MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

September 13, 2018

Members Present:	Darwin Bishop	District 3 - Construction
	Jeff Devries	District 1 - Materials
	Mark Dunn	Office of Contracts
	Daniel Harness	Office of Design
	Eric Johnsen, Secretary	Specifications Section
	Wes Musgrove	Office of Construction & Materials
	Gary Novey	Office of Bridges & Structures
	Tom Reis, Chair	Specifications Section
Members Not Present:	Donna Buchwald	Office of Local Systems
	Mark Brandl	District 6 - Davenport RCE
	Charlie Purcell	Project Delivery Bureau
	Willy Sorensen	Office of Traffic & Safety
Advisory Members Present:	Lisa McDaniel	FHWA
	Paul Wiegand	SUDAS
Others Present:	Kevin Merryman	Office of Construction & Materials
	Melissa Serio	Office of Construction & Materials

The Specification Committee met on Thursday, September 13, 2018, at 9:00 a.m. in the NW Wing, 1st Floor Conference Room. Tom Reis, Specifications Engineer, opened the meeting. The items were discussed in accordance with the agenda dated August 30, 2018:

The minutes are as follows:

1. Article 1102.17, D, 2, g, 1, Transportation or Hauling of Materials (Counting DBE Participation Toward Meeting Goals).

The Office of Construction and Materials requested to require submittal of all records of DBE trucking, not just what is required to meet the goal.

2. Article 1107.18, A, Protection of Water Quality and Wetlands.

The Office of Construction and Materials requested to add language from General Permit No. 2 regarding dewatering.

3. Article 2401.03, C, 1, Removal of Substructures.

The Office of Bridges and Structures requested to clarify the removal limits.

4. Article 2416.03, D, 5, Concrete Pipe Joints.

The Office of Construction and Materials requested to match requirements for storm sewers when connecting dissimilar pipes.

5. Article 2432.05, B, Granular Backfill (Basis of Payment).
Article 4133.01, Description (Granular Backfill Material).

The Office of Construction and Materials requested to require quality control compaction testing for MSE wall backfill and allow restricted use of manufactured sand as granular backfill.

6. Article 2433.03, C, Control and Disposal of Materials (Concrete Drilled Shaft).

The Office of Construction and Materials requested to allow water used during drilled shaft construction to be disposed onsite if properly treated.

7. Article 2502.05, C, 2, Subdrain Outlet.

The Office of Design requested to add the precast headwall (DR-306) to the Basis of Payment.

8. Article 4169.10, A, 3, Wire Staples (Special Ditch Control, Turf Reinforcement Mat, Slope Protection, and Transition Mat).

The Office of Construction and Materials requested to provide for use of machine installed staples.

9. DS-15006, Sliplining Existing Pipe Culverts.

The Office of Construction and Materials requested revisions to the Developmental Specifications for Sliplining Existing Pipe Culverts.

Form 510130 (08-15)

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Mark Brandl	**Office:** Construction & Materials	**Item 1**
Submittal Date: August 27, 2018	**Proposed Effective Date:** April 2019 GS	
Article No.: 1102.17 D 2 g 1 **Title:** Transportation or Hauling of Materials (by a DBE)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Office of Construction and Materials has verified that all commercially useful participation by a DBE is included towards the Departments annual goal.

Specification Section Recommended Text:

1102.17, D, 2, g, 1.

Replace the Article:

The DBE shall be responsible for management and supervision of the entire trucking operation ~~that is to count toward the commitment~~. The DBE shall maintain strict records to verify the amount of hauling done by each trucker for the duration of the contract. These records shall be available to the Engineer, upon request.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**

g. Transportation or Hauling of Materials - If a DBE trucking company picks up a product from a manufacturer or regular dealer and delivers the product to the Contractor, the commercially useful function performed is not that of a supplier, but that of a transporter of goods. Unless the DBE company is itself the manufacturer or a regular dealer in the product, credit only will be allowed for the cost of the transportation service. For transportation of materials by truck to be used toward meeting the DBE commitment, the following shall apply:

1) The DBE shall be responsible for management and supervision of the entire trucking operation ~~that is to count toward the commitment.~~ The DBE shall maintain strict records to verify the amount of hauling done by each trucker for the duration of the contract. These records shall be available to the Engineer, upon request.

2) OES-Civil Rights will maintain a truck roster for each DBE that performs trucking. Each truck on the truck roster shall be either owned by the DBE or controlled by the DBE under a lease. Trucks that are leased shall be from a firm that is in the commercial leasing business; the owner of the commercial leasing business cannot be a heavy-highway contractor. The DBE firm shall make available to the Department the lease agreement if requested.

3) To meet the DBE commitment, the following conditions shall be used:

a) At least one fully licensed, insured, and operational truck, listed on the truck roster under the DBE trucking company shown on the Form 102115, shall be hauling on the project at all times. The Contractor will receive credit for the fee

paid to the DBE for these trucks.

b) Any truck on the truck roster of another DBE may be used. There is no limitation to the number of these trucks that can be used. The Contractor will receive credit for the fee paid to the DBE for these trucks.

c) A DBE trucker may also use trucks from a non-DBE firm, including an owner operator. The Contractor will receive credit toward the DBE commitment only for the fee or commission retained by the DBE trucker. The Contractor will not receive credit for the total amount paid for the truck because the DBE was a lessee rather than the actual provider of transportation services.

Reason for Revision: To specifically require a prime contractor to submit records for hauling done by a DBE trucking firm(s) in excess of the 115 commitment. By Standard Specification 1102.17 D 2 g 1, the contract documents are lacking for us to be able to contractually require them beyond the DBE 115 commitment amount. This revision is in response to a DBE trucking firm that recently refused to submit their hauling records once the commitment was reached.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X
Comments:		
County or City Comments:		
Industry Comments:		

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 2**
Submittal Date: 8/24/18	**Proposed Effective Date:** April 2019 GS	
Article No.: 1107.18, A **Title:** Protection of Water Quality and Wetlands	**Other:**	

Specification Committee Action: Approved with formatting changes.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text:
1107.18, A, Protection of Water Quality and Wetlands.

Add the Article:

4. Dewatering.

a. For projects regulated by Iowa DNR National Pollutant Discharge Elimination System (NPDES) General Permit No. 2, discharges from dewatering activities, including from trenches and excavations, are prohibited unless managed by appropriate controls.

b. Contractor is responsible for obtaining any additional necessary permits or approvals.

Comments: None.

Specification Section Recommended Text:
1107.18, A, Protection of Water Quality and Wetlands.

Add the Article:

4. Dewatering.

1. For projects regulated by Iowa DNR National Pollutant Discharge Elimination System (NPDES) General Permit No. 2, discharges from dewatering activities, including from trenches and excavations, are prohibited unless managed by appropriate controls.

2. Contractor is responsible for obtaining any additional necessary permits or approvals.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**
1107.18, A, 4.

Add the Article:

4. Dewatering.

1. For projects regulated by Iowa DNR National Pollutant Discharge Elimination System (NPDES) General Permit No. 2, discharges from dewatering activities, including from trenches and excavations, are prohibited unless managed by appropriate controls.

2. Contractor is responsible for obtaining any additional necessary permits or approvals.

Reason for Revision: Add language from General Permit No. 2 regarding dewatering. Define responsibility for any additional permits or approvals. Additional information on potential additional permits or approvals will be provided in the construction manual.

New Bid Item Required (X one)	**Yes**	**No** x

Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x
Comments: None		
County or City Comments:		
Industry Comments:		

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Gary Novey	**Office:** Bridges and Structures	**Item 3**
Submittal Date: June 29, 2018	**Proposed Effective Date:** April 2019 GS	
Article No.: 2401.03 C 1 **Title:** Removal of Substructures	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Office of Bridges and Structures indicated that they are currently using plan notes to cover this issue and will continue until next April.

Specification Section Recommended Text:
2401.03, C, 1.

Replace the Article:

Remove substructures of existing structures within the stream to 1 foot below natural stream bottom~~,~~ ~~unless otherwise provided or ordered~~. Remove those parts outside the stream to 1 foot below natural ground surface or as noted if grading limits modify the natural ground surface. Within grading limits of the project, substructure removal shall be 1 foot minimum below the grading surface. Within the limits of revetment placement, substructure removal shall be 1 foot minimum below the bottom of the revetment. Where these portions of existing structures lie wholly or in part within limits for a new structure, remove as necessary to accommodate construction of the proposed structure.

Comments:

Member's Requested Change: (Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)

C. Removal of Substructures.

1. Remove substructures of existing structures within the stream to 1 foot below natural stream bottom, ~~unless otherwise provided or ordered~~. Remove those parts outside the stream to 1 foot below natural ground surface or as noted if grading limits modify the natural ground surface. Within grading limits of the project, substructure removal shall be 1 foot minimum below the grading surface. Within the limits of revetment placement, substructure removal shall be 1 foot minimum below the bottom of the revetment. Where these portions of existing structures lie wholly or in part within limits for a new structure, remove as necessary to accommodate construction of the proposed structure.

Reason for Revision: Clarification of the removal limits specifically as it relates to revetment installation. The term "grading surface" was used to tie with terminology used on the construction documents.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

County or City Comments:

Industry Comments:

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 4**
Submittal Date: 8/24/18	**Proposed Effective Date:** April 2019 GS	
Article No.: 2416.03, D, 5 **Title:** Concrete Pipe Joints	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text:

2416.03, D, 5, Concrete Pipe Joints.

Add the Article:

e. For connections between dissimilar pipes, provide transition section or Type C adapter.

Comments: The Office of Bridges and Structures asked if it was clear that the transition section or concrete adapter was incidental to the pipe. Article 2416.04, D specifies that Type C adapters required by the contract documents will not be measured for payment.

The committee wondered if it was clear that concrete adapters are Type C "collars". The language was revised to be consistent with the rest of the Specifications.

The Office of Construction and Materials pointed out that "adapters" is spelled with both an "e" and an "o" in Section 2416. The Specifications Section will correct this.

Specification Section Recommended Text:

2416.03, D, 5, Concrete Pipe Joints.

Add the Article:

e. For connections between dissimilar pipes, provide transition section or concrete adapter.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**

2416.03, D, 5.

Add the Article:

e. For connections between dissimilar pipes, provide transition section or concrete adapter.

Reason for Revision: Match requirement included with storm sewer in Section 2503 that requires contractor to provide for connections to dissimilar pipes.

New Bid Item Required (X one)	**Yes**	**No** x
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x

Comments: None

County or City Comments:

Industry Comments:

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 5**
Submittal Date: 8/24/18	**Proposed Effective Date:** April 2019 GS	
Article No.: 2432.05, B. **Title:** Granular Backfill (Basis of Payment) **Article No.:** 4133.01 **Title:** Description (Granular Backfill Material)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Committee considered the comments from Wendling Quarries, but ultimately decided to leave the language as recommended. Although manufactured sand appears to be drainable per the gradation, in experience, it has not shown to be a drainable product. The Engineer will approve where manufactured sand can be used as granular backfill based on its intended purpose.

Specification Section Recommended Text:
2432.05, B, Granular Backfill Material.

Add the Article:

3. Includes testing for moisture and density control.

4133.01, Description.

Replace the Article:

Crushed stone or natural sand and gravel. If approved by the Engineer, manufactured sand may be substituted in applications where drainage is not a purpose for use of the granular material.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**

2432.05, B, 3

Add the Article:

3. Includes testing for moisture and density control.

4133.01 DESCRIPTION

Replace the Article:

Crushed stone or natural sand and gravel. If approved by the Engineer, manufactured sand may be substituted in applications where drainage is not a purpose for use of the granular material.

Reason for Revision:

- Require quality control compaction testing by the contractor for MSE wall backfill.
- Provide for restricted use of manufactured sand as granular backfill.
- Create new bid items for MSE wall granular backfill.

New Bid Item Required (X one)	**Yes x**	**No**
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x

Comments: Request new 2432 bid items for Granular Backfill-MSE Wall (cubic yard and ton) so that they are separate from 2402 bid items.

County or City Comments:

Industry Comments: Granular Backfill Material: Manufactured Sand is a 1/4-inch minus washed stone product, taken/removed from the process of washing stone product(s). This product normally has a minus #200 percent passing of 5% or less (often times less than 3%). It compacts well with it's crushed stone faces and will be a drainable product too. Question: Why not give a blanket approval to the use of Manufactured Sand for all Granular Backfill applications (without "Engineer's Approval"), as it is drainable and far more drainable than other materials that can meet the existing Granular Backfill gradation limits? Getting the engineer's approval pre-letting prior to quoting materials can be difficult too. When compared to other products that could be used under the Granular Backfill gradation specification (example): Crushed stone shall have 100% passing the 1.50 inch sieve and meet Granular Backfill gradation limits of 100% passing 3-inch, 10-100% passing the #8 sieve and 0-10% passing the #200 sieve. A crushed stone with this gradation would/could be a road stone, much less drainable than a washed Manufactured Sand.

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 6**
Submittal Date: 8/24/18	**Proposed Effective Date:** April 2019 GS	
Article No.: 2433.03 C **Title:** Control and Disposal of Materials (Concrete Drilled Shaft)	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text:
2433.03, C, Control and Disposal of Materials.

Replace the Article:

1. Dispose of excavated material, as well as slurry and/or water removed from the shaft excavation. Collect and properly dispose off site all slurry and untreated water displaced during final cleaning and concrete placement. Open pits for collection of materials will not be allowed. Control all excavated material, slurry, water, and other matter so that at no time it enters or encroaches upon the adjacent travel lanes, railroad, water ways, and so forth.

2. Water properly treated to remove sediment may be disposed on site. Take measures to prevent scour erosion at discharge point. Ensure turbidity of treated water does exceed 25 Nephelometric Turbidity Units (NTUs) greater than receiving water at the point of discharge; pH shall not be less than 6.5 nor greater than 9.0 at point of discharge; ensure pH is within 0.5 of receiving water; and discharge does not create objectionable color in receiving water. Contractor is responsible for testing prior to discharge and while discharging. If water is not able to be properly treated, dispose of off site per Article 2433.03, C, 1, at no additional cost to the Contracting Authority.

Comments: The Office of Construction and Materials noted that the new language is not all in imperative mood. This was revised.

SUDAS asked where the new language was taken from. The Office of Construction and Materials stated that it was taken from Chapter 61 of the Iowa Administrative Code.

Specification Section Recommended Text:
2433.03, C, Control and Disposal of Materials.

Replace the Article:

1. Dispose of excavated material, as well as slurry and/or water removed from the shaft excavation. Collect and properly dispose off site all slurry and untreated water displaced during final cleaning and concrete placement. Open pits for collection of materials will not be allowed. Control all excavated material, slurry, water, and other matter so that at no time it enters or encroaches upon the adjacent travel lanes, railroad, water ways, and so forth.

2. Water properly treated to remove sediment may be disposed on site. Take measures to prevent scour erosion at discharge point. Properly treated water means the turbidity shall not be more than 25 NTUs greater than the receiving water at the point of discharge; the pH shall not be less than 6.5 nor greater than 9.0 at the point of discharge; the pH must be

within 0.5 of the receiving water; and the discharge shall not create objectionable color in the receiving water. Contractor is responsible for testing prior to discharge and while discharging. If water is not able to be properly treated, it shall be disposed off site per Article 2433.03, C, 1 at no additional cost to the Contracting Authority.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**

2433.03, C

Replace the Article:

C. Control and Disposal of Materials.

1. Dispose of excavated material, as well as slurry and/or water removed from the shaft excavation. Collect and properly dispose off site all slurry and untreated water displaced during final cleaning and concrete placement. Open pits for collection of materials will not be allowed. Control all excavated material, slurry, water, and other matter so that at no time it enters or encroaches upon the adjacent travel lanes, railroad, water ways, and so forth.
2. Water properly treated to remove sediment may be disposed on site. Take measures to prevent scour erosion at discharge point. Properly treated water means the turbidity shall not be more than 25 NTUs greater than the receiving water at the point of discharge; the pH shall not be less than 6.5 nor greater than 9.0 at the point of discharge; the pH must be within 0.5 of the receiving water; and the discharge shall not create objectionable color in the receiving water. Contractor is responsible for testing prior to discharge and while discharging. If water is not able to be properly treated, it shall be disposed off site per Article 2433.03, C, 1 at no additional cost to the Contracting Authority.

Reason for Revision: Allow for water used during drilled shaft excavation to be disposed onsite if properly treated. Proposed spec revision language was used on I-74 project.

New Bid Item Required (X one)	**Yes**	**No** x
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x

Comments: None

County or City Comments:

Industry Comments:

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Mike Kennerly / Daniel Harness	**Office:** Design	**Item 7**
Submittal Date: 8/23/2018	**Proposed Effective Date:** 4/16/2019	
Article No.: 2502.05, C, 2 **Title:** Subdrain Outlet	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:
2502.05, C, 2.

Replace the first bullet:

Furnishing and installing precast concrete headwall or corrugated metal pipe, double walled PE, or PVC pipe including the outlet coverings, grouted joints and special connections,

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**
2502.05, C, 2.

Replace the first bullet:

- Furnishing and installing precast concrete headwall or corrugated metal pipe, double walled PE, or PVC pipe including the outlet coverings, grouted joints and special connections,

Reason for Revision: To add in the precast concrete headwall in Standard Road Plan DR-306.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

County or City Comments:

Industry Comments:

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 8**
Submittal Date: 8/24/18	**Proposed Effective Date:** April 2019 GS	
Article No.: 4169.10, A, 3 **Title:** Wire Staples (Special Ditch Control, Turf Reinforcement Mat, Slope Protection, and Transition Mat)	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text:

4169.10, A, 3.

Replace the Article:

Minimum No. 11 diameter wire for hand installation. Machine installation with minimum No. 13 diameter wire allowed for installation of slope protection and special ditch control.

Comments: The Office of Construction and Materials stated that the wire staple machines that they researched only used 6 inch No. 13 diameter wire staples.

A supplier had some concerns about the durability of No. 13 diameter wire. The Office of Construction and Materials is not concerned with the durability for slope protection and special ditch control installations (but thought it could be an issue on TRM installations, which also require longer staples), so the language was revised to reflect this.

Specification Section Recommended Text:

4169.10, A, 3.

Replace the Article:

Minimum No. 11 diameter wire for hand installation or No. 13 diameter wire for machine installation.

Comments:

Member's Requested Change: (Do not use **'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight**.)

4169.10, A, 3.

Replace the Article:

Minimum No. 11 diameter wire for hand installation or No. 13 diameter wire for machine installation.

Reason for Revision: Provide for use of machine installed staples.

New Bid Item Required (X one)	**Yes**	**No** x
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x

Comments: None

County or City Comments:
Industry Comments: Machine applied staples are fine but they MUST meet specification for staples which requires the staples to be manufactured out of 11 gauge wire.

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 9**
Submittal Date: 8/21/18	**Proposed Effective Date:** Nov. 2018 letting	
Article No.: **Title:**	**Other:** DS-15006, Developmental Specifications for Sliplining Existing Pipe Culverts	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 9/13/2018	**Effective Date:** 4/16/2019

Specification Committee Approved Text: See attached Developmental Specifications for Sliplining Existing Pipe Culverts.

Comments: A typo in the title was corrected.

Specification Section Recommended Text: See attached Draft Developmental Specifications for Sliplining Existing Pipe Culverts.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**

Replace DS-15006 with the attached draft DS.

Reason for Revision: Update standards and dimension table for existing pipe types. Add polypropylene and SRPE pipe. Revise references to foamed cellular concrete for annular grouting.

New Bid Item Required (X one)	**Yes**	**No** x
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x

Comments: None

County or City Comments:

Industry Comments:

DS-15068
(Replaces DS-15006)

DEVELOPMENTAL SPECIFICATIONS
FOR
SLIPLINING EXISTING PIPE CULVERTS

Effective Date
November 20, 2018

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

15068.01 DESCRIPTION.
Furnish and install liner pipe at locations specified in the contract documents.

15068.02 MATERIALS.

A. Furnish liner pipe meeting the material requirements for the type of pipe specified.

1. **Solid Wall HDPE Pipe with Integral Joint.**
   ~~**a.** ASTM F 714, Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter. O.D. tolerances are +/- 0.60%.~~
   ~~**b.** ASTM D 3350 Polyethylene Plastics Pipe and Fittings Materials. PE cell classification 334433C or higher or Type III, Class C, Category 5, grade PE 34 will both assure pipe grade, UV protection Class C-2% minimum carbon black.~~
   Comply with requirements of ASTM F 714 (SDR 32.5) and ASTM D 3350 (cell classification 334433C or higher).

2. **Profile Wall HDPE Pipe with Integral Joint.**
   ~~**a.** ASTM F 894, PE Plastic Pipe. Based on Outside Diameter. O.D. tolerances should be +/- 0.60%.~~
   ~~**b.** ASTM D 3350, Polyethylene Plastics Pipe and Fittings Materials. PE cell classification 334433C or higher or Type III, Class C, Category 5, grade PE 34 will both assure pipe grade, UV protection Class C-2% minimum carbon black.~~
   ~~**c.** Minimum pipe stiffness according to ASTM D 2412 is 46 psi.~~
   Comply with requirements of ASTM F 894, ASTM D 2412 (minimum RSC of 160 at 3% deflection), and ASTM D 3350 (cell classification 334433C or higher).

3. **Profile ~~Wall~~ Machine Spiral~~ly~~ Wound PVC Pipe with Integral Joint.**
   Comply with requirements of ASTM ~~F 949, minimum pipe stiffness, 46 psi.~~ F 1697 and provide a pipe stiffness as defined in ASTM F 1741 using a safety factor of 2.0.

4. **Profile Wall PVC Pipe with Integral Joint.**

~~**a.** ASTM F 949, PVC Corrugated Sewer Pipe with A Smooth Interior and Fittings.~~
~~**b.** ASTM D 1784, Rigid PVC Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds. PVC minimum cell classification 12454 B.~~
Comply with requirements of ASTM F 949 or F 1803.

5. Corrugated Steel Pipe (CSP).
~~**a.** ASTM A 760, Corrugated Steel Pipe, Metallic-Coated, For Sewers and Drains.~~
~~**b.** Corrugated Steel Pipe meeting the~~ Comply with requirements of Article 4141.02 of the Standard Specifications~~.~~
~~**c.** Corrugated Steel Pipe gauges meeting the requirements of~~ and Standard Road Plan ~~RF-32 or RF-33~~ DR-104.

~~**6. Flowable Mortar.**~~
~~Apply Section 2506 of the Standard Specifications.~~

6. Polypropylene Pipe (PP).
Comply with requirements of ASTM F 2764 or F 2736.

7. Steel Reinforced Polyethylene (SRPE)
Comply with requirements of ASTM F 2562, Class 1.

B. Pipe Connections.
Use liner pipe capable of being joined into a continuous length. Ensure joints are adequate for pushing or pulling the liner pipe through the ~~host culvert~~ existing pipe.

C. Pipe Dimension Table.
Use liner pipe meeting dimensions as shown in Table 1. Verify there is enough clearance in existing pipe to ensure adequate room for liner pipe installation (based on manufacturer's dimensions) and grouting.

~~**Table DS-15006.02-1: Pipe Dimension.**~~

~~Nominal Pipe Size, inches~~	~~Profile Wall HDPE O.D., inches~~	~~Profile Wall HDPE I.D., inches~~	~~Solid Wall HDPE O.D., inches~~	~~Solid Wall HDPE I.D., inches~~	~~Spirally Wound PCV Pipe O.D., inches~~	~~Spirally Wound PVC Pipe I.D., inches~~	~~Profile Wall PVC O.D., inches~~	~~Profile Wall PVC I.D., inches~~	~~CSP Nominal Size., inches~~
~~24~~	~~20.24~~	~~18.00~~	~~22.00~~	~~20.65~~	~~20.45~~	~~20.00~~	~~22.60~~	~~20.70~~	~~21~~
~~30~~	~~27.06~~	~~24.00~~	~~28.00~~	~~26.29~~	~~27.45~~	~~27.00~~	~~25.60~~	~~23.50~~	~~27~~
~~36~~	~~33.82~~	~~30.00~~	~~32.00~~	~~30.03~~	~~32.79~~	~~32.00~~	~~32.20~~	~~29.50~~	~~30~~
~~42~~	~~40.65~~	~~36.00~~	~~40.00~~	~~36.95~~	~~38.79~~	~~38.00~~	~~38.70~~	~~35.50~~	~~36~~
~~48~~	~~45.20~~	~~40.00~~	~~42.00~~	~~39.42~~	~~42.79~~	~~42.00~~	~~---~~	~~---~~	~~42~~
~~54~~	~~47.47~~	~~42.00~~	~~48.00~~	~~44.33~~	~~48.79~~	~~48.00~~	~~---~~	~~---~~	~~48~~
~~60~~	~~---~~	~~---~~	~~54.00~~	~~50.68~~	~~54.79~~	~~54.00~~	~~---~~	~~---~~	~~54~~
~~66~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~60~~
~~72~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~66~~
~~78~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~72~~

~~84~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~78~~
~~90~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~84~~
~~96~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~	~~90~~

Existing Pipe, Nominal Size, Inches	Liner Pipe, Nominal Size, Inches						
	Profile Wall HDPE	Solid Wall HDPE	Profile Spiral Wound PVC	Profile Wall PVC	CSP	PP	SRPE
24	18	22	19	18	21	18	-
30	24	28	25	24	27	24	-
36	30	32	30	30	30	30	30
42	36	36	36	36	36	36	36
48	40	42	42	42	42	42	42
54	42	48	48	48	48	--	48
60	48	54	54	54	54	48	54
66	54	--	60	--	60	--	60
72	60	63	66	60	66	60	66
78	66	--	69	--	72	--	72
84	72	--	--	--	78	--	72
90	--	--	--	--	84	--	84
96	--	--	--	--	90	--	-

D. Annular Space Grouting

Use foamed cellular concrete meeting the requirements of Section 2506 of the Standard Specifications.

15068.03 CONSTRUCTION.

A. Prior to sliplining, clean the existing pipe of obstructions~~, solids, and so forth~~ or debris that will prevent the insertion of the liner.

B. ~~Hold the liner pipe down to create the minimum change in flowline, especially on the inlet end. An example of this would entail attaching a block to the top of the liner pipe, or adding weight to the invert to resist floatation during backfilling with flowable mortar.~~ Secure the liner pipe to prevent floating during grouting and ensure minimum change in flowline, especially on the inlet end.

C. ~~Fill all voids between the liner pipe and the host culvert with flowable mortar. Staged grouting is recommended. Ensure that all voids between the liner pipe and host pipe have been filled with flowable mortar by providing 2 feet of head when filling.~~

Annular Space Grouting.

Comply with construction requirements in Section 2506 of the Standard Specifications.

15068.04 METHOD OF MEASUREMENT.

~~A. Sliplining Existing Culverts.~~

Measurement for Sliplining Existing Culverts will be the linear ~~F~~feet~~, measured to the nearest foot,~~ shown in the contract documents for each culvert.

~~B. Flowable Mortar~~

~~Article 2506.04 of the Standard Specifications applies.~~

15068.05 BASIS OF PAYMENT.

~~**A. Sliplining Existing Culverts.**~~

~~**1.** Per lineal foot.~~

2. Payment per linear foot includes all costs to inspect and clean the ~~host~~ existing culvert and all labor, equipment, and materials for sliplining, ~~and blocking~~ securing the liner pipe in~~to~~ the ~~host~~ existing culvert, and annular space grouting. If Contractor demonstrates the grouting is greater than 120% of the estimated amount to fill the annular space, the grouting volume greater than 120% of the estimate will be paid for as extra work as provided in Article 1109.03, B of the Standard Specifications.

~~**B. Flowable Mortar.**~~

~~Article 2506.05 of the Standard Specifications applies.~~