **Sediment Basins**
  - Must show individual detail for each
BMPs

In the INDOT Design Manual a sediment basin is depicted to show all required design elements.

However each individual sediment basin must be drawn to site specific watershed and conditions.
BMPs

- Slope Drains – Diverting Storm Water
NOTES:
1. Length of slope drain shall be extended as required as fill slope is constructed.
2. The maximum drainage area for a 12" dia. pipe is 1 acre.
3. The required revetment riprap weight is 1.4 tons.
BMPs
BMPs

Slope drain not on plans for “subsurface drains” or underdrains. The velocity of the water causes rills which turn into gullies. These almost always do not have designed protection.
BMPs

- Diversion Interceptors – Diverting Storm Water
Stream Impacts

- All Stream Impacts must be in the Rule 5/SWPPP
  - Stream Crossings
  - Causeways
  - Haul Roads leading down to stream impacts
  - Pump Arouneds
  - Dewatering
  - Coffer Dams
  - Scour Protection around piers
Stream Impacts

PUMP AROUND AND DEWATERING DETAILS

* Designer will provide Flow Rate for Q2
Stream Impacts
Stream Impacts
Stream Impacts
Stream Impacts
Stream Impacts

- Turbidity Curtains

Per 205-C-231
“Legible copies of all necessary current manufacturers’ installation manuals shall be provided prior to installation.”
Stream Impacts

Turbidity Curtains are not to be used across flowing watercourses.

For the SWQCP – Turbidity Curtains are not a substitute for pump arounds!!!
MS4 = Municipal Separate Storm Sewer Systems

Indiana currently has 153 communities that are permitted under the Rule 13 permit.

Rule 13: A storm water permit that regulates MS4s.

INDOT is an MS4
A list of up-to-date Indiana MS4 communities can be found at:

www.in.gov/idem/stormwater/2404.htm
Storm Water Quality Management Plan (SWQMP)
INDOT’S SWQMP

INDOT is not a traditional MS4.

INDOT’s Storm Sewer Systems regularly cross into the boundaries of other MS4s in the state. This is where INDOT is regulated under the Rule 13 Permit. On INDOT’s entire Storm Sewer System great strides are taking place to improve over all water quality.
INDOT’s SWQMP

INDOT has **88** out of 208 facilities located in Urbanized Area Boundaries (UABs)

**8,072** lane miles out of 28,868 are located in UABs

These facilities and conveyances are regulated under the Rule 13 permit.
Rule 13 Impacts

- Red Flag: Early in the NEPA process
- Early Coordination Letters
- More oversight of INDOT projects in MS4 communities
- More widespread use of post-construction BMPs
MS4 Oversight
Changes to the INDOT Process

- RSP 205-R-636
- Design Memo 16-11
- Level I
- Level II
- Storm Water Quality Control Plan
- New Seed Specifications
- New Plant Growth Layer Specification
Combining Small Projects

- Smaller projects are increasingly being combined under one contract
- Need one organized, cohesive permit submittal
- When multiple small projects (under 1 acre) are combined under one contract they are subject to Rule 5 due to being “…part of a larger common plan of development” (327 IAC 15-5-2 (3))
- Memorandum from Sandra Bowman dated: February 25, 2016 provides additional information on bundling and exceptions
Questions/Resources

- Questions

- Indiana Storm Water Quality Manual
  http://www.in.gov/idem/stormwater/2363.htm

- INDOT Design Manual
  http://www.in.gov/indot/design_manual/

- INDOT Storm Water Web Page
  http://www.in.gov/indot/2892.htm
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