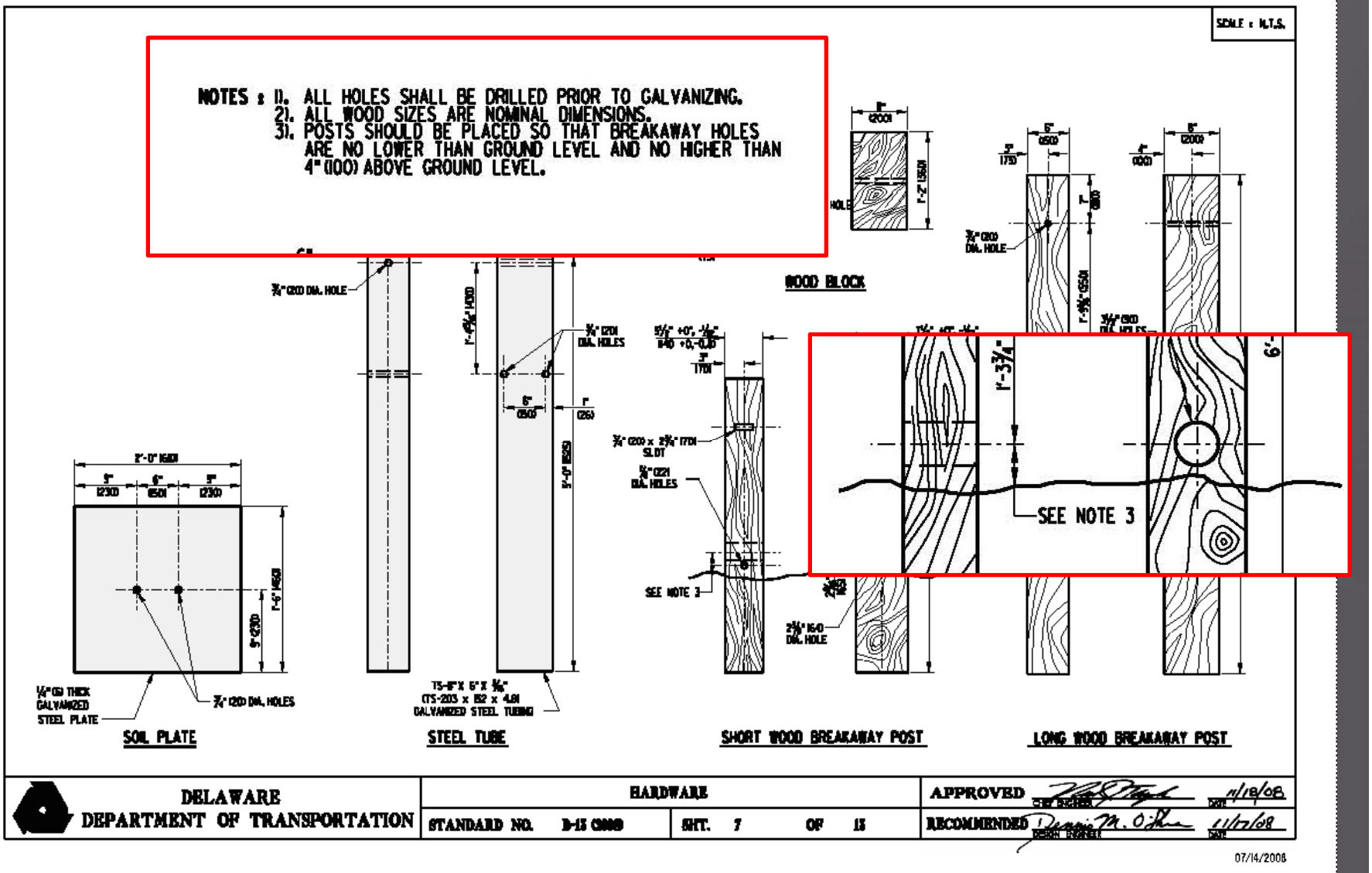
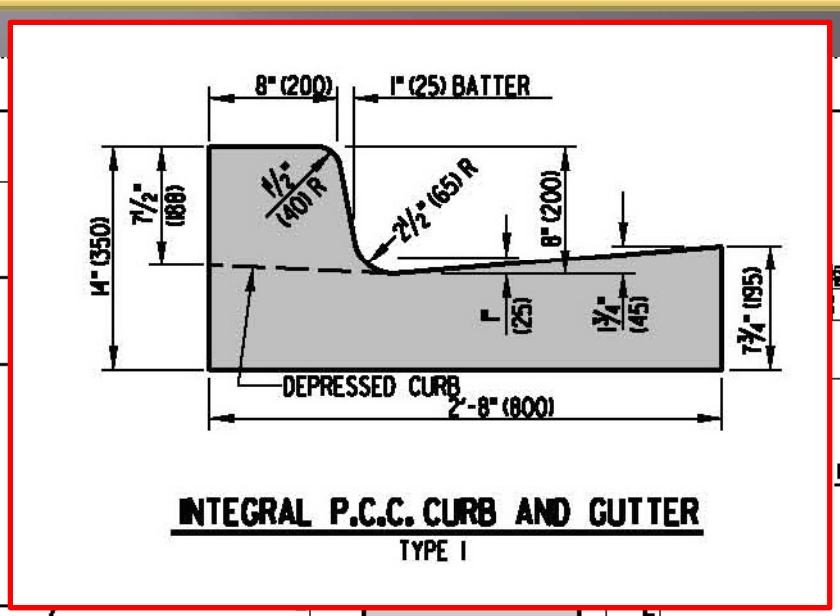
2008 STANDARD CONSTRUCTION DETAILS REVISION OVERVIEW

Billy Sweeney
Quality Section

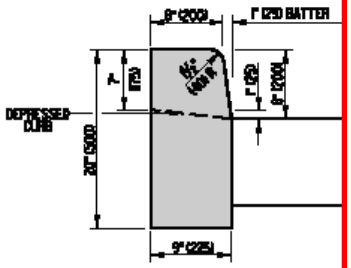
B-13, Sheet 7 of 13 – Hardware



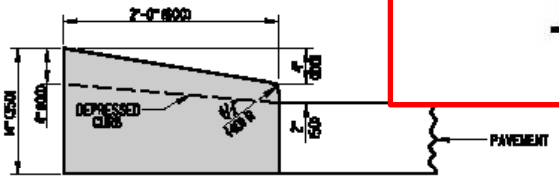
C-1, Sheet 1 of 1 – P.C.C. Curb, P.C.C. Curb & Gutter, and Hot-Mix Curb



INTEGRAL P.C.C. CURB AND GUTTER
TYPE 1



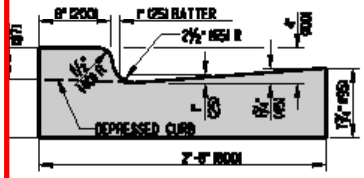
P.C.C. CURB
TYPE 1



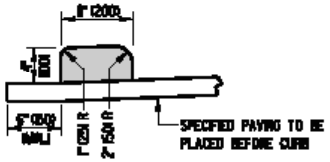
P.C.C. CURB
TYPE 2



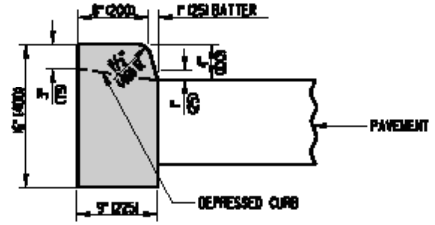
INTEGRAL P.C.C. CURB AND GUTTER
TYPE 2



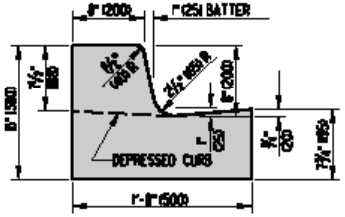
INTEGRAL P.C.C. CURB AND GUTTER
TYPE 4



HOT-MIX, HOT LAID BITUMINOUS CONCRETE CURB



P.C.C. CURB
TYPE 3



INTEGRAL P.C.C. CURB AND GUTTER
TYPE 3

SCALE : N.T.S.

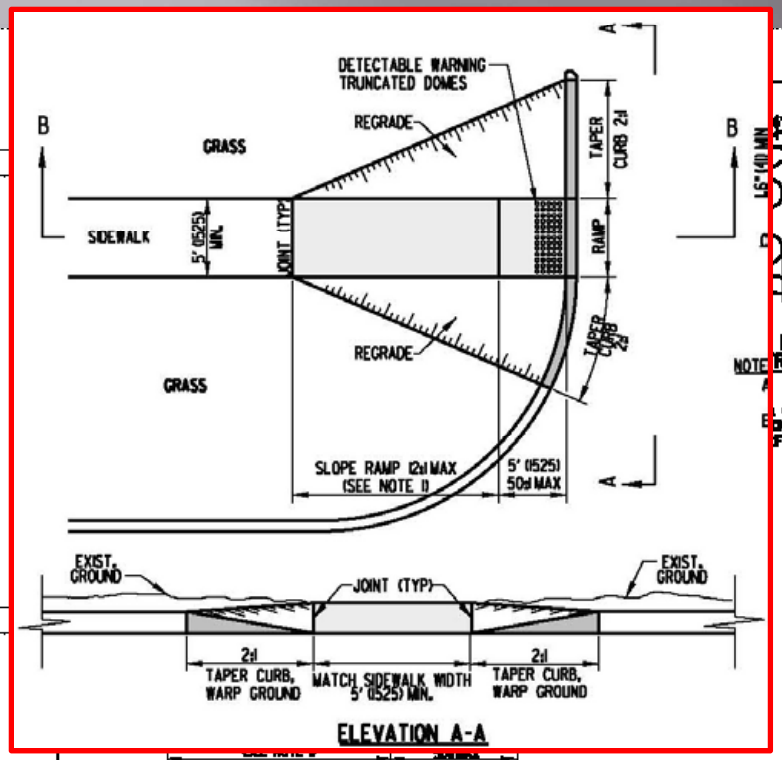
NOTES:

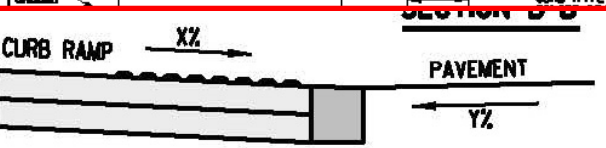
1. WHEN P.C.C. CURB OR INTEGRAL P.C.C. CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON DETAIL P-2, SHEET 5 OF 5. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.
2. DEPRESS CURB AT ENTRANCES AND CURB RAMPS AS DETAILED ON THIS SHEET.
3. DEPRESS CURB FLUSH WITH PAVEMENT AT CURB RAMPS. MAXIMUM SLOPE OF CURB AT CURB RAMPS IS 20MM THE DIRECTION OF PEDESTRIAN TRAVEL. SEE DETAIL C-2, SHEET 1 OF 4.
4. DEPRESS CURB FLUSH WITH PAVEMENT OR ADJACENT AREA AT NOSE OF ISLANDS, TAPERING BACK TO FULL HEIGHT AT A SLOPE OF 12:1.

DELAWARE DEPARTMENT OF TRANSPORTATION	P.C.C. CURB, P.C.C. CURB & GUTTER, AND HOT-MIX CURB		APPROVED [signature] CHIEF ENGINEER DATE 11/18/08
	STANDARD NO. C-1 (800)	SHT. 1 OF 1	RECOMMENDED [signature] DESIGN ENGINEER DATE 11/17/08

07/02/2008

C-2, Sheet 1 of 4 - Curb Ramp, Type 1 and Sections

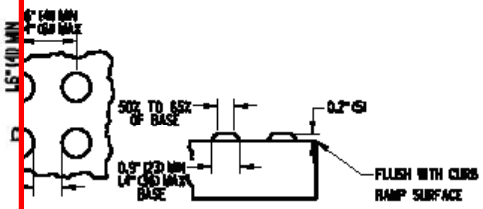




MAXIMUM DIFFERENCE IN GRADE

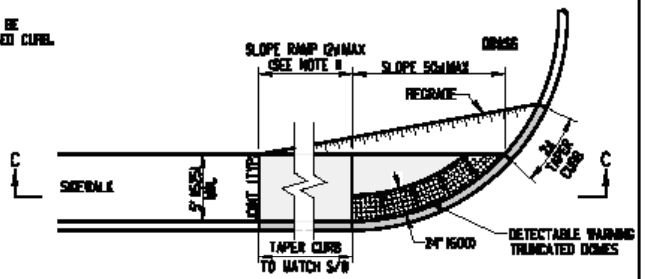
FOR EXAMPLE, IF THE CURB RAMP AND DEPRESSED CURB SLOPE (X) IS 8.1% AND THE PAVEMENT SLOPE (Y) IS 4.0%, THEN TO DETERMINE THE DIFFERENCE IN GRADE, ADD X + Y TO GET 12.1%. WHICH IS GREATER THAN THE 11% PREFERRED BUT LESS THAN THE 13% MAXIMUM.

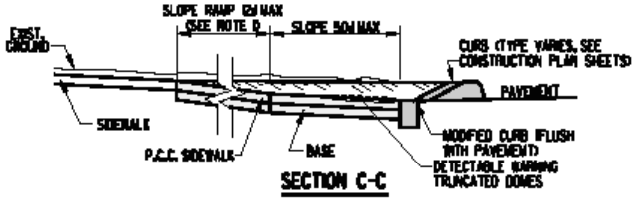
SCALE : N.T.S.



DETECTABLE WARNING TRUNCATED DOME DETAILS

NOTE A. OF DETECTABLE WARNING TRUNCATED DOMES SHALL BE ING AND THE FULL WIDTH OF THE RAMP OR DEPRESSED CURB. IFICATION FOR ADDITIONAL INFORMATION.





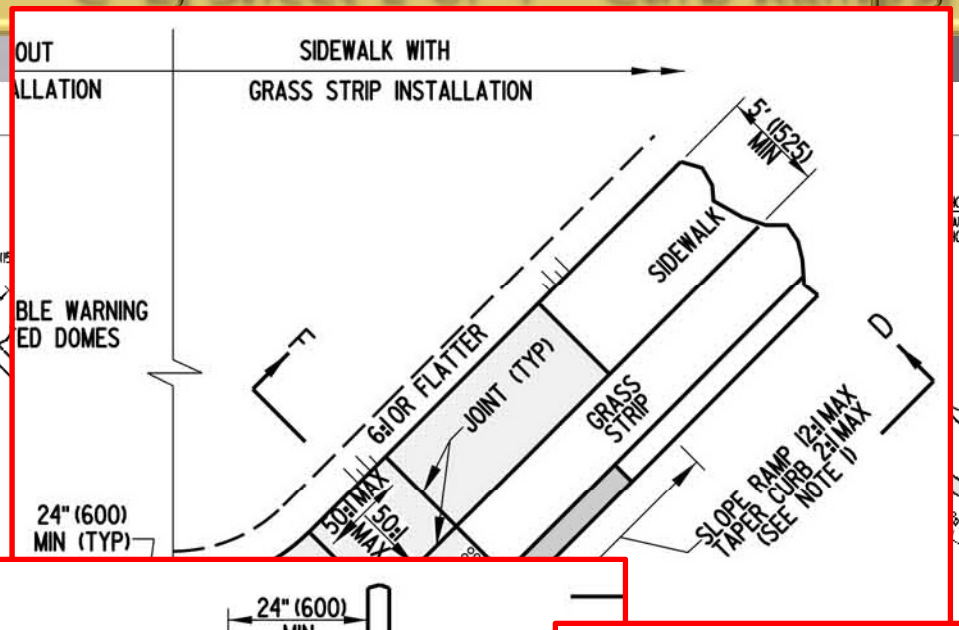
SECTION C-C

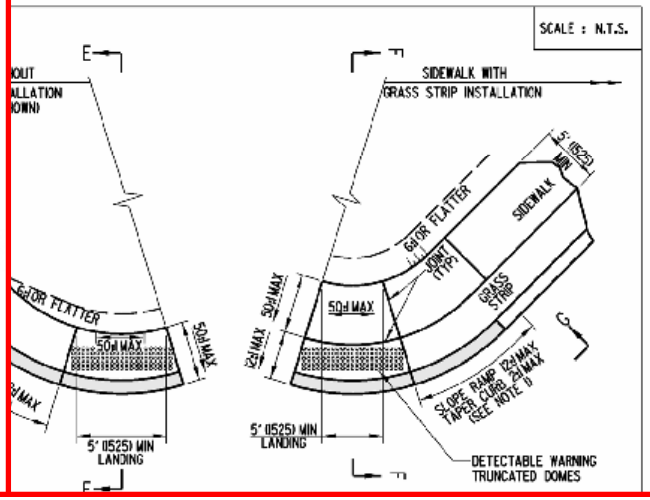
NOTES:
1. WHERE A 12d MAXIMUM SLOPE RAMP WILL NOT MEET THE SIDEWALK GRADE WITHIN A LENGTH OF 15' (4570) DUE TO STEEP ADJACENT ROADWAY, THE RAMP LENGTH MAY BE LIMITED TO 15' (4570), AND ALLOWED TO EXCEED 12d.
2. RAMP AND SIDEWALK CROSS SLOPE SHALL BE 50d (2%) MAXIMUM.
3. IF GRADING WILL BE STEEPER THAN 6d, THEN A TYPE I CURB OR RETAINING WALL SHOULD BE USED TO ELIMINATE THE NEED FOR THE STEEP SLOPE.
4. THE MAXIMUM DIFFERENCE IN GRADE BETWEEN THE CURB RAMP OR MODIFIED CURB AND THE PAVEMENT SHALL BE 6%, HOWEVER 4% IS PREFERRED.

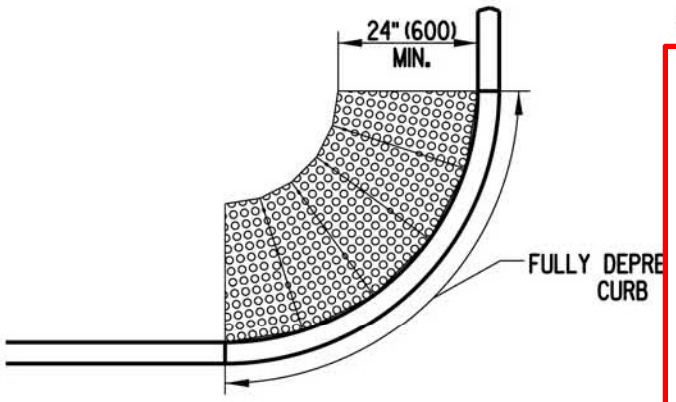
DELAWARE DEPARTMENT OF TRANSPORTATION	CURB RAMP, TYPE 1 AND SECTIONS		APPROVED	11/18/08
	STANDARD NO. C-1 (2009)	SHT. 1 OF 4	RECOMMENDED	11/17/08

10/15/2008

C-2, Sheet 2 of 4 – Curb Ramps, Types 2, 3, & 4







SAMPLE LAYOUT OF DETECTABLE WARNING TRUNCATED DOMES ALONG A CURB RADIUS

DETECTABLE WARNINGS SHALL BE PLACED THE FULL WIDTH OF THE DEPRESSED CURB.

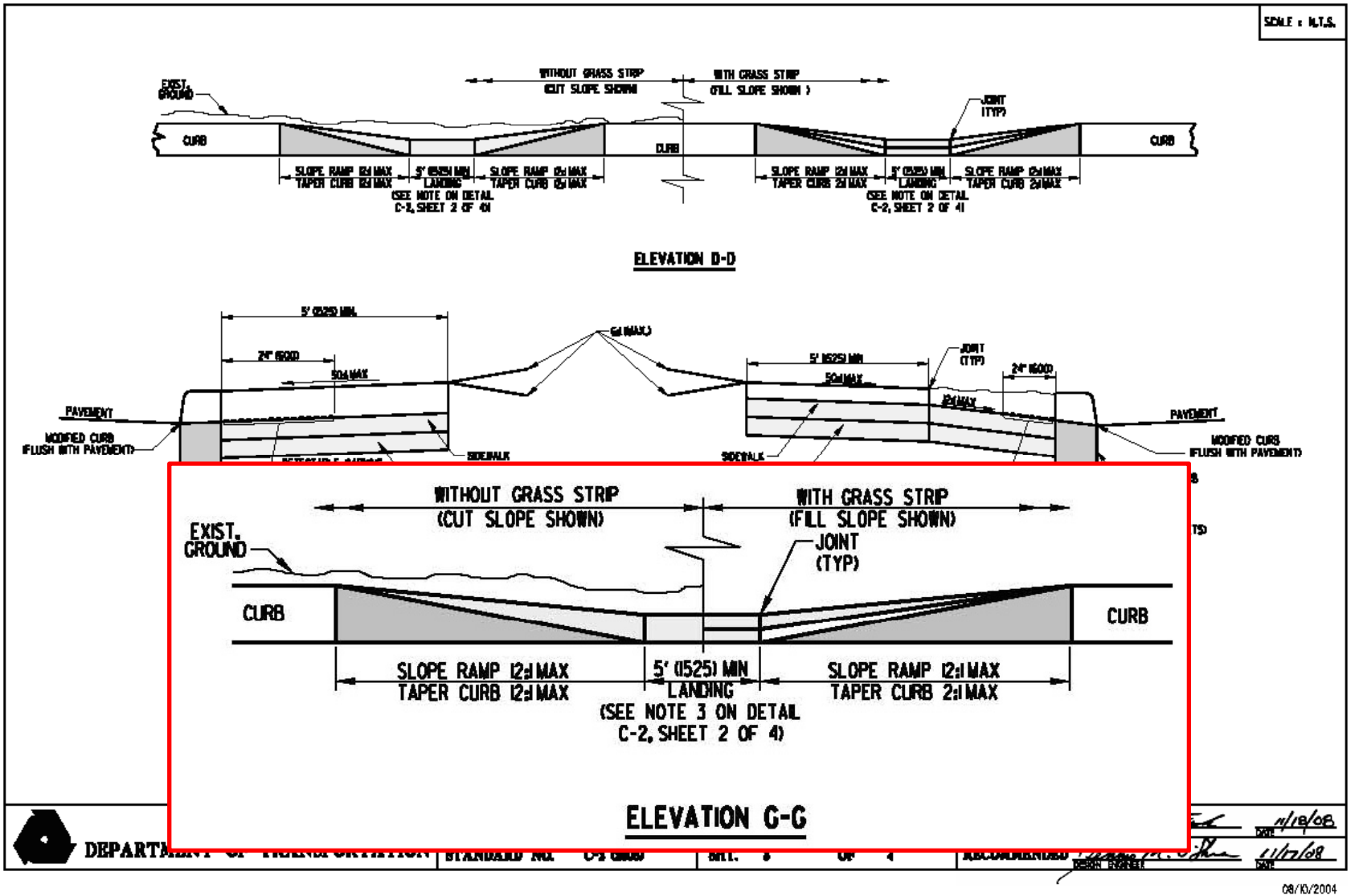
NOTES:

1). WHERE A 12:1 MAXIMUM SLOPE RAMP WILL NOT MEET THE SIDEWALK GRADE WITHIN A LENGTH OF 15' (4570) DUE TO STEEP ADJACENT ROADWAY, THE RAMP LENGTH MAY BE LIMITED TO 15' (4570), AND THE RAMP SLOPE ALLOWED TO EXCEED 12:1.
2). TRANSITION TO EXISTING SIDEWALK WIDTH OVER THE LENGTH OF THE RAMP.
3). RAMP AND SIDEWALK CROSS SLOPE SHALL BE 50:1 (2%) MAXIMUM.
4). IF GRADING WILL BE STEEPER THAN 6:1 ADJACENT TO THE CURB RAMP OR SIDEWALK, THEN A TYPE 1 CURB OR RETAINING WALL SHOULD BE USED TO ELIMINATE THE NEED FOR THE STEEP SLOPE.
5). FOR THE CURB RAMP, TYPE 3, IF THE WIDTH OF THE FULLY DEPRESSED CURB AT THE STREET IS MORE THAN 5' (1525), THE THE DETECTABLE WARNING TRUNCATED DOMES SHALL FOLLOW THE RADIUS OF THE CURB CONTINUOUSLY WITHOUT GAPS FOR THE ENTIRE LENGTH OF DEPRESSED CURB.
6). THE MAXIMUM DIFFERENCE IN GRADE BETWEEN THE SIDEWALK OR CURB AND THE PAVEMENT SHALL BE 13%, HOWEVER 11% IS PREFERRED. SEE STANDARD NO. C-2, SHEET 1 OF 4.
7). IF THE WIDTH OF THE FULLY DEPRESSED CURVED CURB AT THE STREET IS 5' (1525) OR LESS, THEN A RECTANGULAR PIECE OF DETECTABLE WARNING TRUNCATED DOMES MAY BE USED.

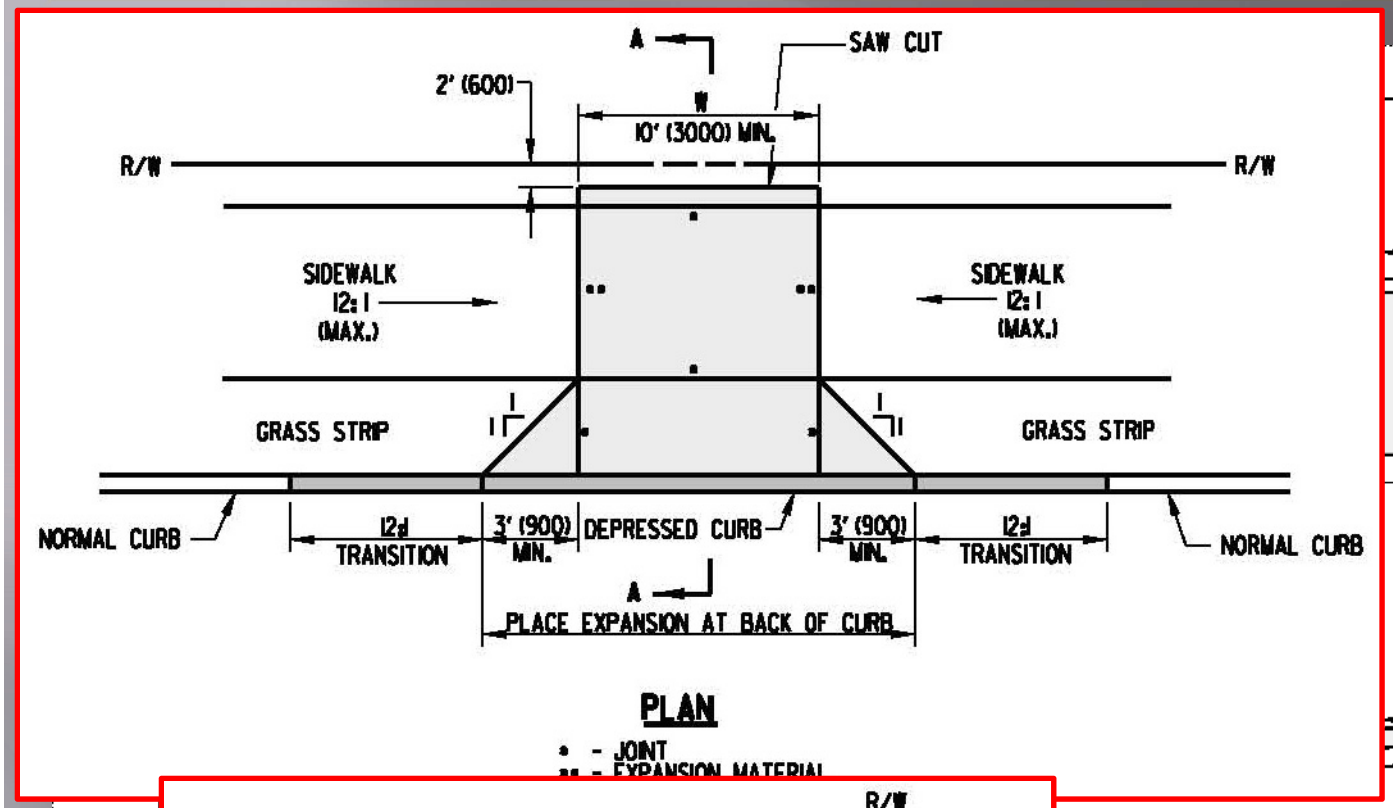
DELAWARE DEPARTMENT OF TRANSPORTATION	CURB RAMPS, TYPES 2,3,& 4		APPROVED CHIEF ENGINEER 11/18/08 DATE
	STANDARD NO. C-2 (2008)	SHT. 2 OF 4	RECOMMENDED Dennis M. O'Shea CHIEF ENGINEER 11/17/08 DATE

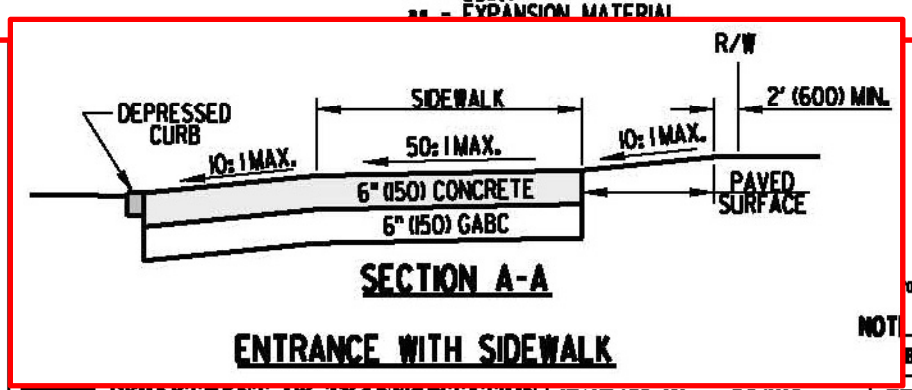
11/16/2008

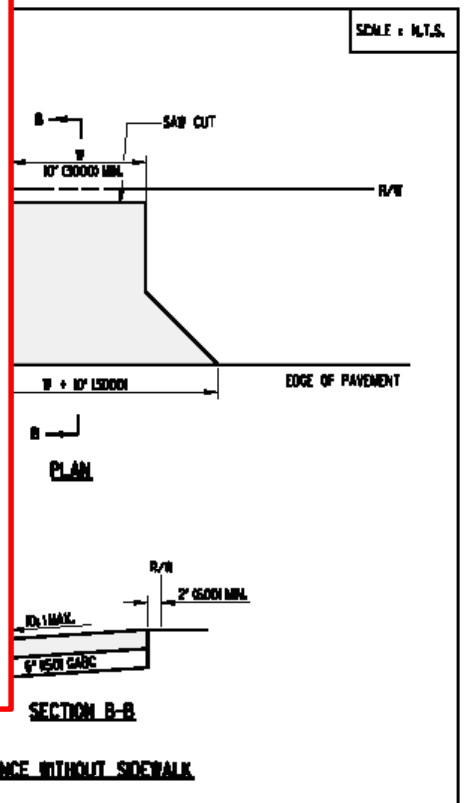
C-2, Sheet 3 of 4 - Curb Ramp Sections for Types 2 & 3



C-3, Sheet 1 of 1 – Entrances







00 OR GREATER, THE M FLARE CAN BE OMITTED.

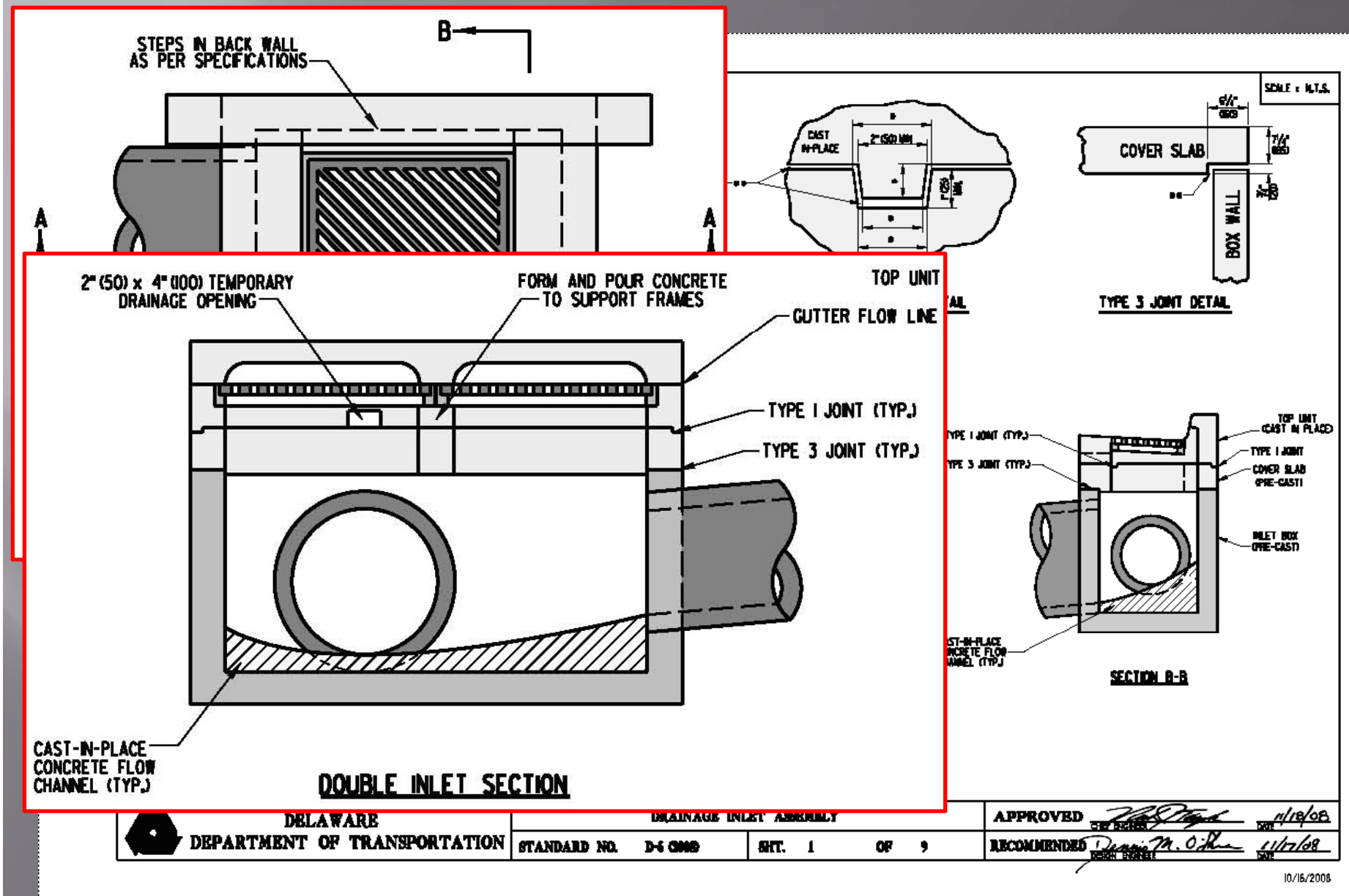
DEPARTMENT OF TRANSPORTATION | STANDARD NO. C-3 (2009) | SHT. 1 OF 1

APPROVED [signature] CHIEF ENGINEER DATE 11/18/08

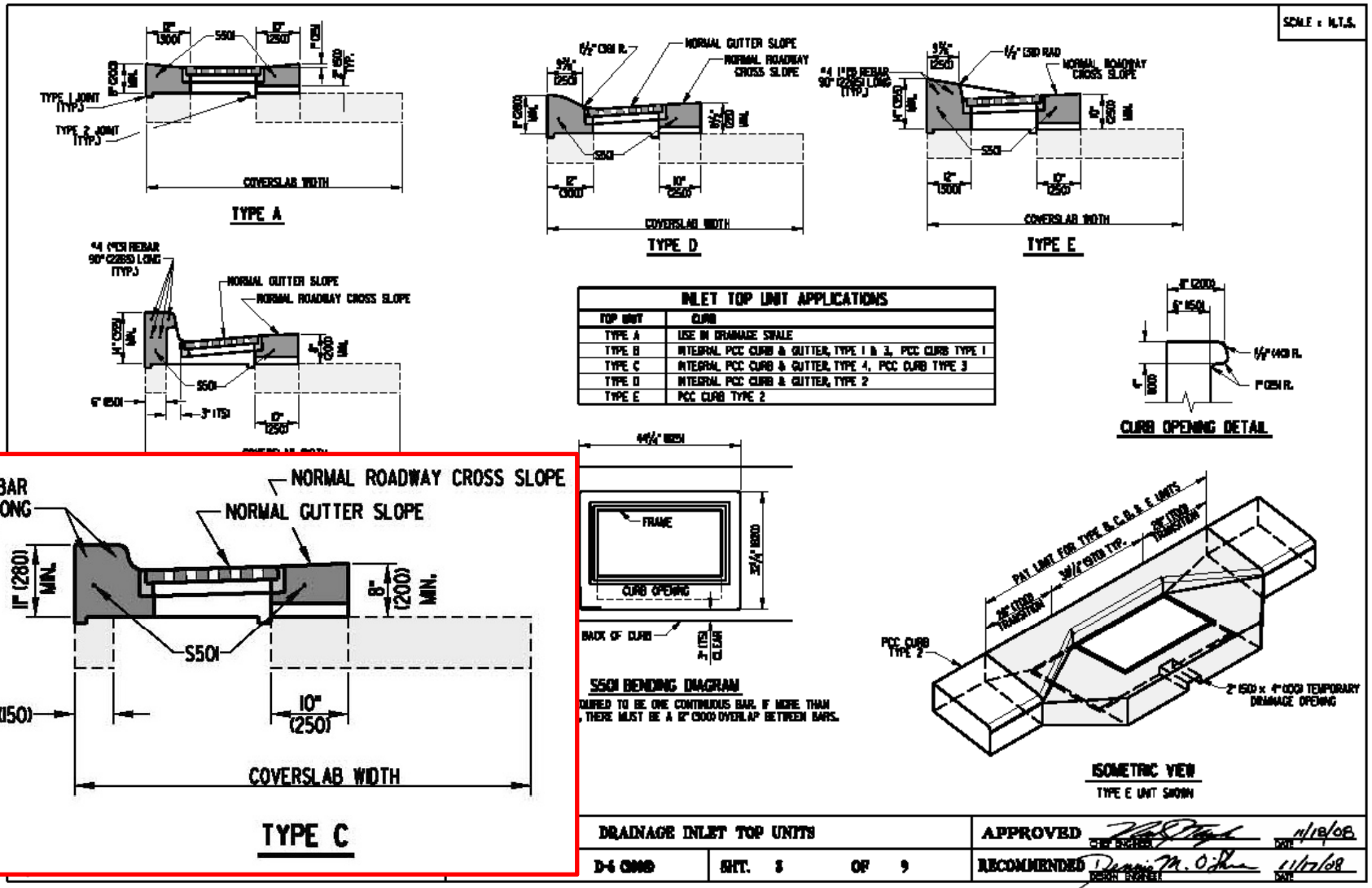
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09/10/2008

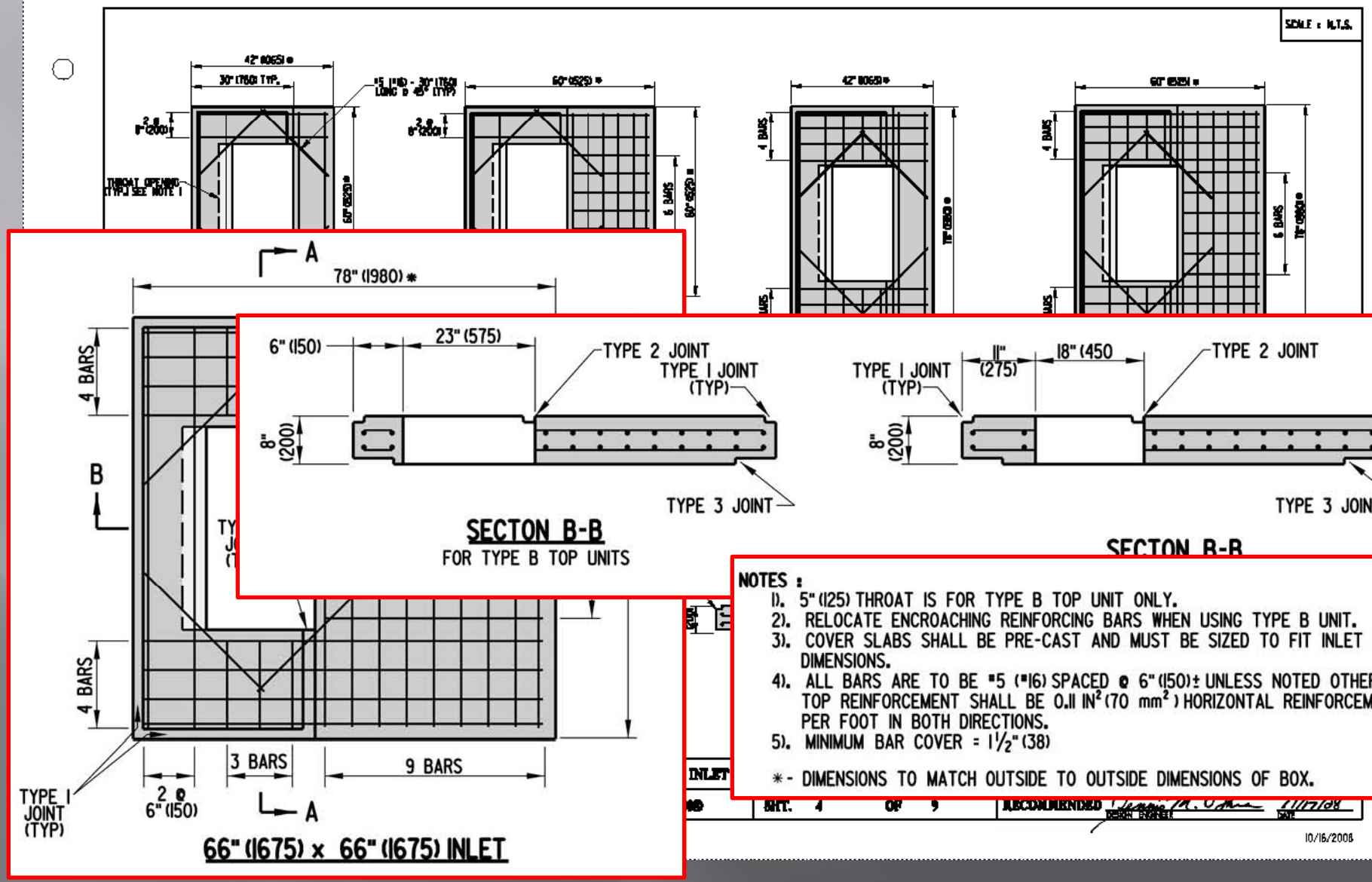
D-5, Sheet 1 of 9 - Drainage Inlet Assembly



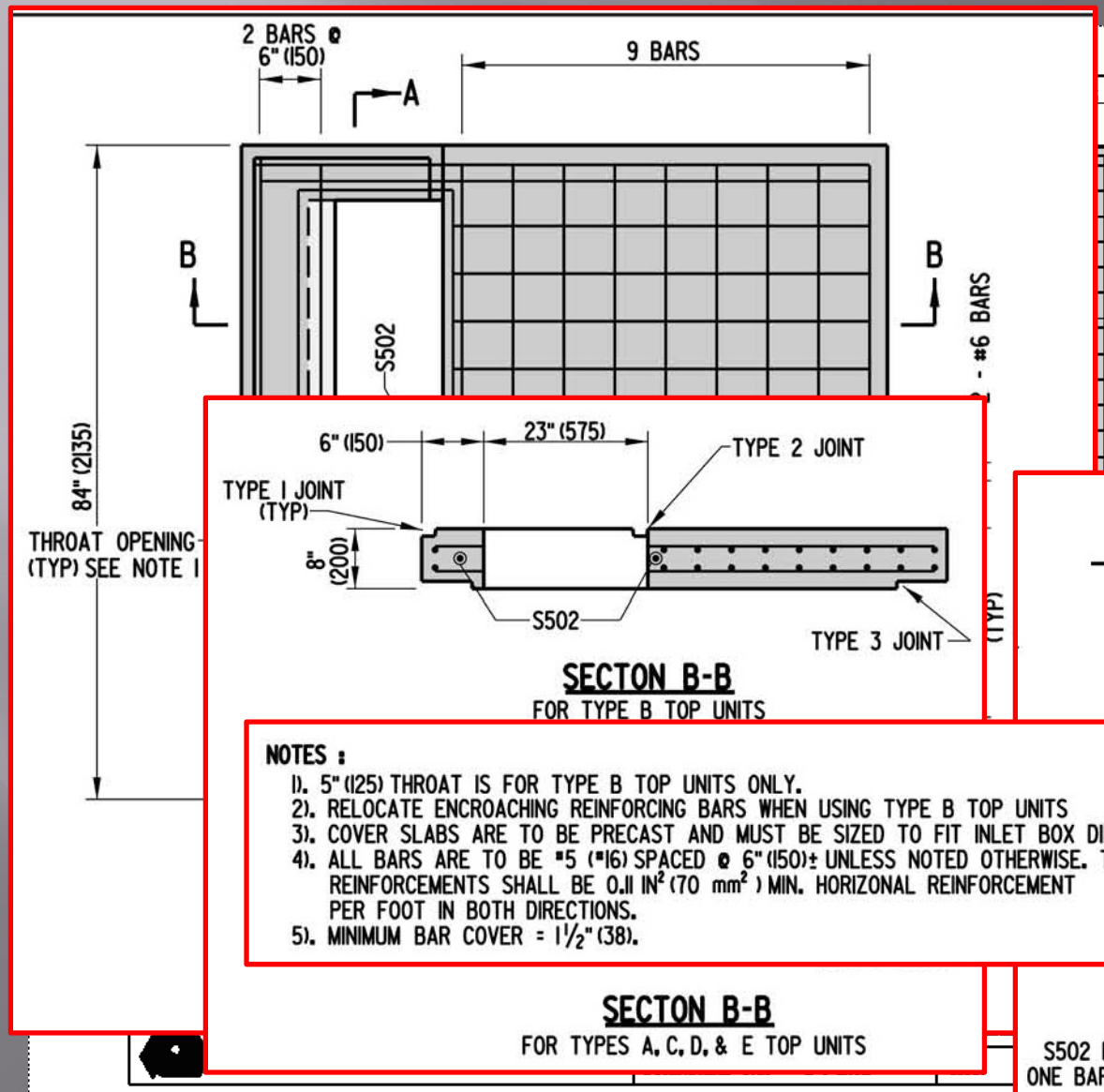
D-5, Sheet 3 of 9 – Drainage Inlet Top Units



D-5, Sheet 4 of 9 – Drainage Inlet Cover Slab Details



D-5, Sheet 5 of 9 - Double Inlet Cover Slab Details

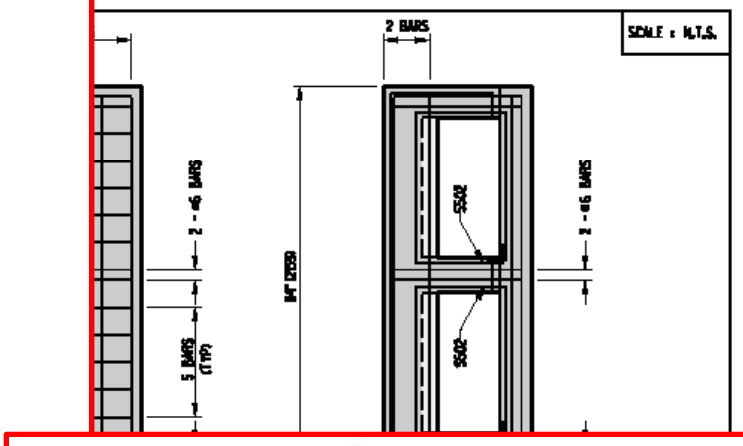


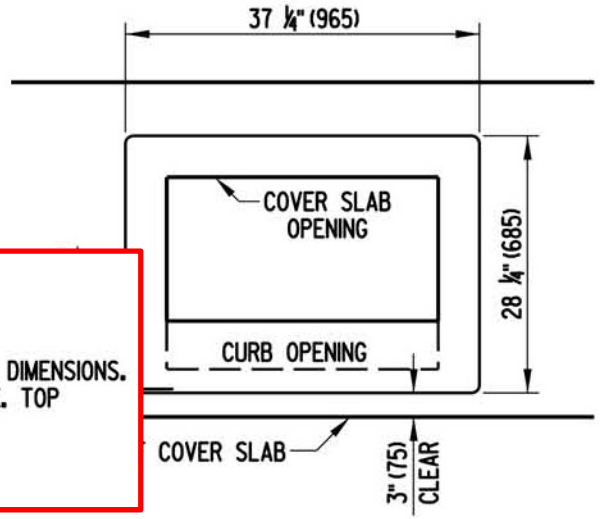
SECTON B-B
FOR TYPE B TOP UNITS

NOTES :

1). 5" (125) THROAT IS FOR TYPE B TOP UNITS ONLY.
2). RELOCATE ENCROACHING REINFORCING BARS WHEN USING TYPE B TOP UNITS
3). COVER SLABS ARE TO BE PRECAST AND MUST BE SIZED TO FIT INLET BOX DIMENSIONS.
4). ALL BARS ARE TO BE #5 (#16) SPACED @ 6" (150)± UNLESS NOTED OTHERWISE. TOP REINFORCEMENTS SHALL BE 0.11 IN^2 (70 mm^2) MIN. HORIZONAL REINFORCEMENT PER FOOT IN BOTH DIRECTIONS.
5). MINIMUM BAR COVER = 1½" (38).

SECTON B-B
FOR TYPES A, C, D, & E TOP UNITS

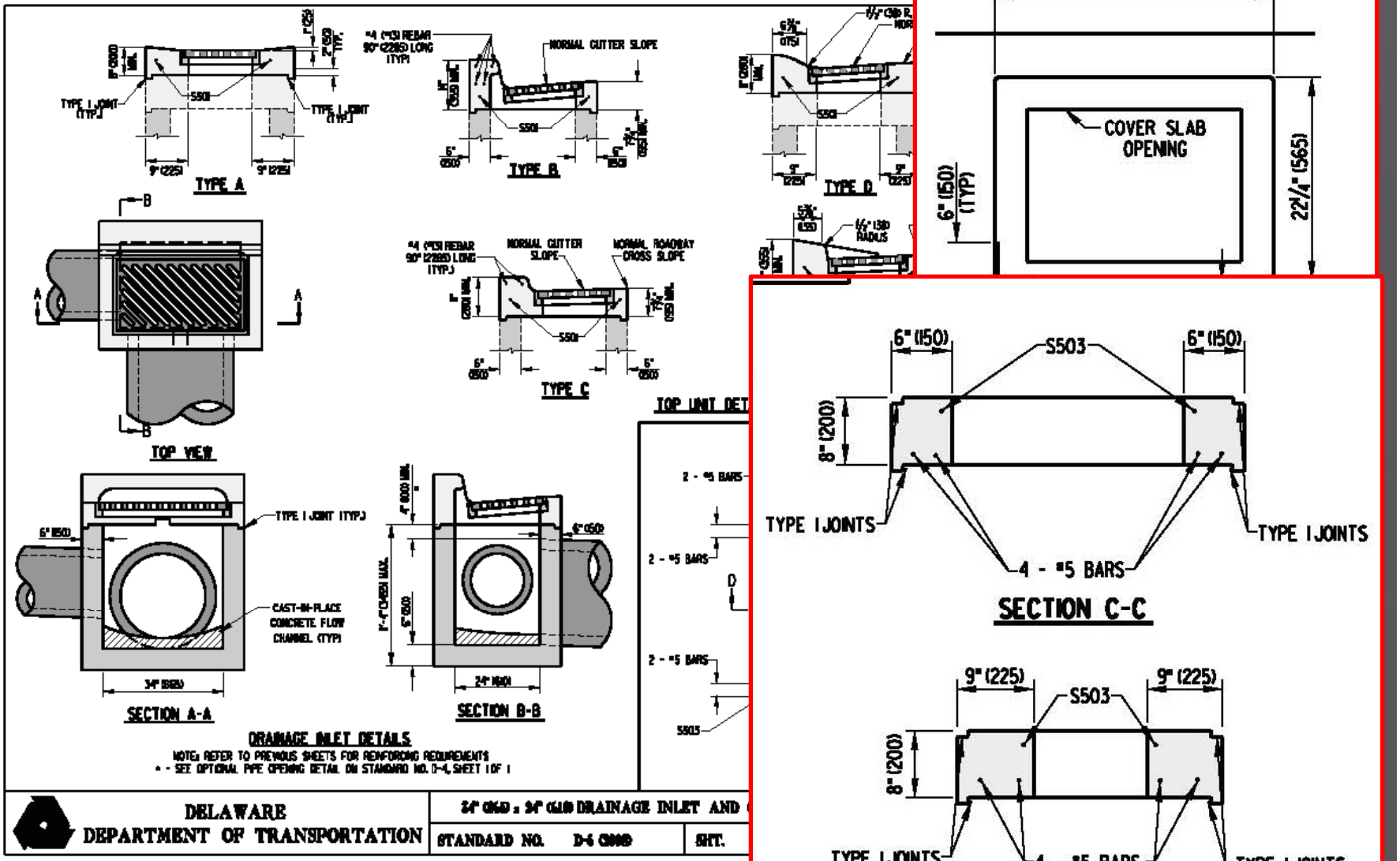




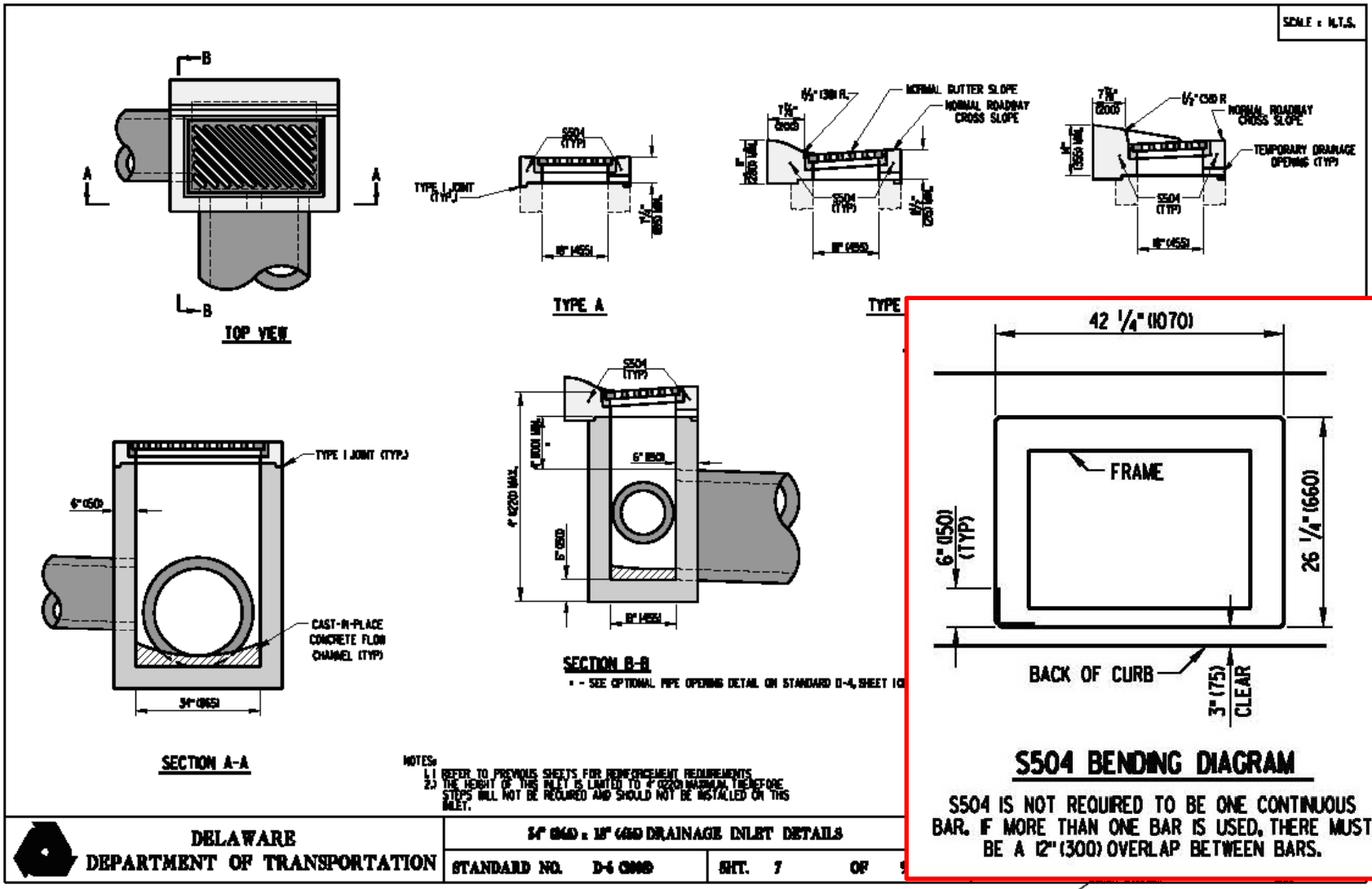
S502 BENDING DIAGRAM

S502 IS NOT REQUIRED TO BE ONE CONTINUOUS BAR. IF MORE THAN ONE BAR IS USED, THERE MUST BE A 12" (300) OVERLAP BETWEEN BARS.

D-5, Sheet 6 of 9 – 34" (865) x 24" (610) Drainage Inlet and Cover Slab Details



D-5, Sheet 7 of 9 – 34” (865) x 18” (455) Drainage Inlet Details

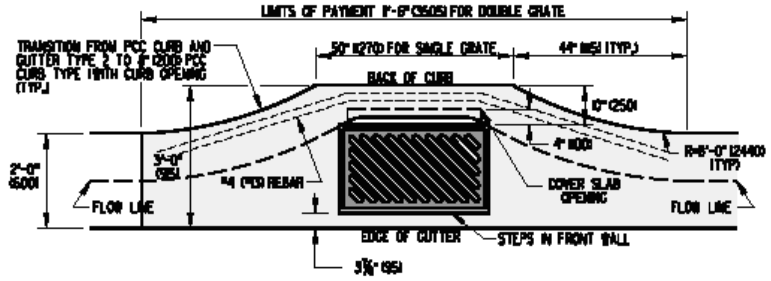


S504 BENDING DIAGRAM

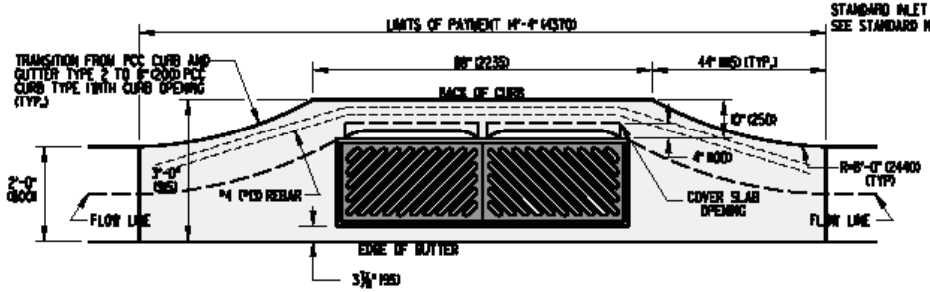
S504 IS NOT REQUIRED TO BE ONE CONTINUOUS BAR. IF MORE THAN ONE BAR IS USED, THERE MUST BE A 12" (300) OVERLAP BETWEEN BARS.

D-5, Sheet 8 of 9 – Subdivision Inlet Details

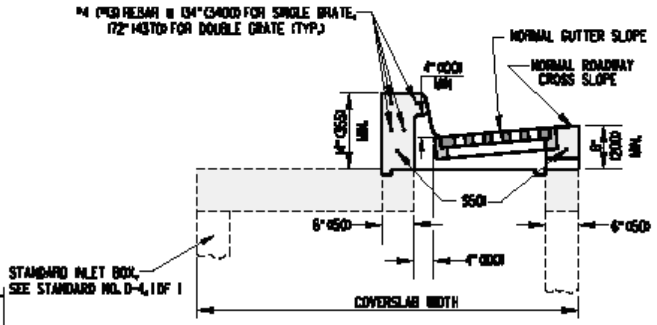
SCALE : N.T.S.



SINGLE GRATE SETUP



DOUBLE GRATE SETUP



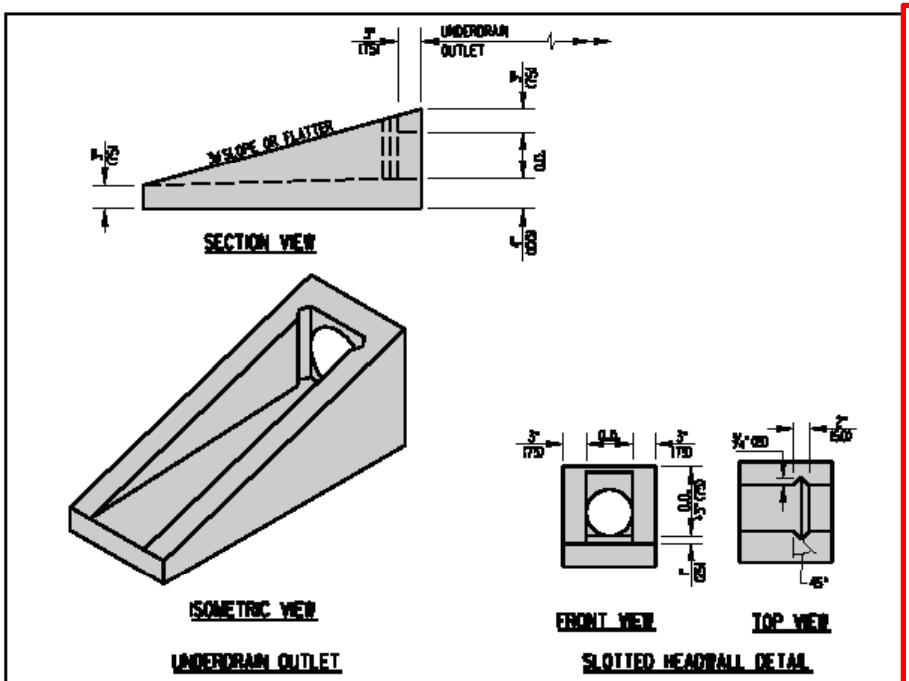
SUBDIVISION TOP & CONFIGURATION

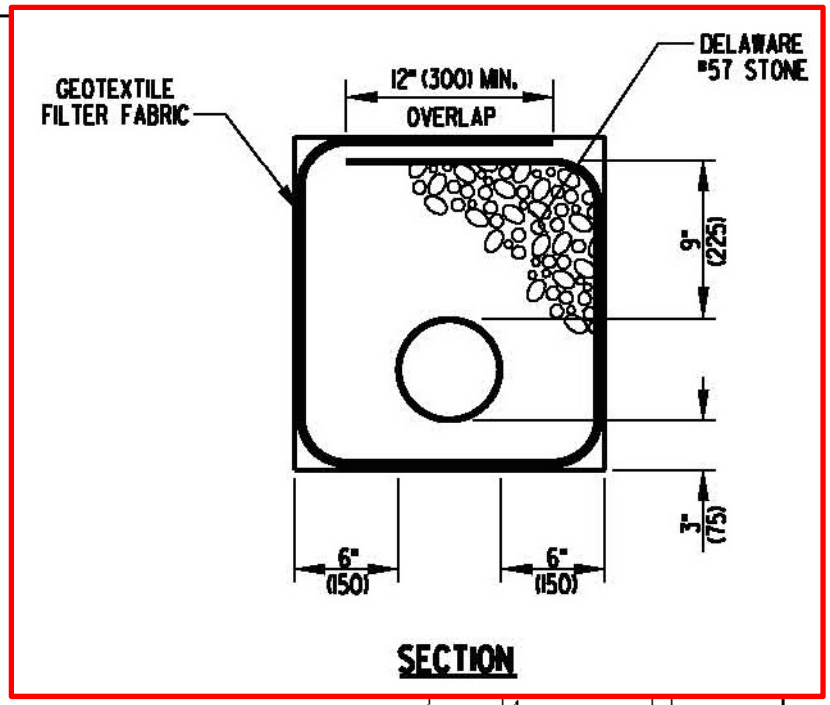
NOTES:
1. MINIMUM BOX SIZE TO BE 34" (1200) X 24" (600).
2. PIPE OPENINGS IN THE FRONT WALL SHALL NOT INTERFERE WITH THE STEPS. THE PIPE SHALL BE SHIFTED HORIZONTALLY TO AVOID THE STEPS. IT MAY BE NECESSARY TO USE A LARGER BOX TO AVOID CONFLICT BETWEEN STEPS AND PIPE OPENING.
3. SEE DETAIL D-5, SHEET 3 OF 9 FOR S250 BAR DIAGRAM.

DELAWARE DEPARTMENT OF TRANSPORTATION	SUBDIVISION INLET DETAILS		APPROVED CHIEF ENGINEER 11/18/08 DATE
	STANDARD NO. D-5 (2008)	SHT. 8 OF 9	RECOMMENDED DESIGN ENGINEER 11/17/08 DATE

10/21/2008

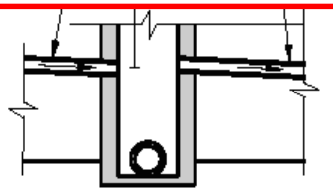
D-9, Sheet 1 of 1 – Perforated Pipe Underdrain Detail





NOTES:

1. THE PERFORATED PIPE UNDERDRAIN SHALL BE LOCATED AS SHOWN ON THE TYPICAL SECTIONS OF THE CONSTRUCTION PLANS.
2. GEOTEXTILE FILTER FABRIC SHALL BE PLACED ENTIRELY OVER THE TOP OF UNDERDRAIN TRENCH AND LAPPED AS SHOWN.
3. SLOPE OF UNDERDRAINS SHALL MATCH ROADWAY GRADE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. OUTLET PIPE CONFIGURATIONS SHALL USE 45 DEGREE ELBOWS OR SHALL USE STRAIGHT PIPE WITH A MINIMUM RADIUS OF 3' (900) TO DIRECT UNDERDRAIN PIPE INTO SIDE OF DRAINAGE INLET OR TO POSITIVE GRADE. PIPE SHALL ALSO BE NON-PERFORATED AND HAVE A SMOOTH INTERIOR.
5. RODENT SCREEN SHALL SNUGLY FIT THE PROVIDED SLOT WITH THE SCREEN LIP FITTING TIGHT TO THE BOTTOM FLOW LINE.
6. A 4' (1200) FLEXIBLE DELINEATOR SHALL BE FURNISHED AND INSTALLED AT THE DIRECTION OF THE ENGINEER TO MARK THE LOCATION OF THE CONCRETE HEADWALL.
7. WHEN TWO LINES OF PIPE UNDERDRAIN DRAIN TO A LOW POINT, EACH PIPE MUST HAVE ITS OWN OUTLET.
8. PERFORATED PIPE UNDERDRAIN SHALL NOT BE PLACED UNDER GUARDRAIL IN ORDER TO AVOID PUNCTURING.



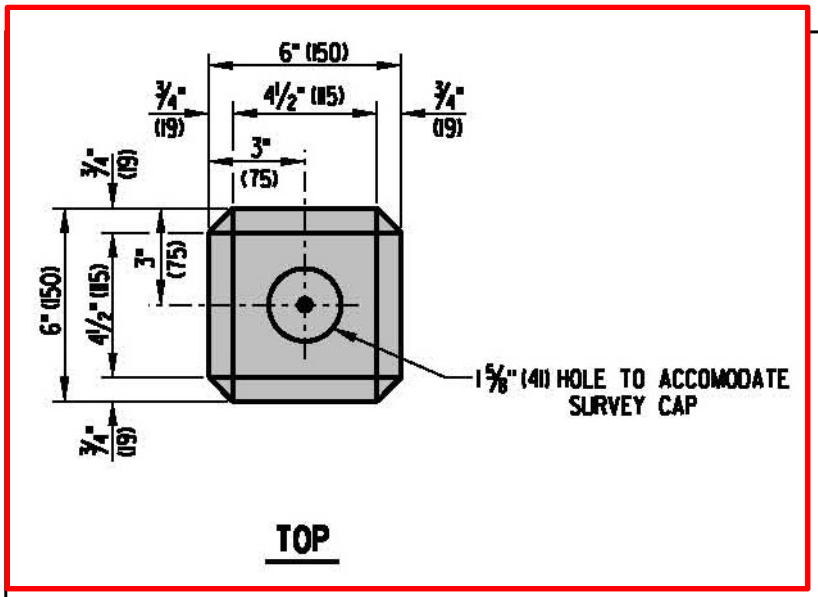
ELEVATION

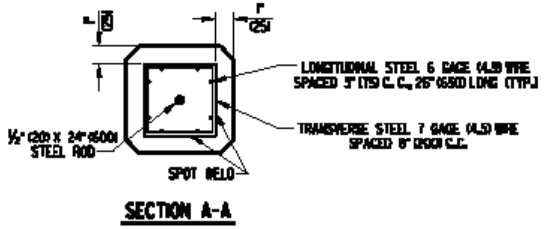
PERFORATED PIPE UNDERDRAIN

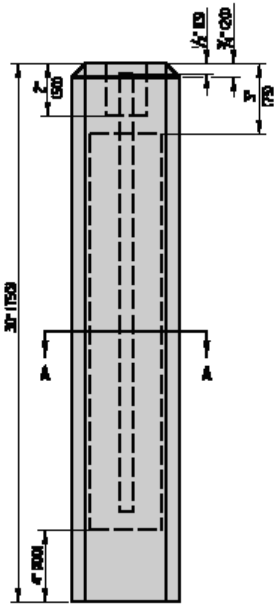
DELAWARE DEPARTMENT OF TRANSPORTATION	PERFORATED PIPE UNDERDRAIN DETAIL		APPROVED [signature] CHIEF ENGINEER DATE 11/18/08
	STANDARD NO. D-9 (2008)	SHT. 1 OF 1	RECOMMENDED [signature] DESIGN ENGINEER DATE 11/17/08

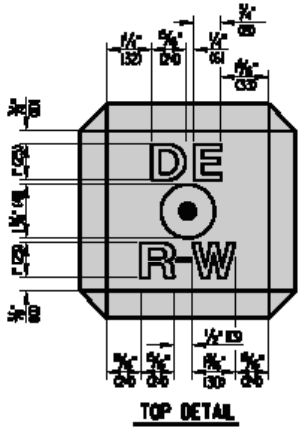
10/23/2008

M-2, Sheet 1 of 1 - Concrete Monument









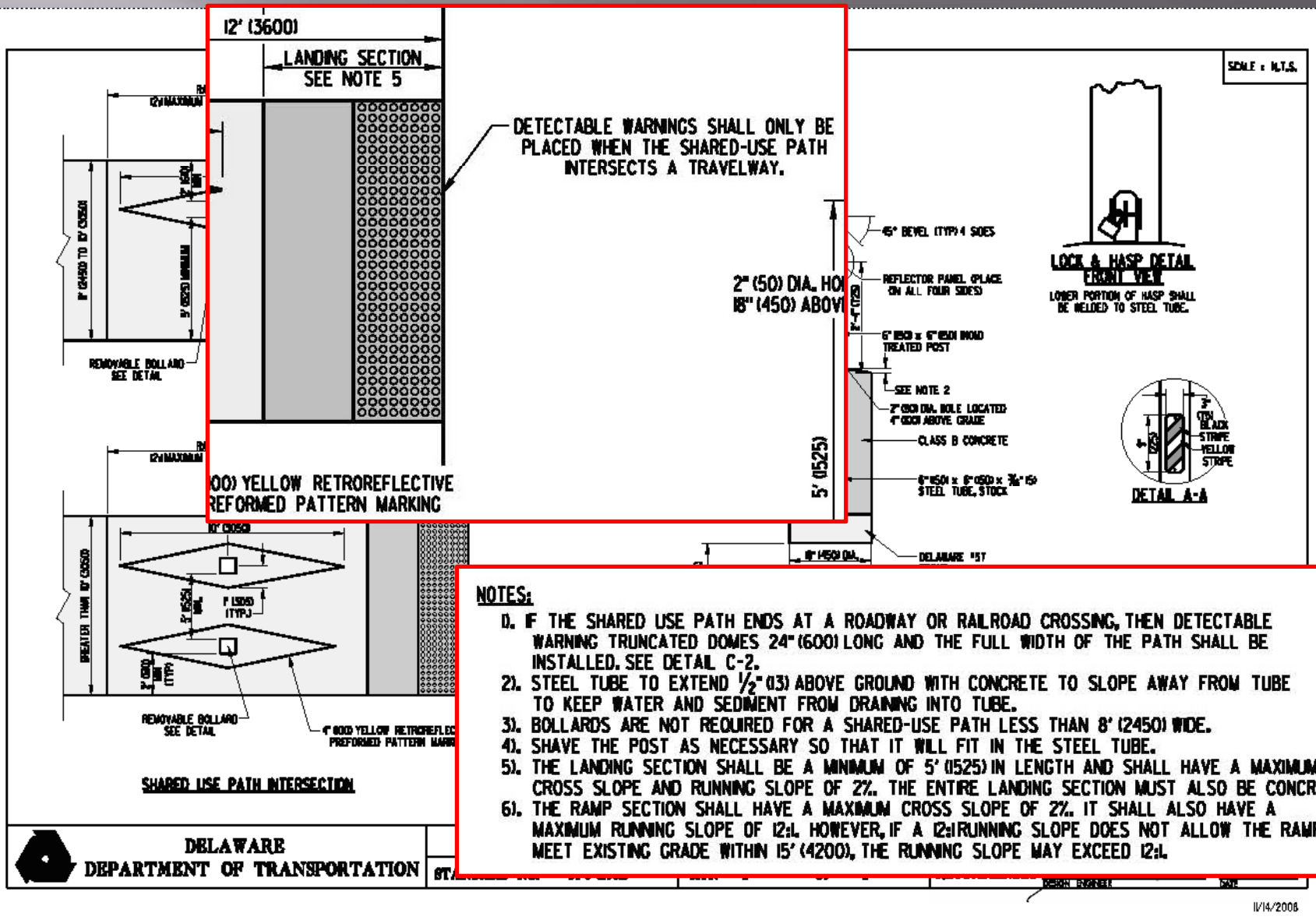
SCALE : N.T.S.

NOTES : 1. LONGITUDINAL STEEL SHALL BE HELD IN PLACE BY CRADLES.
2. LETTERS TO BE COUNTERSUNK IN TOP OF MARKER ¼" (6).

DELAWARE DEPARTMENT OF TRANSPORTATION	CONCRETE MONUMENT		APPROVED [signature] CHIEF ENGINEER DATE 11/18/08
	STANDARD NO. M-2 (2008)	SHT. 1 OF 1	RECOMMENDED [signature] DESIGN ENGINEER DATE 11/17/08

07/28/2008

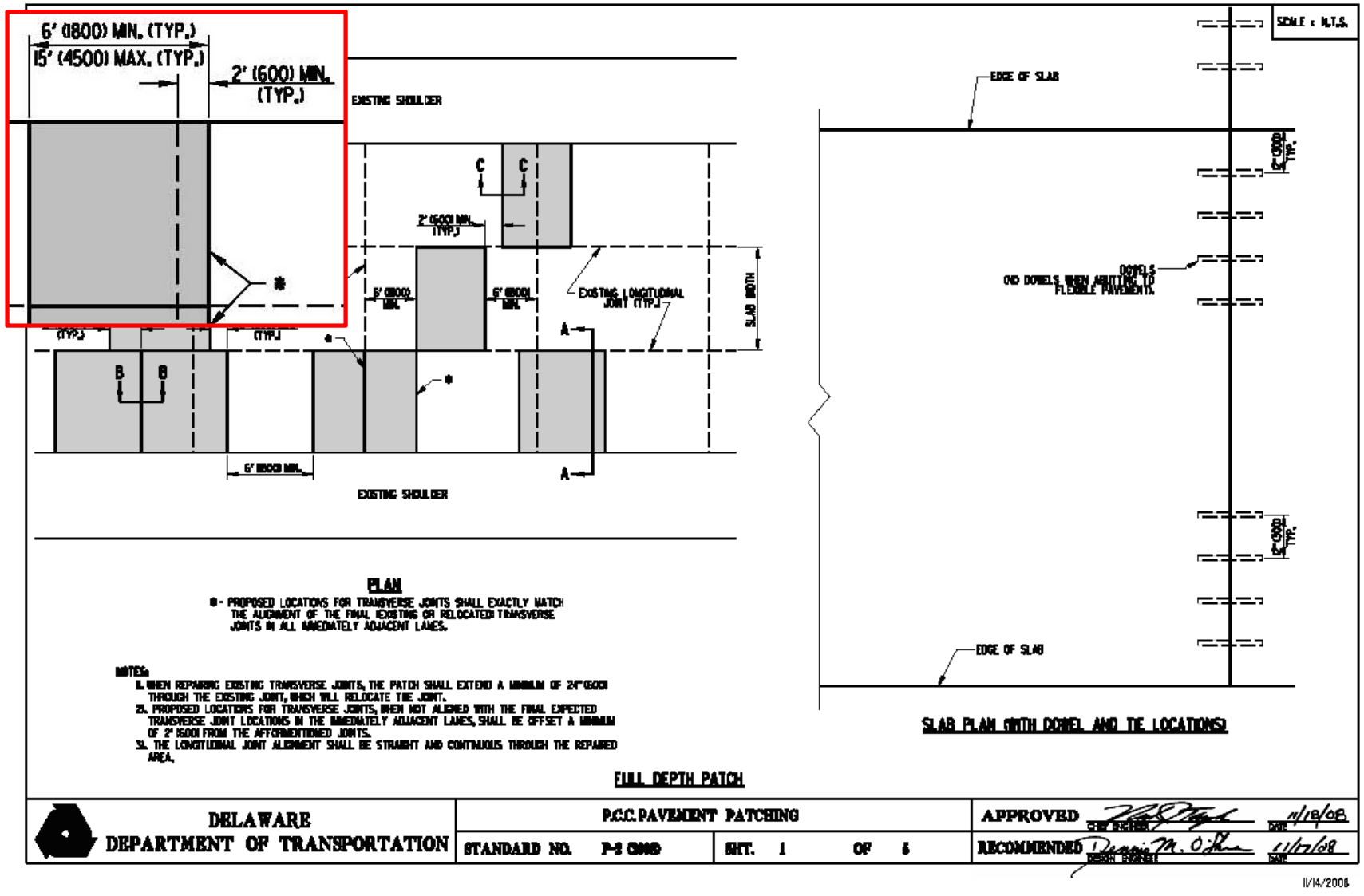
M-3, Sheet 1 of 1 - Bollard & Shared-Use Path Details



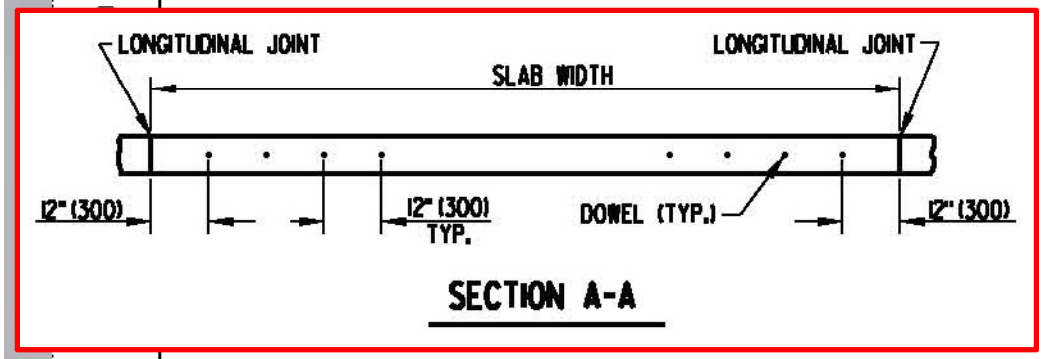
NOTES:

1. IF THE SHARED USE PATH ENDS AT A ROADWAY OR RAILROAD CROSSING, THEN DETECTABLE WARNING TRUNCATED DOMES 24" (600) LONG AND THE FULL WIDTH OF THE PATH SHALL BE INSTALLED. SEE DETAIL C-2.
2. STEEL TUBE TO EXTEND ½" (13) ABOVE GROUND WITH CONCRETE TO SLOPE AWAY FROM TUBE TO KEEP WATER AND SEDIMENT FROM DRAINING INTO TUBE.
3. BOLLARDS ARE NOT REQUIRED FOR A SHARED-USE PATH LESS THAN 8' (2450) WIDE.
4. SHAVE THE POST AS NECESSARY SO THAT IT WILL FIT IN THE STEEL TUBE.
5. THE LANDING SECTION SHALL BE A MINIMUM OF 5' (1525) IN LENGTH AND SHALL HAVE A MAXIMUM CROSS SLOPE AND RUNNING SLOPE OF 2%. THE ENTIRE LANDING SECTION MUST ALSO BE CONCRETE.
6. THE RAMP SECTION SHALL HAVE A MAXIMUM CROSS SLOPE OF 2%. IT SHALL ALSO HAVE A MAXIMUM RUNNING SLOPE OF 12:1. HOWEVER, IF A 12:1 RUNNING SLOPE DOES NOT ALLOW THE RAMP MEET EXISTING GRADE WITHIN 15' (4200), THE RUNNING SLOPE MAY EXCEED 12:1.

P-2, Sheet 1 of 5 – P.C.C. Pavement Patching

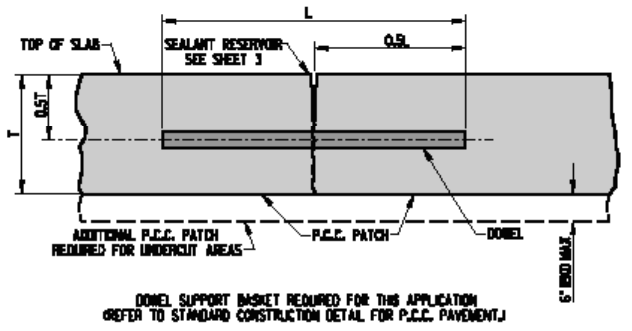


P-2, Sheet 2 of 5 – P.C.C. Pavement Patching



SECTION A-A

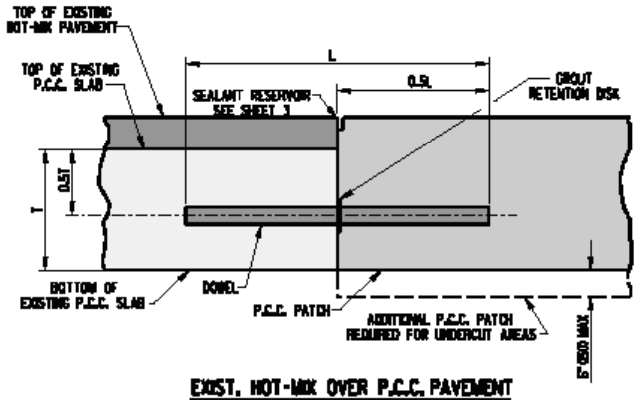
SCALE : N.T.S.



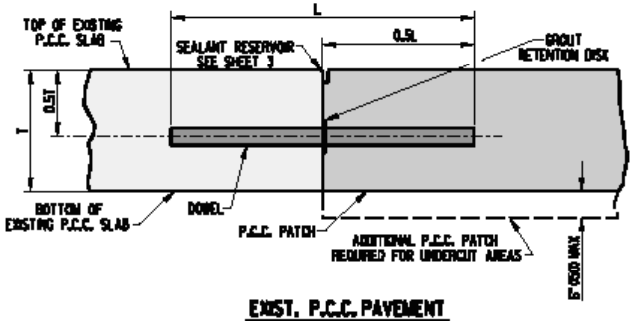
DOWEL SUPPORT BASKET REQUIRED FOR THIS APPLICATION (REFER TO STANDARD CONSTRUCTION DETAIL FOR P.C.C. PAVEMENT.)

SECTION B-B

TRANSVERSE SAW-CUT USED FOR JOINTS LOCATED WITHIN THE PATCH



EXIST. HOT-MIX OVER P.C.C. PAVEMENT



EXIST. P.C.C. PAVEMENT

SECTION C-C

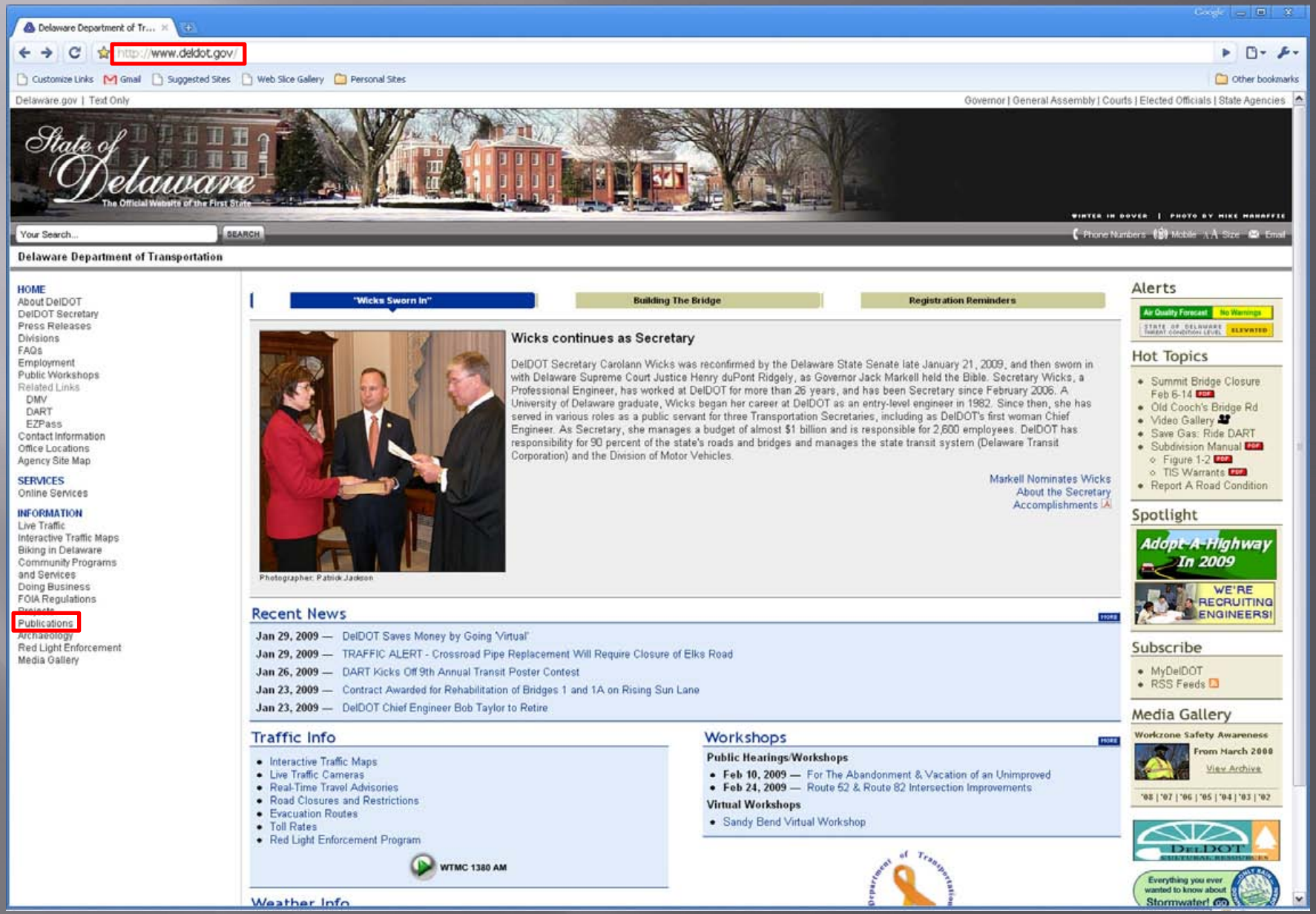
TRANSVERSE CONSTRUCTION JOINT USED ON JOINTS BETWEEN EXISTING PAVEMENT AND PATCH

FULL DEPTH PATCH

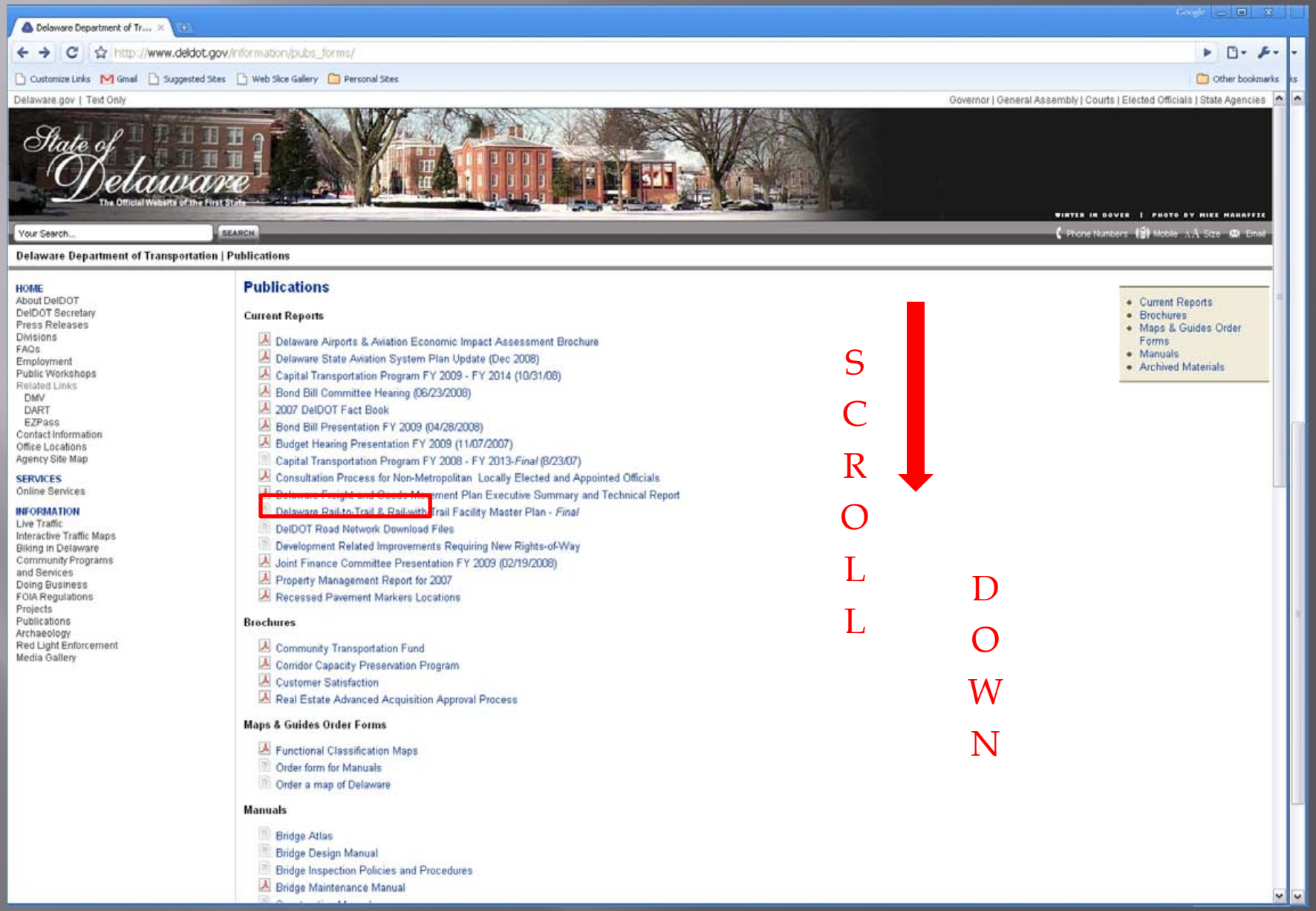
DELAWARE DEPARTMENT OF TRANSPORTATION	P.C.C. PAVEMENT PATCHING		APPROVED [signature] CHIEF ENGINEER DATE 11/18/08
	STANDARD NO. P-2 (2008)	SHT. 2 OF 5	RECOMMENDED [signature] DESIGN ENGINEER DATE 11/17/08

11/14/2008

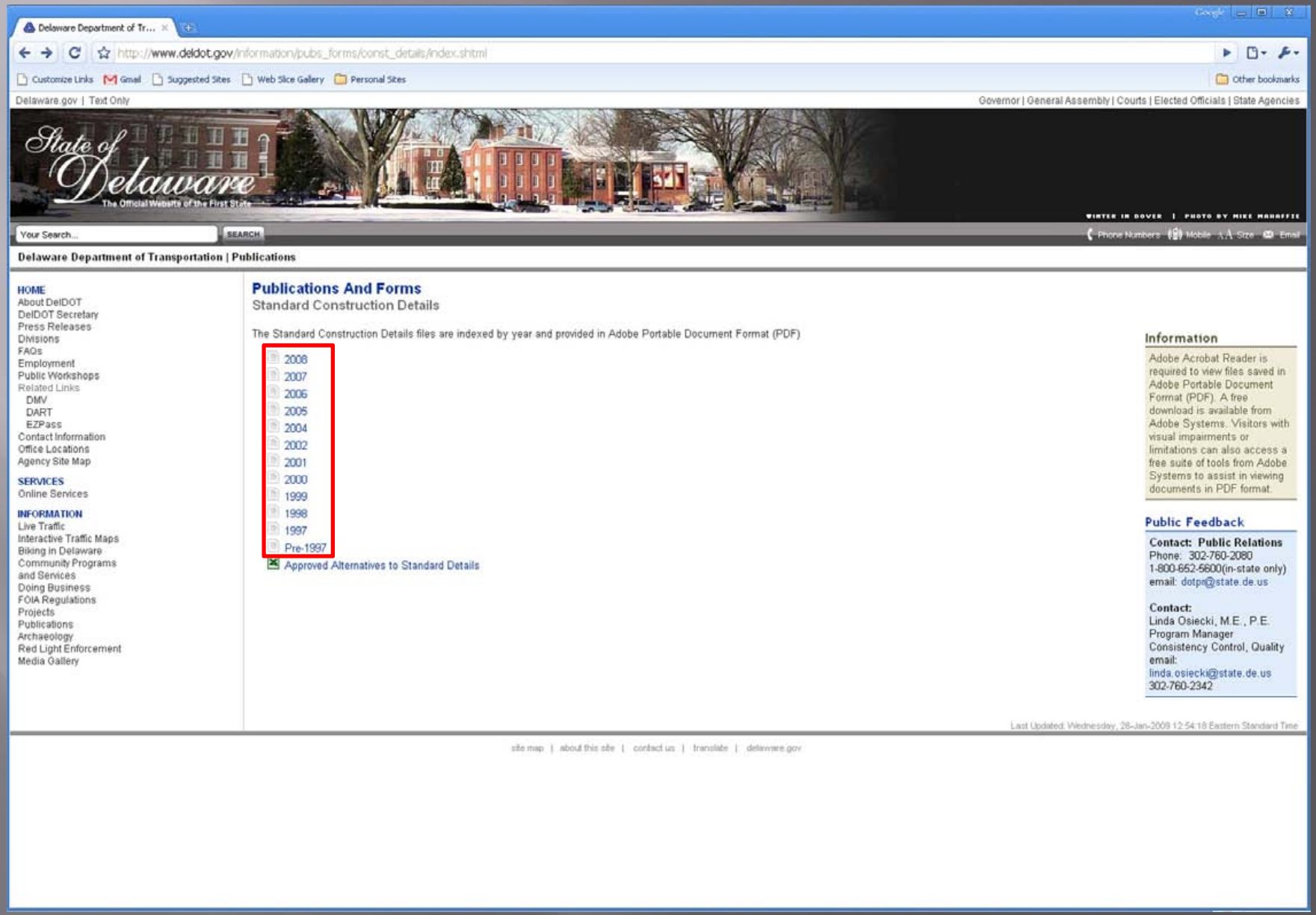
Directions to Standard Details on Website



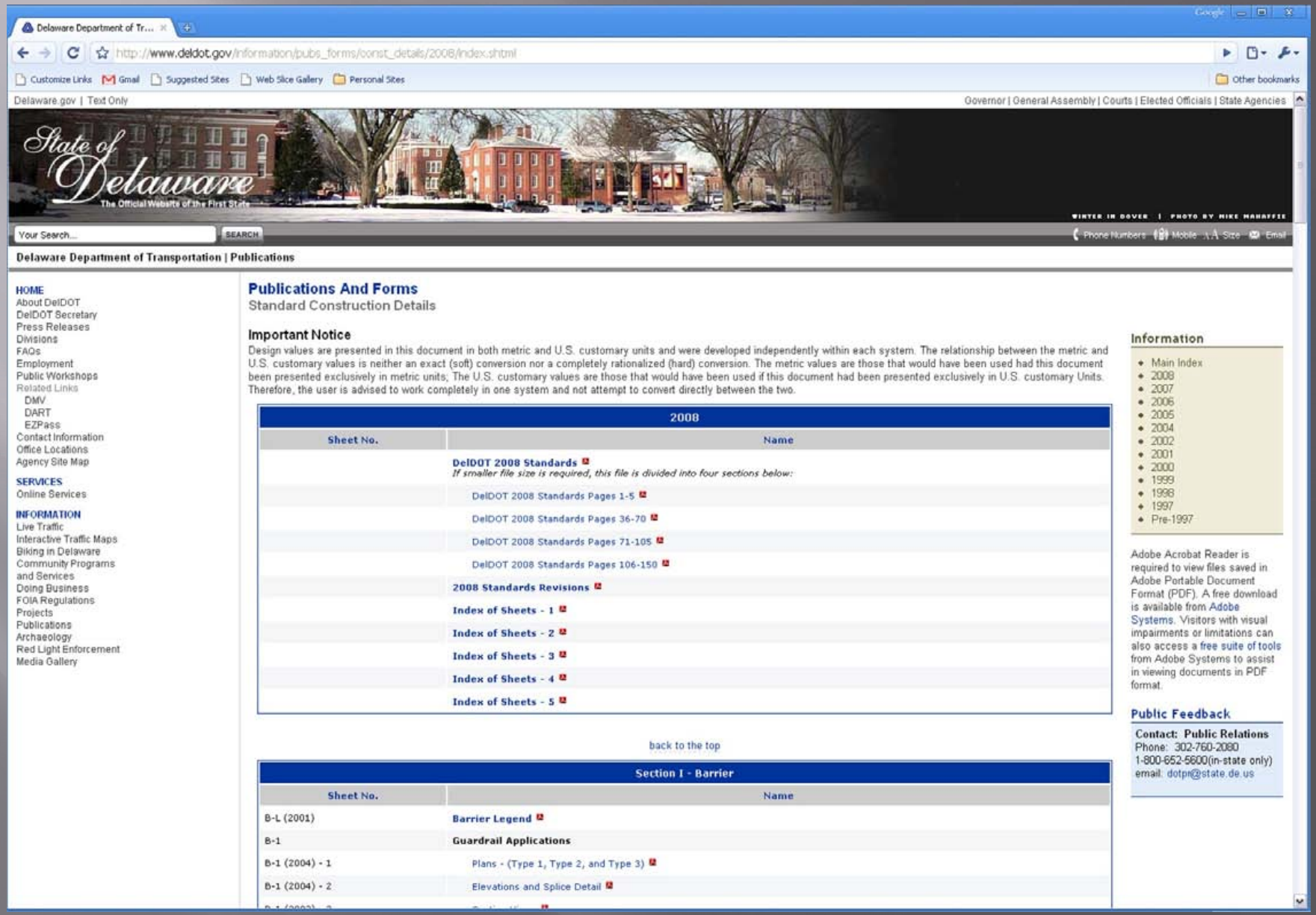
Directions to Standard Details on Website



Directions to Standard Details on Website



Directions to Standard Details on Website



2008 STANDARD CONSTRUCTION DETAILS REVISION OVERVIEW

Questions or comments??

If you have any questions or comments please contact:

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Linda Osiecki – (302) 760-2342 or Linda.Osiecki@state.de.us

Billy Sweeney
Quality Section