



INDIANA DEPARTMENT OF TRANSPORTATION

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Indianapolis, Indiana 46204

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Michael R. Pence, Governor
Brandye L. Hendrickson,
Commissioner

APPROVED MINUTES

January 21, 2016 Standards Committee Meeting

April 27, 2016 (rev. 10/07/2016, see pg 99)

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Minutes from the January 21, 2016 Standards Committee Meeting

The Standards Committee meeting was called to order by Mr. Miller at 09:05 a.m. on January 21, 2016 in the N955 Bay Window Conference Room. The meeting was adjourned at 11:50 a.m.

Mark Miller, Chairman, Construction Management Director
Bob Cales, Director, Contract Administration Division
Dave Boruff, Manager, Traffic Engineering Division
Elizabeth Phillips, Bridge Standards and Policy Supervisor
Greg Pankow, State Construction Engineer
Michael Koch, Fort Wayne District Area Engineer
Rob Goldner, Manager, Construction Technical Support
Kumar Dave, Pavement Engineering, Highway Design
Matthew Beeson, Materials Engineer, Materials Management
Louis Feagans, District Production Director
Peter Yao, Roadway Services

Also in attendance were the following:

Dan Osborn, Indiana Constructors, Inc.
Scott Trammell, INDOT
Tom Duncan, FHWA
Steve Fisher, INDOT
Kirk Frederick, INDOT
Kurt Pelz, INDOT
Andrew Pangallo, INDOT
Eric Seef, INDOT

Joel Salinas, INDOT
Lana Podorvanova, INDOT
Derrick Hauser, INDOT
Ting Nahrwold, INDOT
Tom Harris, INDOT
Melissa Terry, INDOT
Katherine Smutzer, INDOT

The following items were discussed:

A. GENERAL BUSINESS ITEMS

OLD BUSINESS

(No items were listed)

NEW BUSINESS

1. *Approval of the Minutes from the December 17, 2015 meeting*

DISCUSSION: Mr. Miller requested a motion to approve the minutes from the December 17, 2015 meeting.

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

ACTION: PASSED AS SUBMITTED

B. CONCEPTUAL PROPOSAL ITEMS

OLD BUSINESS

(No items were listed)

NEW BUSINESS

(No items were listed)

C. STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS PROPOSED ITEMS

OLD BUSINESS

(No items were listed)

NEW BUSINESS

<u>Item No. 01</u>	<u>(2016 SS)</u>	<u>Mr. Pankow</u>	<u>pg 5</u>
109.04(i)		Basis of Payment	

ACTION: PASSED AS SUBMITTED

<u>Item No. 02</u>	<u>(2016 SS)</u>	<u>Ms. Phillips</u>	<u>pg 10</u>
SECTION 604		SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS	
905.05		Detectable Warning Elements	
Standard Drawings:			
604-SWCR-01		LOCATION PLAN FOR SIDEWALK CURB RAMP CURB RAMP DRAWING INDEX AND GENERAL NOTES	
604-SWCR-02		SIDEWALK CURB RAMPS GENERAL NOTES & DETAILS PERPENDICULAR CURB RAMP TYPICAL PLACEMENT	
604-SWCR-03		SIDEWALK CURB RAMP TYPE A PAIRED PERPENDICULAR CURB RAMPS TYPICAL PLACEMENT	
604-SWCR-04		SIDEWALK CURB RAMP TYPE B PERPENDICULAR CURB RAMP COMPONENT DETAILS	

- 604-SWCR-05 ~~SIDEWALK CURB RAMPS TYPE CONE-WAY-DIRECTIONAL PERPENDICULAR CURB RAMP TYPICAL PLACEMENT~~
- 604-SWCR-06 ~~SIDEWALK RAMP CURB TYPE DONE-WAY-DIRECTIONAL PERPENDICULAR CURB RAMP COMPONENT DETAILS~~
- 604-SWCR-07 ~~SIDEWALK CURB RAMPS TYPE EPAIRED PARALLEL CURB RAMPS AND MIDBLOCK CROSSING CURB RAMP TYPICAL PLACEMENT~~
- 604-SWCR-08 ~~SIDEWALK CURB RAMPS TYPE FPARALLEL CURB RAMP COMPONENT DETAILS~~
- 604-SWCR-09 ~~SIDEWALK CURB'S RAMP'S TYPE G AND TYPE H BLENDED TRANSITION CURB RAMP, DEPRESSED CURB RAMP AND DIAGONAL CURB RAMP TYPICAL PLACEMENT~~
- 604-SWCR-10 ~~SIDEWALK CURB RAMP TYPE K BLENDED TRANSITION CURB RAMP COMPONENT DETAILS~~
- 604-SWCR-11 ~~SIDEWALK CURB RAMPS TYPE L MEDIAN CUT-THROUGH AND MEDIAN PERPENDICULAR CURB RAMP TYPICAL PLACEMENT~~
- 604-SWCR-12 ~~SIDEWALK CURB RAMP'S IMPROVED ACCESS DETECTABLE WARNING SURFACE PLACEMENT AND CONFIGURATION~~
- 604-SWCR-13 ~~SIDEWALK CURB RAMPS QUANTITY ESTIMATED DETECTABLE WARNING SURFACE PLACEMENT AND CONFIGURATION~~
- 604-SWCR-14 ~~DETECTABLE WARNING SURFACE DETAILS~~
- 604-SDWK-01 ~~SIDEWALK DETAILS SIDEWALK WITH UTILITY STRIP BUFFER~~
- 604-SDWK-02 ~~SIDEWALK DETAILS SIDEWALK ADJACENT TO CURB~~
- 604-SDWK-03 ~~SIDEWALK DRIVEWAY CROSSING~~

ACTION: PASSED AS REVISED

[Item No. 03 \(2016 SS\)](#) [Mr. Pankow](#) [pg 62](#)

Recurring Special Provision:
205-R-XXX *STORM WATER MANAGEMENT*

ACTION: PASSED AS SUBMITTED

[Item No. 04 \(2016 SS\)](#) [Mr. Cales](#) [pg 100](#)

Recurring Special Provision:
105-C-XXX *COOPERATION BY CONTRACTOR*

ACTION: PASSED AS REVISED

[Item No. 05 \(2016 SS\)](#) [Ms. Phillips](#) [pg 104](#)

Recurring Special Provision:
105-C-xxx *BRIDGE INSPECTION COORDINATION*

ACTION: PASSED AS SUBMITTED

cc: Committee Members
FHWA
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APPROVED MINUTES

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:

Clarification is needed in section 109 of the Standard Specifications. 109.04 does not specifically mention how design fees are paid for approved Cost Reduction Incentive Proposals. We pay 50% of design fees if we accept a conceptual CRI but reject the formal proposal, and there is a pay item for that instance. However, nothing is specified with respect to design fees for approved formal proposals.

PROPOSED SOLUTION: Incorporate the necessary revisions to 109 to ensure that the standard specifications are correct and consistent with current field practice.

APPLICABLE STANDARD SPECIFICATIONS: 109.04

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: SECTION 2.21

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: 109

APPLICABLE SUB-COMMITTEE ENDORSEMENT: N/A

IMPACT ANALYSIS (attach report): YES

Submitted By: Greg Pankow

Title: State Construction Engineer

Organization: Construction Management and District Support

Phone Number: (317)232-5502

Date: 12/4/2015

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval.
Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No

Will approval of this item affect the Approved Materials List? No

Will this proposal improve:

Construction costs? Yes

Construction time? No

Customer satisfaction? Yes

Congestion/travel time? No

Ride quality? No

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

For motorists? No

For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? No

Design process? Yes

Will this change provide the contractor more flexibility? Yes

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:

Federal or State regulations? No

AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda: Clarification.

REVISION TO STANDARDS SPECIFICATIONS
SECTION 109 - MEASUREMENT AND PAYMENT
109.04(i) BASIS OF PAYMENT

The Standard Specifications are revised as follows:

SECTION 109, BEGIN LINE 581, DELETE AND INSERT AS FOLLOWS:

(i) Basis of Payment

The work, as revised by the formal CRI proposal, will be paid for as complete and in place and in accordance with the change order. In addition, *the Contractor's Reasonable Design Cost and 50% of the total net savings of the CRI proposal will be paid for separately as follows:*

- ~~1. An initial amount of 25% of the total estimated savings will be paid to the Contractor upon approval of the change order. The Contractor's Reasonable Design Cost for the CRI proposal will be paid for after approving the formal CRI proposal with the change order.~~
2. Upon completion of all items of work included in the change order, the total net savings will be calculated and the Contractor will be paid ~~the difference between 50% of the total net savings and the initial payment of 25% of the total estimated savings.~~

The total net savings resulting from the CRI will be calculated as follows:

$$TNS = OCW - RCW - CRDC - DC$$

where:

*TNS = total net savings
OCW = original cost of the work required by the original contract
RCW = revised cost of the work
CRDC = Contractor's reasonable design cost for the CRI proposal
DC = Department's cost for investigating, evaluating, and implementing the CRI proposal.*

3. A cost savings of not less than \$5,000.00 shall be guaranteed to the Department.

The actual formal CRI proposal net savings will be checked upon completion of the contract and determination of final quantities to determine if any payment adjustment is required.

~~Except for the time savings component of a formal CRI proposal, the total net savings will be determined by the difference between the cost of the revised work and the cost of the related work required by the original plans and specifications. The cost of the revised work includes both the Contractor's reasonable redesign costs and the administrative costs incurred by~~

REVISION TO STANDARDS SPECIFICATIONS
SECTION 109 - MEASUREMENT AND PAYMENT
109.04(i) BASIS OF PAYMENT

~~the Department to review the proposal. These costs will be agreed to in the change order.~~ Only those work items directly affected by the plan change will be considered in making the determination of net cost savings. Subsequent plan changes affecting the modified work items but not related to the CRI proposal will be excluded from such determination. Upon completion of all work included in the CRI proposal, the final total net savings will be determined by comparing the cost of the work based on the original contract quantities with the cost of the actual CRI proposal work performed. In determining the savings, the Department reserves the right to consider other factors in addition to the contract bid prices and proposed unit prices if, in the judgment of the Department, such prices do not represent a fair measure of the value of the work to be deleted from or added to the contract.

The net savings of a CRI proposal to reduce contract time will be determined by multiplying the number of days saved by the daily liquidated damages as set forth in Section 108.08 or as otherwise provided in the contract.

Redesign engineering, in accordance with this section, is defined as 50% of the contractor's reasonable design costs incurred after the Department's acceptance of the CRI proposal. Redesign eEngineering will be paid when a conceptual CRI has been accepted by the Department but the final proposal is rejected.

Payment will be made under:

Pay Item	Pay Unit Symbol
<i>Contractor's Reasonable Design Cost for CRI Proposal No _____</i>	<i>LS</i>
Cost Reduction Incentive Proposal No. ____	LS
Redesign Engineering, CRI Proposal No. ____	LS

COMMENTS AND ACTION

109.04(i) BASIS OF PAYMENT

DISCUSSION:

This item was introduced and presented by Mr. Pankow who stated that Standard Specifications section 109.04 does not specifically mention how design fees are to be paid for approved Cost Reduction Incentive Proposals. We pay 50% of design fees if we accept a conceptual CRI but reject the formal proposal, and there is a pay item for that instance. However, nothing is specified with respect to design fees for approved formal proposals.

Mr. Pankow therefore proposes to incorporate the above shown revisions to 109 to ensure that the standard specifications are correct and consistent with current field practice.

<p>Motion: Mr. Pankow Second: Mr. Cales Ayes: 10 Nays: 0 FHWA Approval: <u>YES</u></p>	<p>Action: <input checked="" type="checkbox"/> Passed as Submitted <input type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p>
<p>Standard Specifications Sections referenced and/or affected: 109.04 pg 111.</p>	<p><input checked="" type="checkbox"/> 2018 Standard Specifications <input type="checkbox"/> Revise Pay Items List</p>
<p>Recurring Special Provision affected: NONE</p>	<p><input checked="" type="checkbox"/> Create RSP (No. <u>109-C-249</u>) Effective <u>June 01, 2016</u> Letting RSP Sunset Date: <u>2018 book</u></p>
<p>Standard Drawing affected: NONE</p>	<p><input type="checkbox"/> Revise RSP (No. <u> </u>) Effective <u> </u> Letting RSP Sunset Date:</p>
<p>Design Manual Sections affected: NONE</p>	<p><input type="checkbox"/> Standard Drawing Effective</p>
<p>GIFE Sections cross-references: Section 2.21.</p>	<p><input type="checkbox"/> Create RPD (No. <u> </u>) Effective <u> </u> Letting <input checked="" type="checkbox"/> GIFE Update and SiteManager</p>

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Sidewalk Details and Sidewalk Curb Ramp standard drawings, specifications and design manual do not fully comply with the Public Rights-of-Way Accessibility Guidelines (PROWAG). During field audits by FHWA and the Department's Title VI Program, several non-compliant curb ramps, landings, and sidewalks have been identified. Non-compliant elements must be partially or completely removed. Office of Standards desires to update the sidewalk details and sidewalk curb ramp standard drawings, specifications and design manual to incorporate the PROWAG.

PROPOSED SOLUTION: Update Sidewalk Details and Sidewalk Curb Ramp standard drawings, specifications and design manual to comply with PROWAG. The proposed changes to the standard drawings only detail maximum slopes and minimum dimensions of curb ramps requiring designers to design every curb ramp. Design Memo 15-20, requires detailing of each curb ramp in the construction plans.

APPLICABLE STANDARD SPECIFICATIONS: 604 and 905.05

APPLICABLE STANDARD DRAWINGS: 604-SDWK and 604-SWCR

APPLICABLE DESIGN MANUAL SECTION: 51-1.08

APPLICABLE SECTION OF GIFE: 22

APPLICABLE RECURRING SPECIAL PROVISIONS: 604-R-633

PAY ITEMS AFFECTED: Curb Ramp, Concrete, type, Add Detectable Warning Surface and Add Detectable Warning Surface, Retrofit.

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Elizabeth Phillips, Katherine Smutzer, John Wright, Erin Hall, Russ Brittan, Erik Seef and Joiner Lagpagan (FHWA).

IMPACT ANALYSIS (attach report): Yes

Submitted By: Elizabeth Phillips

Title: Manager Office of Standards Policy

Organization: Division of Bridges

Phone Number: 233-6775

Date: 12/28/2015

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? Yes

Will approval of this item affect the Approved Materials List? Yes

Will this proposal improve:

Construction costs? Yes

Construction time? Yes

Customer satisfaction? Yes

Congestion/travel time? N/A

Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? N/A

Will this item improve safety:

For motorists? N/A

For construction workers? N/A

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? N/A

Design process? Yes

Will this change provide the contractor more flexibility? No

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:

Federal or State regulations? Yes

AASHTO or other design code? N/A

Is this item editorial? Yes

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda: Standards and specifications for sidewalks and curb ramps need to comply with Public Rights-of-Way Accessibility Guidelines (PROWAG).

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

SECTION 604 – SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS

SECTION 905 – MASONRY UNITS

905.05 DETECTABLE WARNING ELEMENTS

(Note: some changes have been approved outside the Standard Committee meeting and reflected in currently used Recurring Special Provision [604-R-633](#) CURB RAMPS, LANDINGS, AND DETECTIBLE WARNING ELEMENTS, effective letting date on or after 12-01-2015)

The Standard Specifications are revised as follows:

SECTION 604, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 604 – SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS

604.01 Description

This work shall consist of constructing HMA or PCC sidewalks; curb ramps; concrete steps; or the reconstruction of PCC sidewalks in accordance with 105.03.

MATERIALS

604.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher, Size No. 53	904
Concrete, Class A	702
Detectable Warning ElementsSurfaces	905.05
Fine Aggregate, Size No. 23, No. 24, or No. 15	904
Joint Filler	906.01
Joint Sealing Materials	906.02
Paint	909.05
Reinforcing Bars	910.01
Silica Sand	ASTM C 778

Hand railing shall be aluminum pipe in accordance with ASTM B 221, alloy 6063, temper T52 or galvanized steel pipe in accordance with ASTM A 53, grade B, all as specified.

The detectable warning surface in concrete curb ramps shall be selected from the Department's list of approved Detectable Warning ElementsSurfaces in accordance with 905.05.

The mortar bed material shall be high-strength mortar in accordance with ASTM C 387. Part of the mix water shall be replaced with a Type II polymer modifier meeting the requirements of ASTM C 1438. The proportioning of water and polymer modifier shall be as recommended by the manufacturer of the polymer modifier.

A type C certification in accordance with 916 shall be furnished for the masonry mortar and polymer modifier prior to use of the material.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
SECTION 905 - MASONRY UNITS
905.05 DETECTABLE WARNING ELEMENTS

A type C certification in accordance with 916 for the silica sand shall be furnished prior to use of the material.

CONSTRUCTION REQUIREMENTS

604.03 Portland Cement Concrete Sidewalks and Curb Ramps

(a) General Requirements

The location of curb ramps shall take precedence over the location of drainage structures and signal, utility, or light poles. Drainage structures *and poles* shall not be located within the limits of the curb ramp, exclusive of flared sides. ~~Poles shall be located so as not to impede the usage or safety of the curb ramps.~~ *Poles located within a sidewalk shall not reduce the clear width to less than 4.0 ft.* Crosswalk markings shall be located such that the curb ramps *and curb ramp clear spaces* are contained within the markings unless otherwise specified. The flared sides need not fall within the crosswalk lines. The normal gutter flow line shall be maintained throughout the curb ramp area, and appropriate drainage structures shall be used, as needed, to intercept the flow prior to the curb ramp area. Positive drainage shall also be provided to carry water away from the intersection of the curb ramp and the gutter line.

The bottom edge of curb ramps and the top of curb shall be flush with the edge of the adjacent pavement or the gutter line. *Vertical surface discontinuities shall be a maximum of 1/2 in. Vertical surface discontinuities greater than 1/4 in. up to 1/2 in. shall be beveled at a slope no steeper than 1:1.*

The curb ramp running slope shall not exceed 12:1, ~~except where conditions necessitate, a 10:1 slope may be utilized for a maximum rise of 6 in.~~ 8.33%. Curb ramp *and sidewalk* cross slope shall not exceed 50:1 ~~except where infeasible~~ 2.00%. *The slope of the turning space shall not exceed 2.00% in any direction. A running slope or cross slope that exceeds the maximum shall be as shown on the plans.*

Construction tolerance shall not apply to running slope and cross slope percentages.

(b) Excavation

Excavation shall be made to the required depth and to a width that will enable the installation and bracing of the forms. The foundation shall be shaped and compacted to a firm even surface in accordance with the section shown on the plans. All soft and yielding material shall be removed and replaced with acceptable material.

(c) Forms

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
SECTION 905 - MASONRY UNITS
905.05 DETECTABLE WARNING ELEMENTS

Forms shall be of wood, metal, or other approved material and shall extend for the full depth of the concrete. Forms shall be straight, free from warp, and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.

(d) Placing Concrete

The foundation shall be thoroughly moistened immediately prior to the placing of the concrete. The proportioning, mixing, and placing of the concrete shall be in accordance with 702. The thickness of the concrete in the curb ramp, including flared sides, shall be as shown on the plans ~~for the type specified.~~

(e) Finishing

Immediately after striking off, the grade, running slopes and cross slopes shall be checked with a 2 ft level and a long handled straightedge of light construction that can completely span the surface. The level and straightedge shall be laid parallel and perpendicular to the grade or running slope at intervals of no more than 2 ft on curb ramps and 10 ft along sidewalks. All high spots shall be removed and depressions filled with fresh concrete and then leveled. Checking and leveling shall be continued until the surface has the required grade, running slope and cross slope and is free of voids.

The surface shall be finished with a wooden float. No plastering of the surface will be allowed. *The final surface shall be free from porous spots caused by the disturbance of coarse aggregate particles. Curb Ramp surfaces shall be coarse broomed and corrugated transverse to the running slope as shown on the plans. ~~The surface texture of the flared sides shall be coarse broomed with the striations transverse to the slope.~~*

All exposed edges shall be finished with a 1/4 in. radius.

(f) Joints

The type and location of joints and the size of preformed joint filler shall be as shown on the plans.

All concrete joints shall be finished with a 1/4 in. radius.

Preformed 1/2 in. joint filler shall be placed around all appurtenances, such as manholes and utility poles which extend into and through the sidewalk, and between the sidewalk and any fixed structure, such as a building or bridge. The preformed joint filler shall extend for the full depth of the sidewalk or curb ramp, and shall be flush with the surface of the adjacent concrete.

(g) Detectable Warning Elements Surfaces

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
SECTION 905 - MASONRY UNITS
905.05 DETECTABLE WARNING ELEMENTS

Detectable warning surfaces shall be placed the full width of the curb ramp. Where forming is required for installation of the detectable warning surfaces, the border width shall not exceed 2 in. within the ramp width, as shown on the plans.

~~Detectable warning elementsurfaces shall be manufactured or field cut to completely fill the area of the curb ramp as shown on the planscontrast visually from the adjacent gutter or roadwaysurfaces. The surface shall consist of truncated domes aligned in a square or radial grid pattern and extend the full width of the curb ramp as shown on the plans. Where forming is required for installation, the border width shall not exceed 2 in.~~

~~ElementsSurfaces shall be installed to be level across joints or seams and shall be flush with the edges of adjoining concrete. Surfaces from various manufacturers shall not be mixed in any individual curb ramp.~~

1. Brick Surfaces

~~Brick elementsurfaces shall be placed in a mortar setting bed within the hardened concrete block out. The concrete base of the block out shall have a rough textured finish, such as would be produced by a screed or wood float. The depth of the block out shall be such that a mortar bed thickness of 3/8 to 3/4 in. is achieved for the nominal depth of the elementbrick. The hardened concrete base shall be free of all material which might prevent the mortar setting bed from adhering. The concrete base shall be dampened with water, but be surface dry immediately prior to the placing the mortar setting bed. The mortar setting bed shall be laid out the desired thickness, no more than 2 ft ahead of laying the elementsbricks. The elementsbricks shall be buttered with mortar on the bottom before placement into the setting bed. Elementsfrom various manufacturers shall not be mixed at any individual concrete ramp location.~~

~~Brick elementsurfaces shall be laid out in a running or stacked bond pattern with a 1/16 in average joint width. The joint width shall not exceed 1/8 in. Whole elementsbricks should be laid first, followed by elementsbricks cut to size, keeping the number of joints to a minimum. A masonry saw shall be used to produce a clean, accurate, straight cut. The joint between elementsbricks shall be completely filled with a dry fine aggregate. The fine aggregate may be obtained from a non-Certified Aggregate Producer, but it shall be natural sand having a gradation where at least 95% of the material passes the No. 4 sieve. Excess fine aggregate shall be removed from the surface of the elementsbricks.~~

2. Cast Iron Surfaces

~~Cast iron elementsurfaces shall be installed in accordance with the manufacturer's recommendations. When required, cutting of the elementscast iron shall be in accordance with the manufacturer's recommendations. Cut edges shall be ground to a smooth shape consistent with the manufactured edges.~~

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
SECTION 905 - MASONRY UNITS
905.05 DETECTABLE WARNING ELEMENTS

~~Approved elements other than brick or cast iron shall be installed in accordance with the manufacturer's recommendations.~~

(h) Curing

Concrete shall be cured for at least 72 h. Curing shall be in accordance with 504.04 except curing compound shall not be used in the area where detectable warning ~~elements~~ surfaces are to be installed. ~~During the curing period all pedestrian traffic shall be excluded.~~

(i) Painting

~~The exposed surfaces of the curb throughout the width of curb ramps shall be painted yellow in accordance with 808.06. Silica sand shall be applied to the wet paint along the top of the curb at the rate of 6.0 lb/gal.~~

604.04 PCC Steps

PCC steps shall be in accordance with the applicable provisions of 604.03. ~~In addition, all exposed edges shall be rounded to a 1/4 in. radius.~~

604.05 Reconstructed PCC Sidewalk and Curb Ramp

Where existing concrete sidewalk is to be reconstructed, all disintegrated concrete, brick, stone, or other material shall be completely removed and replaced with new concrete sidewalk in accordance with 604.03.

Such sidewalk shall be constructed to a minimum depth of 4 in. unless another depth is designated and to the width of the adjoining walk, or to a width of no less than 48 in. from the *back* face of curb, or to such other width as directed.

The removal of concrete sidewalk shall be to uniform lines as directed. The sidewalk to be removed shall be cut in a straight line with an approved power driven concrete saw. The sawing shall be such that the portion of sidewalk to remain in place shall not be damaged. All portions which are damaged or removed back of the established line shall be replaced.

Unless otherwise directed, sidewalk which must be removed shall be removed between tool marks or joints. At locations where the sidewalk and curb are adjacent and the curb is deteriorated, the curb shall also be replaced as directed.

The new sidewalk shall have a joint pattern similar to the surrounding sidewalk. Sidewalk placed at drives shall be 6 in. thick, or the same depth of the existing drive, whichever is greater.

Where existing curb ramp is to be reconstructed for placement of detectable warning surfaces, all concrete, brick, stone, or other material shall be completely removed and replaced in accordance with 604.03.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
SECTION 905 - MASONRY UNITS
905.05 DETECTABLE WARNING ELEMENTS

604.06 Re-Laid Sidewalk

This work consists of the removal and re-laying of concrete, stone-slab, or brick sidewalk at the locations shown on the plans or as directed. In the operations of removing and re-laying, care shall be taken not to damage any of the sidewalk. Before re-laying, a cushion of fine aggregate shall be spread on the prepared subgrade to a depth of no less than 2 in. Cracked or damaged sections shall not be re-laid but shall be disposed of as directed. *The cross slope of the re-laid sidewalk shall be checked with a 2 ft level in accordance with 604.03(e).*

604.07 HMA Sidewalk

(a) Excavation and Forms

Excavation and forms, when required, shall be in accordance with 604.03(b) and 604.03(c).

(b) Bed Course

Bed course material shall be coarse aggregate No. 53 and shall be placed in lifts not exceeding 4 in. in depth. Each lift shall be thoroughly compacted.

(c) Placing HMA Sidewalk

HMA sidewalk material shall be placed on a compacted bed course in one or more courses. The mixture shall consist of HMA base, intermediate, or surface, type A in accordance with 402. A MAF in accordance with 402.05 will not apply. Aggregate requirements of 904.03(d) do not apply. Compaction shall be accomplished by means of a hand operated or power roller of an acceptable type and weight in accordance with 402.15. In areas inaccessible to the roller, hand tamping will be allowed. In any case, the HMA sidewalk material shall be uniformly compacted. *The grade and cross slope shall be checked with a 2 ft level in accordance with 604.03(e).*

If the finished compacted surface is too open or remains sticky, the surface shall be given a coating of fine aggregate, well broomed over the surface, leaving no excess.

604.08 Backfilling and Finishing Shoulders and Slopes

After forms have been removed, the space on each side of the sidewalks shall be filled to the required elevation with suitable material which shall be firmly compacted and neatly graded. Adjacent shoulders and slopes shall be finished to the required grade and cross section.

604.09 Hand Rails

This railing shall be erected in a workmanlike manner, straight and true to grade. Posts shall be vertical and railings shall be parallel to the walk surface or the plane of the steps and spaced as shown on the plans. Fastenings shall be as indicated on the plans. Railing posts on

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS

SECTION 905 - MASONRY UNITS

905.05 DETECTABLE WARNING ELEMENTS

masonry shall be held in place in a manner that develops the full strength of the railing post in bending.

Fabrication and placement of railings shall be completed in accordance with the applicable requirements of 711. Ends of tube sections shall be milled or sawed. Cut ends shall be true, smooth, and free from burrs and ragged edges. Welds shall be ground smooth. The rail system shall be continuous except as shown on the plans. Joints shall be spliced as detailed on the plans. Welding of steel shall be in accordance with 711.32 and welding of aluminum shall be in accordance with the applicable requirements of 803. Radiographic, magnetic particle, and dye penetrant inspection will not be required.

All aluminum surfaces in contact with concrete shall be coated with an aluminum impregnated caulking compound prior to installation. After installation and alignment, openings between metal surfaces and concrete shall be sealed in a watertight manner with the caulking compound.

Steel pipe railing not designated to be painted shall be galvanized after fabrication and prior to installation. Railing designated to be painted shall receive one shop coat of paint after fabrication and two field coats after installation. The type and color of paint shall be as specified on the plans. Cleaning and painting shall be in accordance with 619.

604.10 Method of Measurement

Concrete sidewalk, reconstructed concrete sidewalk, and re-laid concrete sidewalk will be measured by the square yard of finished surface. HMA for sidewalk will be measured by the ton of mixture placed. Bed course material will be measured by the ton.

Concrete curb ramps will be measured by the square yard ~~in accordance with the pay limits shown on the plans~~ and will include the ramp, turning space, flared side, and setback. Turning spaces shared by more than one curb ramp will be measured only once. Detectable warning surfaces and retrofit detectable warning surfaces will be measured by the square yard.

Concrete steps will be measured by the cubic yard based on the neat lines shown on the plans.

Hand rails will be measured by the linear foot in accordance with the dimensions shown on the plans or as directed. Measurements will be made from end to end of the railing along the centerline.

Curb and curb and gutter will be measured in accordance with 605.09. Reinforcing bars, if used, will be measured in accordance with 703.07.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS

SECTION 905 - MASONRY UNITS

905.05 DETECTABLE WARNING ELEMENTS

The cost of excavation, backfill, joint material, and necessary incidentals shall be included in the cost of the pay items in this section.

The removal and disposal of concrete sidewalk which is unsuitable for re-laying and which has not been damaged due to negligence will be paid for in accordance with 202.14. Concrete sidewalk which is specified to be re-laid or to remain in place and which is damaged shall be removed and disposed of and replaced with no additional payment.

If directed, concrete sidewalk shall be constructed to a depth greater than that shown on the plans. Such additional thickness will be converted into the equivalent square yards quantity of concrete sidewalk of the thickness shown on the plans and will be paid for as such.

The cost of furnishing and applying sand to finished compacted surfaces shall be included in the cost of HMA for sidewalk.

The cost of the ~~concrete base, detectable warning element surfaces, thin set mortar, and fine aggregate for filling joints, and the painting of curb through the width of the curb ramp including the silica sand~~ shall be included in the cost of the ~~curb ramp~~ *detectable warning surfaces.*

The cost of ~~the~~ removal, ~~and~~ disposal, and replacement of portions of the concrete sidewalk curb ramp, concrete base, including border, ~~concrete sidewalk, detectable warning surfaces, thin set mortar, and fine aggregate for filling joints~~ shall be included in the cost of the ~~detectable warning surfaces, retrofit.~~

The cost of aluminum impregnated caulking compound and the painting of steel hand railing shall be included in the cost of the hand rail.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
SECTION 905 - MASONRY UNITS
905.05 DETECTABLE WARNING ELEMENTS

The Standard Specifications are revised as follows:

SECTION 905, BEGIN LINE 36, DELETE AND INSERT AS FOLLOWS:

905.05 Detectable Warning Elements Surfaces

The detectable warning surface in concrete curb ramps shall be constructed using materials from the Departments approved list of Detectable Warning Elements Surfaces, which is maintained by the Office of Materials Management. An element surface manufacturer wishing to add a product to the approved list shall comply with Procedure L of ITM 806.

- (a) Brick detectable warning elements surfaces shall consist of clay, shale, or similarly naturally occurring earthy substance, subjected to heat treatment at elevated temperatures to form bricks or pavers. The dimensions of the element brick shall be 8 in. in length, 4 in. in width including any spacing lugs. The thickness of the element brick shall be 2 in., excluding dome height and edge chamfers. The truncated domes on the surface shall be formed integral with the main body of the detectable warning element surface and be present on the element brick prior to heat treatment. The size and physical requirements of the elements bricks shall be in accordance with ASTM C 902 for weather and traffic environment classifications Class SX, Type II, respectively. The truncated domes may be ground off to meet the cap thickness requirement for compressive strength testing.
- (b) Brick detectable warning elements surfaces shall be predominantly red-brown in color and shall be uniform throughout the element brick. The color will be determined from the average of five color readings for detectable warning elements surfaces when measured at the top surface between the raised truncated domes and determined in accordance with ASTM E 1349, CIE Illuminant D65, 10° Standard Observer, using instrument geometry of 45°/0°, and the CIE L*a*b* color system. The tested elements bricks shall be within the limits as follows:

	Minimum	Maximum
L*	35.0	50.0
a*	6.0	36.0
b*	0.0	30.0

The value of a* shall not be less than 90% of the value of b*. The color difference of any installed element brick after one year of exposure or of an individual detectable warning element surface from the average color for any product or model from a manufacturer shall not be greater than 5.0 ΔE* units. The color shall be uniform throughout the detectable warning elements surfaces.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS

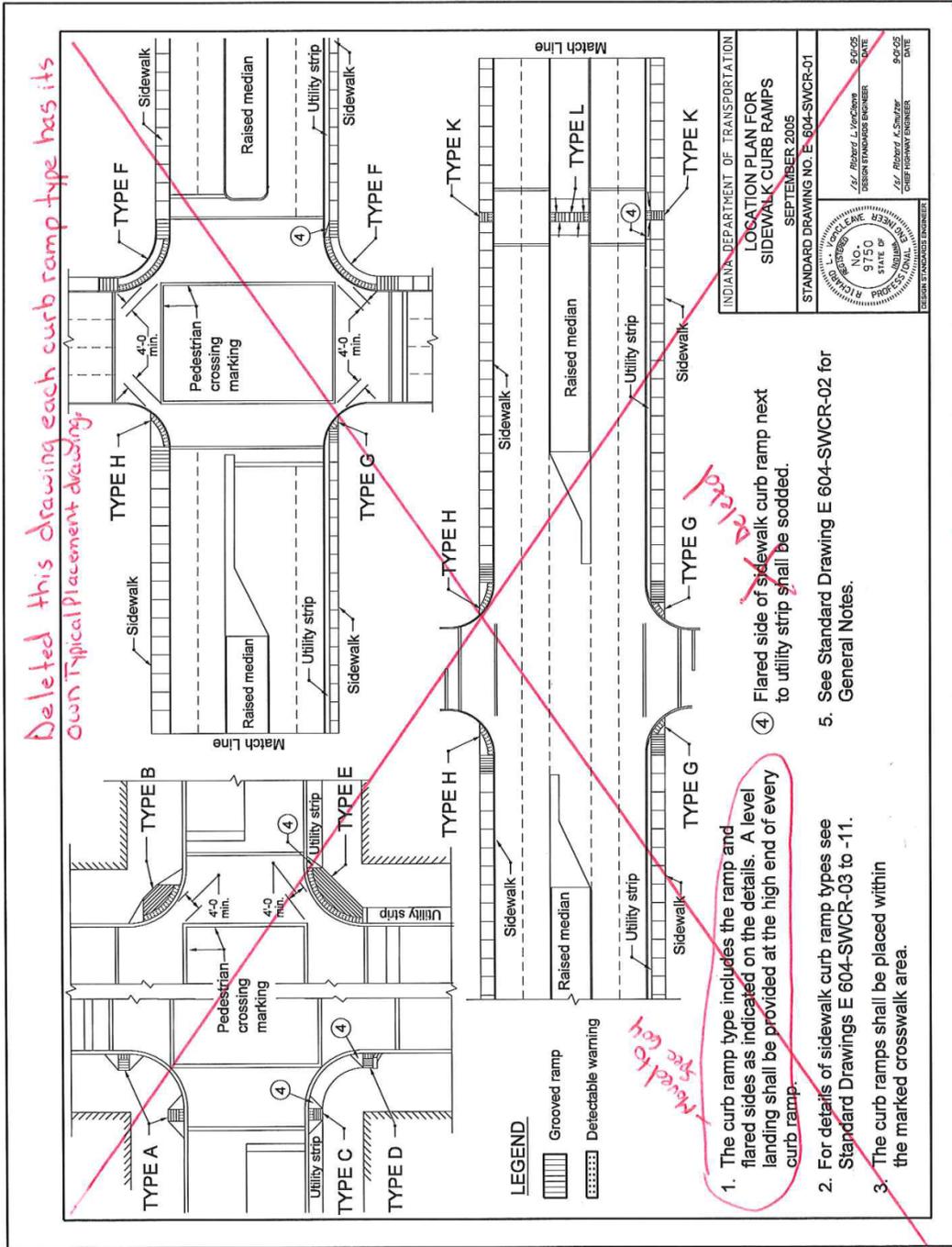
SECTION 905 - MASONRY UNITS

905.05 DETECTABLE WARNING ELEMENTS

- (c) Cast iron detectable warning ~~elements~~*surfaces* shall be manufactured from gray iron in accordance with AASHTO M 105, Class 30A as a minimum. The truncated domes shall be as shown on the plans. The tops of the domes and the space between domes shall have a non-slip textured surface. The minimum thickness of the casting shall be 0.300 in. The minimum thickness shall not be measured within the area of integral reinforcing ribs or bracing, domes or the textured surface.
- (d) The height ~~tolerance~~*range* of the truncated domes shall be ~~within~~*between* 0.18 in. to 0.26 in. ~~The base diameter, dome top diameter and dome spacing shall be within $\pm 1/16$ in. of the design value.~~ The design values shall be within the ranges identified in the Standard Drawings. No more than two truncated domes per ~~element~~*surface* may be out of tolerance for dimensions.
- (e) Detectable warning ~~elements~~*surfaces* that are not classified as brick in accordance with 905.05(a) or cast iron in accordance with 905.05(c) will be considered. The detectable warning ~~elements~~*surfaces* shall meet the color requirements of 905.05(b) and the truncated dome requirements of 905.05(d).

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-01 LOCATION PLAN FOR SIDEWALK CURB RAMPS (WITH MARKUPS)



The entire SWCR series has been modified to reflect PROWAG. All new drawings have been created. We are proposing to eliminate letter curb types and replace with descriptive types i.e. perpendicular, parallel, etc. Proposed drawings now show design limits and typical placement only. All curb ramps shall be design needs.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-02 SIDEWALK CURB RAMPS GENERAL NOTES & DETAILS (WITH MARKUPS)

GENERAL NOTES:

1. These dimensions are based on a 6 in. curb height. They shall be proportionally adjusted for other curb heights. *Deleted*
2. Where site infeasibility precludes construction to the width shown, such width may be decreased to a minimum of 3'-0". *Deleted*
3. The bottom edge of the curb ramp shall be flush with the edge of adjacent pavement and gutter line. *Deleted* *Noted placed on general drawings.*
4. Landing areas at the top of curb ramps shall have maximum cross slope of 50:1 in any direction. When site infeasibility precludes a landing slope of 50:1 in any direction, the slope perpendicular to the curb face shall not exceed 50:1. *Deleted*
5. If site infeasibility precludes construction to the width shown, the landing width may be decreased to 3'-0" minimum. The running slope of the curb ramp may be steepened to a maximum of 10:1 for a maximum 6 in. rise.
6. Drainage inlets should be located uphill from curb ramps to prevent puddles at the path of travel.
7. See Standard Drawing E 604-SWCR-12 for improved access on narrow sidewalks. *Deleted*
8. Algebraic difference in grade between the base of curb ramp and the gutter shall be limited to less than 11%. If it is not practical, a 2'-0" wide level strip shall be provided. See detail sketch.
9. Minimum recommended width of curb ramp is 4'-0". *Similar Note kept on General Note drawing under width*

DETAILS:

DETAIL OF RAMP GROOVES

RAMP AND BRICK SURFACE CONSTRUCTION DETAIL

ALTERNATE CURB CONSTRUCTION

GENERAL NOTES:

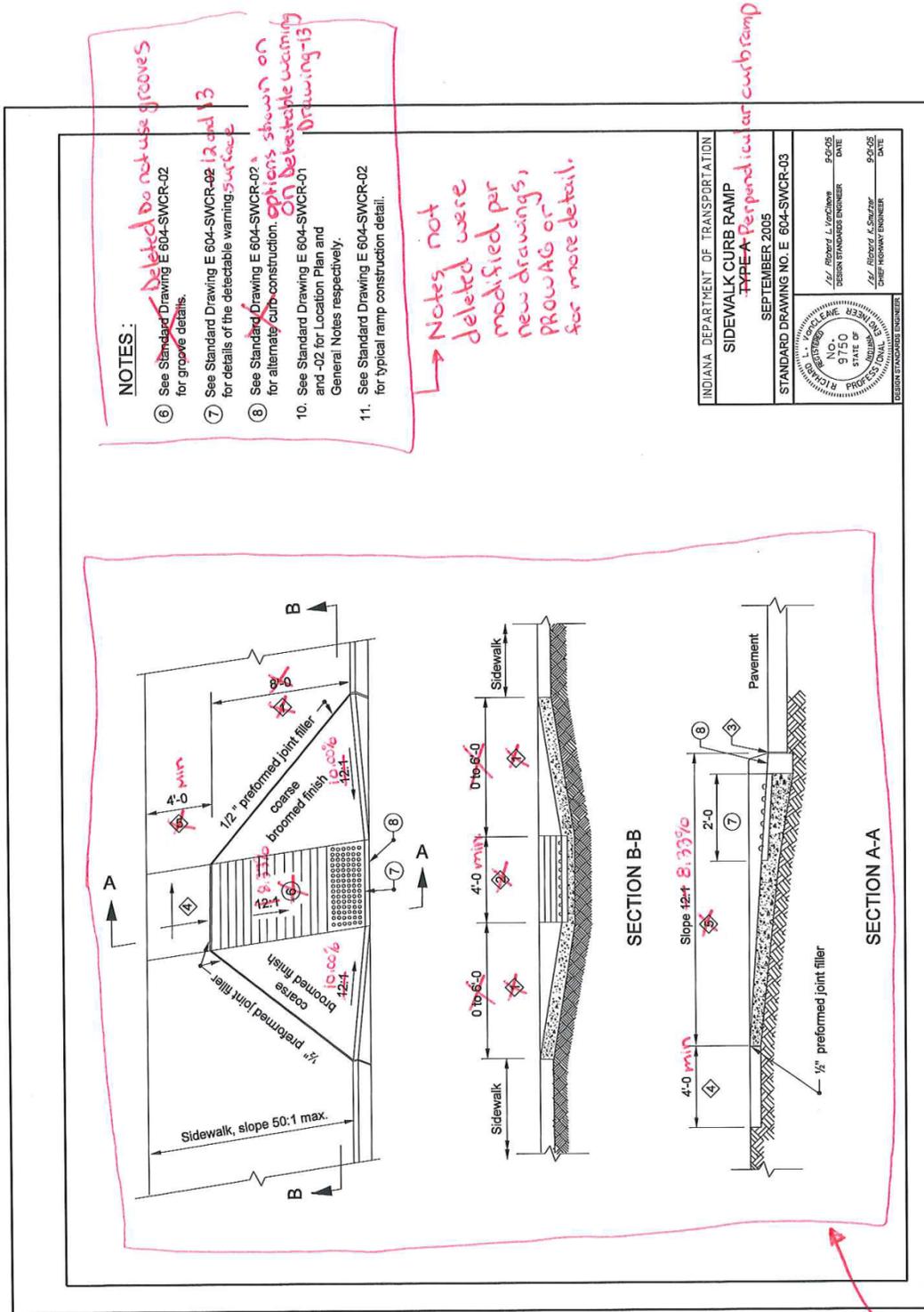
1. Landing area at top of turning space. *Note on General Notes Drawing; Running Slopes; Curb Slopes*

2. *Similar Note kept on General Note drawing under width*

3. *Added general picture of a curb ramp that shows all the curb ramp components and design elements and criteria for the components.*

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-03 SIDEWALK CURB RAMP TYPE A (WITH MARKUPS)



NOTES:

- ⑥ See Standard Drawing E 604-SWCR-02 for groove details.
- ⑦ See Standard Drawing E 604-SWCR-02 for details of the detectable warning surface.
- ⑧ See Standard Drawing E 604-SWCR-02 for alternate curb construction. Options shown on detectable warning Drawing-13.
- 10. See Standard Drawing E 604-SWCR-01 and -02 for Location Plan and General Notes respectively.
- 11. See Standard Drawing E 604-SWCR-02 for typical ramp construction detail.

Notes not deleted were modified per new drawings, PROWAG or for more detail.

Deleted do not use grooves
 Deleted do not use grooves
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 Deleted do not use grooves

INDIANA DEPARTMENT OF TRANSPORTATION
 SIDEWALK CURB RAMP
 TYPE A Perpendicular curb ramp
 SEPTEMBER 2005
 STANDARD DRAWING NO. E 604-SWCR-03

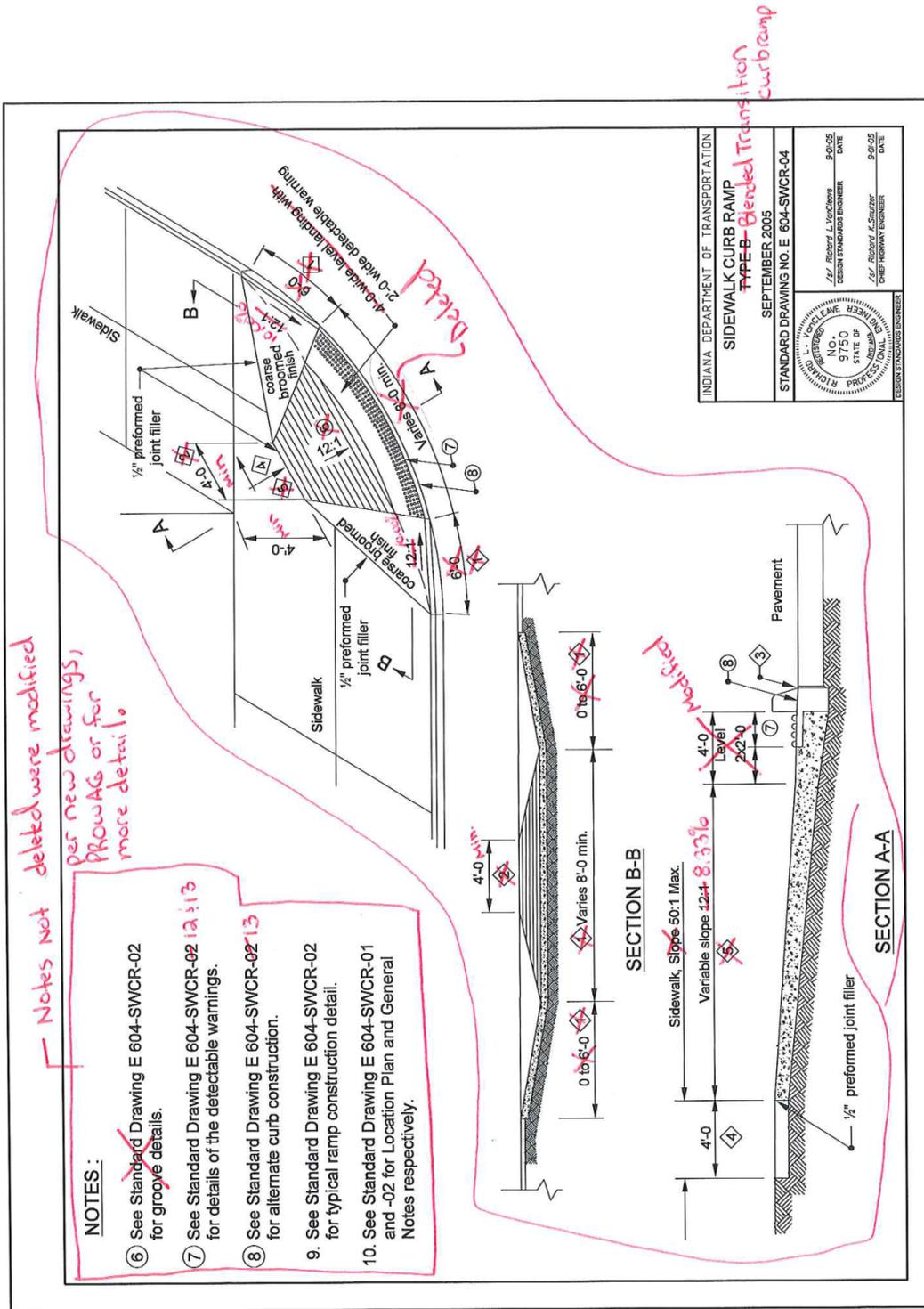
DESIGNED BY: Robert L. Vancleave
 DESIGN STANDARD ENGINEER
 DATE: 6-2005

CHECKED BY: Robert A. Sauter
 CHIEF HIGHWAY ENGINEER
 DATE: 6-2005

All curb ramps shall be designed in the construction plans. Only slopes and min. dimensions are shown. Perpendicular curb ramps have 3 drawings (02, 03, 04) showing typical placement and component details.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-04 SIDEWALK CURB RAMP TYPE B (WITH MARKUPS)



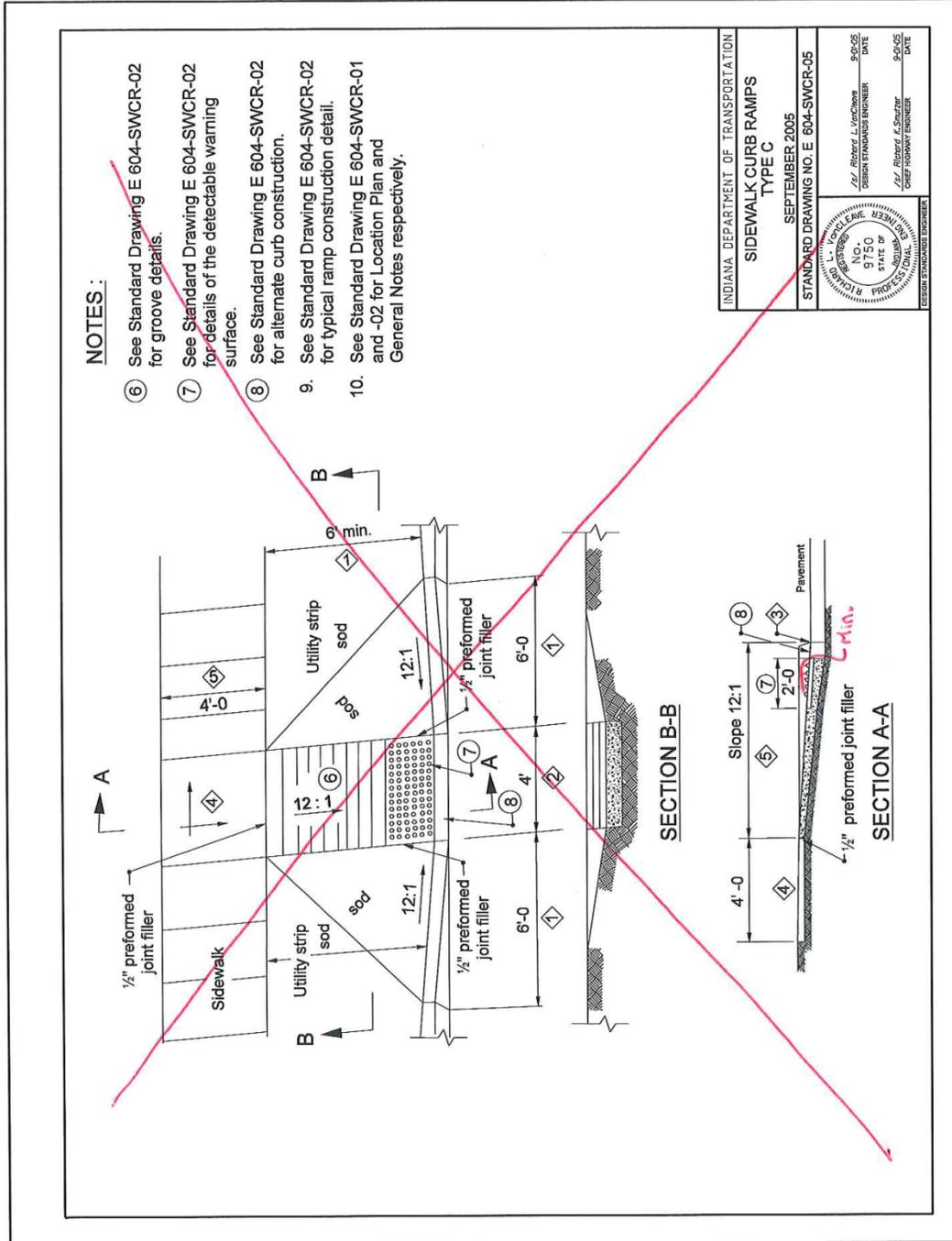
Notes not deleted were modified per new drawings, PROWAGs or for more detail.

Blended Transition Curb Ramp

All curb ramps shall be designed in construction plans. Only slopes and min. dimensions are shown. Blended transitions, depressed corners and diagonal curb ramps have drawings (09 & 10) showing typical placement and component details.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

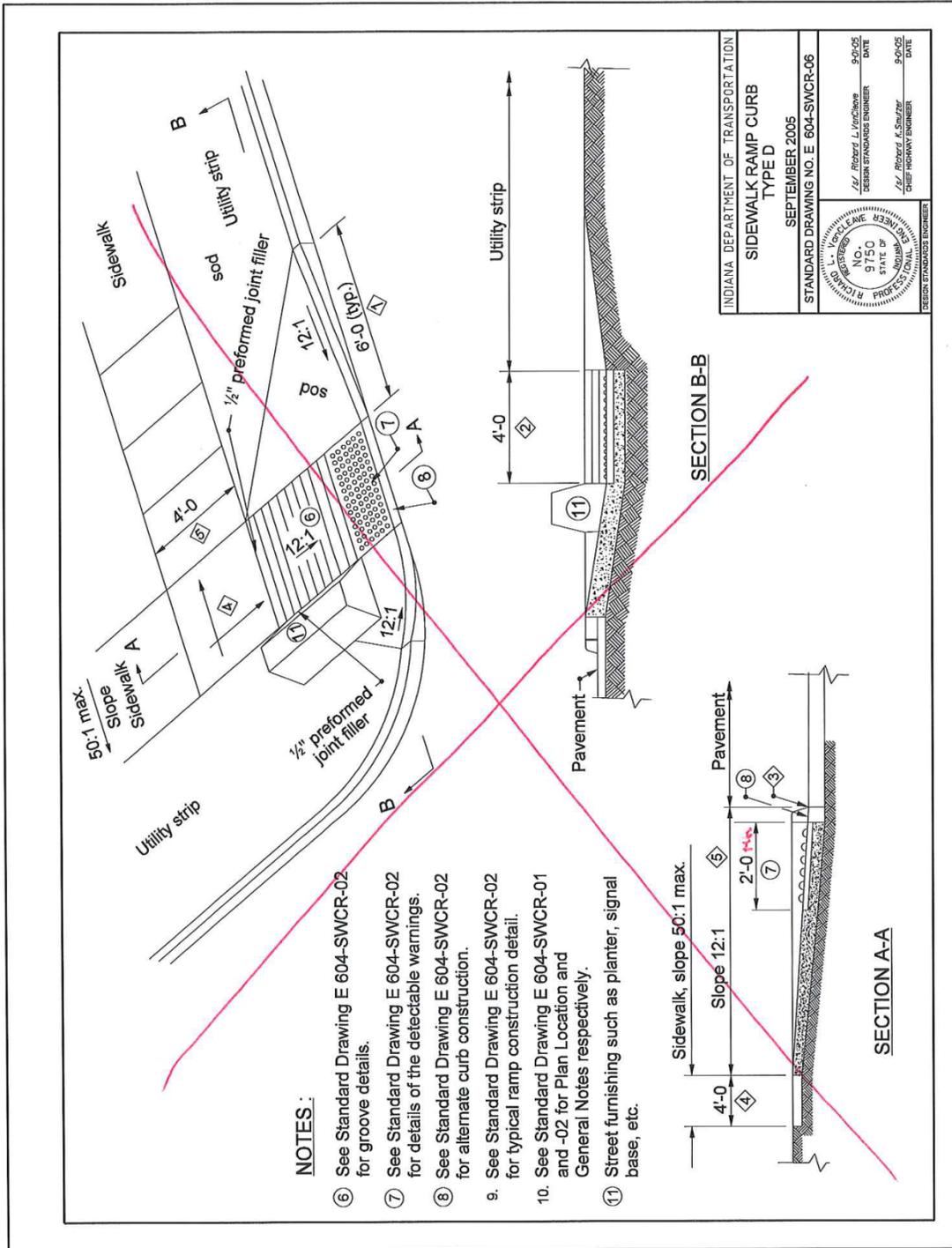
604-SWCR-05 SIDEWALK CURB RAMPS TYPE C (WITH MARKUPS)



Covered under Perpendicular Curb ramp drawings (02,03,04).

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

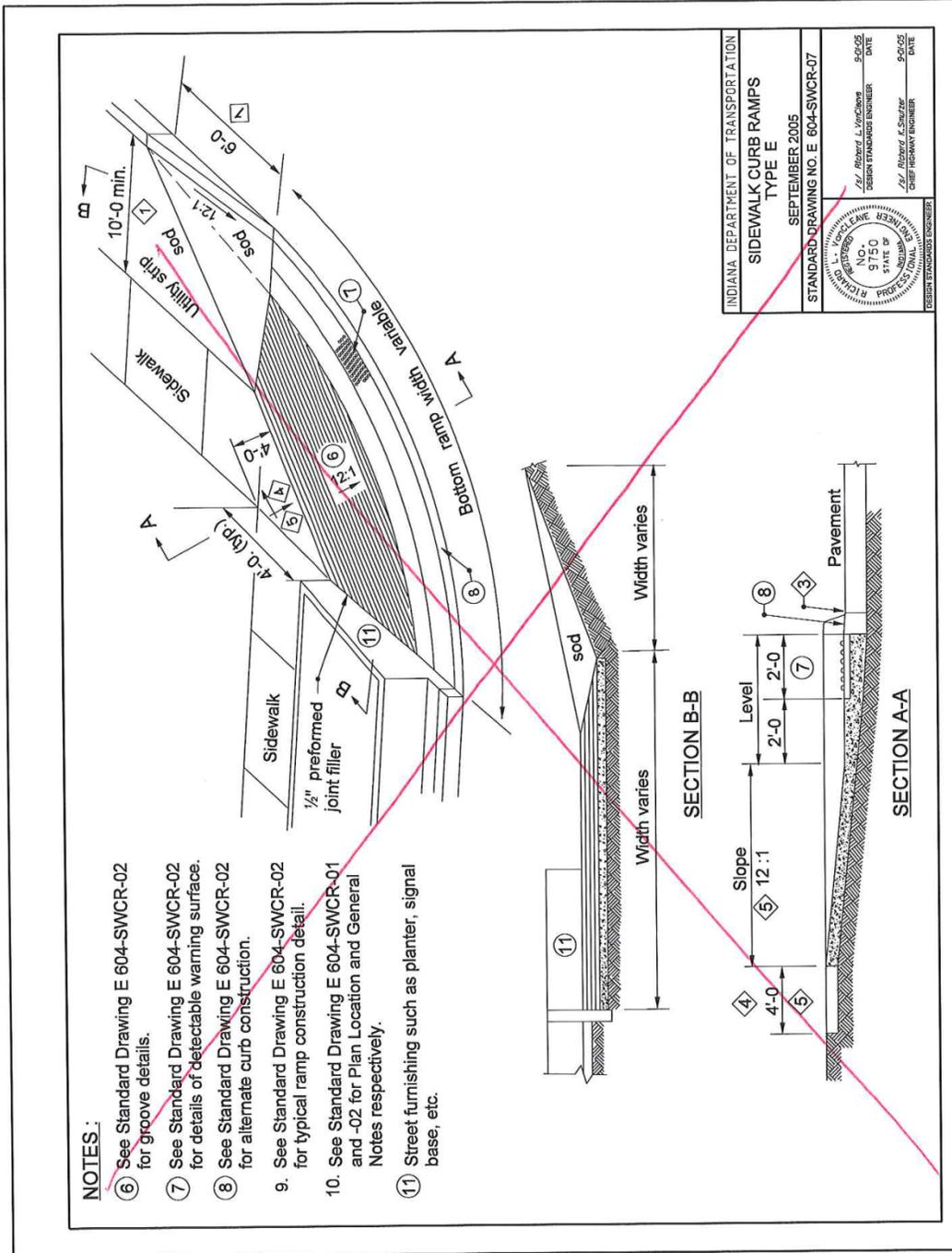
604-SWCR-06 SIDEWALK RAMP CURB TYPE D (WITH MARKUPS)



covered by perpendicular curb ramp drawings (02, 03, 04)

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

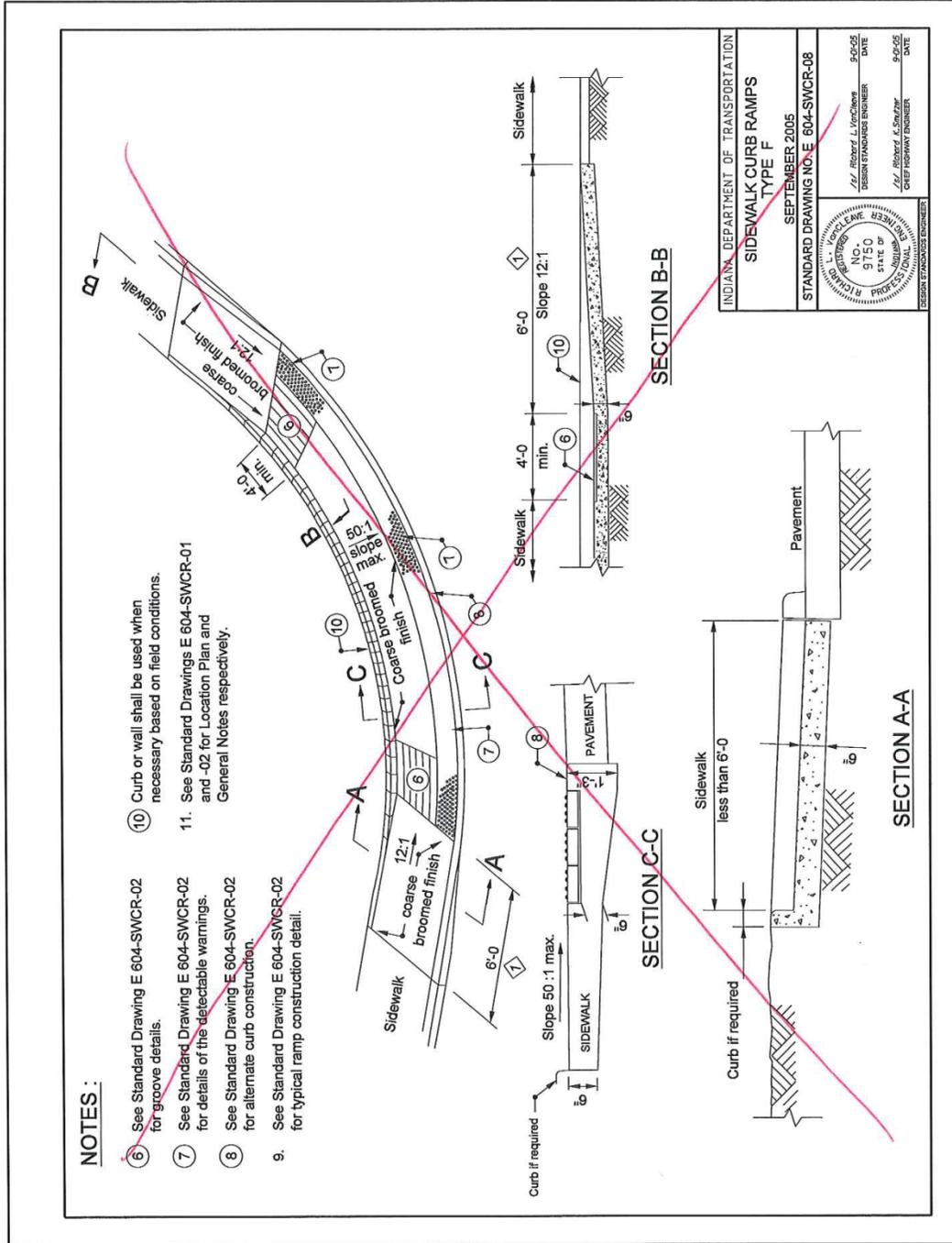
604-SWCR-07 SIDEWALK CURB RAMPS TYPE E (WITH MARKUPS)



Covered by Blended transition curb ramp drawings (09 & 10)

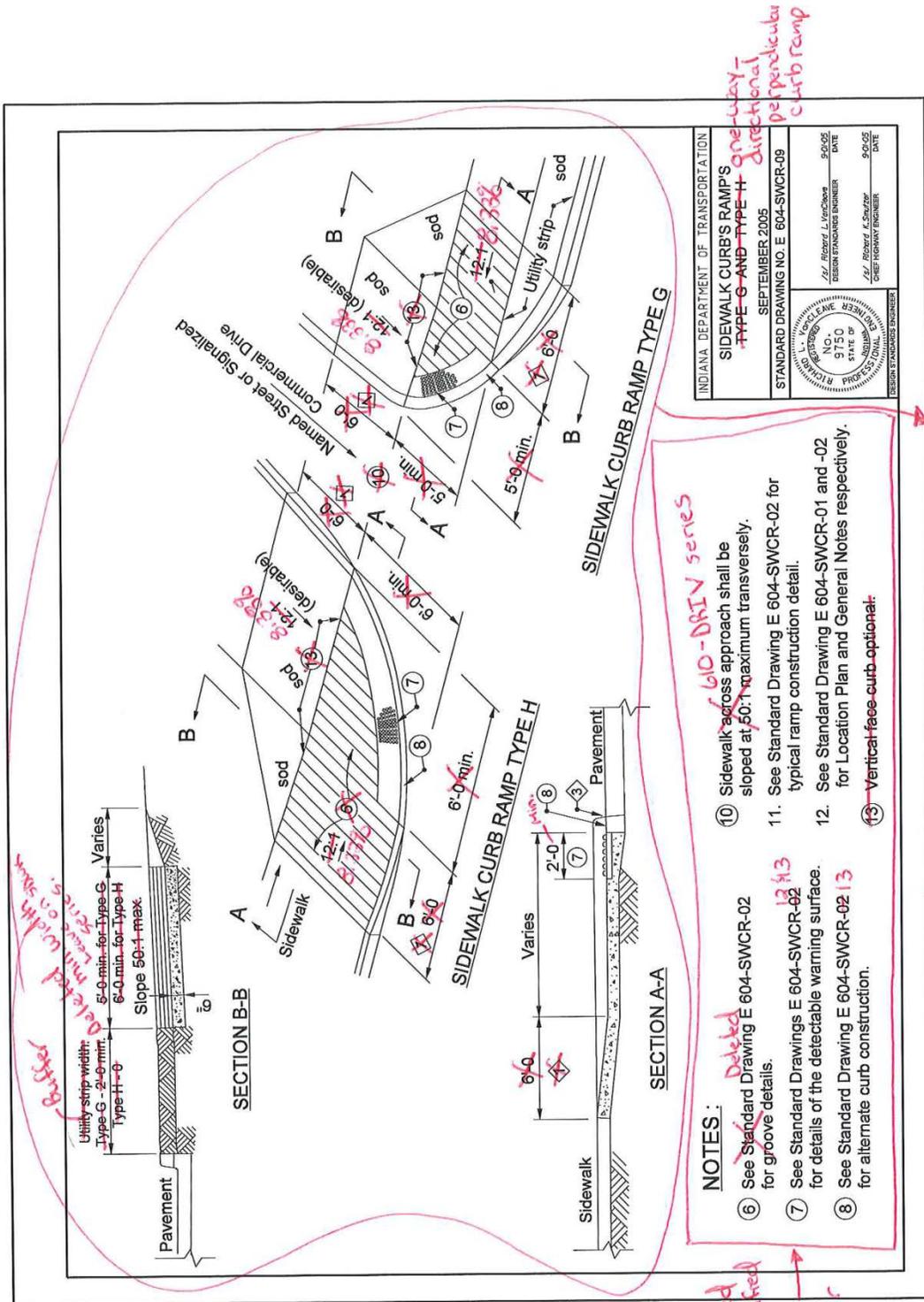
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-08 SIDEWALK CURB RAMPS TYPE F (WITH MARKUPS)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-09 SIDEWALK CURB'S RAMP'S TYPE G AND TYPE H (WITH MARKUPS)



Notes
 Not deleted
 were modified
 per new
 drawing
 showing
 for more
 detail

- NOTES:**
- ⑥ See Standard Drawing E 604-SWCR-02 for groove details.
 - ⑦ See Standard Drawings E 604-SWCR-02 for details of the detectable warning surface.
 - ⑧ See Standard Drawing E 604-SWCR-02 for alternate curb construction.
 - ⑩ Sidewalk across approach shall be sloped at 5:1 maximum transversely.
 - 11. See Standard Drawing E 604-SWCR-02 for typical ramp construction detail.
 - 12. See Standard Drawing E 604-SWCR-01 and -02 for Location Plan and General Notes respectively.
 - 13. Vertical face curb optional.

Deleted with 604-SWCR-09 series.
 Deleted with 604-SWCR-09 series.
 Deleted with 604-SWCR-09 series.

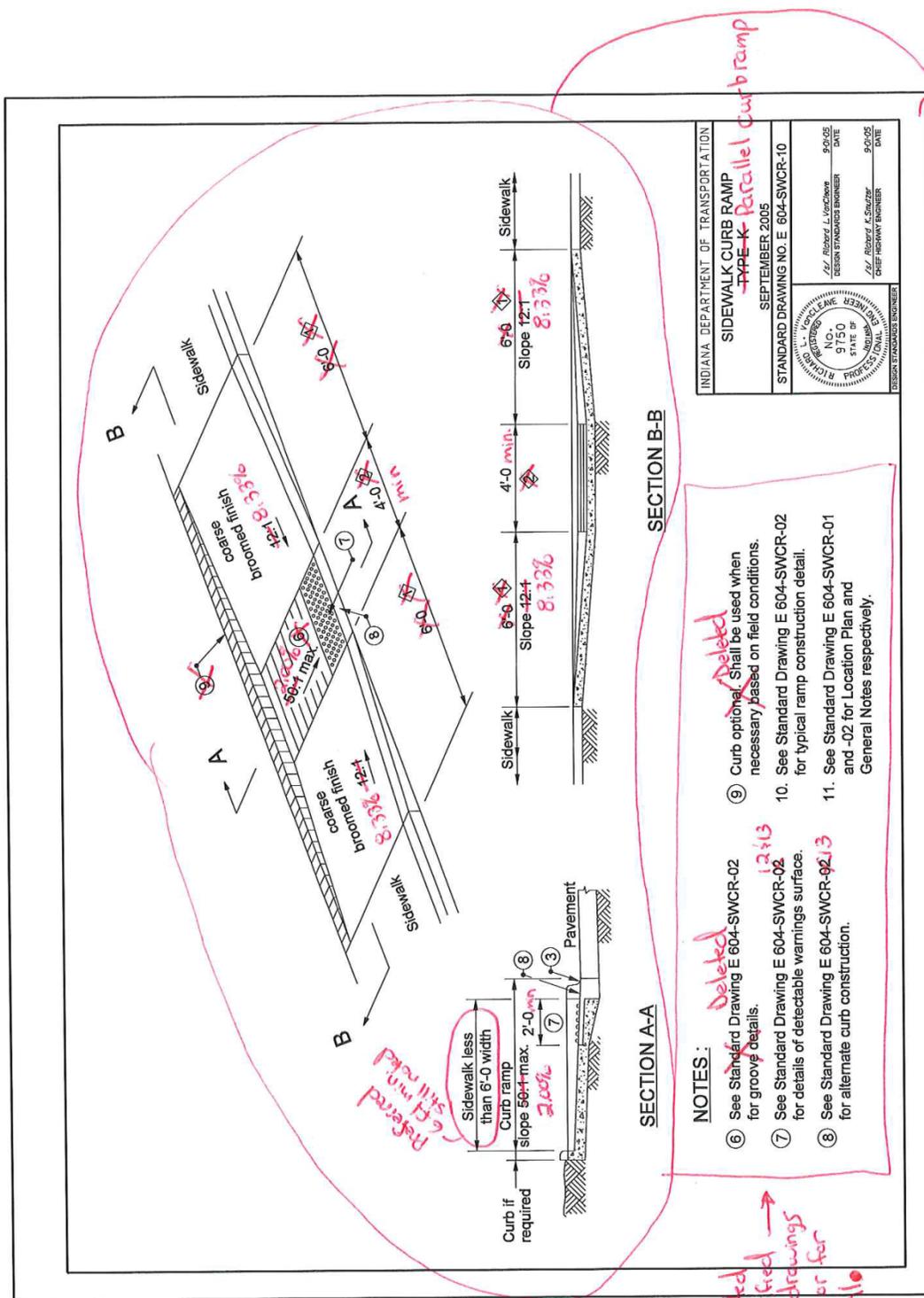
Notes
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 were modified
 per new
 drawing
 showing
 for more
 detail

All curb ramps shall be designed in the construction plans. Only slopes and minimum dimensions are shown. One-way-directional perpendicular curb ramps have 2 drawings (05106) showing typical placement and component details.

Notes
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 were modified
 per new
 drawing
 showing
 for more
 detail

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-10 SIDEWALK CURB RAMP TYPE K (WITH MARKUPS)



INDIANA DEPARTMENT OF TRANSPORTATION
SIDEWALK CURB RAMP
~~TYPE K~~ **Parallel curb ramp**
 SEPTEMBER 2005
 STANDARD DRAWING NO. E 604-SWCR-10

DESIGNED BY	INCHES	DATE
CHECKED BY	FEET	DATE
NO.	9750	DATE
STATE OF	INDIANA	DATE
PROF.	REGISTERED	DATE
DESIGNED BY	DESIGN STANDARDS ENGINEER	DATE
CHECKED BY	DESIGN STANDARDS ENGINEER	DATE
NO.	9750	DATE
STATE OF	INDIANA	DATE
PROF.	REGISTERED	DATE
DESIGNED BY	DESIGN STANDARDS ENGINEER	DATE
CHECKED BY	DESIGN STANDARDS ENGINEER	DATE

- NOTES:**
- ⑥ See Standard Drawing E 604-SWCR-02 for groove details.
 - ⑦ See Standard Drawing E 604-SWCR-02 for details of detectable warnings surface.
 - ⑧ See Standard Drawing E 604-SWCR-02.13 for alternate curb construction.
 - ⑨ Curb optional. Shall be used when necessary based on field conditions.
 - 10. See Standard Drawing E 604-SWCR-02 for typical ramp construction detail.
 - 11. See Standard Drawing E 604-SWCR-01 and -02 for Location Plan and General Notes respectively.

Referenced drawings 07-108

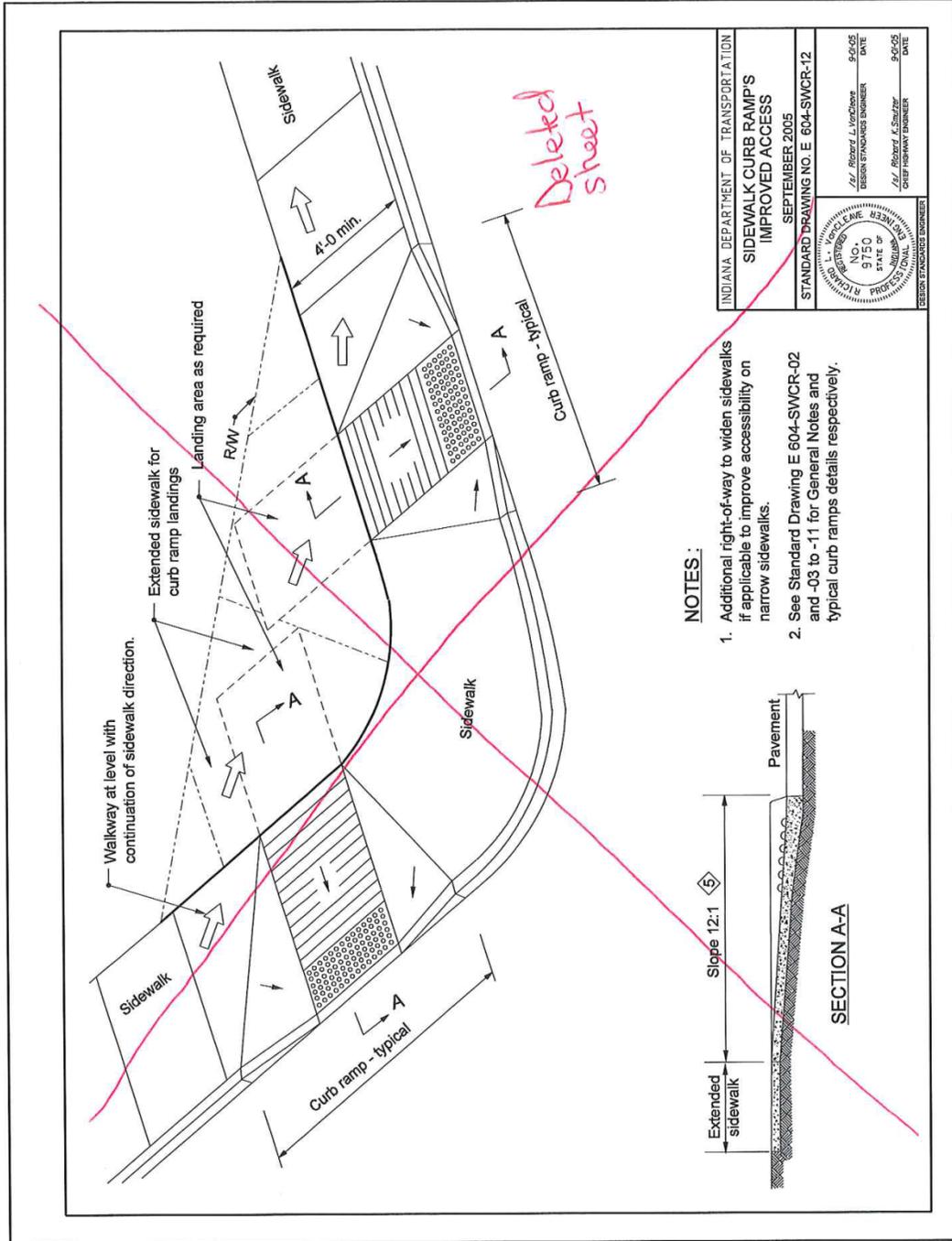
Notes: Deleted

Not deleted, were modified per new drawings PROWAG or for more details.

All curb ramps shall be designed in the construction plans. Only slopes and min. dimensions are shown. Parallel curb ramps have drawings (07-108) showing typical placement and component details.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-12 SIDEWALK CURB RAMP'S IMPROVED ACCESS (WITH MARKUPS)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-13 SIDEWALK CURB RAMPS QUANTITY ESTIMATE (WITH MARKUPS)

QUANTITY ESTIMATE

Curb Ramp Type	6" curb		8" curb		Pay limits diagram
	Assumptions for calculation purposes (top landing not included in area)	Area sq. yd	Assumptions for calculation purposes (top landing not included in area)	Area sq. yd	
A	10' sidewalk	7.0	12' sidewalk	11.1	
B	R = 10', 13' sidewalk	16.4	R = 10', 15' sidewalk	19.4	
	R = 26', 18' sidewalk	21.4	R = 25', 20' sidewalk	30.6	
C	6' utility strip	2.7	8' utility strip	3.5	
D	6' utility strip	2.7	8' utility strip	3.5	
E	10' utility strip on one side only, 10' radius	10.7	Not possible to construct on 10' utility strip	n/a	
F	R = 15', 4' sidewalk	14.3	R = 15', 4' sidewalk	16.1	
	R = 25', 4' sidewalk	21.6	R = 25', 4' sidewalk	23.3	
G	minimum dimensions	4.9	minimum dimensions	6.0	
H	minimum dimensions	6.3	minimum dimensions	7.7	
K	5' sidewalk	8.9	5' sidewalk	11.1	
L	16' grass median width	9.3	16' grass median width	9.3	

Deleted Sheet

INDIANA DEPARTMENT OF TRANSPORTATION
**SIDEWALK CURB RAMPS
 QUANTITY ESTIMATE**
 SEPTEMBER 2005
 STANDARD DRAWING NO. E 604-SWCR-13

J. J. Rozdol, J. J. Rozdol
 DESIGN STANDARDS ENGINEER
 DATE
 J. J. Rozdol, J. J. Rozdol
 CHIEF HIGHWAY ENGINEER
 DATE

All curb ramps shall be detailed in Construction Plans.

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-01 CURB RAMP DRAWING INDEX AND GENERAL NOTES (REVISED DRAFT)

SHEET NO.	INDEX	SUBJECT
1		Curb Ramp Drawing Index and General Notes
2-3		Perpendicular Curb Ramp Typical Placement
4		Perpendicular Curb Ramp Component Details
5		One-Way/Directional Perpendicular Curb Ramp Typical Placement
6		One-Way/Directional Perpendicular Curb Ramp Component Details
7		Parallel Curb Ramps Typical Placement
8		Parallel Curb Ramps Component Details
9		Blended Transition Curb Ramp, Depressed Curb Ramp and Diagonal Curb Ramp Typical Placement
10		Blended Transition Curb Ramp Component Details
11		Median Cut-Through and Median Perpendicular Curb Ramp Typical Placement
12-13		Detectable Warning Surface Placement and Configuration
14		Detectable Warning Surface Details

GENERAL NOTES:

- All slopes are absolute rather than relative to the sidewalk or roadway grade. Slopes at least 0.50% less than the maximum are preferred.
- Ramp or Blended Transition. A ramp or blended transition shall be used to lower or raise the sidewalk to connect with the street or highway.
- Turning Space. A turning space shall be provided at the top of a perpendicular ramp, bottom of a parallel ramp, or where the pedestrian travel direction changes. The turning space shall be a minimum clear dimension of 4 ft x 4 ft. Where the turning space is constrained at the back of the sidewalk by a curb, retaining wall, building, or feature over 2 inches in height, the minimum clear dimension shall be 4 ft x 5 ft, with the 5 ft dimension in the direction of the ramp run.
- Flared Side. A flared side shall be used adjacent to a walkable surface. A flared side may be used adjacent to a non-walkable surface. A flared side shall have a maximum slope of 10.00% measured parallel to the back of the curb.
- Return Curb. A return curb shall be placed perpendicular to the roadway curb. A return curb may be used adjacent to a non-walkable surface. A return curb shall not be used adjacent to a walkable surface.
- Clear Space. A clear space shall be provided beyond the bottom grade break of a curb ramp wholly contained within the crosswalk and wholly outside the parallel vehicular travel path. The clear space shall have a minimum clear dimension of 4 ft x 4 ft.
- Detectable Warning Surface. A detectable warning surface shall be placed at each street, highway, or railroad crossing. A detectable warning surface shall extend a minimum of 2 ft in the direction of pedestrian travel and be placed the entire width of a ramp, blended transition, or turning space.
- Running Slope. The running slope of a ramp, blended transition, or turning space shall be measured parallel to the direction of pedestrian travel.
 - A running slope of 2.00% or less is considered a maximum running slope.
 - A running slope of 2.00% to 8.33% shall not require a ramp length to exceed 15 ft.
 - A blended transition shall have a maximum running slope of 5.00%.
 - A turning space shall have a maximum running slope of 2.00%.
- Width. Unless otherwise noted, minimum width of a ramp, blended transition, or turning space, excluding flared sides or return curb, shall be 4 ft.
- Grade Break. A grade break at the top and bottom of a ramp, blended transition, or turning space shall be perpendicular to the running slope. Grade breaks shall not be within the ramp, blended transition, turning space, or detectable warning surface. Grade breaks shall be flush. Vertical discontinuities shall not be greater than 1/2 in. Where a discontinuity is greater than 1/4 in, the surface shall be beveled with a slope not steeper than 1:1.
- Cross Slope Exceptions. The cross slope of a ramp, blended transition, or turning space shall be measured perpendicular to the direction of pedestrian travel.
 - The maximum street grade for a pedestrian street crossing without yield or stop control shall be 5.00%.
 - The maximum street grade for a pedestrian street crossing with yield or stop control shall be 2.00%.
 - The maximum street grade for a pedestrian street crossing at a midblock crossing shall be less than or equal to the established street grade.
- Objects such as a utility cover, vault frame, and grating shall be placed outside a curb ramp.
- Curb ramps shall be placed within the marked crosswalk area.
- Drainage inlets should be located uphill from a curb ramp to prevent ponding in the path of pedestrian travel.

INDIANA DEPARTMENT OF TRANSPORTATION

CURB RAMP DRAWING INDEX AND GENERAL NOTES

SEPTEMBER 2016

STANDARD DRAWING NO. E 604-SWCR-01

DESIGN STANDARDS ENGINEER	DATE
CHIEF ENGINEER	DATE

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-02 PERPENDICULAR CURB RAMP TYPICAL PLACEMENT (REVISED DRAFT)

NOTES:

- Where insufficient width between the curb and back of sidewalk prevent a standard perpendicular curb ramp running slope, a sidewalk transition may be used to lower the sidewalk grade. The sidewalk transition running slope shall not exceed 8.33%.
- The turning space shall have a minimum clear dimension of 4 ft x 4 ft. Where the turning space is constrained at the back of the sidewalk, the minimum clear dimension shall be 4 ft x 5 ft, with the 5 ft dimension in the direction of the ramp run. Where a tiered perpendicular curb ramp is used, a constrained turning space shall have a minimum clear dimension of 5 ft x 5 ft.

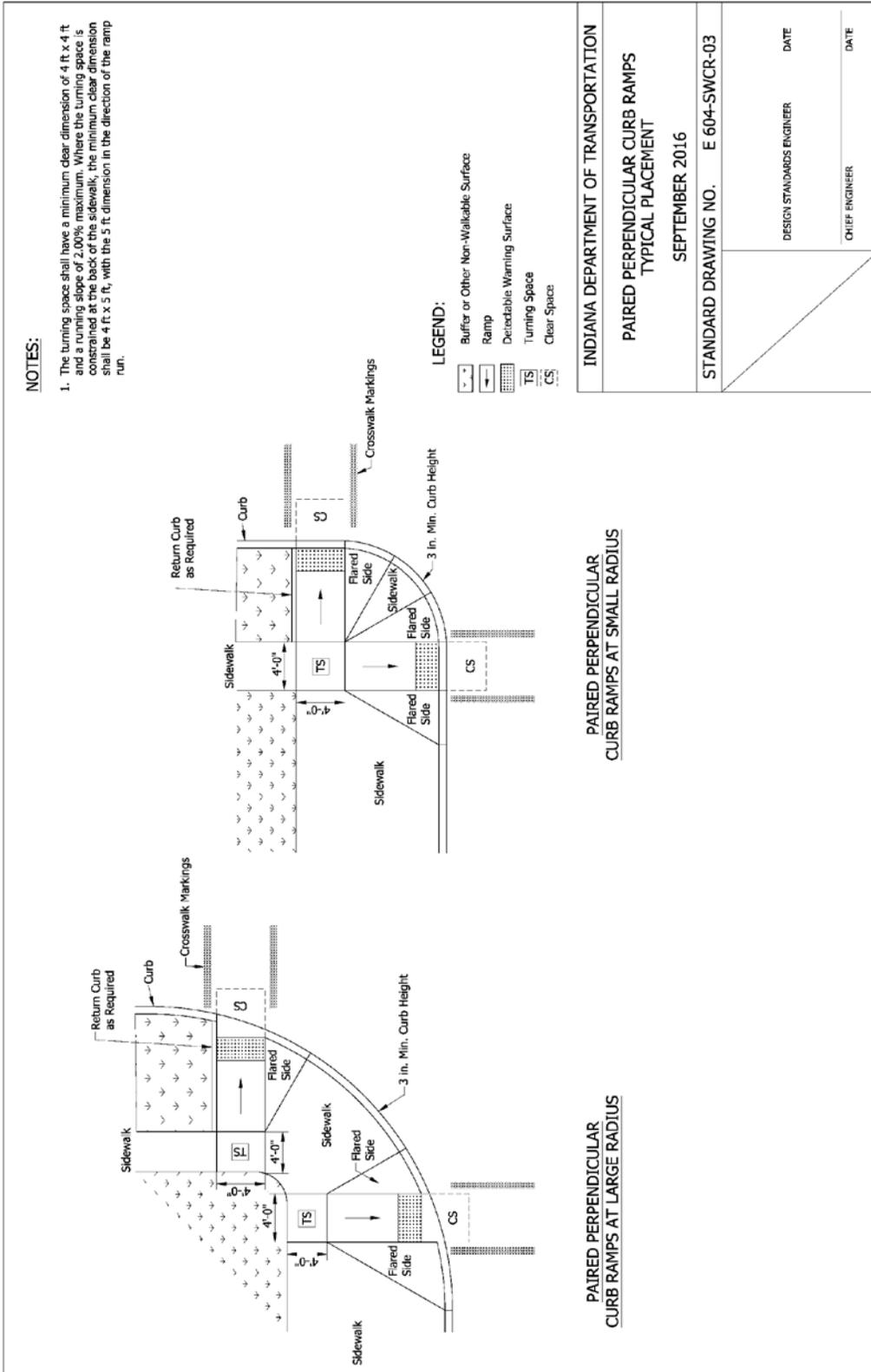
LEGEND:

- Buffer or Other Non-Walkable Surface
- Ramp
- Detectable Warning Surface
- Turning Space
- Clear Space

INDIANA DEPARTMENT OF TRANSPORTATION	
PERPENDICULAR CURB RAMP TYPICAL PLACEMENT	
SEPTEMBER 2016	
STANDARD DRAWING NO. E 604-SWCR-02	DESIGN STANDARDS ENGINEER DATE
	CHIEF ENGINEER DATE

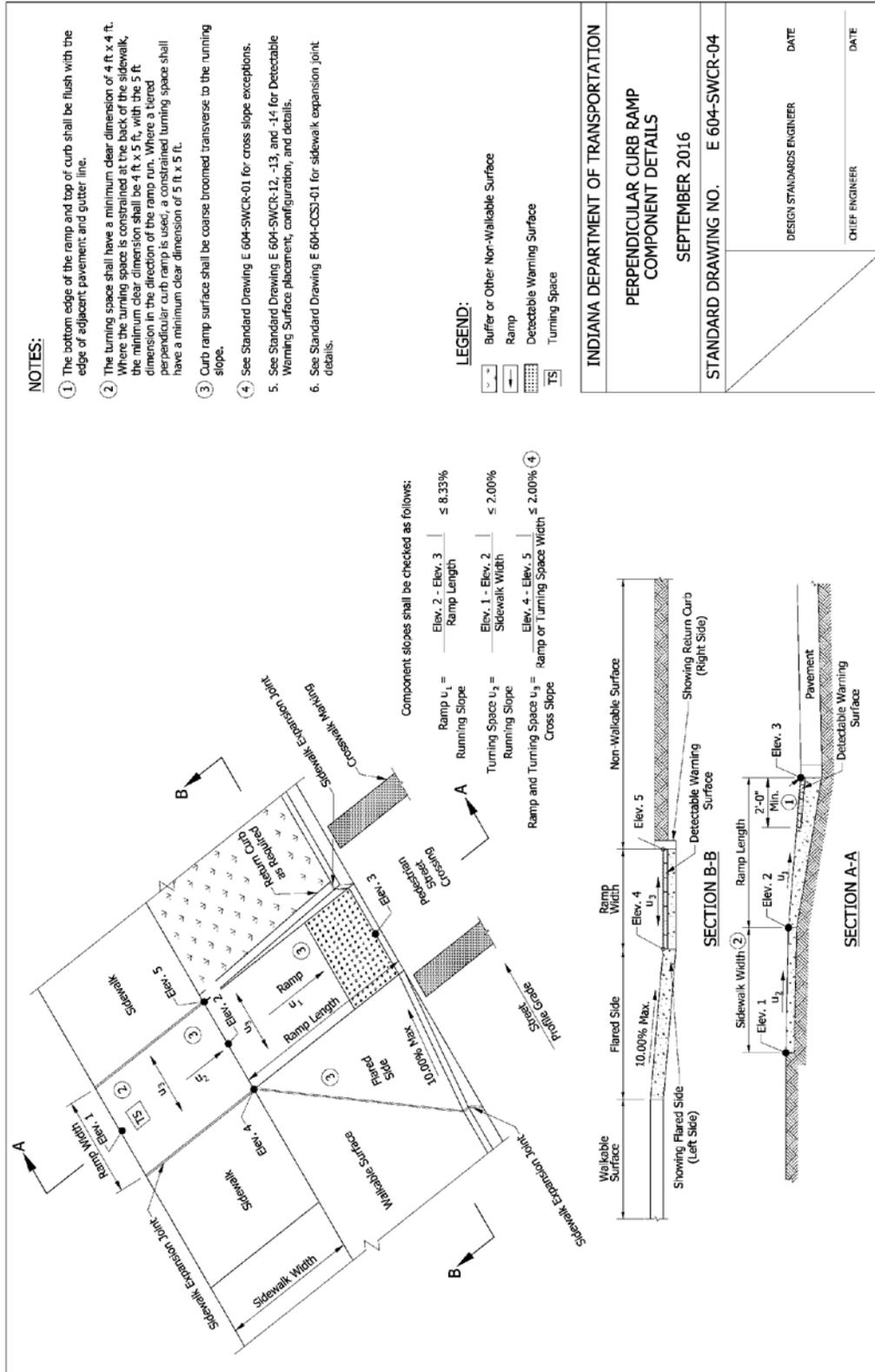
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-03 PAIRED PERPENDICULAR CURB RAMPS TYPICAL PLACEMENT (REVISED DRAFT)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-04 PERPENDICULAR CURB RAMP COMPONENT DETAILS (REVISED DRAFT)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-05 ONE-WAY-DIRECTIONAL PERPENDICULAR CURB RAMP TYPICAL PLACEMENT
(REVISED DRAFT)

NOTES:

- ① A turning space is not required at the top of the ramp for a one-way directional perpendicular curb ramp.
- ② Where there is no buffer between the sidewalk and curb the preferred minimum sidewalk width is 6 ft. Where a buffer is placed between the sidewalk and curb, the preferred minimum sidewalk width is 5 ft. See Standard Drawing Series 604-SWCR-01, -02, and -03 for sidewalk details.

LEGEND:

- Buffer or Other Non-Walkable Surface
- ↔ Ramp
- ▨ Detectable Warning Surface

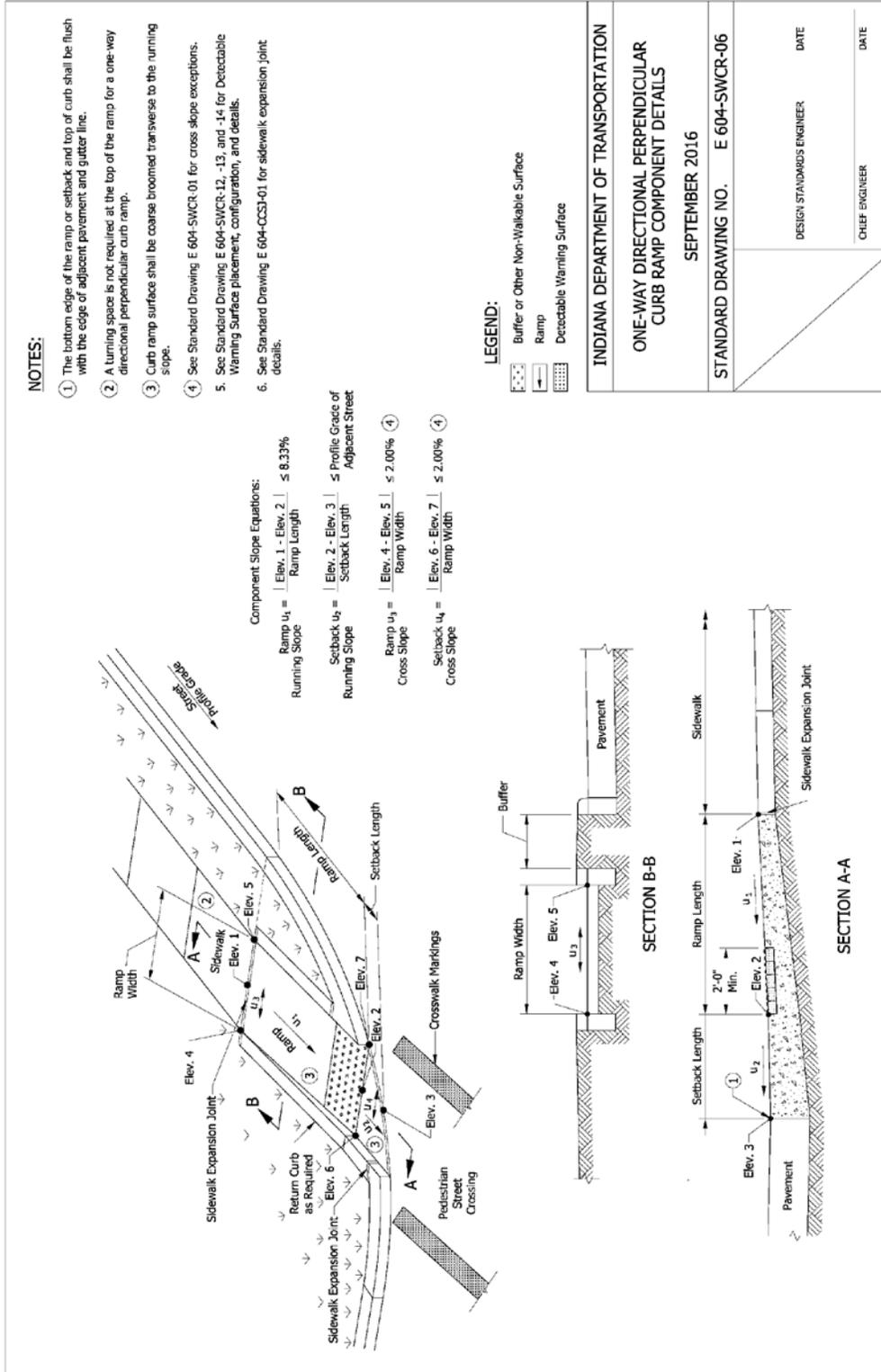
ONE-WAY DIRECTIONAL PERPENDICULAR CURB RAMP ADJACENT CURB

ONE-WAY DIRECTIONAL PERPENDICULAR CURB RAMP WITH BUFFER

INDIANA DEPARTMENT OF TRANSPORTATION	
ONE-WAY DIRECTIONAL PERPENDICULAR CURB RAMP TYPICAL PLACEMENT SEPTEMBER 2016	
STANDARD DRAWING NO. E 604-SWCR-05	
DESIGN STANDARDS ENGINEER	DATE
CHIEF ENGINEER	DATE

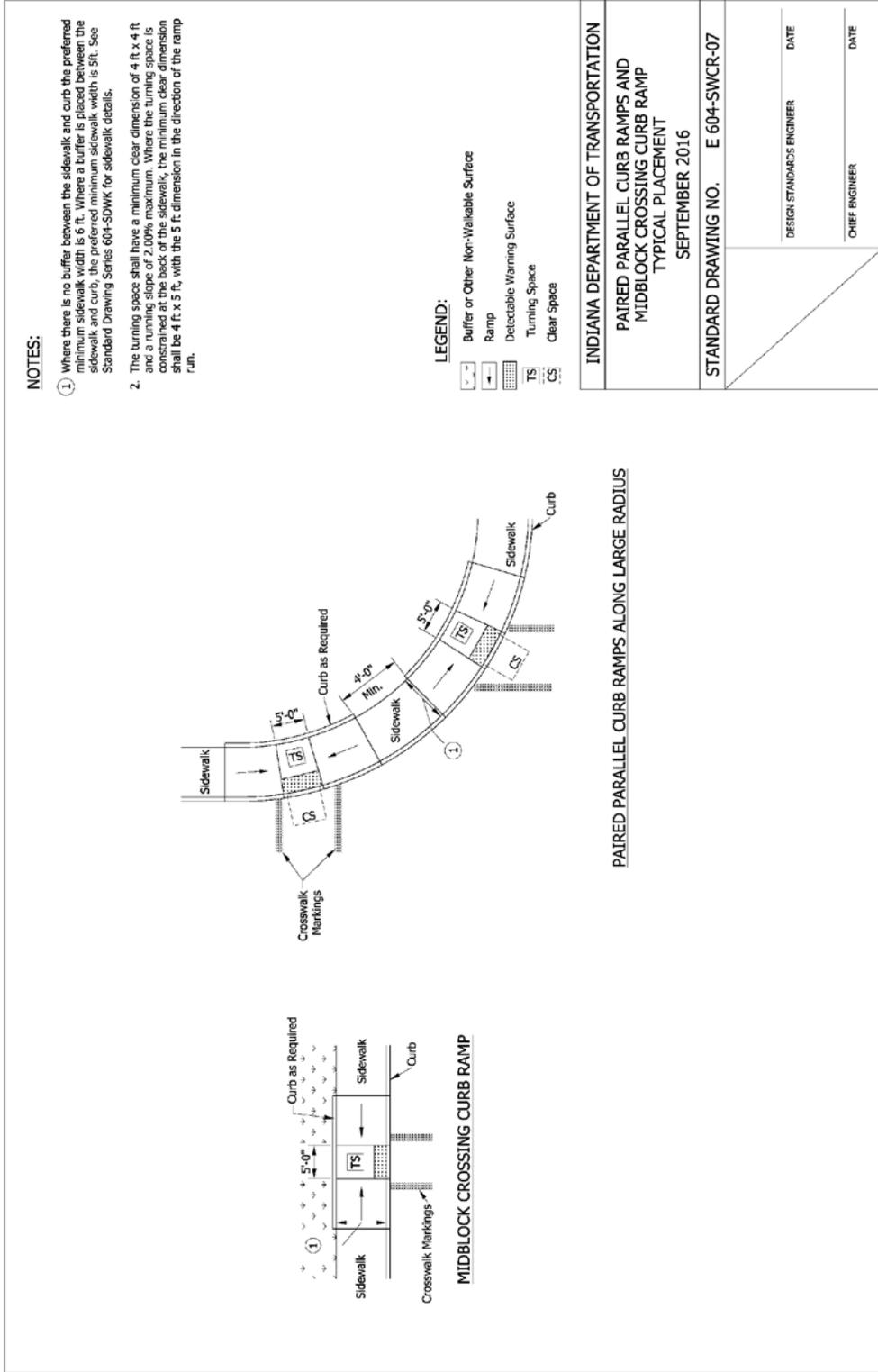
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-06 ONE-WAY-DIRECTIONAL PERPENDICULAR CURB RAMP COMPONENT DETAILS
(REVISED DRAFT)

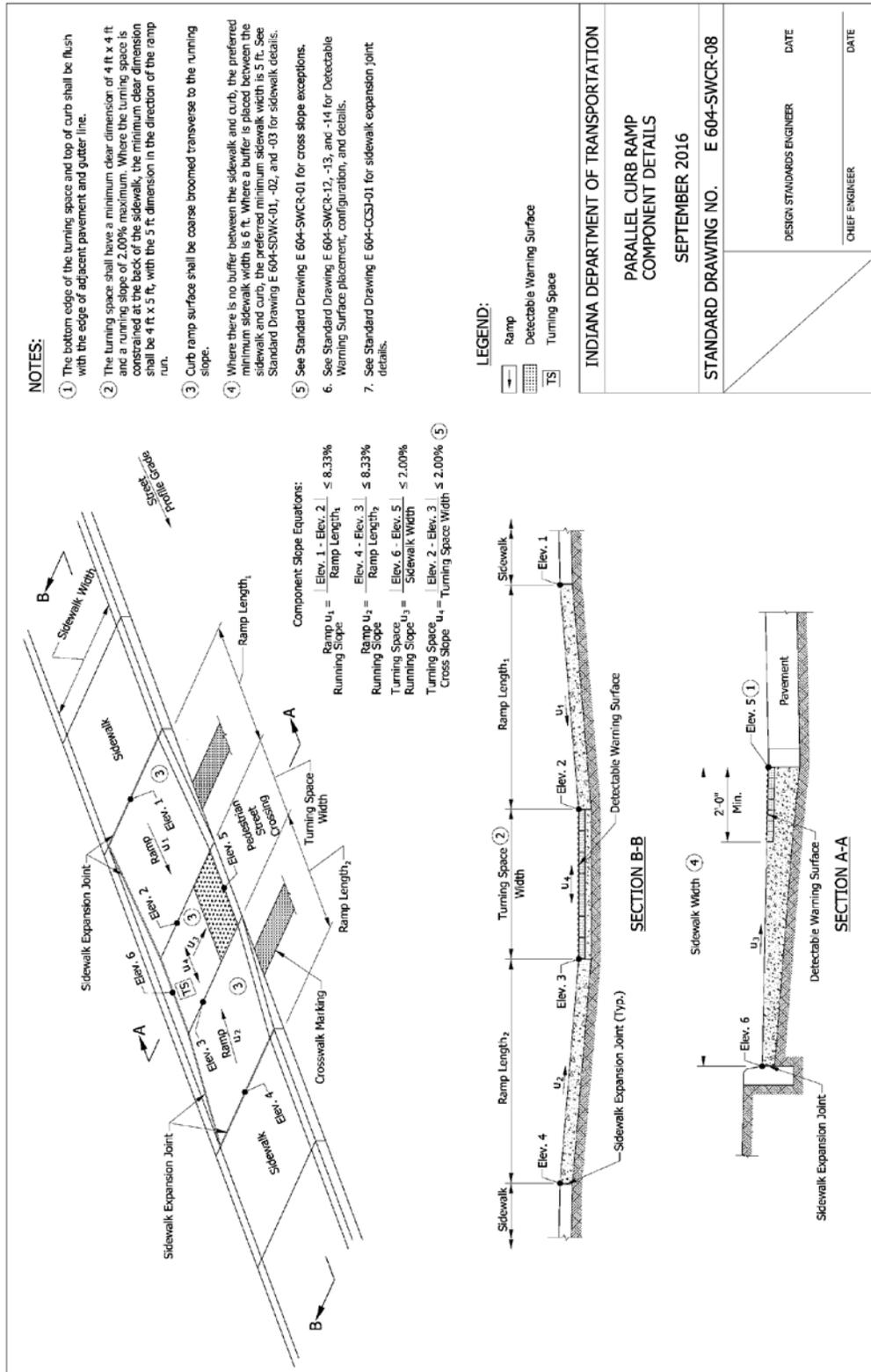


REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-07 PAIRED PARALLEL CURB RAMPS AND MIDBLOCK CROSSING CURB RAMP
TYPICAL PLACEMENT (REVISED DRAFT)

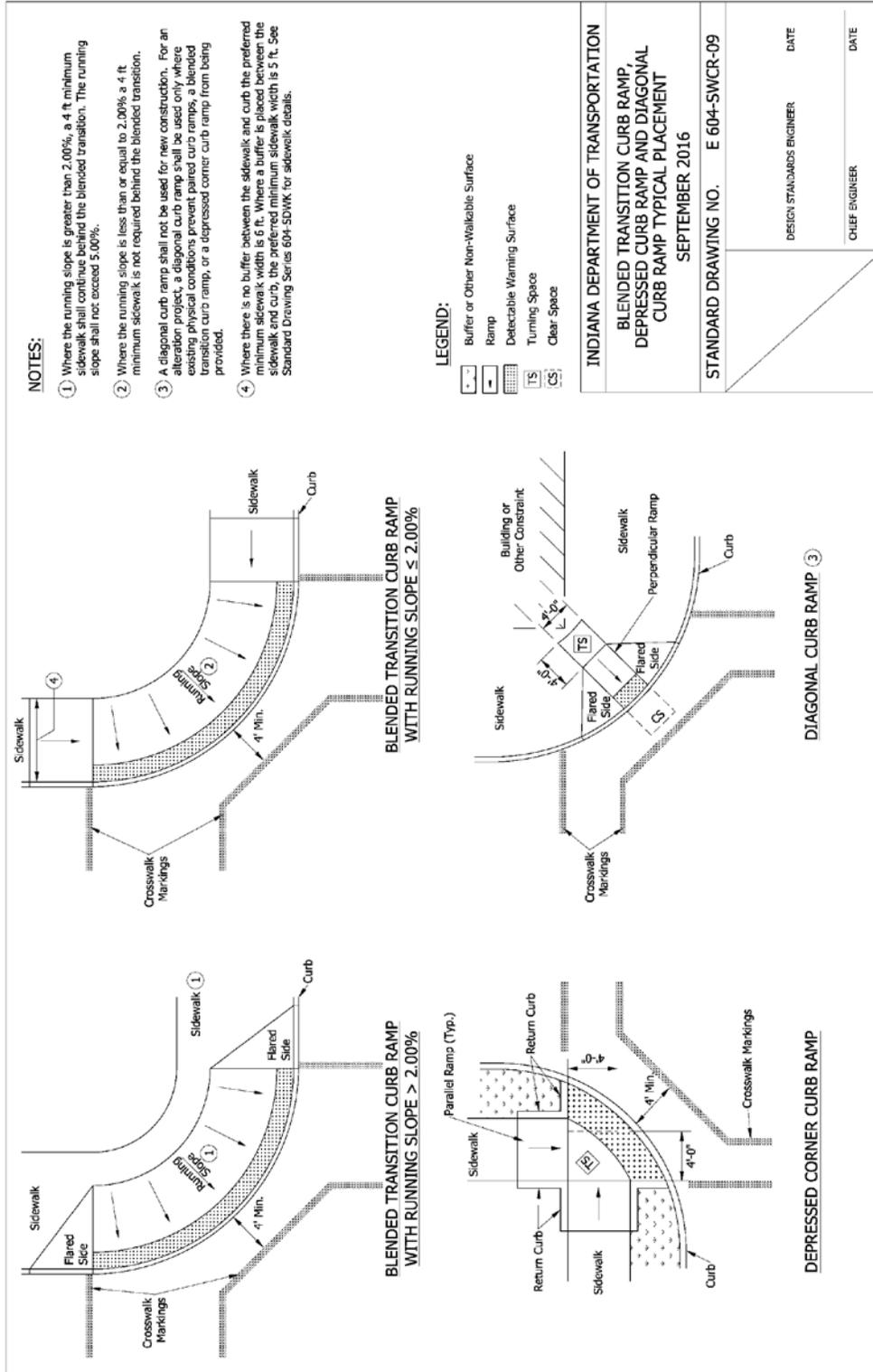


REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
 604-SWCR-08 PARALLEL CURB RAMP COMPONENT DETAILS (REVISED DRAFT)



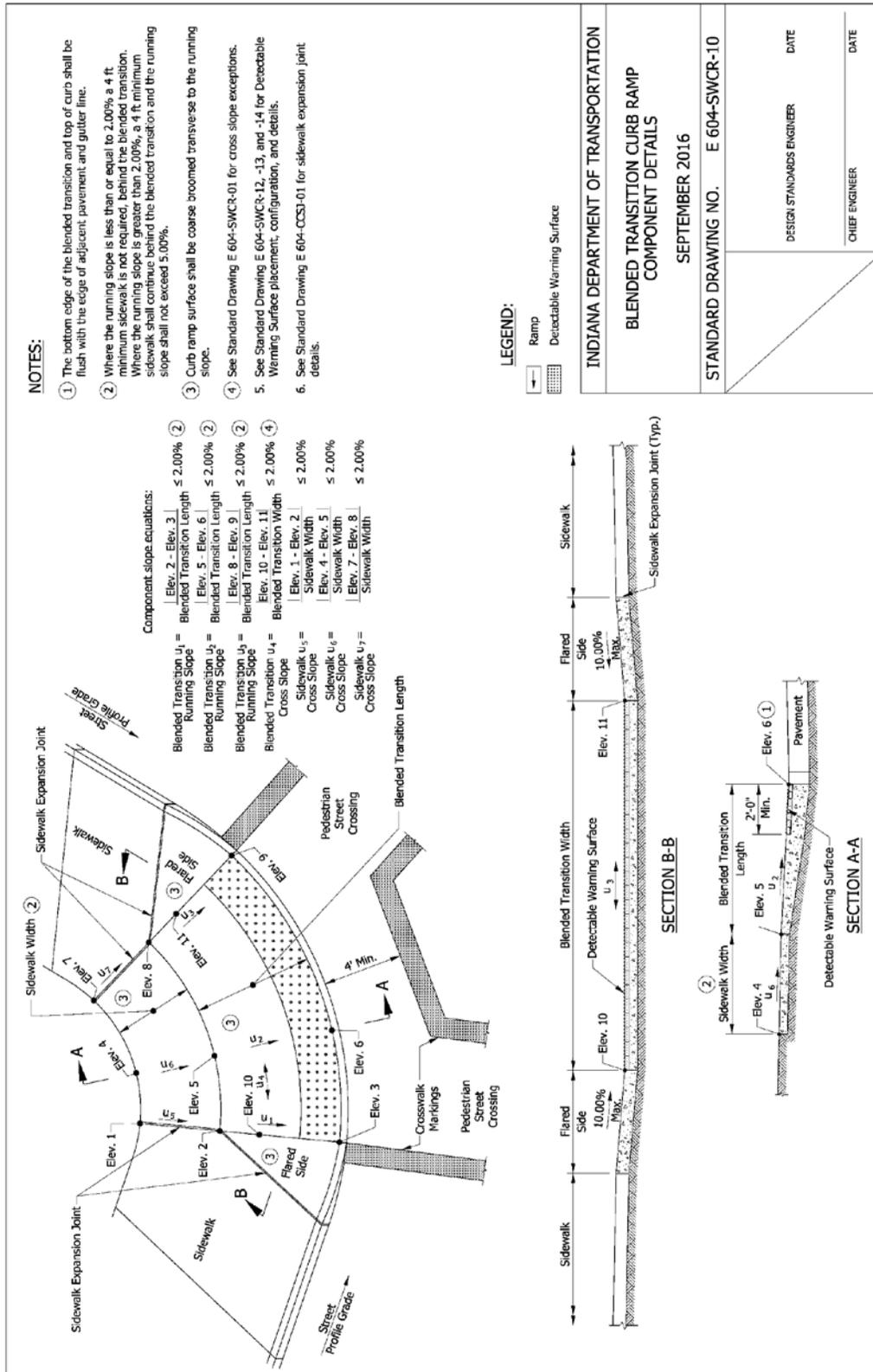
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-09 BLENDED TRANSITION CURB RAMP, DEPRESSED CURB RAMP AND DIAGONAL CURB RAMP TYPICAL PLACEMENT (REVISED DRAFT)



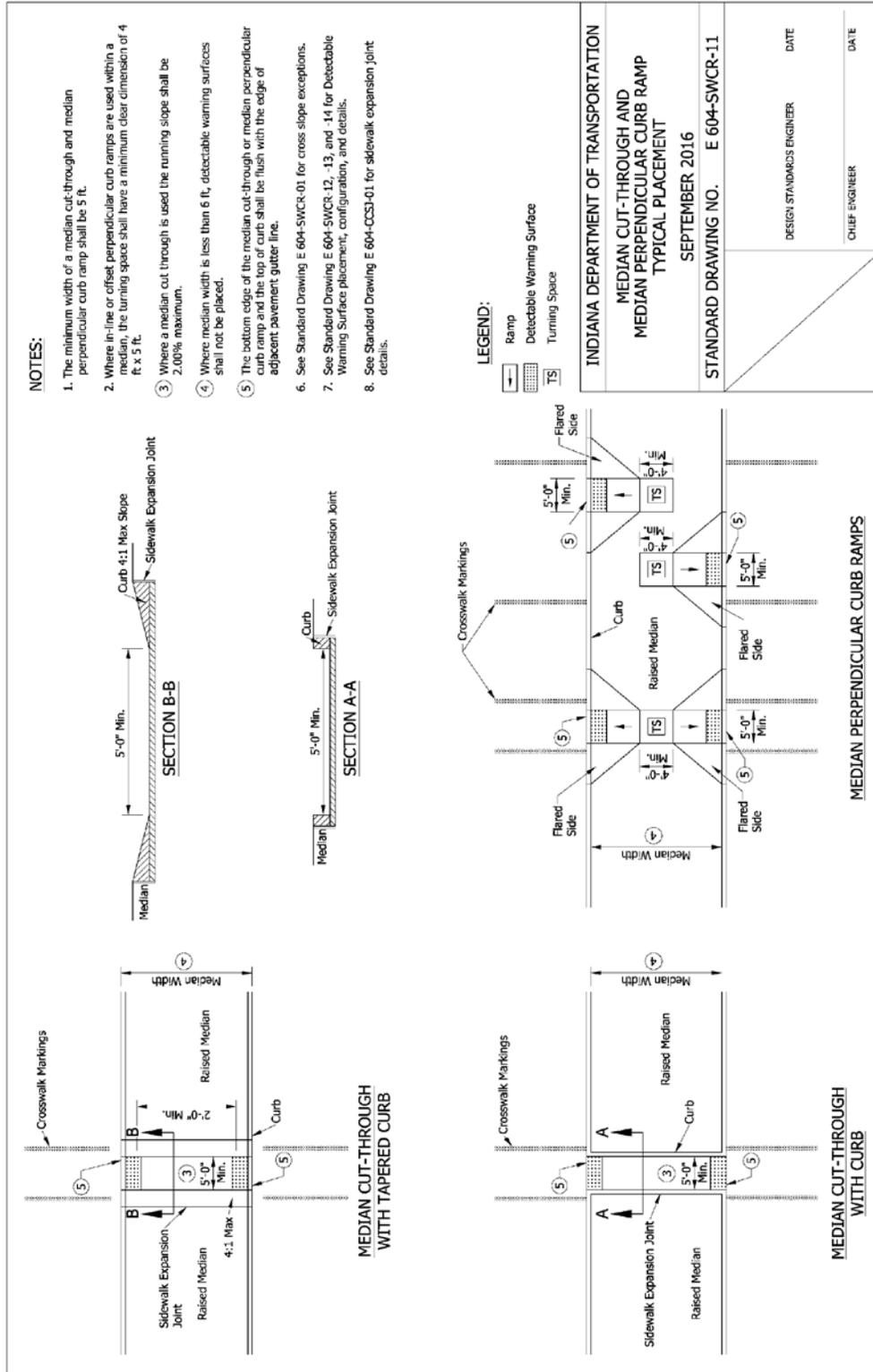
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-10 BLENDED TRANSITION CURB RAMP COMPONENT DETAILS (REVISED DRAFT)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-11 MEDIAN CUT-THROUGH AND MEDIAN PERPENDICULAR CURB RAMP TYPICAL PLACEMENT (REVISED DRAFT)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-12 DETECTABLE WARNING SURFACE PLACEMENT AND CONFIGURATION (REVISED DRAFT)

NOTES:

1. A detectable warning surface shall be placed at each street, highway, or railroad crossing. See Standard Drawing E 604-SDWK-03 for a detectable warning surface placement at a sidewalk driveway crossing.
2. The detectable warning surface shall extend a minimum of 2 ft in the direction of pedestrian travel and extend the full width as shown. The detectable warning surface shall not be placed across a grade break.
3. Where the bottom grade break on a perpendicular curb ramp shall be 5 ft or less from the back of curb, the detectable warning surface shall be placed on the ramp run within one dome spacing of the bottom grade break. Where the bottom grade break more than 5 ft from the back of curb, the detectable warning surface shall be placed at the back of curb.
4. The detectable warning surface on a parallel curb shall be placed on the turning space at the flush transition between the street and turning space at the back of curb.
5. The detectable warning surface on a blended, transition or depressed corner curb ramp shall be placed at the back of curb.
6. See Standard Drawing E 604-SWCR-14 where a concrete border is used as an edge restraint for a brick detectable warning surface.

LEGEND:

- Buffer or Other Non-Walkable Surface
- Detectable Warning
- Ramp
- GB Grade Break

PERPENDICULAR CURB RAMP ③

PARALLEL CURB RAMP ④

ONE-WAY DIRECTIONAL PERPENDICULAR CURB RAMP ③

BLENDED TRANSITION CURB RAMP ⑤

DEPRESSED CORNER CURB RAMP ⑤

INDIANA DEPARTMENT OF TRANSPORTATION
 DETECTABLE WARNING SURFACE PLACEMENT AND CONFIGURATION
 SEPTEMBER 2016
 STANDARD DRAWING NO. E 604-SWCR-12

DESIGN STANDARDS ENGINEER DATE
 CHIEF ENGINEER DATE

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SWCR-13 DETECTABLE WARNING SURFACE PLACEMENT AND CONFIGURATION (REVISED DRAFT)

NOTES:

1. The detectable warning surface shall extend a minimum of 2 ft in the direction of pedestrian travel and extend the full width as shown. The detectable warning surface shall not be placed across a grade break.
2. The detectable warning surface on a median cut-through shall be placed a one foot transition between the street and median cut-through. Where a median is less than 6 ft, a detectable warning surface shall not be placed.
3. Where a pedestrian gate is provided at a railroad crossing, the detectable warning surface shall be placed on the side of the gate opposite the railroad crossing.
4. The edge of the detectable warning surface nearest to the railroad crossing shall be placed 6 ft minimum and 15 ft maximum from the centerline of the nearest rail.
5. Where a shared-use path intersects a street or highway, the detectable warning surface shall be placed on the shared-use path within 1 ft. of the street or highway edge.
6. See Standard Drawing E 604-SWCR-14 where a concrete border is used as an edge restraint for a brick detectable warning surface.

LEGEND:

- Buffer or Other Non-Walkable Surface
- Detectable Warning
- Ramp
- Grade Break

MEDIAN CUT-THROUGH

SHARED-USE PATH

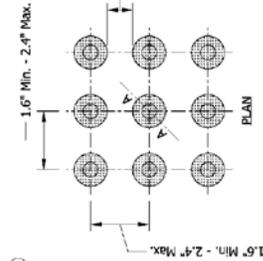
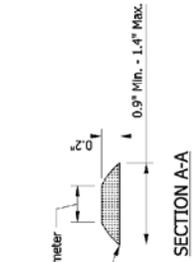
RAILROAD CROSSING

INDIANA DEPARTMENT OF TRANSPORTATION
DETECTABLE WARNING SURFACE PLACEMENT AND CONFIGURATION SEPTEMBER 2016
STANDARD DRAWING NO. E 604-SWCR-13
DESIGN STANDARDS ENGINEER DATE
CHIEF ENGINEER DATE

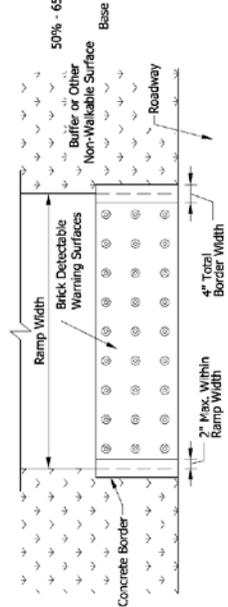
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
 604-SWCR-14 DETECTABLE WARNING SURFACE DETAILS (REVISED DRAFT)

NOTES:

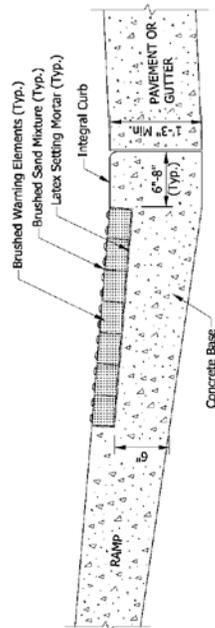
1. The detectable warning surface shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.
2. Detectable Warning Surface shall consist of truncated domes and shall be aligned in a square or radial grid pattern. Where truncated domes are arrayed radially, they may differ in diameter and center-to-center spacing within the ranges specified.
3. The detectable warning surface shall extend a minimum of 2 ft in the direction of pedestrian travel and extend the full width as shown. The detectable warning surface shall not be placed across a grade break.
4. The maximum counter slope of the gutter or street at the foot of the ramp shall be 5.00%. Where the algebraic difference between the running slope and the counter slope exceeds 11%, a 2 ft minimum level strip should be provided at the bottom of the ramp.
5. Where concrete border is used for forming, the border shall be cast monolithically with the curb ramp concrete. The concrete border shall not exceed 2 in. within the ramp width.
6. Where forming other than a concrete border is used, the edge restraint shall not encroach upon the ramp width.



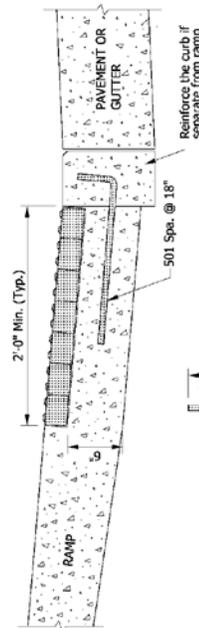
TRUNCATED DOMES



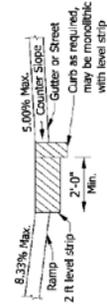
BRICK DETECTABLE WARNING SURFACE WITH CONCRETE BORDER (5) (6)



TYPICAL RAMP AND BRICK SURFACE CONSTRUCTION DETAIL



ALTERNATE CURB CONSTRUCTION

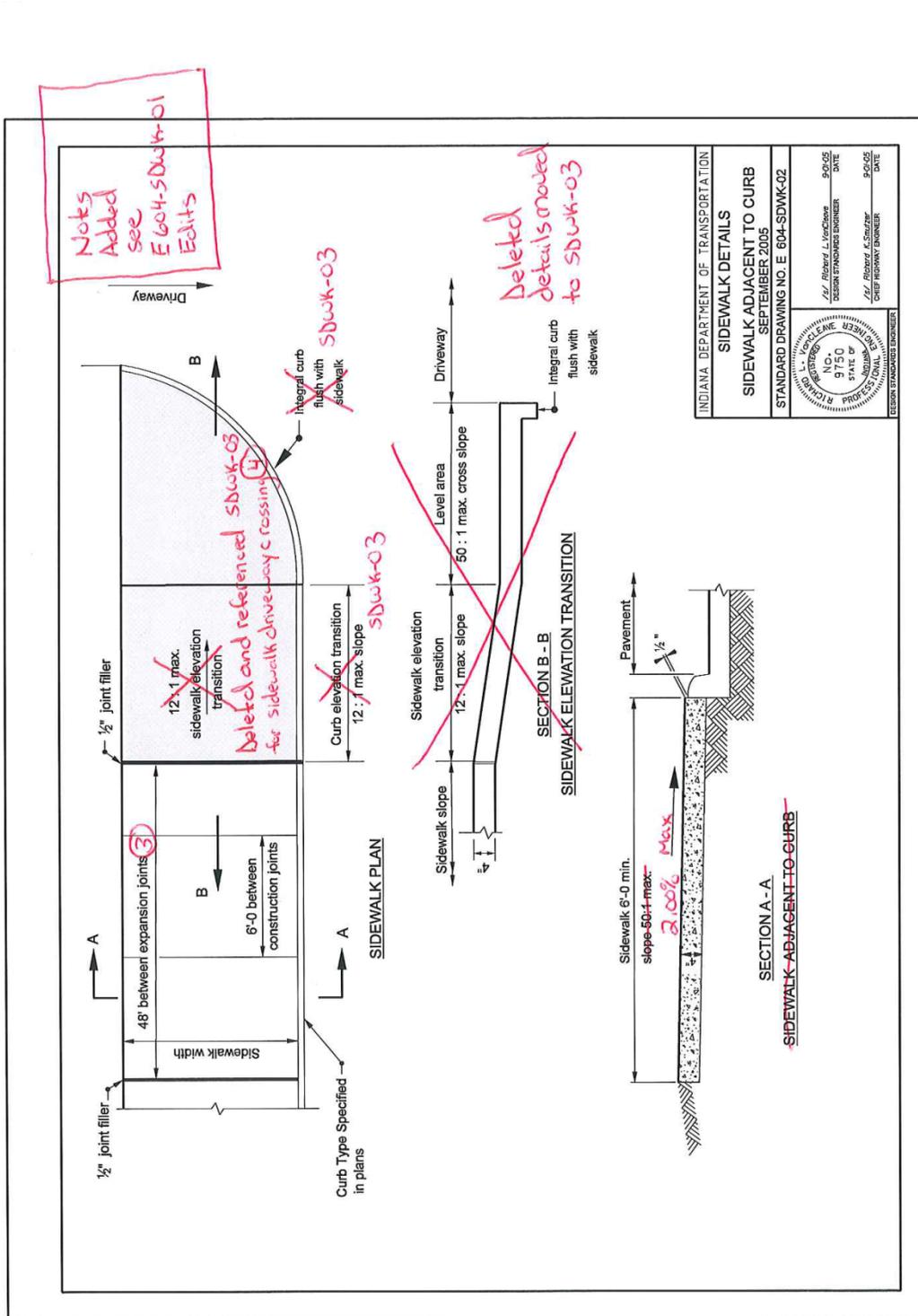


CHANGE OF GRADE > 11% (4)

INDIANA DEPARTMENT OF TRANSPORTATION	
DETECTABLE WARNING SURFACE DETAILS	
SEPTEMBER 2016	
STANDARD DRAWING NO. E 604-SWCR-14	DATE
DESIGN STANDARDS ENGINEER	DATE
CHIEF ENGINEER	DATE

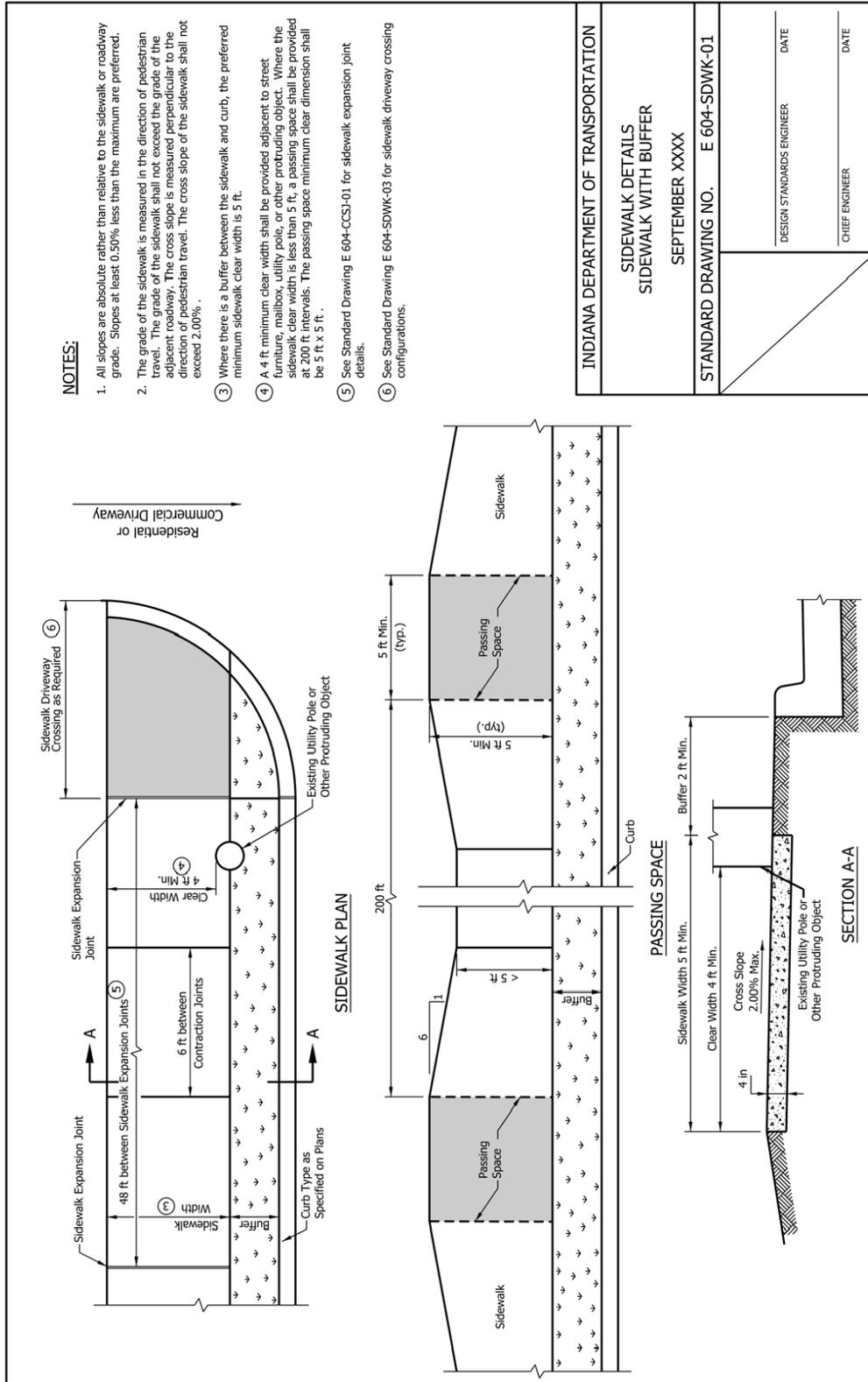
REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SDWK-02 SIDEWALK DETAILS SIDEWALK ADJACENT TO CURB (WITH MARKUPS)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

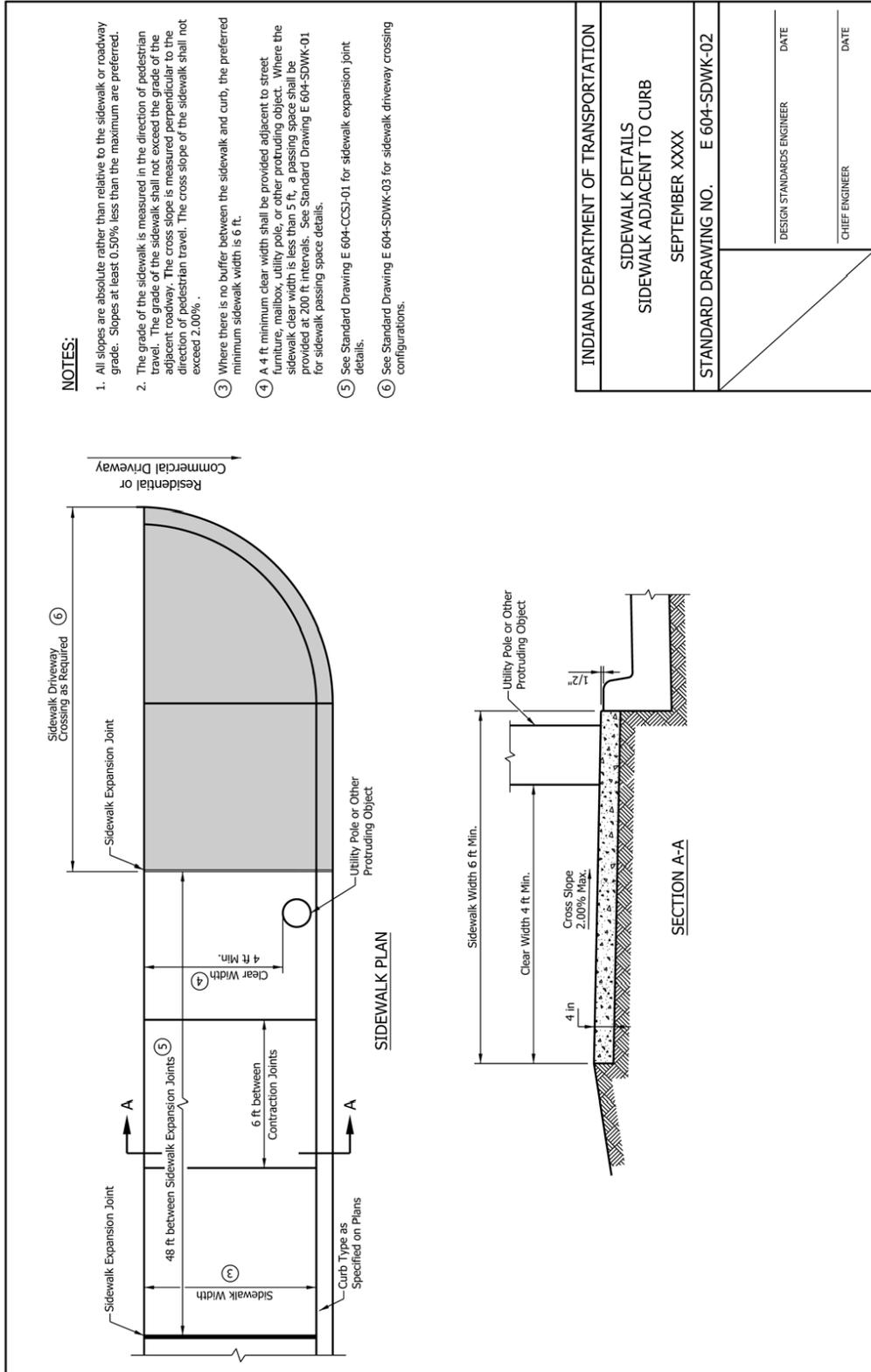
604-SDWK-01 SIDEWALK DETAILS SIDEWALK WITH BUFFER (REVISED DRAFT)



INDIANA DEPARTMENT OF TRANSPORTATION	
SIDEWALK DETAILS SIDEWALK WITH BUFFER	
SEPTEMBER XXXX	
STANDARD DRAWING NO. E 604-SDWK-01	
DESIGN STANDARDS ENGINEER	DATE
CHIEF ENGINEER	DATE

REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

604-SDWK-02 SIDEWALK DETAILS SIDEWALK ADJACENT TO CURB (REVISED DRAFT)



REVISION TO THE STANDARD SPECIFICATIONS AND STANDARD DRAWINGS
 604-SDWK-03 SIDEWALK DRIVEWAY CROSSING (REVISED DRAFT)

NOTES:

- All slopes are absolute rather than relative to the sidewalk or roadway grade. Slopes at least 0.50%, less than the maximum are preferred.
- A sidewalk driveway crossing shall only be used on a sidewalk at a residential driveway or a commercial driveway without yield or stop control. A curb ramp shall be used at all other crossings. See Standard Drawing E 604-SWCK-01 for curb ramp details.
- Where a sidewalk transition is used to lower or raise the sidewalk to connect with a residential driveway or commercial driveway without yield or stop control, the running slope of the transition shall be 8.33% maximum.
- Running grade of the sidewalk crossing the driveway shall be less than or equal to the adjacent street grade.
- The area between the driveway and a flared side or sidewalk transition shall match the driveway profile and transverse slope.
- A turning space is not required at the top of a sidewalk transition.
- Objects such as a utility cover, vault frame, and grating shall be placed outside a sidewalk transition.
- A detectable warning surface shall not be placed at the crossings of a residential driveway. A detectable warning surface may be placed at the crossing of a commercial driveway without yield or stop control.
- See Standard Drawing E 604-SDWK-01 and -02 for Sidewalk Details.
- See Standard Drawing E 610-DRIV-01 through -12 for Driveway Profiles.

The drawings illustrate three types of sidewalk driveway crossings:

- PREFERRED SIDEWALK CROSSING:** Shows a residential or commercial driveway without yield or stop control crossing a sidewalk. It features a 4'-0" minimum width for the driveway, a 2.00% maximum slope, and a 6'-0" minimum width for the sidewalk. A flush transition is shown between the driveway and the sidewalk.
- WIDE SIDEWALK:** Shows a residential or commercial driveway without yield or stop control crossing a wide sidewalk. It features a 4'-0" minimum width for the driveway, a 2.00% maximum slope, and a 10.00% maximum slope for the sidewalk. A flush transition is shown between the driveway and the sidewalk.
- SIDEWALK APRON OFFSET:** Shows a residential or commercial driveway without yield or stop control crossing a sidewalk with an apron offset. It features a 4'-0" minimum width for the driveway, a 2.00% maximum slope, and a 10.00% maximum slope for the sidewalk. A flush transition is shown between the driveway and the sidewalk. A flared side is also shown on the sidewalk.

INDIANA DEPARTMENT OF TRANSPORTATION	
SIDEWALK DRIVEWAY CROSSING	
SEPTEMBER 2016	
STANDARD DRAWING NO.	E 604-SDWK-03
DESIGN STANDARDS ENGINEER	DATE
CHIEF ENGINEER	DATE

BACKUP 01.

DETECTABLE WARNING SURFACE APPROVED MATERIALS LIST (MARKUPS)

(PAGE 1 OF 4)

August 26, 2015

DETECTABLE WARNING ELEMENTS

SURFACES → to match the PROWAG

Specification Reference: 905.05

SM Material Code 905M00060

Test results indicate the following materials are acceptable as detectable warning elements when used as recommended by the manufacturer.

Surface:

Source Code	Manufacturer Product Name	Approval Number	Criteria
9428	BELDEN BRICK ADA PAVER----- Color Regimental Red	W076188	For all Types of <u>Concrete</u> Curb Ramps as detailed in Standard Drawings. ✓
9426	WHITACRE-GREER BRICK ADA PAVERS----- Color 30 Clear Red	W066187	For all Types of <u>Concrete</u> Curb Ramps as detailed in Standard Drawings. ✓
9426	WHITACRE-GREER BRICK ADA PAVERS----- Color 32 Antique	W066188	For all Types of <u>Concrete</u> Curb Ramps as detailed in Standard Drawings. ✓
9436	ADA SOLUTIONS, INC. IRON DOME TACTILE WARNING SURFACE----- Color Gray iron in natural state	W156186	For rectangular areas in <u>Concrete</u> Curb Ramps Type A, C, D, K, and L. Installations at location involving a radius may require cutting. <i>can we remove?</i>
9444	DETECTILE CORP. DURATEK-C1 DETECTABLE WARNING PLATE----- With INTERLOCKING DESIGN Color Gray iron in natural state	W156188	For rectangular areas in <u>Concrete</u> Curb Ramps Type A, C, D, K, and L. <i>remove?</i>

For all Detectable warning surface locations as detailed

can we just say?

will no longer have types, designed in construction plans
do we have to say concrete?
The configuration will be detailed in the construction plans.

Remove types because the straight or radial placement will depend on the type and location. For example a perpendicular curb ramp may have straight or radial placement depending on the design and radius at the intersections

BACKUP 01.

DETECTABLE WARNING SURFACE APPROVED MATERIALS LIST (MARKUPS)
(PAGE 2 OF 4)

August 26, 2015

DETECTABLE WARNING ^{Surfaces} ELEMENTS

Specification Reference: 905.05

SM Material Code 905M00060

Source Code	Manufacturer Product Name	Approval Number	Criteria
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4181	EAST JORDAN IRON WORKS DETECTABLE WARNING PLATES-----W086187 Color Gray iron in natural state		<p>For rectangular areas, in Concrete Curb Ramps, Type A, C, D, K, and L. Plates are also manufactured to Radius of 10', 15', 17.5', 20', 25', 30' and 35', for Concrete Curb Ramps Type B, E, F, G and H. Cutting of plates in the field may be required.</p> <p><i>remove?</i></p>
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4536	NEENAH FOUNDRY DETECTABLE WARNING PLATES-----W086188 Color Gray iron in natural state		<p>For rectangular areas, in Concrete Curb Ramps, Type A, C, D, K, and L. Plates are also manufactured to Radius of 15', 20', 25' and 30', for Concrete Curb Ramps Type B, E, F, G and H. Installations at locations involving a radius may require cutting.</p> <p><i>remove?</i></p>
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9443	TUFTILE, INC. WET-SET (REPLACEABLE) ADA TILES-----W156187 Color Gray iron in natural state		<p>For all Types of Concrete Curb Ramps as detailed, in Standard Drawings.</p> <p><i>see note on page 1 source code 9428</i></p>
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9432	ARMORCAST PRODUCTS CO. DETECTABLE WARNING WET SET PANELS-----W096189 Color Brick Red		<p>For rectangular areas, in Concrete Curb Ramps, Type A, C, D, K, and L. Panels are also manufactured to Radius of 4, 6', 8', 10', 12' and 15', for Concrete Curb Ramps Type B, E, F, G and H. Cutting of plates in the field may be required.</p> <p><i>remove?</i></p>
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BACKUP 01.

DETECTABLE WARNING SURFACE APPROVED MATERIALS LIST (MARKUPS)
(PAGE 3 OF 4)

August 26, 2015

DETECTABLE WARNING ~~ELEMENTS~~ ^{SURFACES}

Specification Reference: 905.05

SM Material Code 905M00060

Source Code	Manufacturer Product Name	Approval Number	Criteria
9436	ADA SOLUTIONS, INC. CAST IN PLACE COMPOSITE TACTILE Color Brick Red & Clay Red	-----W096190	For rectangular areas, <u>in Concrete</u> <u>Curb Ramps, Type A, C, D, K, and L.</u> Cutting of DWE units will be required for radius installations. <u>at Concrete Curb Ramps, Type B, E,</u> <u>F, G, and H.</u> <i>remove</i>
9436	ADA SOLUTIONS, INC. REPLACEABLE COMPOSITE (WET-SET) TACTILE Color Clay Red	-----W106188	For all <u>Types of Concrete Curb</u> <u>Ramps as detailed, in Standard</u> <u>Drawings.</u>
9437	ACCESS PRODUCTS INC. CAST IN PLACE REPLACEABLE TACTILE SYSTEMS Color Brick Red	-----W106187	For rectangular areas, <u>in Concrete</u> <u>Curb Ramps, Type A, C, D, K, and L.</u> Cutting of DWE units will be required for radius installations. <u>at Concrete Curb Ramps, Type B, E,</u> <u>F, G, and H.</u> <i>remove</i>
9438	ADA ANSWER INDUSTRIES CAST IN PLACE (REPLACEABLE) COMPOSITE DWP Color Red	-----W106189	For rectangular areas, <u>in Concrete</u> <u>Curb Ramps, Type A, C, D, K, and L.</u> Cutting of DWE units will be required for radius installations. <u>at Concrete Curb Ramps, Type B, E,</u> <u>F, G, and H.</u> <i>remove</i>

See
9428

BACKUP 01.

DETECTABLE WARNING SURFACE APPROVED MATERIALS LIST (MARKUPS)

(PAGE 4 OF 4)

August 26, 2015

DETECTABLE WARNING ELEMENTS *SURFACES*

Specification Reference: 905.05

SM Material Code 905M00060

Source Code	Manufacturer Product Name	Approval Number	Criteria
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9440	CAPE FEAR SYSTEMS, III, L.L.C. ALERTCAST CAST IN PLACE (REPLACEABLE) COMPOSITE DWS----- Color Brick Red	W116188	
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remove?

For rectangular areas in Concrete
Curb Ramps Type A, C, D, K, and L.
Cutting of DWE units will be
required for radius installations.
at Concrete Curb Ramps Type B, E,
F, G, and H.

9433	ENGINEERED PLASTICS INC ARMOR-TILE CAST IN PLACE SYSTEM----- Color Brick Red	W096188	
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remove

For rectangular areas in Concrete
Curb Ramps Type A, C, D, K, and L.
Cutting of DWE units will be
required for radius installations.
at Concrete Curb Ramp Type B, E,
F, G and H.

9443	TUFTILE, INC. POLYMER WET-SET (REPLACEABLE)----- ADA TILES Color Brick Red	W156189	
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see 9428

For all ~~Types of~~ Concrete Curb
Ramps as detailed in Standard
Drawings.

BACKUP 02.

CURRENTLY USED RSP 604-R-633 CURB RAMPS, LANDINGS, AND DETECTABLE WARNING ELEMENTS

604-R-633 CURB RAMPS, LANDINGS, AND DETECTABLE WARNING ELEMENTS

(Adopted 11-09-15)

The Standard Specifications are revised as follows:

SECTION 604, BEGIN LINE 60, DELETE AND INSERT AS FOLLOWS:

The curb ramp running slope shall not exceed ~~12:1, except where conditions necessitate,~~ a 10:1 slope may be utilized for a maximum rise of 6 in 8.33%. Curb ramp cross slope shall not exceed ~~50:1 2.00% except where infeasible.~~ The slope of the landing area shall not exceed 2.00% in any direction. A cross slope that exceeds 2.00% will be shown on the plans.

Construction tolerance shall not apply to running slope and cross slope percentages.

The minimum landing area shall be 4 ft by 4 ft. Where the landing is constrained by a curb or other feature, the minimum landing area shall be 4 ft by 5 ft. The 5 ft dimension shall be provided in the direction of pedestrian travel.

SECTION 604, BEGIN LINE 104, INSERT AS FOLLOWS:

(g) Detectable Warning Elements

Detectable warning elements shall be placed the full width of the curb ramp. Where a concrete border is needed for proper installation of the detectable warning elements, the border width shall not exceed 2 in.

Detectable warning elements shall be manufactured or field cut to completely fill the area of the curb ramp as shown on the plans. Elements shall be installed to be level across joints or seams and shall be flush with the edges of adjoining concrete.

COMMENTS AND ACTION

SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS

905.05 DETECTABLE WARNING ELEMENTS

604-SWCR (SERIES)

604-SDWK (SERIES)

DISCUSSION:

Ms. Phillips introduced and presented this item stating that the current Sidewalk Details and Sidewalk Curb Ramp standard drawings, specifications and design manual do not fully comply with the Public Rights-of-Way Accessibility Guidelines, PROWAG. During field audits by FHWA and the Department's Title VI Program, several non-compliant curb ramps, landings, and sidewalks have been identified. Non-compliant elements need to be partially or completely removed and reconstructed. The Office of Standards proposes to update the sidewalk details and sidewalk curb ramp standard drawings, specifications and design manual to incorporate the PROWAG.

Ms. Phillips also stated that the proposed changes to the standard drawings only detail maximum slopes and minimum dimensions of curb ramps requiring designers to design every curb ramp. Design Memo 15-20 requires detailing of each curb ramp in the construction plans. Further minor revisions were made to the specifications and are as shown.

Mr. Duncan also expressed FHWA concerns in reference to these revisions. Ms. Phillips stated that we have a ADA committee which addresses unique situations. Ms. Phillips and Ms. Smutzer further clarified the revisions shown. Ms. Phillips reminded the committee that forthcoming revisions to the IDM will provide directions for designers.

Further discussion ensued concerning the border widths and if the 2 in. requirement is too small. It was proposed to revise that dimension to 4 in. and Mr. Duncan expressed that we do not want too much space between the DWS and the edge.

Mr. Koch inquired of drawing detail clarifications of which Ms. Phillips will address and make necessary corrections. Following a discussion on Pedestrian Access Routes, Ms. Phillips will incorporate necessary revisions to clarify the language and instructions on the drawings. Much discussion concerning use of the word "preferred" ensued, resulting in the understanding that the word makes the designer's intentions to be unclear, so that language will be removed and will now reside only in the IDM. Other detailed terminology on the drawings was addressed and will be revised by Ms. Phillips for clarification.

Ms. Phillips revised her motion to pass this item as revised.

Ms. Phillips will issue a design memo for clarification to designers, and already has a draft for GIFE revisions.

COMMENTS AND ACTION

SECTION 604 - SIDEWALKS, CURB RAMPS, STEPS, AND HANDRAILS
 905.05 DETECTABLE WARNING ELEMENTS
 604-SWCR (SERIES)
 604-SDWK (SERIES)

(CONTINUED)

Motion: Ms. Phillips Second: Mr. Boruff Ayes: 10 Nays: 0 FHWA Approval: <u>YES</u>	Action: <input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn
Standard Specifications Sections referenced and/or affected: SECTION 604 pg 407 thru 413; 905.05 pg 884-885.	<input checked="" type="checkbox"/> 2018 Standard Specifications <input checked="" type="checkbox"/> Revise Pay Items List
Recurring Special Provision affected: 604-R-633 CURB, LANDING, AND DETECTABLE WARNING ELEMENTS	<input type="checkbox"/> Create RSP (No. _____) Effective _____ Letting RSP Sunset Date:
Standard Drawing affected: 604-SWCR (SERIES) 604-SDWK (SERIES)	<input checked="" type="checkbox"/> Revise RSP (No.604-R-633) Effective <u>Sept. 01, 2016</u> Letting RSP Sunset Date: <u>2018 book</u>
Design Manual Sections affected: 51-1.08	<input checked="" type="checkbox"/> Standard Drawing Effective <u>September 2016</u> <input type="checkbox"/> Create RPD (No. _____) Effective _____ Letting
GIFE Sections cross-references: SECTION 22	<input checked="" type="checkbox"/> GIFE Update <input checked="" type="checkbox"/> SiteManager Update

Mr. Pankow
Date: 1/21/16

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Problems have been encountered with the interpretation of the various terms and processes associated with the current RSP 205-R-261.

PROPOSED SOLUTION: Proposed clarification of terms and processes within the RSP and identify levels of training for the Storm Water Quality Manager based on the environmental impacts of the project. The proposal is intended to be placed into all contracts containing Storm Water Management.

APPLICABLE STANDARD SPECIFICATIONS: 101.01, 108.04, and 205

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: 205

APPLICABLE SECTION OF GIFE: Section 3

APPLICABLE RECURRING SPECIAL PROVISIONS: 205-R-261

PAY ITEMS AFFECTED: SWQCP Preparation and Implementation, Level 1, and Level 2

APPLICABLE SUB-COMMITTEE ENDORSEMENT: ad-hoc

IMPACT ANALYSIS (attach report): yes

Submitted By: Greg Pankow

Title: State Construction Engineer

Organization: Construction Management

Phone Number: 317-232-5502

Date:

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval.
Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No

Will approval of this item affect the Approved Materials List? No

Will this proposal improve:

Construction costs? Yes

Construction time? Yes

Customer satisfaction? Yes

Congestion/travel time? No

Ride quality? No

Will this proposal reduce operational costs or maintenance effort? Yes

Will this item improve safety:

For motorists? No

For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? Yes

Design process? No

Will this change provide the contractor more flexibility? Yes

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:

Federal or State regulations? Yes

AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS
205-R-xxx STORM WATER MANAGEMENT

(Note: Proposed RSP 205-R-xxx STORM WATER MANAGEMENT
revises currently used RSP
205-R-621 QUALITY CONTROL TEMPORARY EROSION AND SEDIMENT CONTROL,
effective for letting on or after 01/01/2016.
Basis for Use: *May only be used on contracts selected by Mark Miller and John Wright.*
Copy of the RSP 205-R-621 is shown here as a BACKUP 01 to this item.
Changes to ITM 803 pending.)

205-R-xxx STORM WATER MANAGEMENT

(Adopted xx-xx-16)

The Standard Specifications are revised as follows:

SECTION 101, AFTER LINE 33, INSERT AS FOLLOWS:

<i>BMP</i>	<i>best management practice</i>
<i>CESSWI</i>	<i>Certified Erosion Sediment and Storm Water Inspector</i>
<i>CISEC</i>	<i>Certified Inspector of Sediment and Erosion Control</i>
<i>CPESC</i>	<i>Certified Professional in Erosion and Sediment Control</i>
<i>NOI</i>	<i>Notice of Intent</i>
<i>NOT</i>	<i>Notice of Termination</i>
<i>RECP</i>	<i>rolled erosion control product</i>
<i>SWQCP</i>	<i>Storm Water Quality Control Plan</i>
<i>SWQM</i>	<i>Storm Water Quality Manager</i>

SECTION 108, DELETE LINES 114 THROUGH 219.

SECTION 108, AFTER LINE 219, INSERT AS FOLLOWS:

For those contracts requiring IAC 327 15-5, having waterway permits, and storm water management, the Contractor shall locate, install, maintain and remove temporary sediment and erosion control BMPs, for earth disturbing activity areas, and develop a SWQCP, for the Engineer's acceptance, in accordance with 205.

Where required by IAC 327 15-5, stockpile and storage sites shall be permitted by an IDEM Notice of Intent, NOI. The Contractor shall submit a new NOI for all off-site borrow and waste sites. A copy of the new NOI shall be submitted to the Engineer prior to the beginning of operations at those locations. Borrow and disposal sites shall be in accordance with 203.08.

For those contracts not requiring IAC 327 15-5, having no waterway permits, and not requiring storm water management, the contractor shall submit a written site plan to the Engineer describing the following:

- 1. A description of the contract site.*
- 2. The locations of all equipment storage areas, fueling locations, construction trailers, batch plants, and designated concrete truck washout locations.*
- 3. A material handling and spill prevention plan.*

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The site plan shall be submitted for acceptance 14 calendar days prior to the start of construction activity.

The cost of preparation and implementation of the site plan described above shall be included in the cost of the other items of the contract.

SECTION 108, BEGIN LINE 243, DELETE AS FOLLOWS:

~~The cost of preparation of the erosion control plan shall be included in the cost of the erosion and sediment control items.~~

SECTION 109, BEGIN LINE 808, DELETE AND INSERT AS FOLLOWS:

~~(g) Erosion and Sediment Control, E&S Storm Water Management~~
Quality adjustments will be calculated in accordance with 205.08.

SECTION 205, DELETE LINES 1 THROUGH 516.

SECTION 205, BEGIN LINE 1, INSERT AS FOLLOWS:

SECTION 205 - STORM WATER MANAGEMENT

205.01 Description

This work shall consist of furnishing, installing, maintaining, and removing storm water management measures in accordance with the Department's Design SWPPP, the submitted and accepted Contractor developed SWQCP, and 105.03.

MATERIALS

205.02 Materials

Materials shall be in accordance with the following:

<i>Coarse Aggregate, Class F or Higher</i>	<i>904</i>
<i>Fertilizer.....</i>	<i>914.03(a)</i>
<i>Filter Sock.....</i>	<i>914.09(h)</i>
<i>Geotextile</i>	<i>918</i>
<i>Grass Seed, Temporary.....</i>	<i>914.02</i>
<i>Manufactured Surface Protection Products.....</i>	<i>205.04(c)</i>
<i>Metal End Sections.....</i>	<i>908.06</i>
<i>Mulch.....</i>	<i>914.05(a)</i>
<i>Pipe Drains</i>	<i>715.02(d)</i>
<i>Plastic Net.....</i>	<i>914.09(g)</i>
<i>Revetment Riprap.....</i>	<i>904*</i>
<i>Stakes.....</i>	<i>914.09(b)</i>
<i>Staples</i>	<i>914.09(f)</i>
<i>Top Soil</i>	<i>914.01</i>
<i>Water.....</i>	<i>914.09(a)</i>

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**The minimum depth does not apply. Straw bales shall not weigh less than 35 lb.
Bales shall be bound with wire or nylon twine.*

CONSTRUCTION REQUIREMENTS

205.03 General Requirements

The Contractor shall locate, install, maintain and remove storm water management control BMPs for earth disturbing activity areas, and develop a SWQCP, in accordance with IAC 327 15-5. The Contractor's SWQCP shall be a required contract specific component to the Department's Design SWPPP. The submitted and accepted Contractor's SWQCP and the Department's Design SWPPP shall work in coordination with each other to complete the requirements of IAC 327 15-5.

(a) Storm Water Quality Control Plan Development

The Contractor's SWQCP shall be developed by a professional engineer who holds a current CPESC or CPESC In-Training certification or approved equivalent. The SWQCP developer shall be familiar with the project site and be able to develop the SWQCP in accordance with the site conditions. In the event of conflict between requirements, pollution control laws, rules, or regulations of other Federal, State or local agencies, the Contractor's SWQCP shall adhere to the more restrictive laws, rules, or regulations. The SWQCP developer shall issue clarifications, correct errors and omissions, and revise the SWQCP as required. The Contractor's SWQCP shall be stamped by the SWQCP developer as defined above.

The Contractor shall develop the project SWQCP for all applicable storm water management measures in accordance with 327 IAC 15-5, Chapter 205 of the Indiana Department of Transportation Design Manual, the IDEM "Indiana Storm Water Quality Manual", ITM 803, and all other applicable contract documents.

The Contractor's SWQCP shall incorporate all narrative information, plan sheets, and implementation information necessary for storm water management utilized for the project. The SWQCP shall include any revisions to the Department's Design SWPPP and the plans to comply with all known permit requirements applicable to the construction phase of the project included in the NOI, 401 and 404 permits, and all other permits as well as those required by the Contractor in accordance with 107.01 and 205.03(c).

A copy of the Contractor's offsite operations NOI for items such as offsite stockpiles, borrow sites, waste sites, or storage areas shall be submitted to the Engineer prior to operations at those sites.

Electronic files of any plan sheets and narratives shall be provided in .pdf format.

The Contractor may elect to prepare and submit the SWQCP in multiple phases. The first phase of the SWQCP shall show the location, installation, and maintenance of storm water

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management BMPs for the existing topography of the project during clearing activities and prior to earth disturbing activities for the remaining construction. The first phase of the SWQCP shall be submitted prior to subsequent phases. Additional phases shall show the progression from the existing topography to the final grade and shall be submitted for review prior to earth disturbing activity for that phase. Each phase of the SWQCP shall be modified to meet existing field conditions as needed.

If a governmental agency or a local governmental authority finds a violation of NPDES or any other surface water permits provided in the bid documents, or any BMPs are incomplete, or the Contractor's SWQCP is incomplete, full responsibility shall be borne by the Contractor to make corrections. In addition if an assessment, damage judgment or finding, agreed order, fine, or any other expense for a violation of the contract requirements is leveled against the Department, the Contractor shall reimburse the State for that amount within 30 days. The Contractor agrees to indemnify and hold harmless the Department and will reimburse the Department for any assessments, damage judgments or finding, fine, penalty or other expense relating to this portion of the contract. The Department may withhold the amount owed from the Contractor's subsequent pay estimates. Delays caused by stop work orders from regulatory agencies, suspension of work orders from the Department, or any other delays caused by inadequate submittals or implementation will be considered Non-Excusable Delays in accordance with 108.08(c).

(b) Storm Water Quality Manager

The Contractor shall designate one person as the contract SWQM. The designated individual shall be trained as a level 1 or level 2 SWQM as indicated within the contract documents. The SWQM training level shall meet or exceed the level required within the contract documents.

1. Level 1 SWQM

A level 1 SWQM shall have successfully completed the Department's Construction Storm Water Training course and hold a current training verification document for that course.

2. Level 2 SWQM

A level 2 SWQM shall meet the requirements of 205.03(b)1, and hold a current certification as a CESSWI, or a CESSWI In-Training, or a CISEC, or a CISEC In-Training, or a CPESC, or a CPESC In-Training, or an approved equivalent.

The SWQM shall be responsible for ensuring that the Contractor's SWQCP has been submitted for review prior to implementation. The SWQM shall also be in responsible charge of the implementation of the Contractor's SWQCP. Implementation of the SWQCP includes installation, maintenance, and removal of all storm water management measures. The SWQM shall also be in responsible charge of the weekly and post-event inspections. The inspections shall be documented using the Storm Water, Erosion, and Sediment Control Inspection Report

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form. The copy of the form is available on the Department's website or provided by the Engineer.

The SWQM shall attend the pre-construction conference and at least one contract scheduling meeting per calendar month. The SQWM shall accompany personnel from IDEM or other governmental agencies, as required, during site visits by those agencies. The name of the SWQM shall be furnished to the Engineer at, or prior to, the pre-construction conference. If the designated individual is replaced during the contract, the replacement shall be designated, and notification given to the Engineer within 24 hours.

(c) Storm Water Quality Control Plan Content

The Contractor's developed SWQCP shall include the processes and procedures of how the Contractor intends to meet the requirements as outlined in this section and in accordance with ITM 803, Contractor Quality Control Plan for Storm Water.

Any individual phase of the SWQCP shall be submitted to the Engineer for review a minimum of 14 calendar days prior to commencing earth disturbing activities for that phase. Upon receipt, the Engineer will perform a review of the submitted phase of the SWQCP within 14 calendar days for acceptance.

At a minimum, the SWQCP shall include the following:

- 1. Description of the site.*
- 2. Locations of all proposed top soil stockpiles.*
- 3. Locations of all proposed equipment storage areas, fueling locations, construction trailers, batch plants, and designated concrete truck washout areas.*
- 4. Proposed construction sequence and phasing of storm water management measures including plans for installation, maintenance, and removal of BMPs.*
- 5. Locations and design flow from offsite areas that drain onto project limits. The SWQCP design shall include BMPs properly sized and placed to accommodate runoff from outside of the project limits and the drainage quantity from within the project limits.*
- 6. Locations of all construction entrances where vehicles and equipment will enter and exit the site.*
- 7. Material handling and spill prevention plan.*

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8. *Statements that the storm water management measures for the project shall, at a minimum, be inspected on a weekly basis and within 24 h of every 1/2 in. rain event.*
9. *Provisions to ensure that pollutants such as fuels, lubricants, asphalt, sewage, wash water, or waste from concrete mixing operations, and other harmful materials shall not be discharged into existing bodies of water.*
10. *Provisions to ensure that all applicable regulations and statutes relating to the prevention and abatement of pollution shall be complied with in the performance of the contract.*
11. *Statements that all appropriate storm water management items shall be in place prior to disturbing the project site.*

When Waters of the United States are located within the project limits the following shall also be addressed in the SWQCP:

1. *A method for delineating the boundaries of the Waters of the United States as shown on the plans.*
2. *A method for conducting work located in or adjacent to bodies of water, and how the work in those locations shall be conducted in compliance with all conditions within the project 401, and 404 permits.*

(d) Temporary Storm Water Management Features

Temporary storm water management measures shall be placed as soon as practicable. Perimeter protection and sediment traps shall be installed prior to beginning earth disturbing activities. Pipe end sections and anchors shall be installed when the structure is installed. If the pipe end sections or anchors cannot be placed at the same time, temporary riprap splashpads shall be placed at the outlets of the pipes until end sections or anchors can be installed.

Adjustments of the storm water management measures shall be made to satisfy field conditions and shall be subject to the Engineer's approval. Adjustments made to meet field conditions shall be made as soon as practicable and shall be maintained as necessary.

The Contractor shall provide a stable construction entrance at the points where construction traffic will enter onto an existing road. Where there is insufficient space for a stable construction entrance, other measures shall be taken to prevent the tracking of sediment onto the pavement. These temporary entrances shall be the responsibility of the Contractor to completely install, maintain, and remove.

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The Contractor shall provide concrete washout facilities of adequate capacity in accordance with project requirements. The concrete washout shall be located as far from surface waters as practical, and shall be able to contain all liquid and solid material from concrete truck or mixer washing operations without contacting or contaminating the ground.

The installation of storm water management measures shall include those necessary or required by permits at off-site locations such as borrow and disposal areas, field office sites, batch plants, locations where the Contractor's vehicles enter and leave public roads, and other locations where work pertaining to the contract is occurring. The Contractor's SWQM shall be responsible for the installation, inspection, and maintenance of these measures.

The Contractor shall employ dust control measures in accordance with 107.08(b).

(e) Permanent Storm Water Management Features

Permanent storm water management measures shall be incorporated into the work at the earliest practicable time.

205.04 Temporary Surface Stabilization

Non-vegetated areas shall be temporary stabilized if the area remains inactive for more than seven days. The area will be considered inactive when no meaningful work toward accomplishing a pay item has been performed at a site of disturbed soil. Stabilization methods shall be as shown in the SWQCP.

(a) Seed

Temporary seeding shall be placed on disturbed areas that are expected to be inactive for more than seven days, or as agreed to by the Contractor and the Engineer. Seed shall be placed either by drilling in, spraying in a water mixture, or by use of a mechanical method which places the seed in direct contact with the soil. Where inaccessible to mechanical equipment, or where the area to be seeded is small, a hand operated cyclone seeder or other approved equipment may be used. Seed shall not be covered more than 1/2 in. Seed may be distributed by a drill seeder, cyclone seeder, hand or other approved equipment which allows for even distribution of the seed. If as a result of a rain event, the prepared seed bed becomes rutted, crusted or eroded, or depressions exist, the soil shall be reworked until it is smooth. Reworked areas shall be re-seeded. All seeded areas shall be mulched within 24 h after seeding.

Temporary seed shall be used for surface stabilization and temporary ground cover. Temporary cover mixtures shall be placed and be subject to seasonal limitations as defined herein. This mixture is not intended to be used as a permanent seed mixture. This mixture shall not be used to satisfy the requirements of the warranty bond.

The mix shall be spray mulched where the slope is steeper than 3:1. From June 16 through August 31, mulching alone shall be used to stabilize the soil.

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(b) Spring Mix

Spring mix shall be used from January 1 through June 15. This mixture shall be applied at the rate of 150 lb/ac. The mix shall consist of oats.

(c) Fall Mix

Fall mix shall be used from September 1 through December 31. This mixture shall be applied at the rate of 150 lb/ac. This mix shall consist of winter wheat.

Unless otherwise indicated in the SWQCP, fertilizer shall be spread uniformly over the area to be seeded and shall be applied at 1/2 the rate shown in 621.05(a). Fertilizer shall only be applied during the active growing season March through November.

(d) Mulch

Mulch shall be applied uniformly in a continuous blanket at the rate of 2.5 t/ac. If seeded, mulch shall be placed within 24 h after seeding. The percent of moisture in the mulch shall be determined in accordance with 621.14(c).

Mulch shall be punched into the soil so that it is partially covered. The punching operation shall be performed longitudinally to the slope. The tools used for punching purposes shall be disks that are notched and have a minimum diameter of 16 in. The disks shall be flat or uncupped. Disks shall be placed a minimum of 8 in. apart. Shaft or axle sections of disks shall not exceed 8 ft in length.

The disk for punching shall be constructed so that weight may be added or hydraulic force may be used to push puncher into the ground. An even distribution of mulch shall be incorporated into the soil.

On a slope of 3:1 or steeper but flatter than 2:1, or where specified, temporary mulch stabilization shall also be used. Unless otherwise specified, the following types may be used.

1. Type A

The mulch shall be held in place by means of commercially produced water borne mulch binder product. The product shall be manufactured and used in accordance with all applicable State and Federal regulations. Such product shall be applied in accordance with the manufacturer's written instructions. A copy of the written instructions shall be supplied to the Engineer prior to the seeding work. The product shall include a coverage indicator to facilitate visual inspection for evenness of application. If the mulch fails to stay in place, the Contractor shall repair all damaged areas.

2. Type B

The mulch shall be held in place with binder twine fastened down with wooden pegs not less than 6 in. long spaced 4 ft apart. The twine shall be placed parallel to and also at 60° to the pavement edge in both directions. The distance between the intersections of the diagonal strands

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measured along the strands shall be 12 ft. The strand parallel to the pavement shall cross the diagonal strands at their intersections to form equilateral triangles of 12 ft on a side.

3. Type C

The mulch shall be held in place with a polymeric plastic net. The plastic net shall be unrolled such that it lays out flat, evenly, and smoothly, without stretching the material. The plastic net shall be held in place by means of staples. The staples shall be driven at a 90° angle to the plane of the soil slope. Staples shall be spaced not more than 4 ft apart with rows alternately spaced. The plastic net shall be secured along the top and bottom of the soil slope with staples spaced not more than 1 ft on center. The ends and edges of the plastic net shall be overlapped approximately 4 in. and stapled. Overlaps running parallel to the slope shall be stapled 1 ft on center and overlaps running perpendicular to the slope shall be stapled at least 3 ft on center. The plastic net shall be placed with the length running from top of slope to toe of slope, or the plastic net shall be placed with the length running horizontally or parallel to the contour.

On a slope of 2:1 or steeper, or where specified, a manufactured surface protection product shall be used.

(c) Manufactured Surface Protection Products

The following manufactured surface protection products may be used for covering an area that has not been seeded. Soil cover shall not be used to cover seeded areas. Prior to placing the manufactured surface protection product, the area to be covered shall be free of all rocks or clods of over 1 1/2 in. in diameter, and all sticks or other foreign material, which prevent the close contact of the blanket with the seed bed.

After the area has been properly shaped, fertilized, and seeded, the manufactured surface protection product shall be laid out flat, evenly, and smoothly, without stretching the material.

1. Excelsior Blanket

An excelsior blanket may be used as mulch for seeding where seeding is specified or where erosion control blanket is specified. Excelsior blankets shall be placed within 24 h after seeding operations have been completed. Excelsior blankets shall be installed in accordance with the manufacturer's recommendation.

2. Straw Blanket

A straw blanket may be used as mulch for seeding where mulched seeding is specified or where erosion control blanket is specified. Straw blankets shall be placed within 24 h after seeding. The straw blanket shall be unrolled over the designated area so that the plastic mesh is on top and the straw fibers are snugly and uniformly in contact with the soil surface. The rolls shall be butted together and stapled in place. The staples shall be driven through the blanket at a 90° angle to the plane of the ground surface. Each staple shall anchor the plastic mesh. The staples shall be spaced per the manufacturer's recommendation.

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For placement on a slope, the straw blankets shall be placed with the length running from the top of slope to the toe of slope and shall extend a minimum of 3 ft over the crown of the slope. The blanket shall be stapled in accordance with the manufacturer's recommendation.

For placement in ditch lines, the straw blanket shall be unrolled parallel to the centerline of the ditch. The blanket shall be placed so that there are no longitudinal seams within 24 in. of the bottom centerline of the ditch. In a ditch line, the blanket shall be stapled in accordance with the manufacturer's recommendation with a minimum of six staples across the upstream end of each roll.

3. Rolled Erosion Control Products

The Contractor shall use degradable RECPs including netting, open weave textile, and erosion control blankets.

Seed shall be applied in accordance with 621 unless soil infilling is required.

If soil infilling is required, RECP shall be first installed and then seed applied and brushed or raked 1/4 to 3/4 in. of topsoil into voids in the RECP filling the full product thickness. Staples of at least 6 in. in length shall be used to secure the RECP. The RECP shall be unrolled parallel to the primary direction of flow and placed in direct contact with the soil surface. RECP shall not bridge over surface inconsistencies. Edges of adjacent RECP shall be overlapped by 2 to 4 in. Staples shall be placed to prevent seam separation in accordance with the manufacturer's recommendations.

4. Geotextile

Disturbed soil shall be covered with geotextile. The covering shall be placed over the exposed soil in a shingle like fashion with a 2 ft minimum overlap covering all loose or disturbed soil. The geotextile, if new, shall be in accordance with 918.02. The geotextile used for soil covering need not be new but shall not have holes or unrepaired rips or tears. All repairs shall be made in accordance with the manufacturer's recommendation.

205.05 Concentrated Flow Protection

(a) Check Dam

Check dams and modified check dams shall be constructed as shown on the plans. Geotextile for check dams shall be in accordance with 616 unless otherwise specified. Temporary revetment riprap shall be in accordance with 616. No. 5 and No. 8 filter stone shall be in accordance with 904.

(b) Check Dam, Traversable

Traversable check dams shall be composed of straw bales, 8 in. minimum diameter fiber rolls, or 8 in. minimum diameter socks filled with straw, ground wood chips, shredded bark, or

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other approved material for site specific conditions. Rolls and socks may be stacked in a triangle pattern as shown on the plans. Check dams shall be staked as shown on the plans or as directed by the manufacturer. Check dams shall be configured to eliminate gaps between sections. Straw bales shall be placed such that the bindings are parallel to and not in contact with the ground.

(c) Diversion Interceptors

Grading for diversion interceptors shall be in accordance with 203 with the exception that compaction requirements will not apply. The Contractor shall identify the construction areas which shall utilize diversion type A or B. Slope drains shall be provided at the low points of the diversion interceptor. Perimeter diversion, type C shall be installed prior to earth moving activities and shall be immediately stabilized. Type A or B shall be stabilized if anticipated to be left in place for more than seven calendar days.

(d) Sediment Traps

Sediment traps shall be constructed with revetment riprap, filter stone and geotextile.

(e) Sediment Basins

Embankment construction shall be in accordance with 203. Temporary revetment riprap used for overflow protection shall be in accordance with 904, unless otherwise indicated in the SWQCP. Sediment basins shall be constructed as shown on the plans, or as indicated in the SWQCP. Sediment basins shall be designed to provide a minimum storage volume to contain the runoff from a 10 year 24 h storm event.

(f) Slope Drains

Slope drain pipes shall be lengthened as required due to the construction of the embankment.

(g) Vegetative Filter Strips

Designated vegetative filter strips shall not be disturbed. Small rills that form shall be repaired. Fertilizer shall be applied as indicated in the SWQCP.

(h) Splashpads

Splashpads shall be constructed with revetment riprap with geotextile.

(i) Inlet Protection

All deck and curb drains shall have sediment control measures when the structure or road is to be used for hauling operations or adjacent to disturbed areas. Copies of all current manufacturers' installation manuals shall be provided prior to installation.

205.06 Perimeter Protection

(a) Silt Fence

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Shipping, handling and storage shall be in accordance with the manufacturer's recommendations. The silt fence material shall be in accordance with 918.04. The silt fence material will be rejected if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation, storage, or installation. Each roll shall be labeled or tagged to provide product identification.

Joints shall be made from the ends of each section of fence wrapped around a wood stake and joined together or other method recommended by the manufacturer. Copies of all current manufacturer manuals shall be provided prior to installation.

(b) Filter Berm

Filter berms shall be constructed of organic mulch, filter sock, or No. 5 and No. 8 filter stone.

205.07 Maintenance

Storm water management measures shall be inspected, at a minimum, once every seven days and after a 1/2 in. rain event. Inspections shall be documented and records shall be maintained by the Contractor, to be submitted to the Engineer on the next business day following the inspection. The temporary protection measures shall be remedied within 48 h after inspection or as directed. The Contractor shall rebuild or repair damaged storm water management measures.

If conditions do not allow the Contractor access to the location of the storm water management features using normal equipment and maintenance, the Contractor shall submit to the Engineer an acceptable written alternate schedule, within 48 h, to bring the storm water management features back into compliance.

(a) Silt Fence

If the fence fabric tears, starts to decompose, or becomes ineffective, the affected portion shall be replaced. Deposited sediment shall be removed once it reaches 1/2 the height of the fence at its lowest point. Once the contributing drainage area has been stabilized, the Contractor shall remove the fence and sediment deposits, grade the site to blend with the surrounding area, and stabilize the graded area.

(b) Sediment Basin

Sediment shall be removed once it has accumulated to 1/2 the design volume. The filter stone around the riser pipe shall be replaced if the sediment pool does not drain within 72 h following a stormwater runoff event.

(c) Filter Berm

Accumulated sediment shall be removed once it reaches 1/4 of the height of the filter berm. The filter berm shall be inspected to ensure that it is holding its shape and allowing adequate flow. Eroded and damaged areas shall be repaired.

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(d) Inlet Protection

Accumulated sediment shall be removed once identified and after each storm event. Flushing with water will not be allowed. The sediment shall not be allowed to re- enter the paved area or storm drains. Curb inlet inserts shall be cleaned in accordance with the manufacturer's recommendations.

(e) Sediment Traps

Following each storm event, the Contractor shall repair slope erosion and piping holes as required. Sediment shall be removed once it has accumulated to 1/2 design volume. The Contractor shall replace the coarse aggregate filter stone if the sediment pool does not drain within 72 h following a storm water runoff event.

(f) Concrete Washout

The containment system shall be inspected for leaks, spills, and tears, and shall be repaired or replaced as necessary. The Contractor shall ensure that each containment system maintains adequate capacity. Solidified waste concrete shall be disposed of in accordance with 202.

(g) Check Dams

Sediment shall be removed once it reaches 1/2 the height of the check dam. Sediment shall be removed and disposed of in accordance with 201.03 and 203.08. The Contractor shall rebuild or repair each damaged check dam to maintain the design height, cross section, and control function.

205.08 Quality Adjustments

If maintenance deficiencies are not remedied within 48 h after identifying them in the inspection and in accordance with 205.07, the Contractor may be assessed damages for failure to maintain the required storm water management. For each day, during which the following units of storm water management are in an unsatisfactory condition, a quality adjustment, in accordance with 109, will be assessed as shown for each day, per unsatisfactory unit.

- (a) Silt Fence: \$100.00 per each contiguous 100 ft section or portion thereof*
- (b) Check Dam: \$100.00 per check dam*
- (c) Sediment Basin: \$100.00 per basin*
- (d) Sediment Trap: \$100.00 per trap*
- (e) Inlet Protection Devices: \$100.00 per unit*
- (f) Failure to inspect site per 327 IAC 15-5 requirements: \$100.00 per required inspection*
- (g) Failure to temporary stabilize non-vegetated areas: \$100.00 per acre or portion thereof*
- (h) Failure to correct identified deficiencies not defined above: \$100 per day per measure*

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Silt fence will be considered unsatisfactory if the fence material has an exposed cut or tear exceeding 1 ft in length, a seam has separated or the retained sediment exceeds 1/2 of the height of the fence.

Check dams, sediment basins and sediment traps will be considered unsatisfactory if they no longer perform their function, or the retained sediment exceeds 1/2 of the design volume.

Inlet protection devices will be considered unsatisfactory if they no longer perform their function, or the accumulated sediment exceeds 1/2 of the capacity of the device.

205.09 Removal

Storm water management measures shall be removed as soon as an area becomes stable. All storm water management measures shall be removed prior to application for the NOT. The Contractor shall remove and dispose of all excess silt accumulations, dress the area, and reestablish vegetation to all bare areas in accordance with the contract requirements. Use or disposal of storm water management measures shall be as indicated in the SWQCP.

205.10 Method of Measurement

Temporary silt fence and traversable check dams will be measured by the linear foot.

Temporary sediment basins, standard metal end sections and temporary inlet protection will be measured by each unit installed.

Temporary revetment riprap check dams, temporary revetment riprap, temporary sediment traps, splashpads, temporary filter stone, temporary mulch, No. 2 stone for stable construction entrances, and fertilizer will be measured by the ton.

Temporary mulch stabilization, manufactured surface protection products, and temporary geotextile will be measured by the square yard.

Temporary seeding will be measured by the pound.

Removal of sediment will be measured by the cubic yard.

Temporary slope drains will be measured by the linear foot. Measurement will be made for the maximum footage in place at one time, per drain location regardless of the number of times the material is moved.

Temporary filter berms and filter sock will be measured by the linear foot complete in place.

Revetment riprap and filter stone used in sediment basins will be measured by the ton.

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Excavation for detention ponds, temporary sediment traps and temporary sediment basins will be measured as common excavation in accordance with 203.27.

Diversion interceptors type A and B, and interceptor ditches will not be measured for payment. Diversion interceptors type C will be measured by the linear foot.

Mobilization and demobilization for surface stabilization will be measured per each trip as provided in the submitted and accepted SWQCP.

Weekly inspections will be measured by each for inspections conducted after the contract completion date.

SWQCP Preparation and Implementation Level 1 and Level 2 will not be measured.

BMPs used at the off-site locations designated in 205.03 and concrete washouts will not be measured for payment.

205.11 Basis of Payment

The accepted quantities of silt fence and traversable check dams will be paid at the established unit price per linear foot.

Temporary sediment basins, standard metal end sections, and temporary inlet protection will be paid at the established unit price per each unit installed.

Temporary revetment riprap check dams, temporary revetment riprap, temporary sediment traps, splashpads, temporary filter stone, temporary mulch, No. 2 stone for stable construction entrances, and fertilizer will be paid at the established unit price per ton.

Temporary mulch stabilization, manufactured surface protection products, and temporary geotextile will be paid at the established unit price per square yard.

Temporary seeding will be paid at the established unit price per pound.

Removal of sediment will be paid at the established unit price per cubic yard.

Temporary slope drains, temporary filter berms, and filter sock will be paid at the established unit price per linear foot.

Revetment riprap and filter stone used in sediment basins will be paid at the established unit price per ton.

The accepted quantities of excavation for detention ponds, temporary sediment traps, and temporary sediment basins will be paid for as common excavation in accordance with 203.28.

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Diversion interceptors type C will be paid at the established unit price per linear foot.

Payment for mobilization and demobilization for surface stabilization will be paid at the established unit price per each and will be made for the initial movement to the project site, and for each occurrence as indicated in the submitted and accepted SWQCP, or as directed.

Weekly inspections will be paid at the established unit price per each for inspections conducted after the contract completion date. No payment will be made for inspections during the time when liquidated damages in accordance 108.09 are assessed.

The Department will include the pay item Storm Water Management Budget, with an established dollar amount, in the proposal to pay for BMP work. This established amount is the Department's estimate of the total cost of the BMP work required to be performed for the contract. The established amount shown in the proposal is included in the total bid amount. The Department will pay for those items installed and listed with established prices for the quantities installed as indicated in the submitted and accepted SWQCP. If the BMP work exceeds the Department's estimated amount, the additional BMPs shall be explained and submitted as a revision to the SWQCP. The additional work will be reviewed for acceptance in accordance with 104.03 except that the additional BMP work will be paid at the pre-determined established prices shown.

The Department will pay to replace BMPs that have failed during a rain event at the unit price shown in 205.11 if those BMPs had been adequately designed based on the watershed, installed correctly, and maintained as necessary.

The item SWQCP Preparation and Implementation Level 1 will be paid when a Level 1 SWQM is designated in the contract documents. The item SWQCP Preparation and Implementation Level 2 will be paid when a Level 2 SWQM is designated in the contract documents. The item SWQCP Preparation and Implementation Level 1, or Level 2 will be paid as a lump sum. After the SWQCP has been submitted, 25% of the SWQCP Preparation and Implementation bid price will be paid ~~after the SWQCP has been submitted~~. If the SWQCP is submitted in phases, 25% of the SWQCP Preparation and Implementation bid price will be paid after the first phase of the SWQCP has been submitted. The balance will be paid as the plan is implemented over the life of the contract.

Items shown with an established price will be paid at the prices shown. If any of the following items are shown in the schedule of pay items the bid item and price will prevail over the established prices shown.

Payment will be made under:

<i>Pay Item</i>	<i>Pay Unit</i>	<i>Established</i>
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	<i>Symbol</i>	<i>Price</i>
<i>Diversion Interceptor Type C</i>	<i>LFT</i>	\$20.00
<i>Fertilizer</i>	<i>TON</i>	\$725.00
<i>Filter Sock</i>	<i>LFT</i>	\$5.00
<i>Manufactured Surface Protection Product, _____</i>	<i>SYS</i>	\$1.25
	<i>type</i>	
<i>Mobilization and Demobilization for</i>		
<i>Surface Stabilization</i>	<i>EACH</i>	\$650.00
<i>No. 2 Stone</i>	<i>TON</i>	\$25.00
<i>Sediment, Remove</i>	<i>CYS</i>	\$20.00
<i>Splashpad</i>	<i>TON</i>	\$55.00
<i>Standard Metal End Section</i>	<i>EACH</i>	\$340.00
<i>Storm Water Management Budget</i>	<i>DOL</i>	
<i>SWQCP Preparation and Implementation, Level 1</i>	<i>LS</i>	
<i>SWQCP Preparation and Implementation, Level 2</i>	<i>LS</i>	
<i>Temporary Check Dam, Revetment Riprap</i>	<i>TON</i>	\$50.00
<i>Temporary Check Dam, Traversable</i>	<i>LFT</i>	\$15.00
<i>Temporary Filter Berm</i>	<i>LFT</i>	\$15.00
<i>Temporary Filter Stone</i>	<i>TON</i>	\$40.00
<i>Temporary Geotextile</i>	<i>SYS</i>	\$2.50
<i>Temporary Inlet Protection</i>	<i>EACH</i>	\$100.00
<i>Temporary Mulch Stabilization, _____</i>	<i>SYS</i>	\$0.25
	<i>type</i>	
<i>Temporary Mulch</i>	<i>TON</i>	\$400.00
<i>Temporary Revetment Riprap</i>	<i>TON</i>	\$50.00
<i>Temporary Sediment Basin</i>	<i>EACH</i>	\$3,000.00
<i>Temporary Sediment Trap</i>	<i>TON</i>	\$40.00
<i>Temporary Seed</i>	<i>LBS</i>	\$2.50
<i>Temporary Silt Fence</i>	<i>LFT</i>	\$2.00
<i>Temporary Slope Drain</i>	<i>LFT</i>	\$20.00
<i>Weekly Inspection</i>	<i>EACH</i>	\$400.00

The cost associated with revisions to permits shall be included in the cost of SWQCP Preparation and Implementation.

The cost for trenching, backfilling, posts, fencing, and all necessary incidentals shall be included in the cost of the pay item for temporary silt fence.

The cost for stakes, trenching, backfilling, posts, and all necessary incidentals shall be included in the cost of the pay item for temporary check dams, traversable.

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The payment for temporary sediment basin shall include all costs involved with construction of the basin except for excavation, revetment riprap, and filter stone.

The payment for temporary sediment trap shall include all costs involved with construction of the trap except for excavation.

Temporary entrances utilized by the Contractor for borrow and waste areas will not be paid for directly.

The costs for diversion interceptor types A and B and interceptor ditches shall be included in the cost of the earth moving items.

The cost for anchors and all incidentals necessary to perform the work shall be included in the cost of the pay item for temporary slope drains.

The cost of materials, installation, inspection, maintenance, and removal of storm water management measures at off-site locations designated in 205.03 will not be measured for payment.

The payment for BMPs in this section shall include materials, installation, maintenance, removal and proper disposal, except for the removal of sediment.

The cost associated with sediment removal and temporary filter stone replacement due to BMP maintenance shall be included in the cost of the pay item for sediment removal.

The cost of constructing, maintaining, and removal of the construction entrance, other than those constructed by the Contractor for borrow and waste sites, shall be included in the cost of No. 2 stone. No direct payment will be made for construction entrances for borrow and waste sites.

The cost associated with concrete washout shall not be paid for directly, but shall be included in the costs of the concrete pay items.

The costs associated with the weekly and post-event inspections and all other inspections conducted prior to the contract completion date shall be included in the costs of the other pay items of this section.

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(Revised 08-20-15)

The Standard Specifications are revised as follows:

SECTION 108, DELETE LINES 114 THROUGH 219.

SECTION 205, DELETE LINES 1 THROUGH 516.

SECTION 205, BEGIN LINE 1, INSERT AS FOLLOWS:

SECTION 205 - QUALITY CONTROL TEMPORARY EROSION AND SEDIMENT CONTROL

205.01 Description

This work shall consist of furnishing, installing, maintaining, and removing temporary erosion and sediment control measures in accordance with the approved contractor developed Erosion and Sediment Control Quality Control Plan.

MATERIALS

205.02 Materials

Materials shall be in accordance with the following:

<i>Coarse Aggregate, Class F or Higher</i>	<i>904</i>
<i>Fertilizer.....</i>	<i>914.03</i>
<i>Filter Sock.....</i>	<i>914.09(h)</i>
<i>Geotextile</i>	<i>918</i>
<i>Grass Seed, Temporary.....</i>	<i>914.02</i>
<i>Manufactured Surface Protection Products.....</i>	<i>205.04(c)</i>
<i>Metal End Sections.....</i>	<i>908.06</i>
<i>Mulch.....</i>	<i>914.05(a)</i>
<i>Pipe Drains</i>	<i>715.02(d)</i>
<i>Plastic Net.....</i>	<i>914.09(g)</i>
<i>Revetment Riprap.....</i>	<i>904*</i>
<i>Stakes.....</i>	<i>914.09(b)</i>
<i>Top Soil</i>	<i>914.01</i>
<i>Water.....</i>	<i>914.09(a)</i>
<i>Staples</i>	<i>914.09(f)</i>

**The minimum depth does not apply. Straw bales shall not weigh less than 35 lb. Bales shall be bound with wire or nylon twine.*

CONSTRUCTION REQUIREMENTS

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205.03 General Requirements

The Contractor shall locate, install, maintain and remove temporary sediment and erosion control Best Management Practices, BMPs, for earth disturbing activity areas, and develop a project specific Revised SWPPP in accordance with IAC 327 15-5. The SWPPP shall be developed as part of the E&SC Quality Control Plan, QCP. The SWPPP shall be developed by a professional engineer who also holds a current Certified Professional in Erosion and Sediment Control, CPESC, certification or approved equivalent. The SWPPP developer shall be familiar with the project site and develop the SWPPP in accordance with the site conditions. The SWPPP shall be revised as required. The Contractor shall furnish and install temporary sediment and erosion control best management practices in compliance with all National Pollutant Discharge Elimination System, NPDES, and surface water permits. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, State or local agencies the Contractor shall adhere to the more restrictive laws, rules, or regulations.

If a governmental agency or a local governmental authority finds a violation of NPDES or any surface water permits that were provided in the bid documents or that the BMPs are incomplete, or that the SWPPP is incomplete or that the implementation of the SWPPP is not performed or complete, full responsibility shall be borne by the Contractor to make corrections. In addition if an assessment, damage judgment or finding, agreed order, fine or any other expense for a violation of the contract requirements is leveled against the Department, the Contractor shall reimburse the State for that amount within 30 days. The Contractor agrees to indemnify and hold harmless the Department and will reimburse the Department for any assessments, damage judgments or finding, fine, penalty or other expense relating to this portion of the contract. The Department may withhold the amount owed from the Contractor's subsequent pay estimates. Delays caused by stop work orders from regulatory agencies, suspension of work orders from the Department, or any other delays caused by inadequate submittals or implementation will be considered Non-Excusable Delays in accordance with 108.08(c).

(a) Storm Water Quality Manager

The Contractor shall designate one person as Storm Water Quality Manager, SWQM. The SWQM shall be responsible for ensuring the preparation, submittal, and receipt of the approved QCP. The SWQM shall be responsible for the installation, maintenance, and removal of all erosion and sediment control measures and shall be in responsible charge of the weekly and post-event inspections. The inspections shall be documented in the erosion and sediment control inspection report form provided by the Engineer and available on the Department's website. The SWQM shall attend the preconstruction conference and at least one scheduling meeting per calendar month when earth disturbing activities are a significant work activity. The SWQM shall accompany personnel from IDEM or other governmental agencies, as required, during site visits by those agencies. The SWQM shall be responsible for completion of all inspection reports. The name of the SWQM shall be furnished to the Engineer at, or prior to, the

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preconstruction meeting. If the designated individual needs to be replaced during the contract time, the replacement shall be designated within 24 h and notification shall be furnished to the Engineer.

For contracts that have had a Notice of Intent, NOI, filed per 327 IAC-15-5 or require a 401/404 or any other waterway permit, the SWQM shall have attended the Department's Construction Storm Water Certification course, or be certified as a Certified Erosion Sediment and Stormwater Inspector, CESSWI, or CPESC by Envirocert, Inc. or an approved equal.

(b) Design

The Contractor shall prepare and implement the project QCP for all temporary erosion and sediment control measures in accordance with 327 IAC 15-5, Chapter 205 of the Indiana Department of Transportation Design Manual, the IDEM "Indiana Storm Water Quality Manual", and all other applicable contract documents. The Contractor shall incorporate into his SWPPP all included plan sheets for temporary erosion and sediment control. The QCP shall include the Contractor's Revised SWPPP and plan to comply with all known permit requirements applicable to the construction phase of the project included in the NOS, 401/404 and all other permits as well as those required by the Contractor in accordance with 107.01. The Contractor's SWPPP shall be stamped by the SWPPP developer as defined above. The SWPPP developer shall issue clarifications, and correct errors and omissions as required. The SWPPP shall address the construction phasing and include the proper sequencing of installation of temporary erosion and sediment control measures for the protection of Waters of the United States and off-site sedimentation. The plan shall address the installation, maintenance, and removal sequencing of temporary erosion and sediment control measures during construction of the proposed project and shall also include haul roads, stockpile sites, equipment storage sites, plant sites, and borrow and disposal sites as applicable. A copy of the Notice of Sufficiency, NOS, that includes operations at offsite stockpile, borrow, waste, or storage areas shall be submitted to the Engineer prior to operations at those sites. Electronic files of any plan sheets and narratives shall be provided in .pdf format.

The Contractor may elect to prepare and submit the SWPPP in multiple phases, the first phase showing location, installation, and maintenance of temporary sediment and erosion control BMPs for the existing topography of the project during clearing activities prior to earth moving activities for the remaining construction. Additional phases shall show the progression from the existing topography to the final grade. The first phase of the SWPPP may be submitted prior to the subsequent phases, however no earth moving work or any other work not shown and approved in the first phase shall begin until approval of the additional phases of the SWPPP. Each phase of the SWPPP shall be modified to meet existing field conditions as needed.

(c) QCP Preparation and Implementation

The QCP shall be prepared by or under the supervision of the SWQM and in accordance with ITM 803, Contractor Quality Control Plans. The QCP shall include a discussion of how the

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Contractor intends to comply with the requirements as outlined in this section.

The QCP shall be submitted to the Engineer for review. If the Contractor elects to submit the first phase of the SWPPP prior to the complete QCP, it shall be submitted 15 days prior to the beginning of clearing activities. The complete QCP including at least the SWPPP for the next phase of work shall be submitted to the Engineer at least 15 days prior to commencing earth moving activities. No earth moving activity shall begin until after the QCP has been received and approved by the Department. The cost of the QCP shall be included in the cost of E&SC QCP Preparation and Implementation.

The item E&SC Budget is included in the schedule of pay items to establish a budget to fund payment of the items listed in 205.11 with an established price. The Contractor shall provide a cost summary using the prices shown in 205.11 in spreadsheet format as the cost proposal for implementing the QCP.

At a minimum the SWPPP shall include the following:

- 1. Locations of all proposed top soil stockpiles.*
- 2. Locations of all proposed equipment storage areas, fueling locations, construction trailers, batch plants, and designated concrete truck washout areas.*
- 3. Proposed construction sequence and phasing of erosion control measures.*
- 4. Locations and design flow from offsite areas that drain onto project limits. The QCP design shall include BMPs properly sized and placed to accommodate runoff from outside of the project limits and the drainage quantity from within the project limits.*
- 5. Location of all construction entrances where vehicles and equipment will enter and exit the site.*
- 6. Material handling and spill prevention plan.*
- 7. Statements that the erosion control measures for the project shall, at a minimum, be inspected on a weekly basis and within 24 h of every 1/2 in. rain event.*
- 8. Provisions to ensure that pollutants such as fuels, lubricants, asphalt, sewage, wash water, or waste from concrete mixing operations, and other harmful materials shall not be discharged into existing bodies of water.*

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9. *Provisions to ensure that all applicable regulations and statutes relating to the prevention and abatement of pollution shall be complied with in the performance of the contract.*
10. *Statement that all appropriate erosion control items shall be in place prior to disturbing the project site.*

When Waters of the United States are located within the project limits the following shall also be addressed in the SWPPP:

1. *A method for delineating the boundaries of the waters of the US as shown on the plans.*
2. *When work areas are located in or adjacent to bodies of water, all work in those locations shall be conducted in strict compliance with all conditions as outlined in the 401/404 permits.*

The installation of temporary erosion and sediment control measures shall include those necessary or required by permits at off-site locations such as borrow and disposal areas, field office sites, batch plants, locations where the Contractor's vehicles enter and leave public roads, and other locations where work pertaining to the contract is occurring. The Contractor's SWQM shall be responsible for the installation, inspection, and maintenance of these measures. Temporary erosion control measures shall be placed as soon as practicable. Perimeter protection and sediment traps shall be installed prior to beginning earth disturbing activities. Pipe end sections and anchors shall be installed when the structure is installed. If the pipe end sections or anchors cannot be placed at the same time, temporary riprap splashpads shall be placed at the outlets of the pipes until end sections or anchors can be installed.

Adjustments of the erosion and sediment control measures shall be made to satisfy field conditions and shall be subject to the Engineer's approval. Adjustments made to meet field conditions shall be made as soon as practicable and shall be maintained as necessary.

The Contractor shall provide a stable construction entrance at the points where construction traffic will enter onto an existing road. Additional stone may be required, as directed by the Engineer. Where there is insufficient space for a stable construction entrance, other measures shall be taken to prevent the tracking of sediment onto the pavement. These temporary entrances shall be the responsibility of the Contractor to completely install, maintain, and remove.

The Contractor shall provide concrete washout facilities of adequate capacity in accordance with project requirements. The concrete washout shall be located as far from surface

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waters as practical, and shall be able to contain all liquid and solid material from concrete truck or mixer washing operations without contacting or contaminating the ground.

The Contractor shall employ dust control measures in accordance with 107.08(b).

(d) Permanent Erosion Control Features

Permanent erosion control measures shall be incorporated into the work at the earliest practicable time.

205.04 Temporary Surface Stabilization

Non-vegetated areas shall be temporary stabilized if the area remains inactive for more than seven days or as directed by the Engineer. The area will be considered inactive when no meaningful work toward accomplishing a pay item has been performed at a site of disturbed soil.

(a) Seed

Temporary seeding shall be placed on disturbed areas that are expected to be inactive for more than seven days, or as directed. Seed shall be placed either by drilling in, spraying in a water mixture, or by use of a mechanical method which places the seed in direct contact with the soil. Where inaccessible to mechanical equipment, or where the area to be seeded is small, a hand operated cyclone seeder or other approved equipment may be used. Seed shall not be covered more than 1/2 in. Seed may be distributed by a drill seeder, cyclone seeder, hand or other approved equipment which allows for even distribution of the seed. If as a result of a rain event, the prepared seed bed becomes crusted or eroded, or ruts, or depressions exist, the soil shall be reworked until it is smooth. Reworked areas shall be re-seeded. All seeded areas shall be mulched within 24 h after seeding.

Seed mixture T shall be used for surface stabilization and temporary ground cover. Temporary cover mixtures shall be placed as directed and be subject to seasonal limitations as defined herein. This mixture is not intended to be used as a permanent seed mixture. This mixture shall not be used to satisfy the requirements of the warranty bond.

The mix shall be spray mulched where the slope is steeper than 3:1. From June 16 through August 31, mulching alone shall be used to stabilize the soil.

1. Spring Mix

Spring mix shall be used from January 1 through June 15. This mixture shall be applied at the rate of 150 lb/ac. The mix shall consist of oats.

2. Fall Mix

Fall mix shall be used from September 1 through December 31. This mixture shall be applied at the rate of 150 lb/ac. This mix shall consist of winter wheat.

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Where directed, fertilizer shall be spread uniformly over the area to be seeded and shall be applied at 1/2 the rate shown in 621.05(a) unless otherwise directed. Fertilizer shall only be applied during the active growing season March through November.

(b) Mulch

Mulch shall be applied uniformly in a continuous blanket at the rate of 2.5 t/ac. If seeded, mulch shall be placed within 24 h after seeding. The percent of moisture in the mulch shall be determined in accordance with 621.14(c).

Mulch shall be punched into the soil so that it is partially covered. The punching operation shall be performed longitudinally to the slope. The tools used for punching purposes shall be disks that are notched and have a minimum diameter of 16 in. The disks shall be flat or uncupped. Disks shall be placed a minimum of 8 in. apart. Shaft or axle sections of disks shall not exceed 8 ft in length.

The disk for punching shall be constructed so that weight may be added or hydraulic force may be used to push puncher into the ground. An even distribution of mulch shall be incorporated into the soil.

On a slope of 3:1 or steeper but flatter than 2:1, or where specified, temporary mulch stabilization shall also be used. Unless otherwise specified, the following types may be used.

1. Type A

The mulch shall be held in place by means of commercially produced water borne mulch binder product. The product shall be manufactured and used in accordance with all applicable State and Federal regulations. Such product shall be applied in accordance with the manufacturer's written instructions. A copy of the written instructions shall be supplied to the Engineer prior to the seeding work. The product shall include a coverage indicator to facilitate visual inspection for evenness of application. If the mulch fails to stay in place, the Contractor shall repair all damaged areas.

2. Type B

The mulch shall be held in place with binder twine fastened down with wooden pegs not less than 6 in. long spaced 4 ft apart. The twine shall be placed parallel to and also at 60° to the pavement edge in both directions. The distance between the intersections of the diagonal strands measured along the strands shall be 12 ft. The strand parallel to the pavement shall cross the diagonal strands at their intersections to form equilateral triangles of 12 ft on a side.

3. Type C

The mulch shall be held in place with a polymeric plastic net. The plastic net shall be unrolled such that it lays out flat, evenly, and smoothly, without stretching the material. The plastic net shall be held in place by means of staples. The staples shall be driven at a 90° angle

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to the plane of the soil slope. Staples shall be spaced not more than 4 ft apart with rows alternately spaced. The plastic net shall be secured along the top and bottom of the soil slope with staples spaced not more than 1 ft on center. The ends and edges of the plastic net shall be overlapped approximately 4 in. and stapled. Overlaps running parallel to the slope shall be stapled 1 ft on center and overlaps running perpendicular to the slope shall be stapled at least 3 ft on center. The plastic net shall be placed with the length running from top of slope to toe of slope, or the plastic net shall be placed with the length running horizontally or parallel to the contour.

On a slope of 2:1 or steeper, or where specified, a manufactured surface protection product shall be used.

(c) Manufactured Surface Protection Products

The following manufactured surface protection products may be used for covering an area that has not been seeded. Soil cover shall not be used to cover seeded areas. Prior to placing the manufactured surface protection product, the area to be covered shall be free of all rocks or clods of over 1 1/2 in. in diameter, and all sticks or other foreign material, which prevent the close contact of the blanket with the seed bed.

After the area has been properly shaped, fertilized, and seeded, the manufactured surface protection product shall be laid out flat, evenly, and smoothly, without stretching the material.

1. Excelsior Blanket

An excelsior blanket may be used as mulch for seeding where seeding is specified or where erosion control blanket is specified. Excelsior blankets shall be placed within 24 h after seeding operations have been completed. Excelsior blankets shall be installed in accordance with the manufacturer's recommendation.

2. Straw Blanket

A straw blanket may be used as mulch for seeding where mulched seeding is specified or where erosion control blanket is specified. Straw blankets shall be placed within 24 h after seeding. The straw blanket shall be unrolled over the designated area so that the plastic mesh is on top and the straw fibers are snugly and uniformly in contact with the soil surface. The rolls shall be butted together and stapled in place. The staples shall be driven through the blanket at a 90° angle to the plane of the ground surface. Each staple shall anchor the plastic mesh. The staples shall be spaced per the manufacturer's recommendation.

For placement on a slope, the straw blankets shall be placed with the length running from the top of slope to the toe of slope and shall extend a minimum of 3 ft over the crown of the slope. The blanket shall be stapled in accordance with the manufacturer's recommendation.

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For placement in ditch lines, the straw blanket shall be unrolled parallel to the centerline of the ditch. The blanket shall be placed so that there are no longitudinal seams within 24 in. of the bottom centerline of the ditch. In a ditch line, the blanket shall be stapled in accordance with the manufacturer's recommendation with a minimum of six staples across the upstream end of each roll.

3. Rolled Erosion Control Products

Where directed, the Contractor shall install, or with approval of the Engineer, the Contractor may use degradable rolled erosion control products, RECP, including netting, open weave textile, and erosion control blankets.

Unless soil infilling is required, seed shall first be applied in accordance with 621. If soil infilling is required, RECP shall be first installed and then seed applied and brushed or raked 1/4 to 3/4 in. of topsoil into voids in the RECP filling the full product thickness. Staples of at least 6 in. in length shall be used to secure the RECP. The RECP shall be unrolled parallel to the primary direction of flow and placed in direct contact with the soil surface. RECP shall not bridge over surface inconsistencies. Edges of adjacent RECP shall be overlapped by 2 to 4 in. Staples shall be placed to prevent seam separation in accordance with the manufacturer's recommendations.

4. Geotextile

Where directed or as shown on the SWPPP, disturbed soil shall be covered with geotextile. The covering shall be placed over the exposed soil in a shingle like fashion with a 2 ft minimum overlap covering all loose or disturbed soil. The geotextile, if new, shall be in accordance with 918.02. The geotextile used for soil covering need not be new but shall not have holes or unrepaired rips or tears. All repairs shall be made in accordance with the manufacturer's recommendation.

205.05 Concentrated Flow Protection

(a) Check Dam

Check dams and modified check dams shall be constructed as shown on the plans. Geotextile for check dams shall be in accordance with 616 unless otherwise specified. Temporary revetment riprap shall be in accordance with 616. No. 5 and No. 8 filter stone shall be in accordance with 904.

(b) Check Dam, Traversable

Traversable check dams shall be composed of straw bales, 8 in. minimum diameter fiber rolls, or 8 in. minimum diameter socks filled with straw, ground wood chips, shredded bark, or other approved material for site specific conditions. Rolls and socks may be stacked in a triangle pattern as shown on the plans. Check dams shall be staked as shown on the plans or as directed

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by the manufacturer. Check dams shall be configured to eliminate gaps between sections. Straw bales shall be placed such that the bindings are parallel to and not in contact with the ground.

(c) Diversion Interceptors

Grading for diversion interceptors shall be in accordance with 203 with the exception that compaction requirements will not apply. The Contractor shall identify, in the SWPPP, the construction areas which shall utilize diversion type A or B. Slope drains shall be provided at the low points of the diversion interceptor. If required in the SWPPP, perimeter diversion, type C shall be installed prior to earth moving activities and shall be immediately stabilized. Type A or B shall be stabilized if anticipated to be left in place for more than seven calendar days. Stabilization methods shall be as shown in the SWPPP or as directed by the Engineer.

(d) Sediment Traps

Sediment Traps shall be constructed with revetment riprap, filter stone and geotextile.

(e) Sediment Basins

Embankment construction shall be in accordance with 203. Temporary Revetment riprap used for overflow protection shall be in accordance with 904, unless otherwise specified. Sediment basins shall be constructed as shown on the plans, or as directed. Sediment basins shall be designed to provide a minimum storage volume to contain the runoff from a 10 year 24 h storm event.

(f) Slope Drains

Slope drain pipes shall be lengthened as required due to the construction of the embankment.

(g) Vegetative Filter Strips

Designated vegetative filter strips shall not be disturbed. Small rills that form shall be repaired. Fertilizer shall be applied as directed.

(h) Splashpads

Splashpads shall be constructed with revetment riprap with geotextile.

(i) Inlet Protection

All deck and curb drains shall have sediment control measures when the structure or road is to be used for hauling operations or adjacent to disturbed areas. Copies of all current manufacturers' installation manuals shall be provided prior to installation.

205.06 Perimeter Protection

(a) Silt Fence

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CURRENTLY USE RSP 205-R-261 QUALITY CONTROL TEMPORARY EROSION AND SEDIMENT CONTROL

Shipping, handling and storage shall be in accordance with the manufacturer's recommendations. The silt fence material shall be in accordance with 918.04. The silt fence material will be rejected if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation, storage, or installation. Each roll shall be labeled or tagged to provide product identification.

Joints shall be made from the ends of each section of fence wrapped around a wood stake and joined together or other method recommended by the manufacturer. Copies of all current manufacturer manuals shall be provided prior to installation.

(b) Filter Berm

A filter berm shall be installed as shown on the plans or in the SWPPP. The filter berm may be constructed of organic mulch, filter sock, or No. 5 and No. 8 filter stone.

205.07 Maintenance

Temporary erosion and sediment control measures shall be inspected, at a minimum, once every seven days and after a 1/2 in. rain event. Inspections shall be documented and records shall be maintained by the Contractor, to be submitted to the Engineer on the next business day following the inspection. The temporary protection measures shall be returned to working conditions within 48 h after inspection or as directed. The Contractor shall rebuild or repair damaged temporary erosion and sediment control measures.

(a) Silt Fence

If the fence fabric tears, starts to decompose, or becomes ineffective, the affected portion shall be replaced. Deposited sediment shall be removed once it reaches 1/2 the height of the fence at its lowest point. Once the contributing drainage area has been stabilized, the Contractor shall remove the fence and sediment deposits, grade the site to blend with the surrounding area, and stabilize the graded area.

(b) Sediment Basin

Sediment shall be removed once it has accumulated to 1/2 the design volume. The filter stone around the riser pipe shall be replaced if the sediment pool does not drain within 72 h following a stormwater runoff event.

(c) Filter Berm

Accumulated sediment shall be removed once it reaches 1/4 of the height of the filter berm. The filter berm shall be inspected to ensure that it is holding its shape and allowing adequate flow. Eroded and damaged areas shall be repaired.

(d) Inlet Protection

Accumulated sediment shall be removed once identified and after each storm event. Flushing with water will not be allowed. The sediment shall not be allowed to re-enter the paved

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area or storm drains. Curb inlet inserts shall be cleaned in accordance with the manufacturer's recommendations.

(e) Sediment Traps

Following each storm event, the Contractor shall repair slope erosion and piping holes as required. Sediment shall be removed once it has accumulated to 1/2 design volume. The Contractor shall replace the coarse aggregate filter stone if the sediment pool does not drain within 72 h following a stormwater runoff event.

(f) Concrete Washout

The containment system shall be inspected for leaks, spills, and tears, and shall be repaired or replaced as necessary. The Contractor shall ensure that each containment system maintains adequate capacity. Solidified waste concrete shall be disposed of in accordance with 202.

(g) Check Dams

Sediment shall be removed once it reaches 1/2 the height of the check dam. Sediment shall be removed and disposed of in accordance with 201.03 and 203.08. The Contractor shall rebuild or repair each damaged check dam to maintain the design height, cross section, and erosion control function.

205.08 Quality Adjustments

If maintenance deficiencies are not remedied within 48 h after identifying them in the inspection or as directed, the Contractor may be assessed damages for failure to maintain the required temporary erosion and sediment control. For each day, during which the following units of temporary erosion and sediment control are in an unsatisfactory condition, a quality adjustment, in accordance with 109, will be assessed as shown for each day, per unsatisfactory unit.

If conditions do not allow the Contractor access to the location of the erosion or sediment control features using normal equipment and maintenance has been directed, the Contractor may propose a written alternate schedule, within 48 h, to bring the erosion and sediment control features back into compliance. Damages may be assessed based on compliance with the approved schedule.

- (a) Silt Fence: \$100.00 per each contiguous 100 ft section or portion thereof*
- (b) Check Dam: \$100.00 per check dam*
- (c) Sediment Basin: \$100.00 per basin*
- (d) Sediment Trap: \$100.00 per trap*
- (e) Inlet Protection Devices: \$100.00 per unit*
- (f) Failure to inspect site per 327 IAC requirements: \$100.00 per required inspection*

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- (g) *Failure to temporary stabilize non-vegetated areas: \$100.00 per acre or portion thereof*
- (h) *Failure to correct identified deficiencies not defined above: \$100 per day per measure*

Silt fence will be considered unsatisfactory if the fence material has an exposed cut or tear exceeding 1 ft in length, a seam has separated or the retained sediment exceeds 1/2 of the height of the fence.

Check dams, sediment basins and sediment traps will be considered unsatisfactory if they no longer perform their function, or the retained sediment exceeds 1/2 of the design volume.

Inlet protection devices will be considered unsatisfactory if they no longer perform their function, or the accumulated sediment exceeds 1/2 of the capacity of the device.

205.09 Removal

Temporary erosion and sediment control measures shall remain in place until directed to be removed. The Contractor shall remove and dispose of all excess silt accumulations, dress the area, and vegetate all bare areas in accordance with the contract requirements. Use or disposal of temporary erosion and sediment control measures shall be as directed.

205.10 Method of Measurement

Temporary Silt fence and check dams, traversable will be measured by the linear foot. Temporary Sediment basins will be measured by each. Temporary Revetment riprap check dams, temporary sediment traps, and splashpads will be measured by the ton. Temporary filter stone will be measured by the ton. Temporary mulch will be measured by the ton. Temporary mulch stabilization will be measured by the square yard. Temporary seeding will be measured by the pound. Temporary geotextile used as a manufactured surface protection product will be measured by the square yard, and only once for the maximum square yardage in place at one time, regardless of the number of times the material is moved. Removal of sediment will be measured by the cubic yard. Temporary revetment riprap will be measured by the ton. Temporary slope drains will be measured by the linear foot, and only once for the maximum footage in place at one time, per drain location regardless of the number of times the material is moved. Temporary Inlet protection will be measured per each unit installed. Temporary Filter berms will be measured by the linear foot complete in place. Filter sock will be measured by the linear foot, complete in place. Concrete washouts will not be measured separately. No. 2 stone for stable construction entrances will be measured by the ton. Revetment riprap and filter stone used in sediment basins will be measured by the ton. Fertilizer will be measured by the ton. Manufactured surface protection product, type will be measured by the square yard. Mobilization and demobilization for surface stabilization will be measured per each trip as provided in the SWPPP, or as directed, to the project site. Standard metal end sections will be measured by each.

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Diversion interceptors type A and B, and interceptor ditches will not be measured for payment. Diversion interceptors type C will be measured by the linear foot.

BMPs used at the off-site locations designated in 205.03 will not be measured for payment.

Excavation for detention ponds, temporary sediment traps and temporary sediment basins will be measured as common excavation in accordance with 203.27.

Weekly inspections will be measured by each for inspections conducted after the contract completion date. E&SC QCP Preparation and Implementation will not be measured.

205.11 Basis of Payment

The accepted quantities of silt fence will be paid for at the established unit price per linear foot, complete in place. Temporary mulch will be paid at the established unit price by the ton. Temporary mulch stabilization will be paid for at the established unit price by the square yard. Temporary seeding will be paid for at the established unit price per pound. Temporary geotextile will be paid at the established unit price by the square yard. Temporary check dams, revetment riprap, temporary sediment trap and splashpads will be paid for at the established unit price by the ton. Temporary filter stone will be paid for at the established unit price by the ton. Temporary check dams, traversable will be paid for at the established unit price by the linear foot. Temporary revetment riprap will be paid for at the established unit price by the ton. Temporary filter berms will be paid at the established unit price by the linear foot. Temporary entrances utilized by the Contractor for borrow and waste areas will not be paid for directly. Temporary slope drains will be paid for at the established unit price by the linear foot. Removal of sediment will be paid for at the established unit price per cubic yard. Temporary inlet protection will be paid for at the established unit price per each unit installed. Filter sock will be paid for at the established unit price by the linear foot. Diversion Interceptors, type C will be paid by the linear foot at the established unit price. No. 2 stone for stable construction entrances will be paid for at the established unit price by the ton. Revetment riprap and filter stone used in sediment basins will be paid for at the established unit price by the ton. Fertilizer will be paid for at the established unit price by the ton. Manufactured surface protection product type, will be paid for at the established unit price by the square yard. Payment for mobilization and demobilization for surface stabilization will be paid at the established unit price per each and will be made for the initial movement to the project site for each occurrence as provided in the SWPPP, or as directed, so that temporary seeding, mulching or other surface stabilization is performed. Payment for standard metal end sections will be at the established unit price per each.

The accepted quantities of excavation for detention ponds, temporary sediment traps and temporary sediment basins will be paid for as common excavation in accordance with 203.28

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Weekly Inspections will be paid at the established unit price by each for inspections conducted after the contract completion date. No payment will be made for inspections during the time when Liquidated Damages in accordance 108.09 are assessed.

The Department will pay for those items listed in 205.11 with Established Prices in the quantities installed and as shown in the department approved QCP at the established price. The Department will include the pay item E&SC Budget, with an amount, in the proposal to pay for BMP work. The fixed amount shown in the proposal is included in the Total Bid Amount. This fixed amount is the Department's estimate of the total cost of the BMP work required to be performed for the contract. If the BMP work exceeds this amount, the BMP work will be paid at the pre-determined prices. Other BMPs required to implement the QCP will be considered in accordance with 104.03.

The item E&SC QCP Preparation and Implementation will be paid as a Lump Sum. The item will be considered 60% complete when approved by the Engineer. 60% of the bid price will be paid when the QCP is approved. The balance will be paid as the plan is implemented. 5% of the bid price will be paid in each subsequent progress payment until 100% of the bid price has been reached.

BMPs required for permit compliance will be considered in accordance with 104.03.

The Department will pay to replace BMPs that have failed during a rain event at the unit price shown in 205.11 if those BMPs had been adequately designed based on the watershed, installed correctly, and maintained when needed.

Items shown with an Established Price will be paid at the price shown. If any of the following items are shown in the schedule of pay items the bid item and price will prevail over the established price.

Payment will be made under:

Pay Item	Pay Unit Symbol	Established Price
<i>Diversion Interceptor Type C.....</i>	<i>LFT.....</i>	<i>\$20.00</i>
<i>E&SC Budget</i>	<i>DOL</i>	
<i>E&SC QCP Preparation and Implementation.....</i>	<i>LS</i>	
<i>Fertilizer.....</i>	<i>TON.....</i>	<i>\$725.00</i>
<i>Filter Sock.....</i>	<i>LFT.....</i>	<i>\$5.00</i>
<i>Manufactured Surface Protection Product, _____</i>	<i>SYS</i>	<i>\$1.25</i>
	<i>type</i>	
<i>Mobilization and Demobilization</i>		
<i>for Surface Stabilization</i>	<i>EACH.....</i>	<i>\$650.00</i>

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No. 2 Stone	TON.....	\$25.00
Sediment, Remove	CYS.....	\$20.00
Splashpad.....	TON.....	\$55.00
Standard Metal End Section.....	EACH.....	\$340.00
Temporary Check Dam, Revetment Riprap	TON.....	\$50.00
Temporary Check Dam, Traversable.....	LFT.....	\$15.00
Temporary Filter Berm	LFT.....	\$15.00
Temporary Filter Stone	TON.....	\$40.00
Temporary Geotextile.....	SYS.....	\$2.50
Temporary Inlet Protection.....	EACH.....	\$100.00
Temporary Mulch.....	TON.....	\$400.00
Temporary Mulch Stabilization, _____	SYS.....	\$0.25
type		
Temporary Revetment Riprap	TON.....	\$50.00
Temporary Sediment Basin	EACH.....	\$3,000.00
Temporary Sediment Trap.....	TON.....	\$40.00
Temporary Seed	LBS.....	\$2.50
Temporary Silt Fence.....	LFT.....	\$2.00
Temporary Slope Drain.....	LFT.....	\$20.00
Temporary Underdrain Outlet Pipe.....	LFT.....	\$5.00
Weekly Inspection.....	EACH.....	\$400.00

The payment for temporary silt fence includes trenching, backfilling, posts, fencing, and all necessary incidentals.

The costs for diversion interceptor types A and B and interceptor ditches shall be included in the cost of the earth moving items.

The payment for temporary check dams, traversable includes stakes, trenching, backfilling, posts, and all necessary incidentals.

The payment for temporary sediment basin includes all costs involved with construction of the basin except for the excavation, which will be paid as common excavation in accordance with 203.28, and the use of revetment riprap and filter stone, which are separate pay items.

The payment for temporary sediment trap is to include all costs involved with construction of the trap except for the excavation, which will be paid as common excavation in accordance with 203.28.

The payment for temporary slope drain include anchors and all incidentals necessary to perform the work.

BACKUP 01.

CURRENTLY USE RSP 205-R-261 QUALITY CONTROL TEMPORARY EROSION AND SEDIMENT CONTROL

The cost of materials, installation, inspection, maintenance, and removal of temporary erosion and sediment control measures at off-site locations designated in 205.03 will not be measured for payment.

Except for the removal of sediments, the payment for items in this section includes materials, installation, maintenance, removal and proper disposal of temporary erosion and sediment control items.

The cost of constructing, maintaining, and removal of the construction entrance, other than those constructed by the Contractor for borrow and waste sites, shall be included in the cost of No. 2 stone. No direct payment will be made for construction entrances for borrow and waste sites.

Costs associated with concrete washout shall be included in the costs of the concrete pay items.

Payment for sediment removal includes costs associated with temporary filter stone replacement due to maintenance and sediment removal.

Costs associated with the weekly and post-event inspections and all other inspections conducted prior to the contract completion date are to be included in the costs of the other pay items of this section.

COMMENTS AND ACTION

205-R-xxx STORM WATER MANAGEMENT

DISCUSSION:

This item was introduced and presented by Mr. Pankow who expressed that problems have been encountered with the interpretation of the various terms and processes associated with the current RSP 205-R-261. Mr. Pankow also stated that this proposal is to provide clarification of terms and processes within the RSP and to identify levels of training for the Storm Water Quality Manager based on the environmental impacts of the project. The intention is to place this revised RSP into all contracts containing Storm Water Management. Mr. Pelz further explained the details of the revisions that have been implemented.

Ms. Phillips recommended removing the "type" from the Temporary Mulch Stabilization pay item, and the group agreed. Ms. Phillips will look into the Manufactured Surface Protection Product item to see if the same issue applies.

Note: after more discussion outside the meeting, it was agreed that the Contractor is free to choose any of the products or types of mulch and Manufactured Surface Protection Products that are listed in the spec. Therefore, the pay items should be revised to removed "type" from the description.

Minor editorial revisions are as shown.

Motion: Mr. Pankow Second: Mr. Cales Ayes: 10 Nays: 0 FHWA Approval: <u>YES</u>	Action: <input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn
Standard Specifications Sections referenced and/or affected:	<input type="checkbox"/> 2018 Standard Specifications
101.01 pg 1 thru 3; 108.04 pg 83 thru 86; 109.05.2 pg 116 and 205 pg 180 thru 191.	<input checked="" type="checkbox"/> Revise Pay Items List
Recurring Special Provision affected:	<input type="checkbox"/> Create RSP (No. <u>205-R-xxx</u>) Effective <u>Sept. 01, 2016</u> Letting RSP Sunset Date:
205-R-261 QUALITY CONTROL TEMPORARY EROSION AND SEDIMENT CONTROL	<input type="checkbox"/> Delete* RSP (No. 205-R-261) Effective _____ Letting RSP Sunset Date: August 31, 2016
Standard Drawing affected: NONE	<input type="checkbox"/> Standard Drawing Effective
Design Manual Sections affected: CHAPTER 205	<input type="checkbox"/> Create RPD (No. _____) Effective _____ Letting
GIFE Sections cross-references: SECTION 3	<input checked="" type="checkbox"/> GIFE Update <input checked="" type="checkbox"/> SiteManager Update

*added 10/07/2016

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: sec 105.05 has not been updated to be consistent with current practice since the department went to an electronic format for contract documents.

PROPOSED SOLUTION: Revise 105.05; delete the first sentence and replace with: The contractor will be supplied with electronic access to documents pertaining to the contract. The contractor shall provide all paper copies necessary for the execution of the contract.

APPLICABLE STANDARD SPECIFICATIONS: 105.05

APPLICABLE STANDARD DRAWINGS: n/a

APPLICABLE DESIGN MANUAL SECTION: n/a

APPLICABLE SECTION OF GIFE: n/a

APPLICABLE RECURRING SPECIAL PROVISIONS: n/a

PAY ITEMS AFFECTED: n/a

APPLICABLE SUB-COMMITTEE ENDORSEMENT: none

IMPACT ANALYSIS (attach report): none

Submitted By: Bob Cales

Title: Director, Contract Administration

Organization: INDOT

Phone Number: 233-4794

Date: 01/05/2015

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD SPECIFICATIONS

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? no

Will approval of this item affect the Approved Materials List? no

Will this proposal improve:

Construction costs? no

Construction time? no

Customer satisfaction?

Congestion/travel time? no

Ride quality? no

Will this proposal reduce operational costs or maintenance effort? no

Will this item improve safety:

For motorists? no

For construction workers? no

Will this proposal improve quality for:

Construction procedures/processes? no

Asset preservation? no

Design process? no

Will this change provide the contractor more flexibility? no

Will this proposal provide clarification for the Contractor and field personnel? yes

Can this item improve/reduce the number of potential change orders?
maybe

Is this proposal needed for compliance with:

Federal or State regulations? no

AASHTO or other design code? no

Is this item editorial? yes

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO STANDARD SPECIFICATIONS

SECTION 105 - CONTROL OF WORK

105.05 COOPERATION BY CONTRACTOR

105-C-XXX COOPERATION BY CONTRACTOR

(Adopted xx-xx-16)

The Standard Specifications are revised as follows:

SECTION 105, BEGIN LINE 142, DELETE AND INSERT AS FOLLOWS:

105.05 Cooperation by Contractor

~~Four sets of approved plans and Proposal books will be furnished~~*The Department will furnish the Contractor all contract documents in electronic format without charge. The Contractor shall be responsible for generating printed copies for its own use* supplying all necessary information for use by contractor and subcontractor personnel. ~~Two printed sets shall be available on the worksite at all times.~~

APPROVED MINUTES

COMMENTS AND ACTION

105.05 COOPERATION BY CONTRACTOR

DISCUSSION:

Mr. Cales introduced this item and stated that section 105.05 of the Standard Specifications has not been updated to be consistent with current practice since the Department went to an electronic format for contract documents. The proposal therefore, is to revise 105.05 as shown above. Additional revisions, proposed by Mr. Cales, are shown highlighted above.

Following a very brief discussion, for clarification purposes, the committee approved this item as revised.

Mr. Pankow was not in attendance for this item.

Motion: Mr. Cales Second: Ms. Phillips Ayes: 9 Nays: 0 FHWA Approval: <u>YES</u>	Action: <input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn
Standard Specifications Sections referenced and/or affected: 105.05 pg 44.	<input checked="" type="checkbox"/> 2018 Standard Specifications <input type="checkbox"/> Revise Pay Items List
Recurring Special Provision affected: NONE	<input checked="" type="checkbox"/> Create RSP (No. <u>105-C-248</u>) Effective <u>March 01, 2016</u> Letting RSP Sunset Date: <u>2018</u> book
Standard Drawing affected: NONE	<input type="checkbox"/> Revise RSP (No. <u> </u>) Effective <u> </u> Letting RSP Sunset Date:
Design Manual Sections affected: NONE	<input type="checkbox"/> Standard Drawing Effective
GIFE Sections cross-references: NONE	<input type="checkbox"/> Create RPD (No. <u> </u>) Effective <u> </u> Letting <input type="checkbox"/> GIFE Update

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO RECURRING SPECIAL PROVISIONS AND PLAN DETAILS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Every bridge is required by FHWA to have initial and periodic inspections (routine, underwater, special) at very specific times in the life of the bridge. There have been incidents where Contractors claiming safety concerns, jurisdiction or liability issues have not allowed INDOT Bridge Inspection staff, or their agents, to perform inspections. As a result, INDOT was at risk and not compliant with the National Bridge Inventory inspection regulations.

On a related issue, there seems to be a general lack of understanding of the initial bridge inspection requirements for new, replaced and rehabilitated bridges. An initial bridge inspection is required within 90 days of the bridge being opened to traffic. The Bridge Inspection staff should be notified when a new, replaced or rehabilitated bridge is open to traffic. This include partial bridges being constructed in phases.

PROPOSED SOLUTION: Create an RSP that identifies the bridges within a contract's construction limits, the inspections that may be required during construction, and the associated timeframes.

APPLICABLE STANDARD SPECIFICATIONS: Reference to 105.05

APPLICABLE STANDARD DRAWINGS: none

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE:

APPLICABLE RECURRING SPECIAL PROVISIONS: create new ~~RPDRSP~~

PAY ITEMS AFFECTED: none

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc committee of Kate Francis, Andrew Pangallo, Scott Trammell, Derrick Hauser, Greg Pankow, Rob Goldner, Randy Strain, and Elizabeth Phillips

IMPACT ANALYSIS (attach report):

Submitted By: Elizabeth Phillips

Title: Standards and Policy Manager

Organization: Bridges Division

Phone Number: 232-6775

Date: 01-05-15

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO RECURRING SPECIAL PROVISIONS AND PLAN DETAILS

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval.
Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? no

Will approval of this item affect the Approved Materials List? no

Will this proposal improve:

Construction costs? no

Construction time? no

Customer satisfaction? no

Congestion/travel time? no

Ride quality? no

Will this proposal reduce operational costs or maintenance effort? no

Will this item improve safety:

For motorists? no

For construction workers? no

Will this proposal improve quality for:

Construction procedures/processes? yes

Asset preservation? yes

Design process? no

Will this change provide the contractor more flexibility? no

Will this proposal provide clarification for the Contractor and field personnel? yes

Can this item improve/reduce the number of potential change orders? no

Is this proposal needed for compliance with:

Federal or State regulations? yes

AASHTO or other design code? no

Is this item editorial? no

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO RECURRING SPECIAL PROVISIONS AND PLAN DETAILS
 PROPOSED NEW 105-C-xxxxd BRIDGE INSPECTION COORDINATION

105-C-xxxxd BRIDGE INSPECTION COORDINATION

(Adopted xx-xx-16)

The following routine, fracture critical, underwater or special bridge inspections are due to be performed by the Department's Bridge Inspection Office, or its authorized representative, on each bridge within the construction limits of the contract.

Structure Number	NBI Number	Location	Inspection Type	Last Inspection Date (MM/DD/YY)	Frequency (Mos.)	First Scheduled Inspection (MM/YY)	Second Scheduled Inspection (MM/YY)

Each bridge inspection shall be identified in the schedule of work in accordance with 108.04. Portions of each bridge replaced, reconstructed, or repaired and subsequently used for maintenance of traffic will be inspected within 90 days of being opened to traffic.

Notice will be given no less than seven days prior to each bridge inspection. Access, coordination and cooperation for the required bridge inspections shall be in accordance with 105.05.

COMMENTS AND ACTION

105-C-xxx**d** BRIDGE INSPECTION COORDINATION

DISCUSSION:

Ms. Phillips introduced and presented this item stating that every bridge is required by FHWA to have initial and periodic inspections at very specific times in the life of the bridge. There have been incidents where Contractors claiming safety concerns, jurisdiction or liability issues have not allowed INDOT Bridge Inspection staff, or their agents, to perform inspections. As a result, INDOT was at risk and not compliant with the National Bridge Inventory inspection regulations.

Ms. Phillips proposed to incorporate an RSP that identifies the bridges within a contract's construction limits, the inspections that may be required during construction, and the associated timeframes.

On a related issue, there seems to be a general lack of understanding of the initial bridge inspection requirements for new, replaced and rehabilitated bridges. An initial bridge inspection is required within 90 days of the bridge being opened to traffic. The Bridge Inspection staff needs to be notified when a new, replaced or rehabilitated bridge is open to traffic. This includes partial bridges being constructed in phases.

Mr. Koch inquired about responsibility to get the bridge on the list and Mr. Pangallo expressed that there is a construction memo that clarifies this. Mr. Miller stated that the memo information will need to be addressed in the GIFE. Ms. Phillips asked, and Mr. Pelz concurred, that the bridge inspection should be addressed during the preconstruction meetings. Mr. Miller stated that automated notification is being implemented in SiteManager to alert the bridge inspection department of each bridge related project.

Ms. Phillips will determine a Basis for Use for this RSP.

Motion: Ms. Phillips Second: Mr. Cales Ayes: 10 Nays: 0 FHWA Approval: <u>YES</u>	Action: <input checked="" type="checkbox"/> Passed as Submitted <input type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn
Standard Specifications Sections referenced and/or affected: 105.05 pg 44.	<input type="checkbox"/> 2018 Standard Specifications <input type="checkbox"/> Revise Pay Items List
Recurring Special Provision affected: NONE	<input checked="" type="checkbox"/> Create RSP (No. <u>105-C-247</u>) Effective <u>Sept. 01, 2016</u> Letting RSP Sunset Date: <u>TBD</u>
Standard Drawing affected: NONE	<input type="checkbox"/> Revise RSP (No. <u> </u>) Effective <u> </u> Letting RSP Sunset Date:
Design Manual Sections affected: NONE	<input type="checkbox"/> Standard Drawing Effective
GIFE Sections cross-references: NONE	<input type="checkbox"/> Create RPD (No. <u> </u>) Effective <u> </u> Letting <input checked="" type="checkbox"/> GIFE and Site Manager Update