INDIANA DEPARTMENT OF TRANSPORTATION

STANDARDS COMMITTEE MEETING MINUTES

Driving Indiana's Economic Growth

September 27, 2007

MEMORANDUM

TO: Standards Committee

FROM: Mike Milligan, Secretary

RE: Minutes for the September 20, 2007 Standards Committee Meeting

The Standards Committee meeting was called to order by the Chairman at 9:04 a.m. on September 20, 2007 in the N755 Bay Window Conference Room. The meeting was adjourned at 11:34 a.m.

The following members were in attendance:

Mark Miller, Chairman	Dave Andrewski, Pvmt. Engineering
Dennis Kuchler, State Constr. Engr.	Bob Cales, Contract Admin.
Ron Heustis, Constr. Mgmt.	John Wright, Roadway Services
Larry Rust, Traffic Control	Anne Rearick, Structural Services
Ron Walker, Materials Mgmt.	Jim Keefer, Fort Wayne Dist.

Also in attendance were the following:

Mike Milligan, Secretary	Thomas Duncan, FHWA
Tony Uremovich, INDOT	David Unkefer, FHWA
Tommy Nantung, INDOT	Paul Berebitsky, ICA
Peter Allaben, INDOT	

New Business

Item No.	Sponsor	Page
Item 08-4-1	Mr. Heustis	3
211	B BORROW AND STRUCTURE BACKFILL	
Action:	Passed as revised	
Item 08-4-2	Mr. Heustis	10
213	FLOWABLE BACKFILL	
Action:	Passed as revised	
Item 08-4-3	Ms. Rearick	16
Standard Drawing	707-BPBF-03	
Action:	Passed as submitted	

Item 08-4-4	Ms. Rearick	17
707.03	General Requirements	
707.12	Basis of Payment	
Action:	Passed as revised	
Item 08-4-5	Ms. Rearick	19
Standard Drawing	713-TCTR-04	
Action:	Withdrawn	
Item 08-4-6	Ms. Rearick	20
713.05	Temporary Approaches	
713.09	Basis of Payment	
801.12(a)	Temporary Pavement Marking Methods	
Action:	Withdrawn	
Item 08-4-7	Mr. Heustis	21
Standard Drawings	715-BKFL-01 thru 09	
Action:	Passed as revised	
Item 08-4-8	Ms. Rearick	31
Standard Drawing	715-PASD-01	
Action:	Passed as submitted	
Item 08-4-9	Ms. Rearick	32
715.10	Pipe End Sections, Anchors, Grated Box End Sections, and Safety Metal End Sections	
Action:	Passed as revised	

cc: Committee Members (11)
FHWA (4)
ICA Representative (1)

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 211, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 211 – B BORROW AND STRUCTURE BACKFILL

211.01 Description

This work shall consist of backfilling excavated or displaced peat deposits; filling up to designated elevations of spaces excavated for structures and not occupied by permanent work; constructing bridge approach embankment; and filling over structures and over arches between spandrel walls, all with special material.

MATERIALS

211.02 Materials

Materials shall be in accordance with the following.

B Borrow .....As Defined*
Flowable Backfill *213*
Geotextile 918.02
Structure Backfill 904

* The material used for special filling shall be of acceptable quality, free from large or frozen lumps, wood, or other extraneous matter and shall be known as B borrow. It shall consist of suitable sand, gravel, crushed stone, ACBF, GBF, or other approved material. The material shall contain no more than 10% passing the No. 200 (75 µm) sieve and shall be otherwise suitably graded. The use of an essentially one-size material will not be permitted unless approved.

Aggregate for end bent backfill shall be No. 8 or No. 9 crushed stone or ACBF, class D or higher.

The Contractor has the option of either providing B borrow or structure backfill from an established CAPP source, or supplying the material from another source. The Contractor has the following options for supplying B borrow or structure backfill from a local site:

(a) the establishment of a CAPP Producer Yard at the local site in accordance with 917; or

(b) use a CAPP Certified Aggregate Technician or a consultant on the Department's list of approved Geotechnical Consultants For Gradation Control Testing.

For material excavated within the project limits, gradation control testing will be performed by the Department if the Contractor is directed to use the material as B borrow or as structure backfill.

The frequency of gradation control testing shall be one test per 2000 t (2000 Mg) based on production samples into a stockpile or by over the scales measurement, with a minimum of two tests per contract (one in the beginning and one near the mid-point). The sampling and testing of these materials shall be in accordance with applicable requirements of 904 for fine and coarse aggregates. The Contractor shall advise, in

writing, the Engineer and the District Materials and Testing Engineer of the plan to measure the material.

~~Where structure backfill is specified, the Contractor may substitute flowable backfill in accordance with 213. However, flowable backfill shall not be placed into or through standing water, unless approved in writing.~~

CONSTRUCTION REQUIREMENTS

211.03 General Requirements

If B borrow or structure backfill is obtained from borrow areas, the items of obtaining the areas, their locations, depths, drainage, and final finish shall be in accordance with 203.

Unless otherwise specified, if excavated material complies with 211.02 and if B borrow or structure backfill is required for special filling, the excavated material shall be used as such. If there is a surplus of this material, such surplus shall be used in embankment. The provisions of 203.19 shall apply to placing this material at structures. All surplus in excess of the directed or specified use on the right-of-way shall be disposed of in accordance with 201.03.

If fill or backfill as described in this specification is within embankment limits, and if it is not required that the entire fill or backfill be of B borrow and placed as such, then that portion above the free-water level shall be placed in accordance with applicable provisions of 203 and compacted to the required density.

If borrow is required outside the specified limits of B borrow, material in accordance with the specifications for B borrow may be furnished at the contract unit price for borrow; however, the quantity of borrow measured for payment outside the limits of structure backfill will not exceed the theoretical quantity of B borrow furnished.

Unless otherwise specified, all spaces excavated for and not occupied by bridge abutments and piers, if within embankment limits, shall be backfilled to the original ground line with B borrow, and placed in accordance with 211.04.

Where B borrow or structure backfill is required as backfill at culverts, retaining walls, sewers, manholes, catch basins, and other miscellaneous structures, it shall be compacted in accordance with 211.04.

Where specified, aggregate for end bent backfill shall be placed behind end bents and compacted in accordance with 211.04. Prior to placing the aggregate, a geotextile shall be installed in accordance with 616.11.

211.03.1 Structure Backfill Types

The structure backfill type shall be as specified.

Within each of the following structure backfill types, the Contractor shall choose from the listed options for each type:

(a) Type 1

1. *structure backfill in accordance with 904.05*

2. *non-removable or removable flowable backfill in accordance with 213.*

(b) Type 2

1. *crushed stone aggregate or ACBF structure backfill in accordance with 904.05, except No. 30, No. 4 and 2 in. (50 mm) nominal size aggregate shall not be used.*

2. *non-removable or removable flowable backfill in accordance with 213.*

(c) Type 3

1. *structure backfill in accordance with 904.05, except only No. 30 or No. 4 nominal size aggregates shall be used.*

(d) Type 4

1. *removable flowable backfill in accordance with 213.*

(e) Type 5

1. *non-removable flowable backfill in accordance with 213.*

211.04 Compaction

B borrow and structure backfill *types 1, 2, and 3* shall be compacted with mechanical tamps or vibrators in accordance with the applicable provisions of 203.23 except as otherwise set out herein.

Aggregate for end bent backfill and coarse aggregate No. 8, No. 9, or No. 11 used for structure backfill shall be deposited in layers not to exceed 12 in. (300 mm) loose measurement. Each layer shall be mechanically compacted with a compactor having a plate width of 17 in. (425 mm) or larger that delivers 3000 to 9000 lb (13.3 to 40 kN) per blow. Each lift shall be compacted with two passes of the compactor.

211.05 Embankment for Bridges

When special filling is required, the embankment for bridges shall be constructed using B borrow within the specified limits shown on the plans. All embankment construction details specifically set out in this specification for embankment for bridges shall be considered in accordance with the applicable requirements of 203.

At the time B borrow is being placed for approach embankment, a well compacted watertight dam shall be constructed in level lifts, the details of which are shown on the plans. Except as hereinafter specified for material to be used in constructing the enclosing dam, and for growing vegetation, and unless otherwise provided, the material for constructing bridge approach embankment shall be B borrow compacted by mechanical methods. If approach embankment or shoulders are constructed of material not suitable for growing seed or sod, and if one or both of these is required, then such

areas shall, unless otherwise specified, be covered with a layer of clay, loam, or other approved material. This layer shall be approximately 1 ft (0.3 m) thick after being compacted into place.

211.06 B Borrow Around Bents

When specified, B borrow shall be placed around all bents falling within the limits of the approach grade as shown on the plans. Before placing, the surface of the ground on which it is to be placed shall be scarified or plowed as directed. The embankment slope shall be 2:1 on the sides and beneath the structure, and shall be 6:1 from the end of the bridge down to the average ground line, or it may be required to complete the approaches back to the existing grade. An enclosing dam and provisions for growing vegetation shall be constructed in accordance with 211.05.

211.07 Blank

211.08 Spandrel Filling

Unless otherwise specified, spandrel fills for arch structures shall be composed of B borrow. The fill shall be carried up symmetrically in lifts from haunch to crown and simultaneously over all piers, abutments, and arch rings. Compaction shall be in accordance with 211.04.

211.09 Method of Measurement

B borrow, structure backfill *types 1, 2, or 3*, and aggregate for end bent backfill will be measured by the cubic yard (cubic meter) as computed from the neat line limits shown on the plans, or as adjusted. If cubic yards (cubic meters) are set out as the pay item for B borrow or structure backfill in the Schedule of Pay Items and if neat line limits are not specified for measurement of volume for the material, measurement will be made by the cubic yard (cubic meter) at the loading point in truck beds which have been measured, stenciled, and approved. The B borrow may be weighed and converted to cubic yards (cubic meters) by assuming the weight per cubic foot (mass per cubic meter) to be 90% of the maximum wet density in accordance with AASHTO T 99. The material may be cross sectioned in its original position and again after excavation is complete, and the volume computed by the average end area method. If B borrow is used for backfill in areas where unsuitable material is present or peat excavation has been performed, unless otherwise directed, the B borrow will be cross sectioned, and the volume will be computed by the average end area method.

Structure backfill types 4 or 5 will be measured by the cubic yard (cubic meter) as computed from the neat line limits shown on the plans, or as adjusted. If neat line limits are not shown on the plans, the volume in cubic yards (cubic meters) of flowable backfill furnished and placed as structure backfill type 4 or 5 will be computed from the nominal volume of each batch and a count of the batches. Unused and wasted flowable backfill will be estimated and deducted.

If the material is to be paid for by the ton (megagram), it will be weighed in accordance with 109.01(b).

If the material comes from a wet source such as below water or a washing plant, and weighing is involved in the method of measurement, there shall be a 12 h drainage period prior to the weighing.

Geotextile will be measured in accordance with 616.12.

211.10 Basis of Payment

The accepted quantities of B borrow will be paid for at the contract unit price per cubic yard (cubic meter) or per ton (megagram) as specified, complete in place.

Structure backfill will be paid for at the contract unit price per cubic yard (cubic meter) *of the type specified*, ~~based on the neat line limits shown on the plans or as adjusted for authorized changes,~~ provided the material comes from outside the permanent right-of-way. ~~If the Schedule of Pay Items does not contain a pay item for structure backfill and it is required to backfill pipes or culverts within the project limits, a change order will be generated to establish a unit price.~~

B borrow material placed outside the neat lines will be paid for as borrow when such B borrow eliminates required borrow material. Otherwise, no payment will be made for backfill material placed outside the neat lines.

Aggregate for end bent backfill will be paid for at the contract unit price per cubic yard (cubic meter), based on the neat line limits shown on the plans or as adjusted by authorized changes.

Geotextile will be paid for in accordance with 616.13.

~~Flowable backfill which is substituted for structure backfill will be paid for as structure backfill.~~

If topsoil, loam, or other suitable material in accordance with 211.05 is used for expediting the growth of seed or sod, it will be paid for at the contract unit price per cubic yard (cubic meter) for borrow, unless otherwise provided.

Payment will be made under the following:

Pay Item	**Pay Unit Symbol**
Aggregate For End Bent Backfill	CYS (m3)
B Borrow	CYS (m3)
	TON (Mg)
Structure Backfill, *Type* ____	CYS (m3)

No payment will be made under this section for material obtained within the excavation limits of the project if the Contractor is directed to use the material as B borrow or structure backfill in a pipe trench, culvert, construction of an embankment or fill, or if the Contractor uses the material for its own convenience. Material obtained from within the excavation limits of the project and which the Contractor is directed to use as B borrow or structure backfill for other purposes including replacement of undercut areas, support for a MSE wall, and end bent fill will be paid for at the contract unit price of $5.00 per cubic yard ($6.50 per cubic meter) for B borrow/structure backfill handling.

The cost of disposal of excavated material shall be included in the cost of the pay items in this section.

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 211, CONTINUED.

Other sections containing specific cross references:

SEE NEXT PAGE

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Recurring Special Provisions potentially affected:

None

Standard Sheets potentially affected:

None

Motion: Mr. Heustis
Second: Mr. Cales
Ayes: 9
Nays: 0

Action: Passed as revised

_x_ RSP Effective: April 2008 Letting
_x_ 2009 Standard Specifications Book
___ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

Received FHWA Approval? Yes

OTHER SECTIONS CONTAINING SPECIFIC CROSS REFERENCES:

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 213, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 213 – FLOWABLE BACKFILL

213.01 Description

This work shall consist of placing flowable backfill in trenches for pipe structures, culverts, utility cuts, ~~and~~ other work extending under pavement locations, ~~to fill~~ cavities beneath slopewalls and other locations in accordance with 105.03.

Flowable backfill will be classified as either removable or non-removable.

MATERIALS

213.02 Materials

Materials shall be in accordance with the following:

Concrete Admixtures	912.03
Fine Aggregate~~*~~	904.*02(a)*
Fly Ash	901.02
Portland Cement	901.01(b)
Water	913.01

~~*Except that steel furnace slag shall not be used~~

~~If fly ash is used as a filler and not as a pozzolan, the fly ash shall be in accordance with 904.~~

The supplier may elect to use *nominal size No. 23 and No. 24* gradations in accordance with 904*.02(h)* or may propose the use of alternate gradations. The alternate gradation and proposed tolerances of material passing each sieve shall be included in the flowable backfill mix design.

213.03 Flowable Backfill Mix Design

The Contractor shall submit a flowable backfill mix design, FBMD, to the ~~Engineer~~ *DMTE a minimum of seven days* ~~and arrange a~~ *prior to the* trial batch. The FBMD will be ~~approved based on compliance~~ *accepted in accordance* with 213.04. The FBMD shall be submitted in a format acceptable to the ~~Engineer~~ *DMTE* and shall include the following:

(a) a list of all ingredients
(b) the source of all materials
(c) the gradation of the aggregates
(d) the batch weight (mass) *with the aggregates at the SSD condition*
(e) the names of all admixtures
(f) the admixture dosage rates and manufacturer's recommended range

~~FBMD's which were used on contracts in the current or previous calendar year, may be submitted to the District Materials and Tests Engineer for approval. Effective January 1, 2004, all FBMD's shall meet the requirements of 213.05.~~ *A FBMD in accordance with these specifications, which has been approved for use on a previous*

contract, may be submitted to the DMTE for approval. The submittal shall include copies of test results in accordance with 213.04 and 213.05.

~~After the completion of the trial batch and all test results have been reviewed for compliance with the specifications, a mixture number will be assigned by the Engineer.~~

~~Mix design changes~~ *Changes in the FBMD* will not be allowed ~~after the FBMD approval,~~ except for adjustments to compensate for routine moisture fluctuations *or a change in sand source in accordance with 213.05 based on the dry flow determined from the trial batch testing.* All other changes *will* require a new FBMD.

213.04 Flowable Backfill Mix Criteria

The FBMD shall produce a workable mixture with the following properties.

~~Minimum Unconfined Compressive Strength~~
~~at 28 days ..... 50 psi (350 kPa)~~
~~Maximum Unconfined Compressive Strength~~
~~at 28 days ..... 150 psi (1050 kPa)~~
~~Minimum Fill Spread Diameter ..... 8 in. (200 mm)~~

(a) Flow Consistency

Flow consistency will be measured in accordance with ASTM D 6103. The diameter of the spread shall be at least 8 in (200 mm).

(b) Lightweight Dynamic Cone Penetration Blow Count Number

A lightweight dynamic cone penetration test will be performed in accordance with ITM 216 after the flowable backfill mix has cured for three days. The average penetration resistance blow count number for removable flowable backfill shall not be less than 20 nor greater than 30. Non removable flowable backfill mixes shall have an average penetration resistance blow count greater than 30.

(c) Removability Modulus

The removability modulus, RM, will be determined for the FBMD by the formula as follows:

$$RM = 0.000104(U_w)^{1.5}\sqrt{1.72N_{14} - 15.64} \qquad \textit{(English Units)}$$

$$(RM = 0.00000162(U_w)^{1.5}\sqrt{1.72N_{14} - 15.64}\,) \qquad \textit{(SI Units)}$$

Where:

N_{14} = *average lightweight dynamic cone penetration blow count after 14 days in accordance with ITM 216.*

U_w = *dry unit weight, pcf (kg/m^3), of flowable backfill after 14 days in accordance with ITM 218.*

The RM shall be 1.0 or less for removable flowable backfill.

After all test results have been reviewed for compliance with the specifications, a mixture number will be assigned by the DMTE.

213.05 Flowable Backfill Trial Batch

A trial batch shall be produced by the Contractor and *will be* tested by the ~~District Materials and Tests Engineer~~ *Department* to verify that the FBMD meets the flowable backfill mix criteria. *The Department will verify the classification of the mix as either removable or non-removable from the results of the trial batch.* The flowable backfill shall be batched within the proportioning tolerances of 508.02(b). The ~~Engineer~~ *Department* will determine *the test results* and provide *them to* the Contractor ~~with test results for the unconfined compressive strength test and the flowable backfill spread diameter~~. The trial batch shall be of sufficient quantity to allow the ~~Contractor and the Engineer~~ *Department* to perform all required tests from the same batch. ~~Trial batch flowable backfill shall not be used for more than one test.~~

~~Compressive strength testing shall be conducted in accordance with ITM 588. Flow testing shall be conducted in accordance with ASTM D 6103.~~

~~The Contractor shall determine the penetration resistance of the flowable backfill produced during the trial batch in accordance with ITM 213 at one, three, seven, and fourteen days. The results shall be submitted to the Engineer.~~

~~FBMD's which were used on contracts in the current or previous calendar year, may be submitted to the District Materials and Tests Engineer for approval.~~

The Department will obtain a sample of the fine aggregate and fly ash described in the FBMD. The Department will test the dry flow in accordance with ITM 217 and record the results on the FBMD.

If the Contractor requests to change the source of the fine aggregate identified in an approved FBMD the Contractor shall submit a revised FBMD to the DMTE. The Department will obtain a sample of the new fine aggregate and, if applicable, a sample of the fly ash as identified in the approved FBMD. Dry flow will be tested in accordance with ITM 217. If the test result is within ± 2.0 s of the value shown on the approved FBMD, the revised FBMD will be approved and a new trial batch will not be required. Failure to meet the dry flow test requirement will require the Contractor to submit a new FBMD and perform a new trial batch for approval of the proposed new fine aggregate.

213.06 Mixing Equipment

The mixing equipment shall be in accordance with the applicable requirements of 702 or 722~~, except that in lieu of the calibration requirements of 722.11, the mixer operator shall make delivery in a properly calibrated continuous mixer~~.

CONSTRUCTION REQUIREMENTS

213.07 Placement

The flowable backfill shall not be placed on frozen ground. Flowable backfill shall be protected from freezing ~~until the material has set~~ *for 72 hr. Flowable backfill shall not be placed into or through standing water unless approved by the Engineer in writing.*

The diameter of the flowable backfill spread shall be at least 8 in. (200 mm) at time of placement. *Water may be adjusted from the FBMD to meet the minimum spread requirement if the initial measured spread is between 7 and 8 in. (175 and 200 mm).*

If using mixing equipment in accordance with 722, the yield will be checked using the 1/4 cu yd (0.2 m^3) box method as follows:

(a) The chute shall be cleaned and the box shall be positioned on a level surface to receive the discharged flowable backfill.

(b) The mixer shall be operated until the cement or fly ash counter indicates that 1/4 cu yd (0.2 m^3) of flowable backfill has been yielded.

(c) The contents of the box will be consolidated and struck off. If the box is not full, the gates shall be adjusted and the procedure shall be repeated until the actual and calculated volumes of flowable backfill agree.

(d) Yield will be checked on the first load of each truck and every third load per truck thereafter. Additional yield tests will be required after making any adjustments.

The flowable backfill shall be brought up uniformly to the fill line as shown on the plans or as directed. *When used as structure backfill, flowable backfill shall be placed uniformly so as not to induce unbalanced loading on any part of a structure.*

The flowable backfill shall not be subject*ed* to load nor disturbed by construction activities until *a lightweight dynamic cone* penetration *test has produced a minimum blow count* ~~resistance testing in accordance with ITM 213 has been completed~~. The minimum ~~penetration resistance~~ *blow count* shall be as follows:

~~For PCCP .....70 psi (500 kPa)~~
~~For all Other Applications..... 1200 psi (8000 kPa)~~

Construction Activities With Vibratory Compaction After Backfill.....12
Construction Activities Without Vibratory Compaction After Backfill.....7

213.08 Method of Measurement

Flowable backfill will be measured by the cubic yard (cubic meter) *of the type specified* as computed from the neat line limits shown on the plans, or as adjusted. If neat line limits are not shown on the plans, the volume in cubic yards (cubic meters) of flowable backfill furnished and placed will be computed from the nominal volume of each batch and a count of the batches. Unused and wasted flowable backfill will be estimated and deducted. Drilled holes will be measured by the number of holes drilled.

213.09 Basis of Payment

The accepted quantities of flowable backfill will be paid for at the contract unit price per cubic yard (cubic meter) *for the type specified,* furnished and placed. Holes drilled in the pavement will be paid for at the contract unit price per each.

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 213, CONTINUED.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Drilled Hole for Flowable Backfill	EACH
Flowable Backfill, *Non-Removable*	CYS (m3)
Flowable Backfill, Removable	*CYS (m3)*

The cost of material placed outside the neat line limits, material placed outside the adjusted limits, and unused or wasted flowable backfill shall be included in the cost of this work.

Other sections containing specific cross references:

SEE NEXT PAGE

Recurring Special Provisions potentially affected:

213-R-446

Motion: Mr. Heustis
Second: Mr. Cales
Ayes: 9
Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Standard Sheets potentially affected:

None

Action: Passed as revised

_x_ RSP Effective: April 2008 Letting
_x_ 2009 Standard Specifications Book
___ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

Received FHWA Approval? Yes

OTHER SECTIONS CONTAINING SPECIFIC CROSS REFERENCES:

Item No. 08-4-3
Ms. Rearick
Date: 9/20/07

REVISION TO STANDARD DRAWING

707-BPBF-03 Fabrication Tolerances General Notes

Other sections containing specific cross references:

None

Recurring Special Provisions potentially affected:

None

Motion: Ms. Rearick
Second: Mr. Keefer
Ayes: 9
Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Standard Sheets potentially affected:

See Above

Action: Passed as submitted

___ RSP Effective: _____ Letting
___ 2009 Standard Specifications Book
_x_ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

Received FHWA Approval? Yes

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 707, AFTER LINE 37, INSERT AS FOLLOWS:

A beam whose dimensions exceed the tolerances shown on the plans will be rejected for shipment to the project site. A beam which is to include a field attached curb shall have curb reinforcement located longitudinally within 3/4 in. (20 mm) of the locations shown on the plans.

Wire breaks will be permitted to remain on the prestressed concrete casting bed as follows:

Number of Strands in Bed	*Wire Breaks*
19 or Fewer	*0*
20 through 39	*1*
40 through 59	*2*
60 or More	*3*

The ends of each permitted wire break shall be tied to the strand. If more than the permissible number of wire breaks appears in a particular strand pattern, or if more than one broken wire appears in an individual strand, such strands shall be removed and replaced.

The tolerance for the center of gravity for a prestressing strand group shall be ± 1/4 in. (± 6 mm). The tolerance for the longitudinal position of handling devices shall be ± 6 in. (± 150 mm).

SECTION 707, BEGIN LINE 385, INSERT AS FOLLOWS:

No payment will be made for *removing and replacing prestressing strands due to excessive wire breakage, or* replacing precast members damaged during handling, storing, transporting, or erecting.

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 707, CONTINUED.

Other sections containing specific cross references:

707.10 Pg 497

Recurring Special Provisions potentially affected:

None

Motion: Ms. Rearick
Second: Mr. Kuchler
Ayes: 9
Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Standard Sheets potentially affected:

707-BPBF-03

Action: Passed as revised

___ RSP Effective: _____ Letting
_x_ 2009 Standard Specifications Book
___ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

Received FHWA Approval? Yes

Item No. 08-4-5
Ms. Rearick
Date: 9/20/07

REVISION TO STANDARD DRAWING

713-TCTR-04 Temporary Runaround General Notes

Other sections containing specific cross references:

None

General Instructions to Field Employees
Update Required? Y___ N___
By - Addition or Revision
Frequency Manual
Update Required? Y___ N___
By - Addition or Revision

Recurring Special Provisions potentially affected:

None

Standard Sheets potentially affected:

See Above

Motion: M
Second: M
Ayes:
Nays:

Action: Withdrawn

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 713, BEGIN LINE 45, INSERT AS FOLLOWS:

713.05 Temporary Approaches

Temporary approaches shall be constructed to a line and grade which will provide a reasonably convenient and safe connection between the temporary bridge and the existing road. The grade and crown elevation shall be as shown on the plans. The roadway and slopes shall be as shown on the plans. All necessary drainage shall be provided. Embankment shall be compacted in accordance with 203. *The connection of the temporary runaround to the existing pavement shall be outside the limits of the approach pavement removal.* If it becomes necessary to reconstruct the connection of the approaches with the existing roadway, either because of the operations or other cause, such adjustment shall be made as directed. HMA pavement for temporary approaches shall be in accordance with 402. *A surface course shall be placed if the runaround is to be in use beginning December 1 through the following March 31.* Temporary pavement markings in accordance with 801.12 shall be placed as shown on the plans. Delineators in accordance with 804 shall be placed as shown on the plans.

SECTION 713, BEGIN LINE 96, INSERT AS FOLLOWS:

specified. HMA mixtures for temporary pavement, *including surface course required for winter runaround use,* will be paid for as the type of mixture specified, in accordance with 610.06, complete in place. Guardrail installed

SECTION 801, BEGIN LINE 586, INSERT AS FOLLOWS:

(a) Temporary Pavement Marking Methods

Pavement markings shall be installed in accordance with 808.07.

The Contractor will be permitted to use either paint or tape for all temporary runaround markings unless otherwise directed.

Other sections containing specific cross references:

None

General Instructions to Field Employees
Update Required? Y___ N___
By - Addition or Revision
Frequency Manual
Update Required? Y___ N___
By - Addition or Revision

Recurring Special Provisions potentially affected:

None

Standard Sheets potentially affected:

713-TCTR-04

Motion: M
Second: M
Ayes:
Nays:

Action: Withdrawn

Item No. 08-4-7
Mr. Heustis
Date: 9/20/07

REVISION TO STANDARD DRAWINGS

715-BKFL-01 Pipe Backfill Method 1 New Roadway, Trench
715-BKFL-02 Pipe Backfill Method 1 New Roadway, Embankment
715-BKFL-03 Pipe Backfill Method 1 Existing Roadway, Trench
715-BKFL-04 Pipe Backfill Method 1 Existing Roadway, Trench
715-BKFL-05 Pipe Backfill Method 1 Existing Roadway, Trench
715-BKFL-06 Pipe Backfill Method 2 Class II, IV, V, and VI Drives, Trench
715-BKFL-07 Pipe Backfill Method 2 Class II, IV, V, and VI Drives, Embankment
715-BKFL-08 Pipe Backfill Method 3 Median Installation, Trench
715-BKFL-09 Pipe Backfill Method 1 Median Installation, Embankment

Other sections containing specific cross references:

None

Recurring Special Provisions potentially affected:

None

Motion: Mr. Heustis
Second: Mr. Andrewski
Ayes: 9

Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

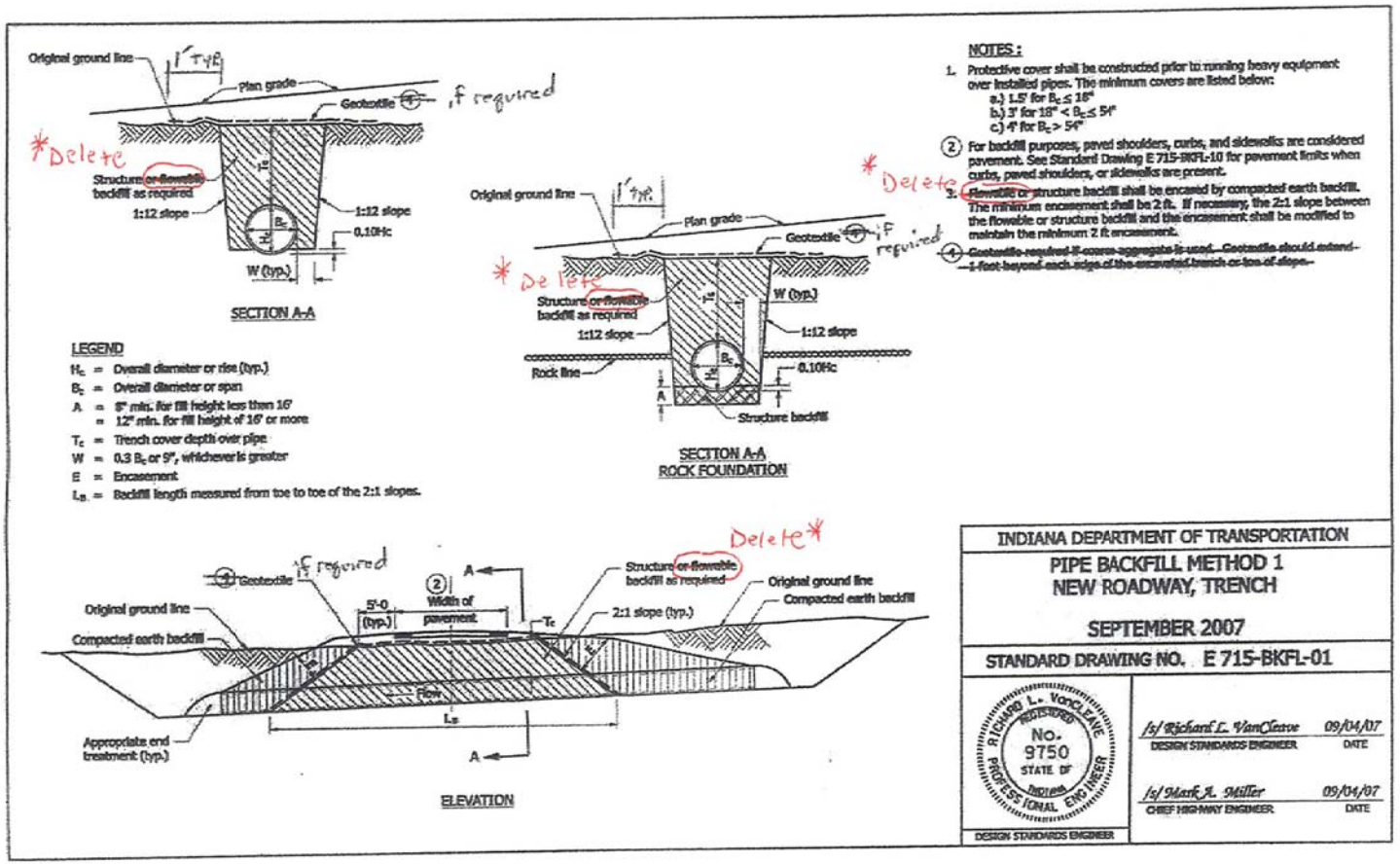
Standard Sheets potentially affected:

See Above

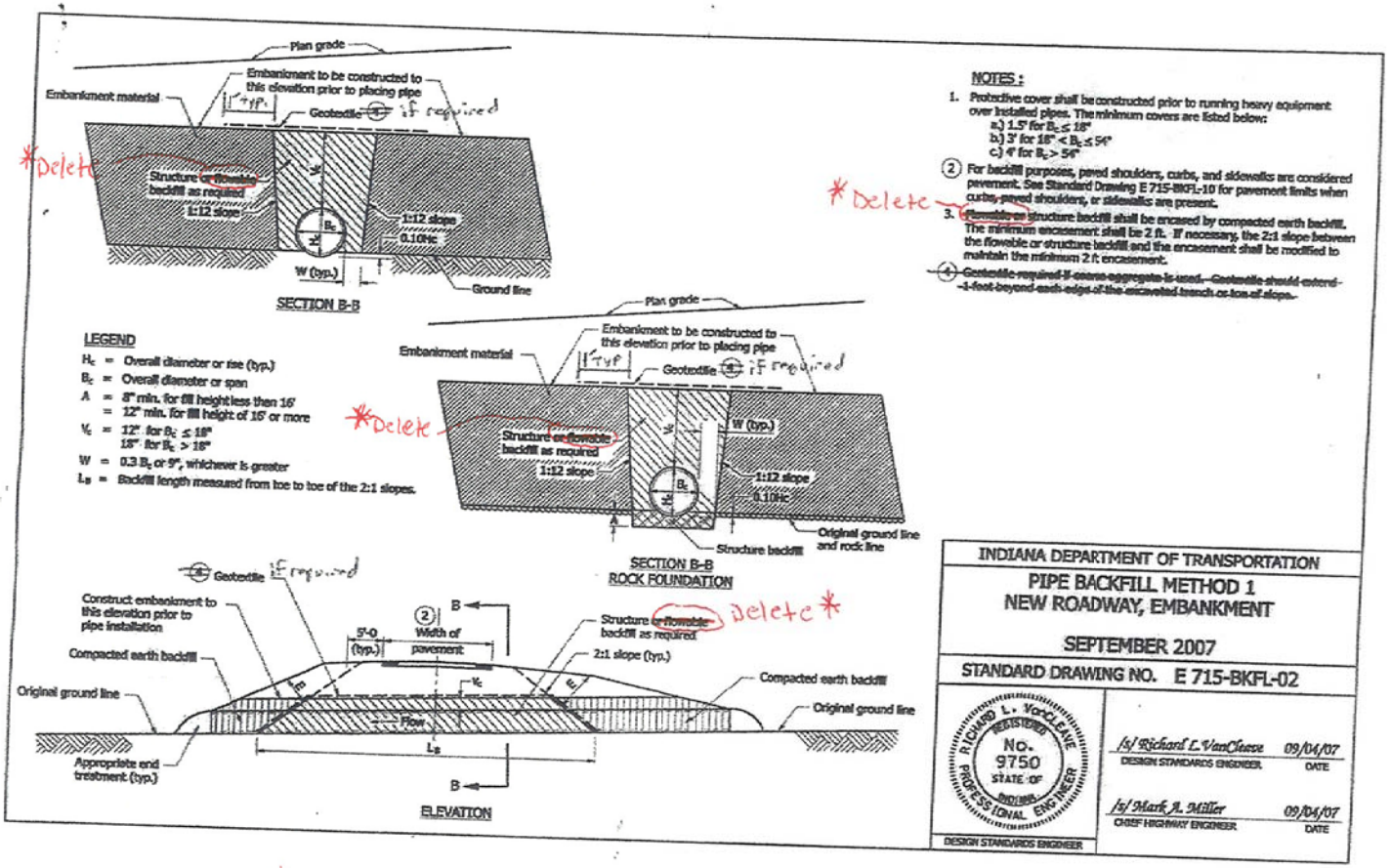
Action: Passed as revised

_x_ Recurring Plan Detail
Effective April 2008 Letting
___ 2009 Standard Specifications Book
___ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

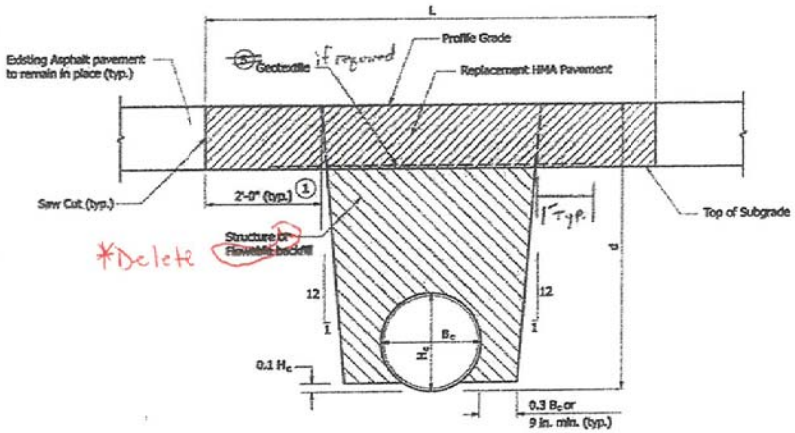
Received FHWA Approval? Yes



* Delete references to flowable fill (revised at Standards Meeting)



* Delete references to flowable fill as revised at Standards meeting



L = Pay limits of pavement removal and pavement replacement (ft); for cross pipe, measured along roadway centerline; for pipe parallel to roadway centerline, measured perpendicular to pipe centerline.
B_c = Overall diameter or span (in.)
H_c = Overall diameter or rise (in.)
d = Vertical distance from flowline to profile grade (ft)

ASPHALT REPLACEMENT PAVEMENT

NOTES:

1. Existing subgrade over this distance shall remain in place.
2. The minimum pavement sections shall be as follows:
   HMA: 165 #/syd HMA Surface, Type A,B,C or D on
   variable HMA Intermediate, Type A, B, C or D
3. If underdrains are present, they shall be perpetuated in accordance with the details shown on Standared Drawing E 718-UNDR-01.
4. See Standard Drawing E 715-BKFL-01 for pipe backfill trench elevation view.
5. ~~Geotextile required if coarse aggregate is used. Geotextile should extend 1 foot beyond each edge of the excavated trench.~~

INDIANA DEPARTMENT OF TRANSPORTATION

PIPE BACKFILL METHOD 1
EXISTING ROADWAY, TRENCH

SEPTEMBER 2007

STANDARD DRAWING NO. E.715-BKFL-03

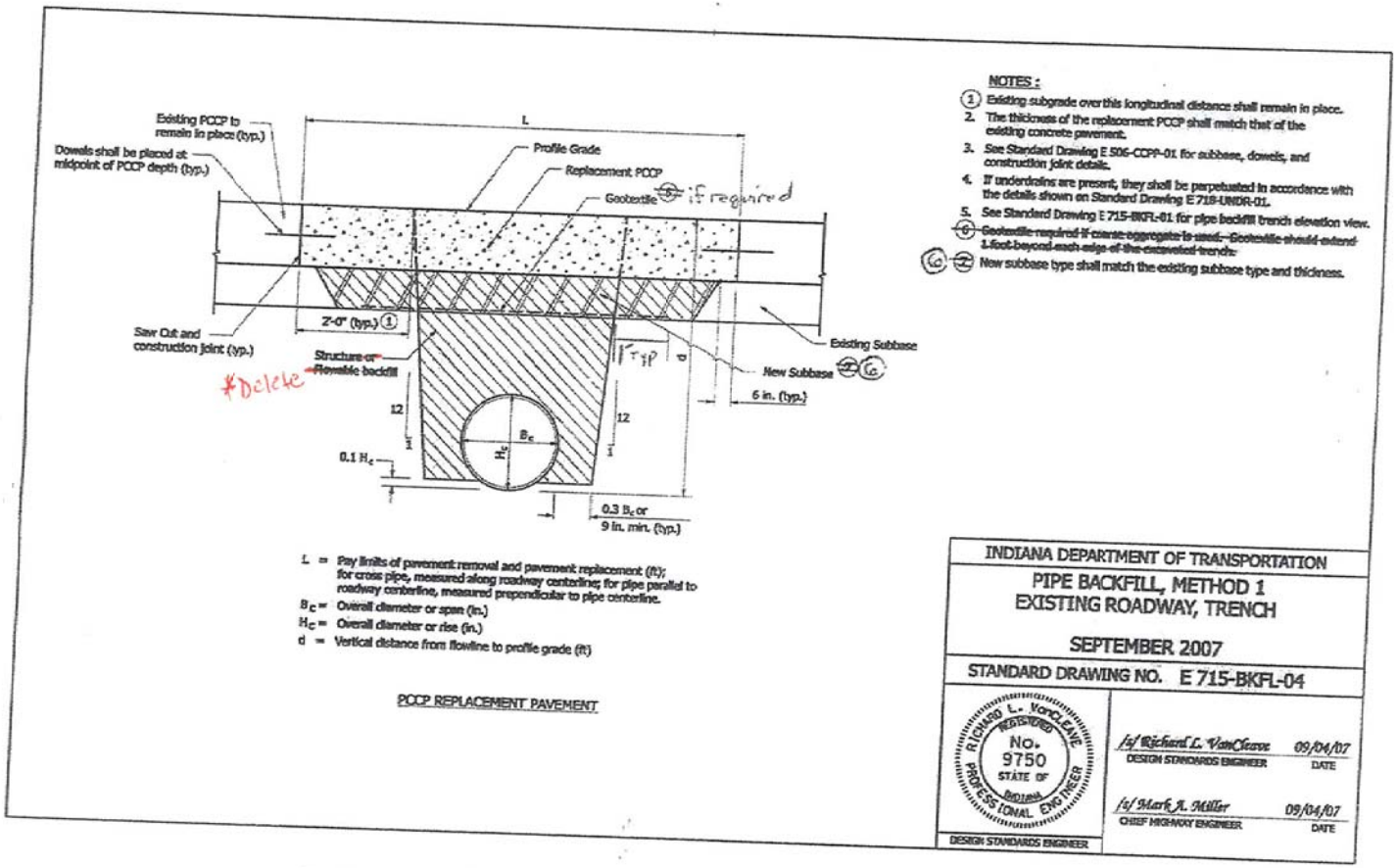
RICHARD L. VANCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 09/04/07
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/04/07
CHIEF HIGHWAY ENGINEER DATE

* Delete Reference to Flowable Fill as Revised at Standards Meeting



NOTES :

1. Existing subgrade over this longitudinal distance shall remain in place.
2. The thickness of the replacement PCCP shall match that of the existing concrete pavement.
3. See Standard Drawing E 506-CCPP-01 for subbase, dowels, and construction joint details.
4. If underdrains are present, they shall be perpetuated in accordance with the details shown on Standard Drawing E 719-UNDR-01.
5. See Standard Drawing E 715-BKFL-01 for pipe backfill trench elevation view.
6. ~~Geotextile required if coarse aggregate is used. Geotextile should extend 1 foot beyond each edge of the excavated trench.~~
2 6a. New subbase type shall match the existing subbase type and thickness.

L = Pay limits of pavement removal and pavement replacement (ft); for cross pipe, measured along roadway centerline; for pipe parallel to roadway centerline, measured perpendicular to pipe centerline.
B_c = Overall diameter or span (in.)
H_c = Overall diameter or rise (in.)
d = Vertical distance from flowline to profile grade (ft)

PCCP REPLACEMENT PAVEMENT

INDIANA DEPARTMENT OF TRANSPORTATION

PIPE BACKFILL, METHOD 1
EXISTING ROADWAY, TRENCH

SEPTEMBER 2007

STANDARD DRAWING NO. E 715-BKFL-04

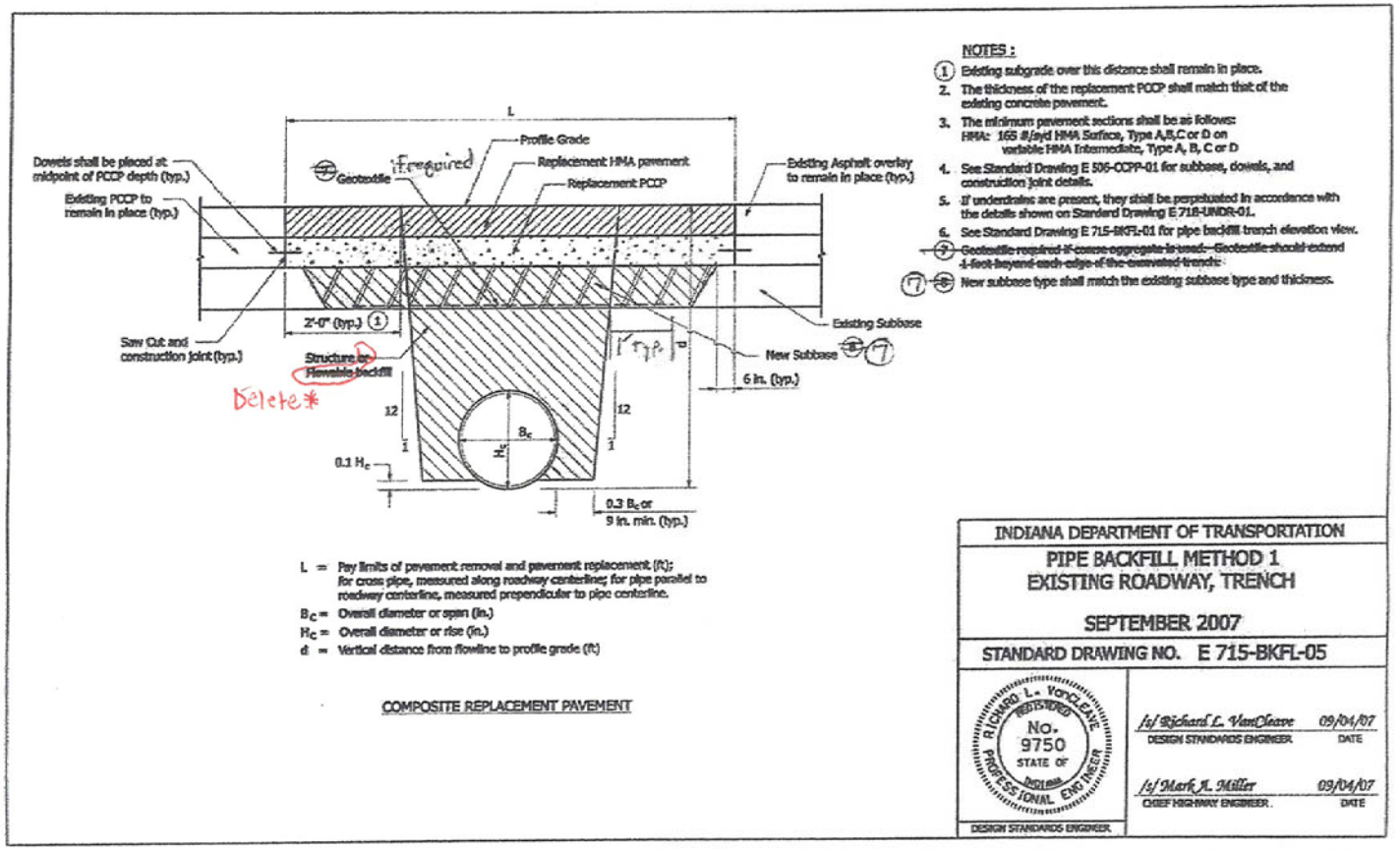
RICHARD L. VANCLEAVE REGISTERED No. 9750 STATE OF Indiana PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 09/04/07
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/04/07
CHIEF HIGHWAY ENGINEER DATE

Delete References to Flowable Fill as Revised at Standards Meeting



NOTES :

1. Existing subgrade over this distance shall remain in place.
2. The thickness of the replacement PCCP shall match that of the existing concrete pavement.
3. The minimum pavement sections shall be as follows:
   HMA: 165 #/syd HMA Surface, Type A,B,C or D on variable HMA Intermediate, Type A, B, C or D
4. See Standard Drawing E 505-CCPP-01 for subbase, dowels, and construction joint details.
5. If underdrains are present, they shall be perpetuated in accordance with the details shown on Standard Drawing E 718-UNDR-01.
6. See Standard Drawing E 715-BKFL-01 for pipe backfill trench elevation view.
7. ~~Geotextile required if coarse aggregate is used. Geotextile should extend 1 foot beyond each edge of the excavated trench.~~
8. New subbase type shall match the existing subbase type and thickness.

L = Pay limits of pavement removal and pavement replacement (ft); for cross pipe, measured along roadway centerline; for pipe parallel to roadway centerline, measured prependicular to pipe centerline.
B_c = Overall diameter or span (in.)
H_c = Overall diameter or rise (in.)
d = Vertical distance from flowline to profile grade (ft)

COMPOSITE REPLACEMENT PAVEMENT

INDIANA DEPARTMENT OF TRANSPORTATION

PIPE BACKFILL METHOD 1
EXISTING ROADWAY, TRENCH

SEPTEMBER 2007

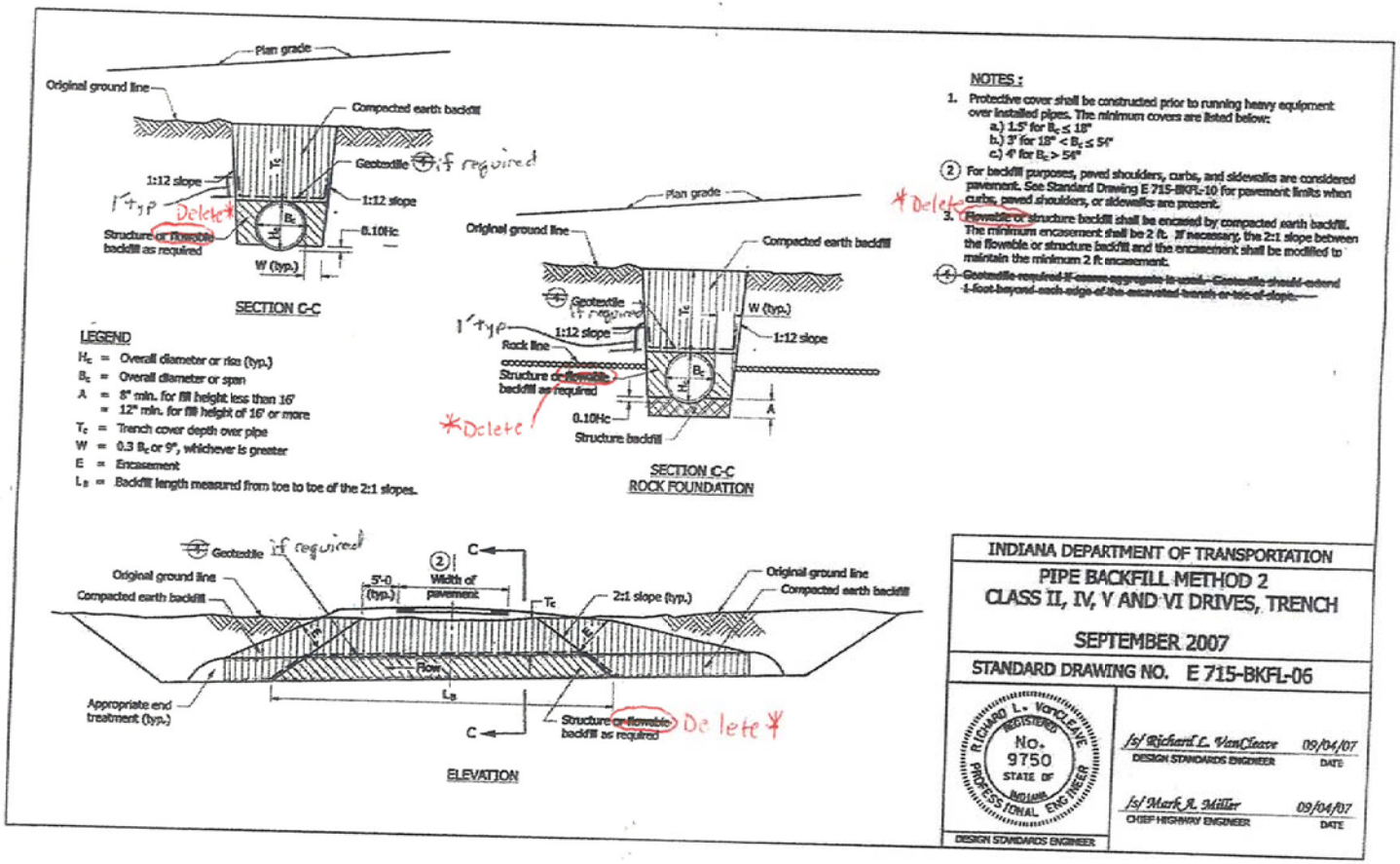
STANDARD DRAWING NO. E 715-BKFL-05

RICHARD L. VANCLEAVE REGISTERED No. 9750 STATE OF Indiana PROFESSIONAL ENGINEER
DESIGN STANDARDS ENGINEER

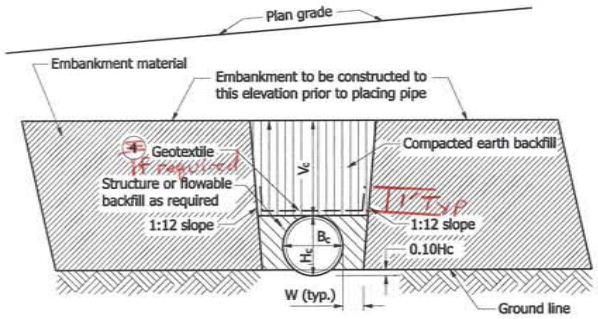
/s/ Richard L. VanCleave 09/04/07
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/04/07
CHIEF HIGHWAY ENGINEER DATE

* Delete References to Flowable Fill as Revised at Standards Meeting



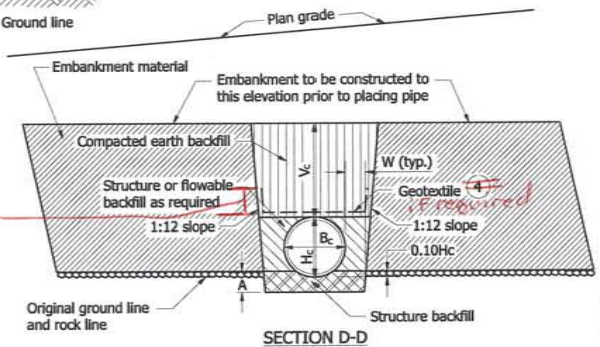
* Delete References to Flowable Fill as Revised at Standards Meeting



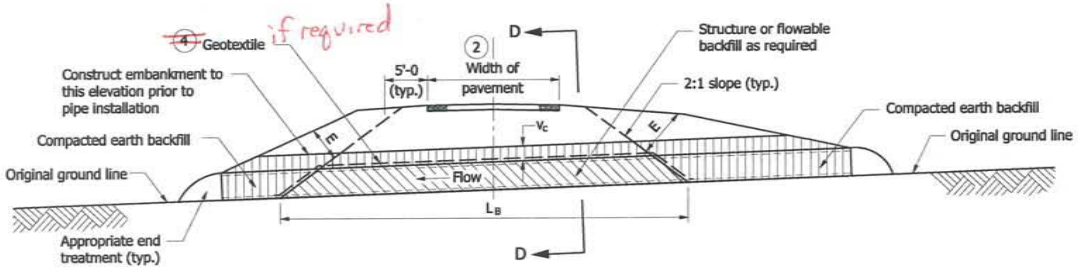
SECTION D-D

LEGEND

H_c = Overall diameter or rise (typ.)
B_c = Overall diameter or span
A = 8" min. for fill height less than 16'
= 12" min. for fill height of 16' or more
V_c = 12" for $B_c \leq 18$"
18" for $B_c > 18$"
W = 0.3 B_c or 9", whichever is greater
E = Encasement
L_B = Backfill length measured from toe to toe of the 2:1 slopes.



SECTION D-D
ROCK FOUNDATION



ELEVATION

NOTES :

1. Protective cover shall be constructed prior to running heavy equipment over installed pipes. The minimum covers are listed below:
   a.) 1.5' for $B_c \leq 18$"
   b.) 3' for 18" < $B_c \leq 54$"
   c.) 4' for $B_c > 54$"
2. For backfill purposes, paved shoulders, curbs, and sidewalks are considered pavement. See Standard Drawing E 715-BKFL-10 for pavement limits when curbs, paved shoulders, or sidewalks are present.
3. Flowable or structure backfill shall be encased by compacted earth backfill. The minimum encasement shall be 2 ft. If necessary, the 2:1 slope between the flowable or structure backfill and the encasement shall be modified to maintain the minimum 2 ft encasement.
4. ~~Geotextile required if coarse aggregate is used. Geotextile should extend 1 foot beyond each edge of the excavated trench or toe of slope.~~

INDIANA DEPARTMENT OF TRANSPORTATION

PIPE BACKFILL METHOD 2
CLASS II, IV, V AND VI DRIVES, EMBANKMENT

SEPTEMBER 2007

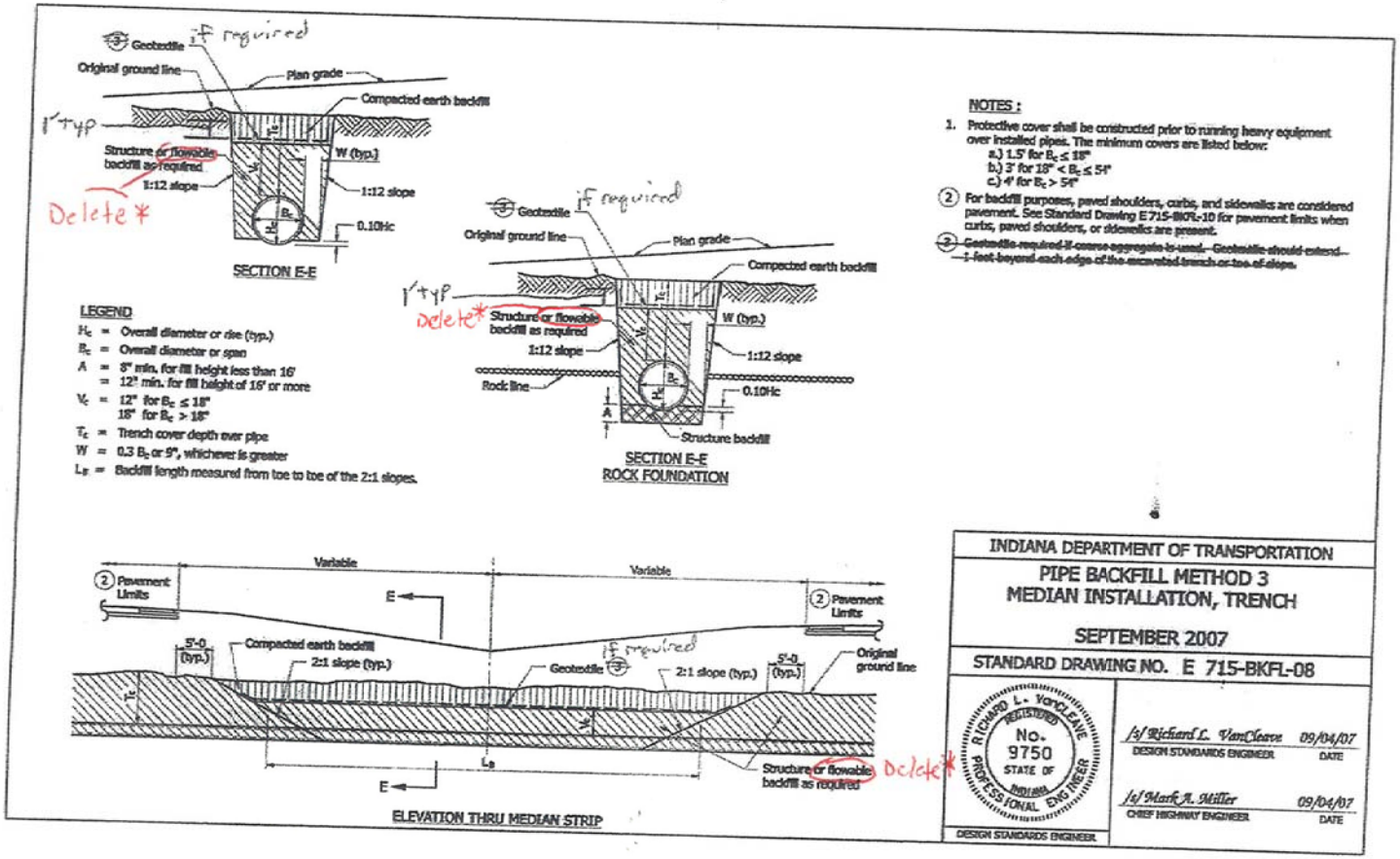
STANDARD DRAWING NO. E 715-BKFL-07

RICHARD L. VanCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER

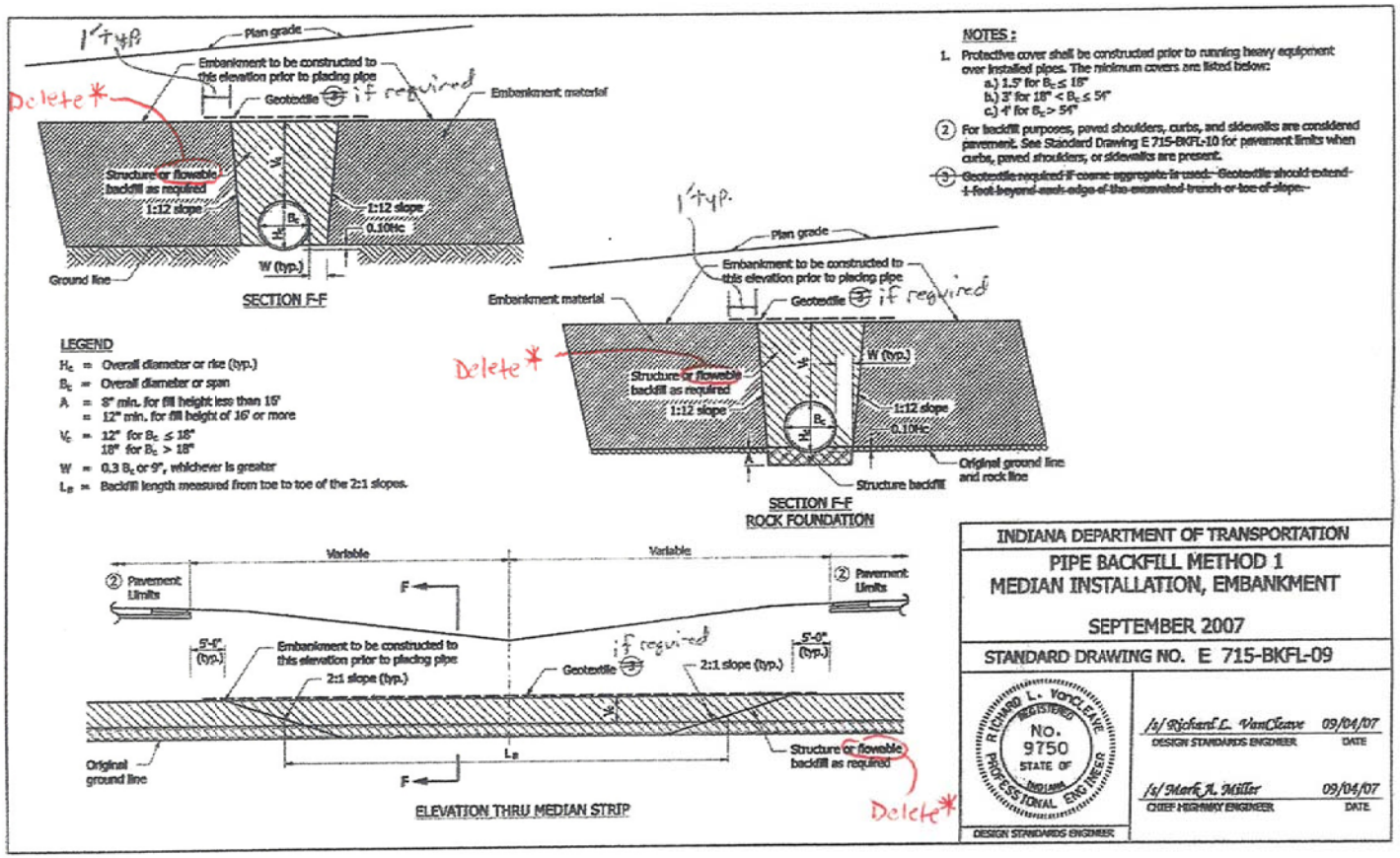
DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 09/04/07
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/04/07
CHIEF HIGHWAY ENGINEER DATE



* Delete References to Flowable Fill as Revised at Standards Meeting.



* Delete References to Flowable Fill as Revised at Standards Meeting

Item No. 08-4-8
Ms. Rearick
Date: 9/20/07

REVISION TO STANDARD DRAWING

715-PASD-01 Pipe Anchor Strap Details

Other sections containing specific cross references:

None

Recurring Special Provisions potentially affected:

None

Motion: Ms. Rearick
Second: Mr. Heustis
Ayes: 9
Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Standard Sheets potentially affected:

See Above

Action: Passed as submitted

___ RSP Effective: _____ Letting
___ 2009 Standard Specifications Book
_x_ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

Received FHWA Approval? Yes

Item No. 08-4-9
Ms. Rearick
Date: 9/20/07

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 715, BEGIN LINE 346, DELETE AND INSERT AS FOLLOWS:

715.10 Pipe End Sections, Anchors, Grated Box End Sections, and Safety Metal End Sections

Pipe end sections, anchors, grated box end sections, and safety metal end sections shall be constructed as shown on the plans or as directed.

Straps or hook bolts required for anchors shall be as shown on the plans. *Anchor straps shall be placed at both the upstream and downstream end of each corrugated aluminum alloy, corrugated steel, or structural plate pipe or pipe-arch with a diameter or span of 42 in. (1050 mm) or greater. Hook bolts and anchor straps shall be placed at both the upstream and downstream end of each corrugated aluminum alloy, corrugated steel, or structural plate pipe or pipe-arch with a diameter or span of 84 in. (2100 mm) or greater.*

A dimpled connection band shall be used for connecting pipe end sections and safety metal end sections to ends of corrugated metal pipe whose end corrugations are not perpendicular to the centerline of the pipe.

Other sections containing specific cross references:

None

Recurring Special Provisions potentially affected:

None

Motion: Ms. Rearick
Second: Mr. Heustis
Ayes: 9
Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Standard Sheets potentially affected:

715-PASD-01

Action: Passed as revised

___ RSP Effective: _____ Letting
_x_ 2009 Standard Specifications Book
___ 2009 Standards Edition
___ 2008 Design Manual
___ Technical Advisory

Received FHWA Approval? Yes