

# NPDES I-80 / I-380 / US 218 Systems Interchange

September 11, 2019  
ACEC / FHWA / Iowa DOT Transportation Conference

## Agenda Items

- EPA and Iowa DOT Agreement on NPDES Permit Compliance, by *Seana Godbold / James Bultman - Iowa DOT*
- Iowa DOT Erosion and Sediment Control "R Sheet" Approach, by *Seana Godbold / James Bultman - Iowa DOT*
- I-80/I-380 Interchange Project Overview, by *Aaron Granquist - HR Green*
- I-80/I-380 Interchange Storm Water Management, by *Aaron Granquist - HR Green*
- I-80/I-380 Interchange Field Applications, by *Ethan Lenerz - Iowa DOT*

## EPA and Iowa DOT Agreement on NPDES Permit Compliance, by *Seana Godbold / James Bultman - Iowa DOT*

## EPA and Iowa DOT focus on NPDES Permit Compliance

- Permit and storm water storage requirements (3,600 cu. ft./ac. disturbed) remains unchanged
- Main change to design = site map requirement
- Iowa DOT incorporated site maps into R sheets to focus on erosion control and storm water management

6. **6. Project SWPPP Requirements.** Iowa DOT shall have a **Project-specific SWPPP** that complies with its Permit and incorporates appropriate terms from the base SWPPP. The Project SWPPP shall be **specific to the land disturbance activities** at the site and **include a site map** depicted on a single page or a series of pages.

Screenshot of EPA and Iowa DOT Site Map Requirement:

## Iowa DOT R Sheet and Site Map Requirements

- Iowa DOT Office of Design Designed Projects
  - R sheets and site maps implemented on all projects (late fall 2018)
- Iowa DOT District Designed Projects
  - R sheets and site maps required on all projects starting **with December 2019 letting**
- Iowa DOT Consultant Designed Projects
  - R sheets and site maps required on all projects starting **with December 2019 letting**

## Iowa DOT Erosion and Sediment Control "R-Sheet" Approach, by *Seana Godbold / James Bultman - Iowa DOT*

# R Sheet Set Up

- R Sheets focus on Erosion Control Items
- RC Sheets (information formerly on C and CE sheets)
  - Erosion Control Bid Items
  - Estimate Reference Information (ERI)
  - Standard Road Plans
  - Incidental Notes (seeding, etc)
  - Stormwater Storage Calculations (tab100-34)
  - Erosion Control Tabulations
  - Pollution Prevention Plan (PPP)

**EROSION CONTROL (RURAL SEEDING)**

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area using 2 feet adjacent to shoulder and median as follows:

Use seed mix and fertilizer meeting the requirements of Article 2081.03, c, 1 and Section 456 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2081.03, f, 2, and 456.07, A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

# R Sheet Set Up (Cont'd)

- RR Sheets
    - Erosion Control Legend and Symbol Information
    - Site Maps
    - Drainage Basins
  - RU Sheets
    - 500 Series Erosion Control Detail Sheets
    - Special Erosion Control Details
- Link: [Iowa DOT Design Manual: 1F-17](#)

R Sheets	Erosion Control Sheets
RC-1	Estimated Project Quantities
RC-2	Estimate Reference Information
RC-3	Standard Road Plans & Index of Tabulations
RC-4	Pollution Prevention Plan
RC-5	General Notes & Tabulations
RR-1	Erosion Control Legend & Symbol Information Sheet
RR-2 - 14	Drainage Basin Maps
RU-1 - 2	Detail Sheets
	Color Plan Sheets

# Example: RC Sheet – Bid Items / ERI

**ESTIMATED PROJECT QUANTITIES (L1 DIVISION PROJECT)**

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1.0000	EROSION CONTROL				
1.0100	SEEDING				
1.0101	SEEDING - RURAL	SQ. YD.	1,200.00	1.50	1,800.00
1.0102	FERTILIZER - RURAL	SQ. YD.	1,200.00	0.50	600.00
1.0103	MULCH - RURAL	SQ. YD.	1,200.00	0.50	600.00
1.0200	STORMWATER STORAGE				
1.0201	STORMWATER STORAGE - CONCRETE	SQ. YD.	1,000.00	1.00	1,000.00
1.0202	STORMWATER STORAGE - ASPHALT	SQ. YD.	1,000.00	0.50	500.00
1.0203	STORMWATER STORAGE - GRAVEL	SQ. YD.	1,000.00	0.25	250.00
1.0204	STORMWATER STORAGE - SAND	SQ. YD.	1,000.00	0.10	100.00
1.0205	STORMWATER STORAGE - OTHER	SQ. YD.	1,000.00	0.05	50.00
1.0300	STANDARD ROAD PLANS				
1.0301	STANDARD ROAD PLANS - CONCRETE	SQ. YD.	1,000.00	1.00	1,000.00
1.0302	STANDARD ROAD PLANS - ASPHALT	SQ. YD.	1,000.00	0.50	500.00
1.0303	STANDARD ROAD PLANS - GRAVEL	SQ. YD.	1,000.00	0.25	250.00
1.0304	STANDARD ROAD PLANS - SAND	SQ. YD.	1,000.00	0.10	100.00
1.0305	STANDARD ROAD PLANS - OTHER	SQ. YD.	1,000.00	0.05	50.00

**ESTIMATE REFERENCE INFORMATION**

1.0000 EROSION CONTROL

1.0100 SEEDING

1.0200 STORMWATER STORAGE

1.0300 STANDARD ROAD PLANS

1.0400 POLLUTION PREVENTION PLAN

1.0500 TOPSOIL STRIPPING AND PLACEMENT

1.0600 ROLLED EROSION CONTROL

1.0700 STORMWATER MANAGEMENT PRACTICES

1.0800 STANDARD ROAD PLANS

1.0900 SECTION 404 PERMIT AND CONDITIONS

1.1000 RISK MANAGEMENT PRACTICES

# Example: RC Sheet – SRP / Tabs

**INDEX OF TABULATIONS**

Tabulation No.	Description	Sheet No.
1.0000	EROSION CONTROL	RC-1
1.0100	SEEDING	RC-2
1.0200	STORMWATER STORAGE	RC-3
1.0300	STANDARD ROAD PLANS	RC-4
1.0400	POLLUTION PREVENTION PLAN	RC-5
1.0500	TOPSOIL STRIPPING AND PLACEMENT	RR-1
1.0600	ROLLED EROSION CONTROL	RU-1
1.0700	STORMWATER MANAGEMENT PRACTICES	RR-2 - 14
1.0800	STANDARD ROAD PLANS	RU-1 - 2
1.0900	SECTION 404 PERMIT AND CONDITIONS	
1.1000	RISK MANAGEMENT PRACTICES	

**STANDARD ROAD PLANS**

**SECTION 404 PERMIT AND CONDITIONS**

**STORMWATER MANAGEMENT PRACTICES**

**ROLLED EROSION CONTROL**

# Example: RC Sheet – Tab 100-34

**STORMWATER DRAINAGE BASIN AND STORAGE**

Basin No.	Station to Station	Station	Area	Storage	Notes
1	1+000.00	1+050.00	5.0	5.0	SEEDING FOR SEEDING CHECK (RC-201) SEE TAB 100-34
2	1+050.00	1+100.00	5.0	5.0	SEEDING FOR SEEDING CHECK (RC-201) SEE TAB 100-34
3	1+100.00	1+150.00	5.0	5.0	SEEDING FOR SEEDING CHECK (RC-201) SEE TAB 100-34
4	1+150.00	1+200.00	5.0	5.0	SEEDING FOR SEEDING CHECK (RC-201) SEE TAB 100-34
5	1+200.00	1+250.00	5.0	5.0	SEEDING FOR SEEDING CHECK (RC-201) SEE TAB 100-34
6	1+250.00	1+300.00	5.0	5.0	SEEDING FOR SEEDING CHECK (RC-201) SEE TAB 100-34

# Example: RC Sheet - PPP

**POLLUTION PREVENTION PLAN**

1.0000 POLLUTION PREVENTION PLAN

1.0100 SEEDING

1.0200 STORMWATER STORAGE

1.0300 STANDARD ROAD PLANS

1.0400 POLLUTION PREVENTION PLAN

1.0500 TOPSOIL STRIPPING AND PLACEMENT

1.0600 ROLLED EROSION CONTROL

1.0700 STORMWATER MANAGEMENT PRACTICES

1.0800 STANDARD ROAD PLANS

1.0900 SECTION 404 PERMIT AND CONDITIONS

1.1000 RISK MANAGEMENT PRACTICES

**IOWADOT** SMARTER. SAFER. SUSTAINABLE. DRIVEN.

**GETTING YOU THERE**  
I-80/I-380 SYSTEMS INTERCHANGE

### Example: RR Sheet - Legend

**LINE STYLE LEGEND OF EROSION CONTROL SHEETS**

- 60% Filter
- 80% Filter
- Retention Wall
- Retention Wall with Slope Protection
- Retention Wall with Slope Protection and Drainage
- Retention Wall with Slope Protection and Drainage and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection and Slope Protection and Slope Protection

**CELL LEGEND OF EROSION CONTROL SHEETS**

- Retention Wall with Slope Protection
- Retention Wall with Slope Protection and Drainage
- Retention Wall with Slope Protection and Drainage and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection and Slope Protection and Slope Protection

**PLAN VIEW COLOR LEGEND OF EROSION CONTROL SHEETS**

- 60% Filter
- 80% Filter
- Retention Wall
- Retention Wall with Slope Protection
- Retention Wall with Slope Protection and Drainage
- Retention Wall with Slope Protection and Drainage and Slope Protection
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**PATTERN LEGEND OF EROSION CONTROL SHEETS**

- Retention Wall with Slope Protection
- Retention Wall with Slope Protection and Drainage
- Retention Wall with Slope Protection and Drainage and Slope Protection
- Retention Wall with Slope Protection and Drainage and Slope Protection and Slope Protection
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EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

IOWADOT SHEET NUMBER: RR-145-1001-00-01

**IOWADOT** SMARTER. SAFER. SUSTAINABLE. DRIVEN.

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I-80/I-380 SYSTEMS INTERCHANGE

### Example: RR Sheet - Drainage Basins

Basin #1  
D.A. = 2.19

34

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I-80/I-380 SYSTEMS INTERCHANGE

### Example: RR Sheet - Site Map

ROW

ROW

ROW

ROW

STA. 176+70.00

STA. 178+10.00

**IOWADOT** SMARTER. SAFER. SUSTAINABLE. DRIVEN.

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### Example: RR Sheet - Site Map

23200

23250

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### Example: RR Sheet - Site Map

141+00.00

141+50.00

Forevergreen Rd

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I-80/I-380 SYSTEMS INTERCHANGE

### Example: RU Sheet - Detail

TYPE A  
SHOULDER WIDENING WITH EXPOSED SOIL  
(Non-Continuous Filter Course)

TEMPORARY EROSION CONTROL DETAIL  
(TOP 2)

# I-80/I-380 Interchange Project Overview, by Aaron Granquist - HR Green

## Project Overview

- I-80 and I-380/US 218/IA 27 existing interchange is a full cloverleaf
- Located in Johnson County adjacent to and within the cities of Tiffin & Coralville
- Environmental Assessment (EA) and Interchange Justification Report (IJR) completed in early 2009
  - Identified numerous operational and safety deficiencies
  - Preferred alternative is a turbine-style interchange with directional ramps.
- NEPA Clearance (FONSI) given in May 2010

## Project Overview

- Added to 2015-2018 STIP in October 2014
- First lettings in 2017
  - Clearing & Grubbing for utility relocations
  - Grading assist with utility relocations
  - Coordination with new Forevergreen Road interchange
- Subsequent major lettings in 2018 & 2019
  - Grading in SW, NW, NE quadrants
  - Local road relocations
  - Numerous bridges construction
  - Shoulder widening and strengthening throughout
  - Median grading and paving

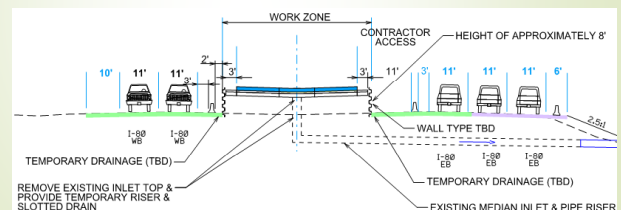
## Project Overview

- INFRA Grant
  - Commitment to accelerate project by 2 years
- Recently completed design efforts
  - Median grade & pave and bridges on I-380
  - Shoulder widening and strengthening on I-80 and I-380
  - I-80 bridge widening over the IAIS railroad & US 6
  - Ramp bridges over Clear Creek
- Current design efforts
  - Remaining improvements
  - Several years of major construction activities to be condensed by 2 years
  - Additional year for final stabilization

# I-80/I-380 Storm Water Management Approach, by Aaron Granquist - HR Green

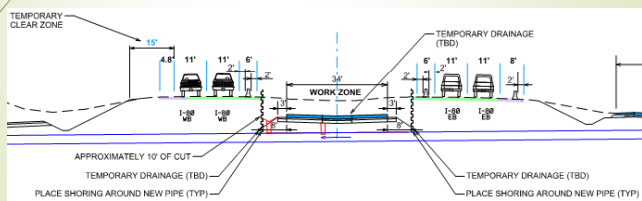
## Storm Water Management Approach

- Construction Staging Impacts
  - Complex staging
  - Interim drainage features



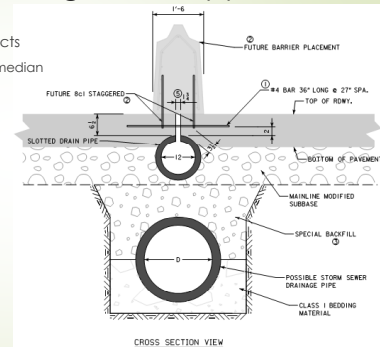
## Storm Water Management Approach

- Construction Staging Impacts
  - Complex staging
  - Interim drainage features



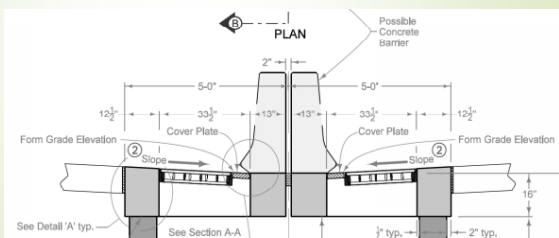
## Storm Water Management Approach

- Construction Staging Impacts
  - Controlling spread in the median
  - Analysis
  - Final design



## Storm Water Management Approach

- Permanent Median Inlets in Bridge Approach Slabs
  - Standard SW-547 intakes not meant to be used in approach slabs
  - Developed modified SW-547 intake that includes a split top



## Post-Construction Storm Water Management

- Backslopes
  - 12" deep tillage and 8" of topsoil
  - Permanent native seeding as soon as practical, with preference for spring application
- Ditches and Foreslopes
  - Rural seed mix for initial stabilization
  - 8" of topsoil
  - 18" deep tillage and native seeding after access no longer needed.
- Specifications prohibit heavy equipment on tilled areas, without restoration at the contractor's cost.

## Coralville Field Applications, by Ethan Lenertz - Iowa DOT

## Coralville Field Applications



- Drainage tile
- Keyed rock

### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



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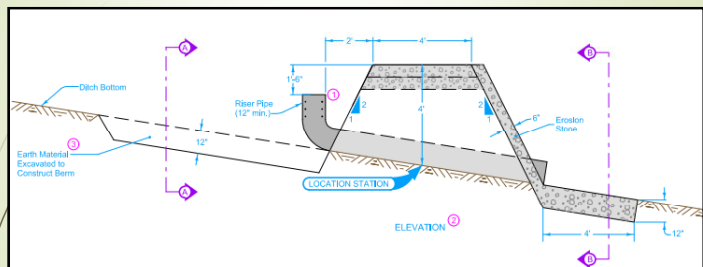
### Coralville Field Applications



### Coralville Field Applications



### Coralville Field Applications



Standard Road Plan EC - 601

### Coralville Field Applications



### Coralville Field Applications





# Coralville Field Applications



Questions?