

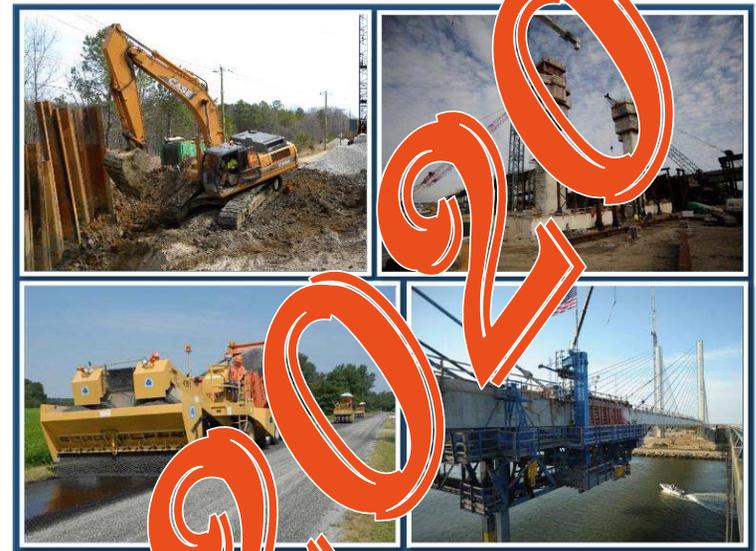
2020 STANDARD SPECIFICATION Updates

Standard Specifications

for

Road and Bridge Construction

AUGUST 2016



Prepared by

The State of Delaware

DEPARTMENT OF TRANSPORTATION
Excellence in Transportation - Every Trip • Every Mode • Every Dollar • Everyone

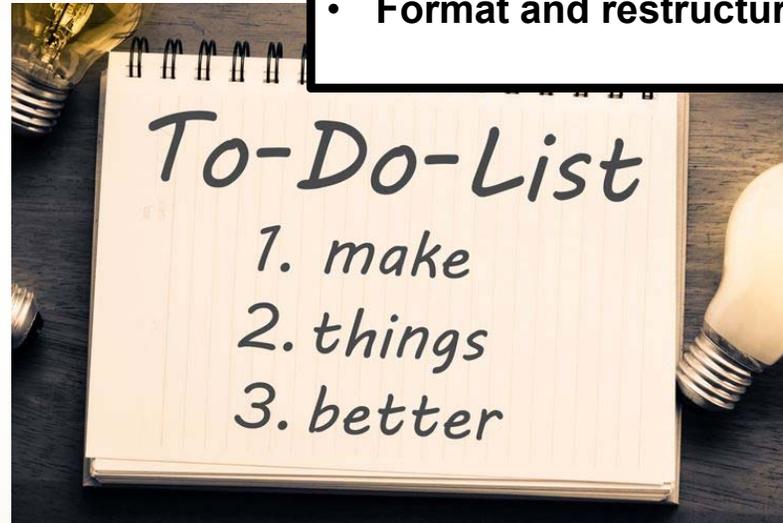
Jennifer Cohan, Secretary
Robert McCleary, Chief Engineer

Re-write for 2020 that includes new language

- Written to the contractor
- Removed passive voice
- Replaced with active voice

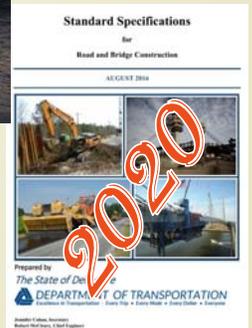


- Improve Readability
- Format and restructure sections



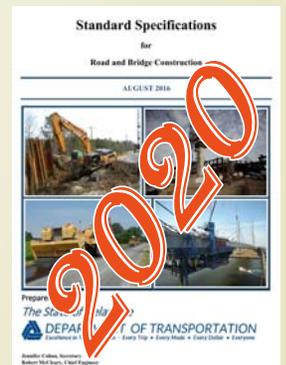
- Use Imperative mood

**DANGER
SLOW DOWN**



Schedule

- **Division 100** ~~final review~~ **Summary shared**
- **Division 200** Summary shared
- **Division 300** Summary shared
- **Division 400** Summary shared
- **Division 500** Summary shared
- **Division 600** creating summary
- **Division 700** Summary shared
- **Division 800** ~~creating summary~~ **Summary shared**
- **Division 900** Summary shared
- **Division 1,000** final review

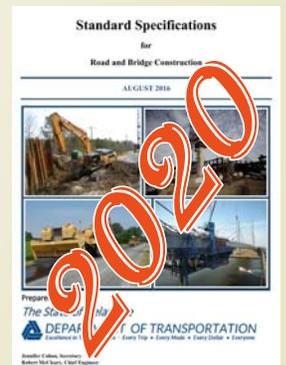


***INCIDENTAL...**

Currently used 341

2020 INCIDENTAL

ref. < 50

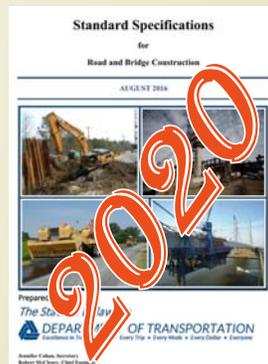


READABILITY

401.5 Basis of Payment.

- A. The Department will pay for the accepted quantity of bituminous pavement materials at the contract unit price per ton for:
1. Providing, preparing, and placing all materials, including tack coat, joint sealant, and safety edge;
 2. removing material from around manholes, drainage valves, and similar features; and
 3. removing and replacing excess asphalt cement.
- B. The Department will pay for Superpave Type B, placed instead of Superpave Type BCBC, at the contract unit price for Superpave Type BCBC. The Department will make the asphalt cement cost adjustment based on the virgin asphalt of the Superpave Type B.
- C. The Department will make adjustments to payments in accordance with Special Provision 401699.
- D. The Department will consider the quantity of the safety edge as incidental to the paving items.
- E. The Department will apply any incentive or disincentive pay adjustments as established by this specification.

it
nt
id
t,
k.



And latest supplementals created during the review



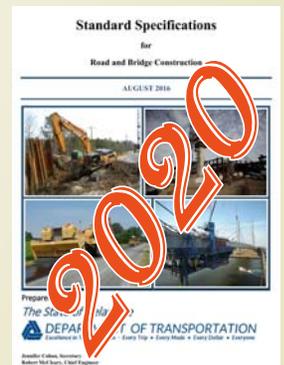
Subsection 607.03 Construction. (6/15/2018)

F. Backfill Placement

Replace the third sentence in (1.) with the following:

Place #57 stone for at least the first 3 feet normal to the back face of the panel for the full height of the wall.

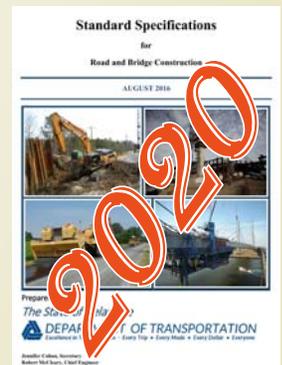
Reduce errors with
a single document



Format

Section 000 – Title

- **000.1 – Description.**
 - short and brief
- **000.2 – Materials.**
 - item materials
- **000.3 – Construction.**
 - how to construct
- **000.4 – Method of Measurement.**
 - measurement
- **000.5 – Basis of payment.**
 - payment information



000.1 – Description

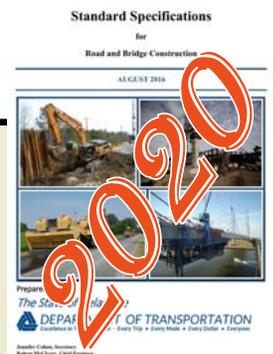
DIVISION 400 – BITUMINOUS MATERIALS

SECTION 401 – BITUMINOUS PAVEMENT

~~401.1~~ 401.1 Description.

~~Construct one or more courses of bituminous pavement on either a prepared foundation or an existing surface course. Construct butt joints by saw cutting and removing the existing hot laid bituminous concrete or Portland cement concrete pavement to provide an area to butt the new hot laid bituminous concrete pavement against the existing pavement.~~

This work consists of providing and placing bituminous pavement.



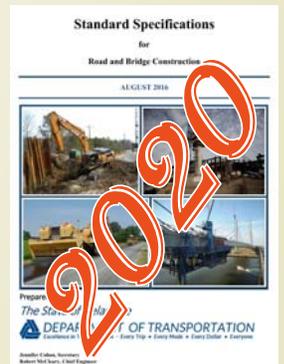
000.2 – Materials

901.2 Materials

Not applicable.

501.2 Materials.

A. Insulation materials	Section 610.03.D.3.d
B. Reinforcing steel	Section 611, Section 1037
C. Fine aggregate	Section 1003
D. Coarse aggregate	Section 1004
E. Ground granulated blast furnace slag (GGBFS)	Section 1020
F. Fly ash	Section 1020
G. Water	Section 1021
H. Portland cement	Section 1022
I. Air-entraining admixtures	Section 1022
J. Chemical admixtures	Section 1022
K. Curing materials	Section 1022
L. Embedded hardware:	
1. Load-transfer devices	Section 1037
2. Tie bars - hook bolts, bent bars or W-bolts	Section 1037
3. Coated dowel bars	Section 1037
4. Tie bolts - hook bolts or W-bolts	Section 1037



000.3 – Construction

2016

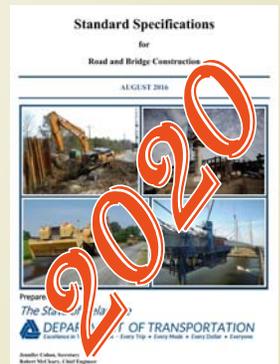
401.03 Construction

- A. Mix Design.
- B. Delivery of Mixture.
- C. Hauling Equipment.
- D. Paver.
- E. Rollers.
- F. Weather Limitations.
- G. Preparing Base or Excising Surface.
- H. Tack Coat.
- I. Placement.
- J. Compaction.
- K. Compaction Testing.
- ~~L. Material Production.~~
- M. Joints.
- N. Surface Tolerances.

2020

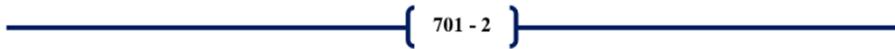
401.3 Construction.

- A. Before Paving
- B. Mix Design.
- C. Delivery of Mixture.
- D. Hauling Equipment.
- E. Paver.
- F. Rollers.
- G. Weather Limitations.
- H. Preparing Base or Existing Surface.
- I. Tack Coat.
- J. Placement.
- K. Compaction.
- L. Compaction Testing.
- M. Joints.
- N. Wearing Surface.



000.4 – Method of Measurement

701.04 Method of Measurement. The Engineer will measure Portland Cement Concrete Curb and Integral Portland Cement Concrete Curb as the number of linear feet measured along the linear face of acceptably installed and completed



PORTLAND CEMENT CONCRETE CURB, MEDIAN, ETC.

SECTION 701

curb as specified. Any curb showing cracks shall be replaced in sections that have a minimum length of 10 feet, at no cost to the Department.

Item 701026 - Portland Cement Concrete Monolithic Median will be measured as the number of linear feet measured along the centerline of the median.

Curb openings will be measured as the number of curb openings installed.

Not Measured and Paid
Has been relocated

2020

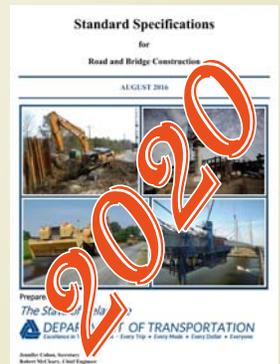
701.3
Construction

L. For cracked or damaged curbs, remove and replace within the joint sections in accordance with Section 701.3.J.

701.5 Basis
of Payment

A. Price and payment shall constitute full compensation for:

12. removing and replacing cracked or damaged curb.



000.5 – Basis of Payment 2020

701.5 Basis of Payment.

A. Price and payment shall constitute full compensation for:

1. Excavating within the template of the item;
2. removal and disposal of existing materials;
3. foundation preparation;
4. providing and placing materials;
5. compaction;
6. forms and forming;
7. supplying, placing, finishing, and curing PCC;
8. expansion joint material;
9. sealing and saw cutting
10. backfilling;
11. removing surplus materials; and
12. removing and replacing cracked or damaged curb.

B. The Department will pay for:

1. Excavation and embankment outside the template of the item in accordance with Section 202 at the direction of the Engineer or contact.
2. Rock removal in accordance with Section 202.
3. Undercut excavation in accordance with Section 202.

C. For curb removal and replacement, the Department will pay for:

1. PCC removal in accordance with Section 211;
2. saw cutting in accordance with Section 762; and
3. bituminous pavement patching in accordance with Section 402 in addition to the curb item.

701.05 Basis of Payment. Price and payment for the Item(s), supplying and placing GABC, concrete, Portland cement concrete, expansion, sealing, removal and replacement of cracked and/or damaged to complete the Work.

Excavation and embankment outside the template

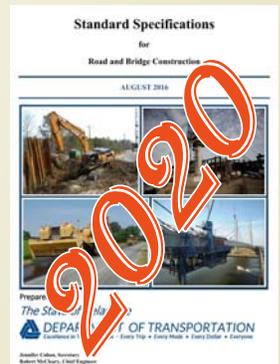
Rock removal shall be paid under Section 202.

Undercut excavation shall be paid under Section

For removal and replacement of curb; P.C.C. 762 and Bituminous Pavement Patching is paid

Note: Curb and sidewalk components are not approved by the Engineer.

Any additional Material used to meet grades due



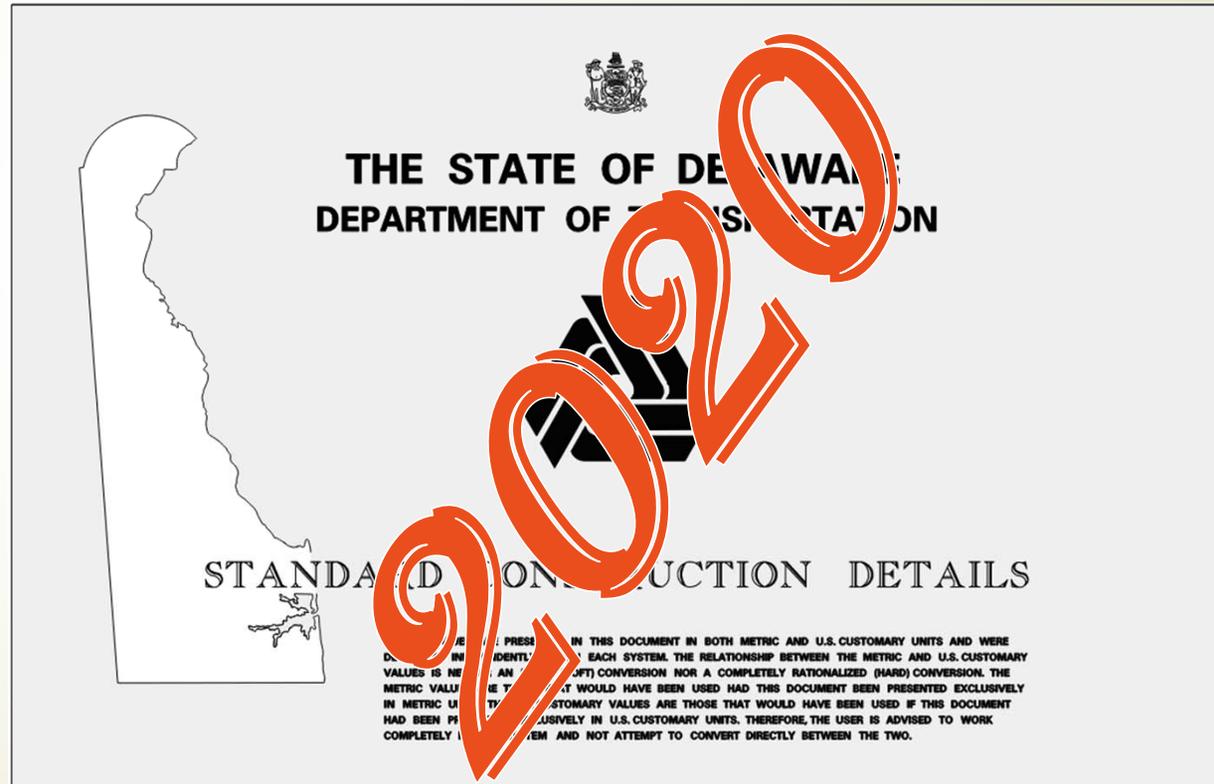
2020

DETAILS

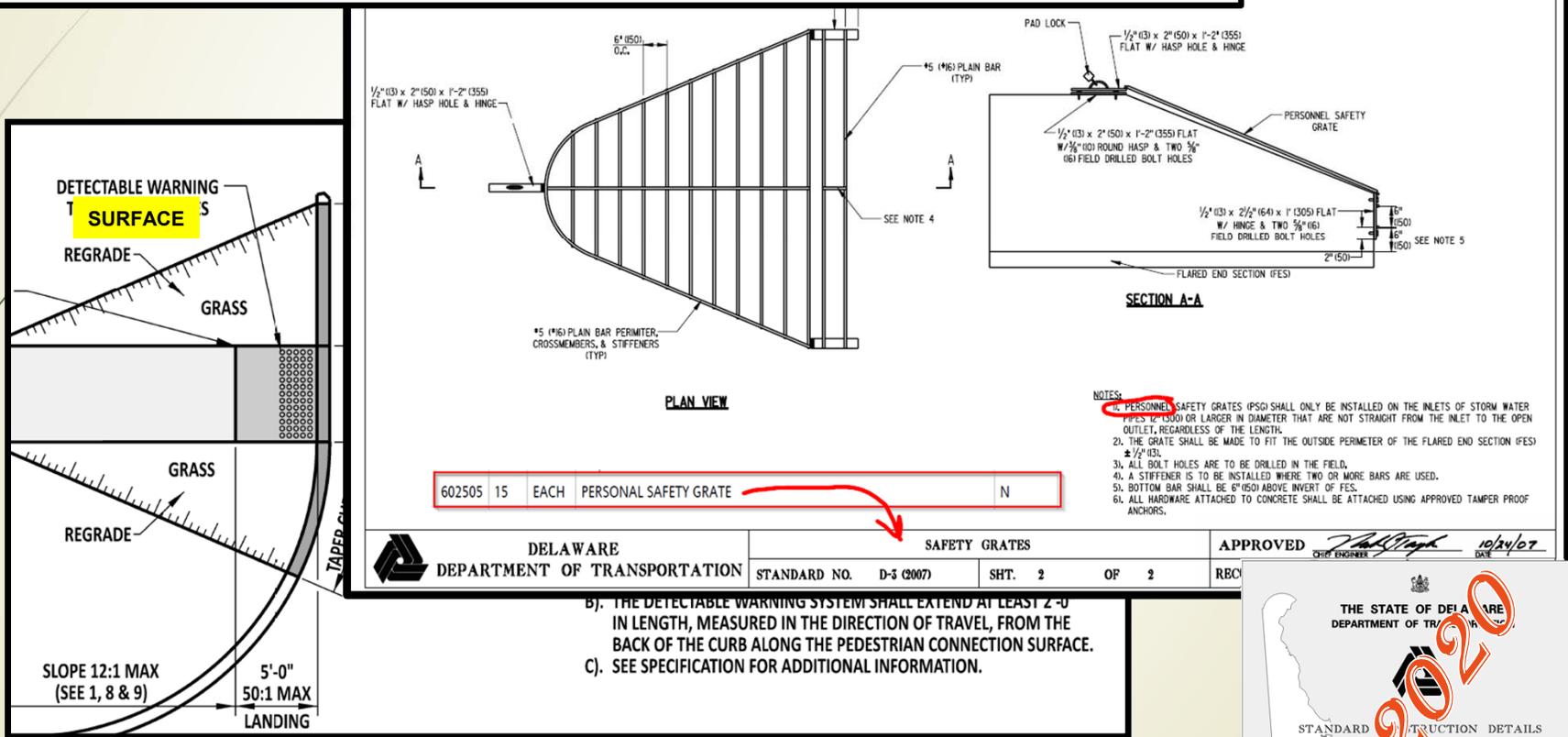


Updates

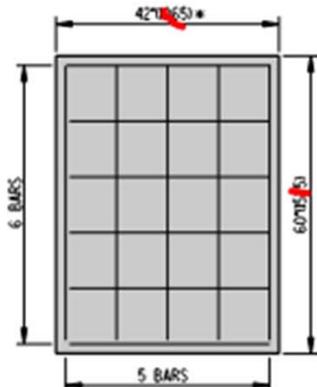
STANDARD



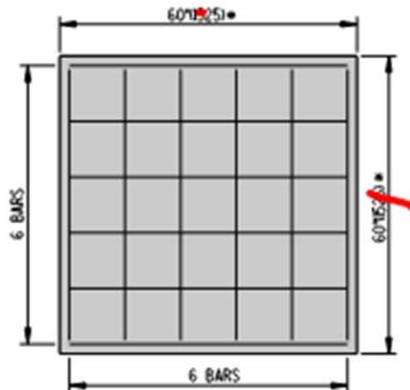
Ensure consistency with the 2020 Standard Specifications



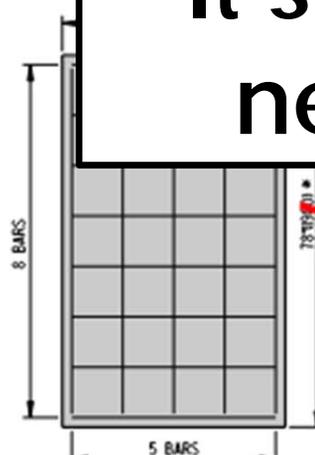
It's 2020, Do we need Metric?



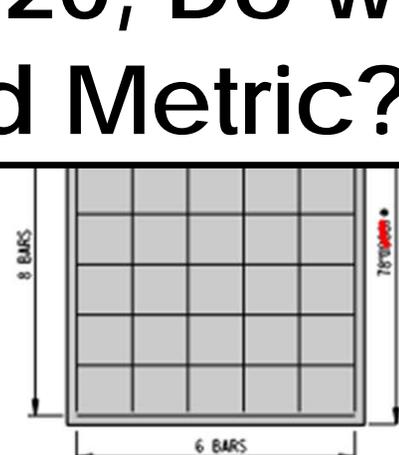
48" (1220) x 30" (760)
JUNCTION BOX



48" (1220) x 48" (1220)
JUNCTION BOX

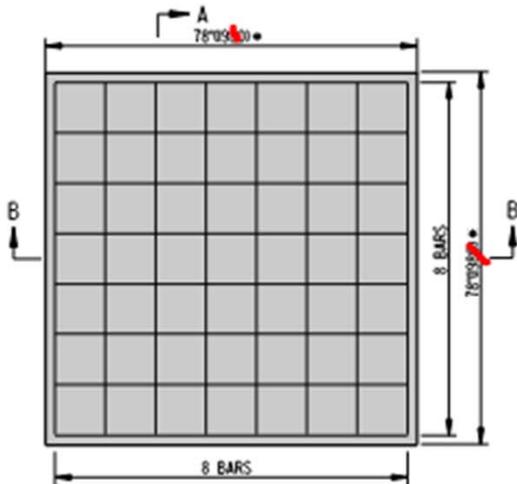


66" (1675) x 30" (760)
JUNCTION BOX

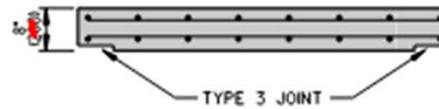


66" (1675) x 48" (1220)
JUNCTION BOX

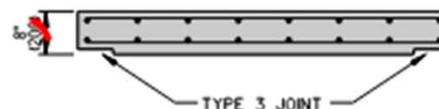
remove metrics



66" (1675) x 66" (1675)
JUNCTION BOX



SECTION A-A



SECTION B-B

JUNCTION BOX COVER SLAB DETAILS

NOTES:

1. COVER SLABS ARE TO BE PRE-CAST.
 2. ALL BARS ARE TO BE #5 (16) SPACED @ 12" (305) * UNLESS NOTED OTHERWISE.
 3. MINIMUM BAR COVER = 1 1/2" (38)
- * - DIMENSIONS TO MATCH OUTSIDE TO OUTSIDE DIMENSIONS OF BOX.



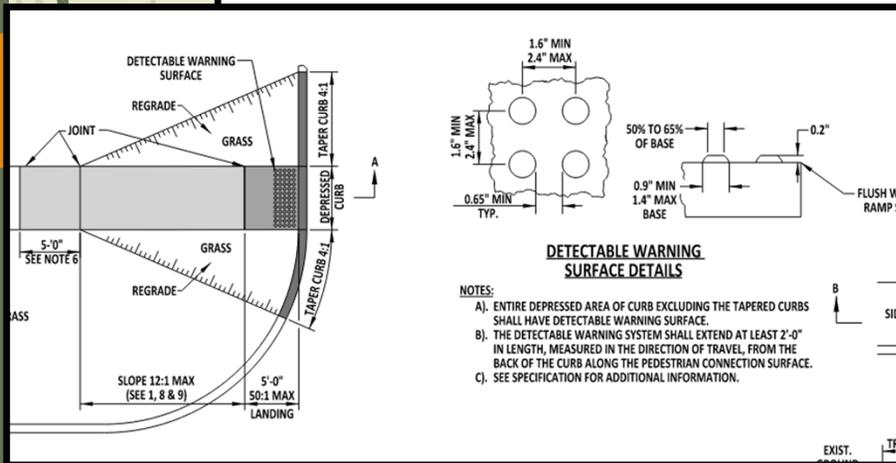
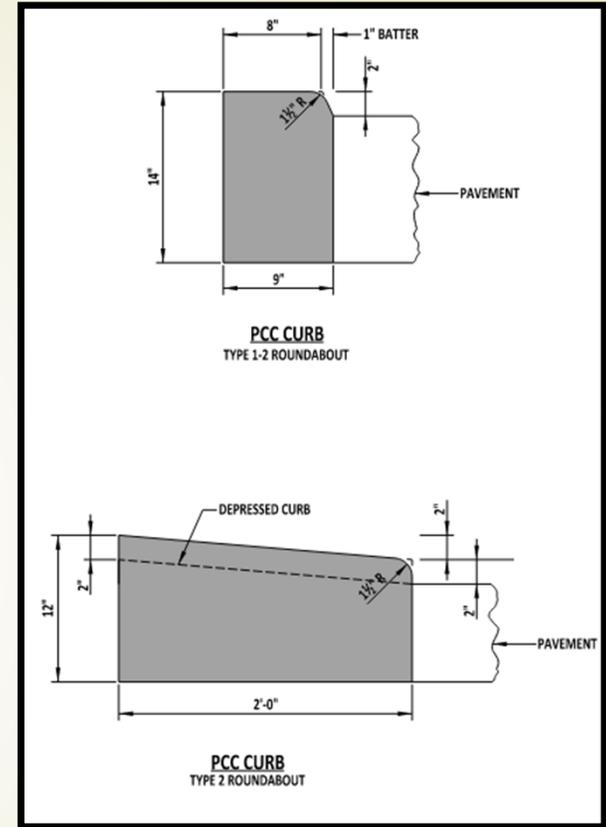
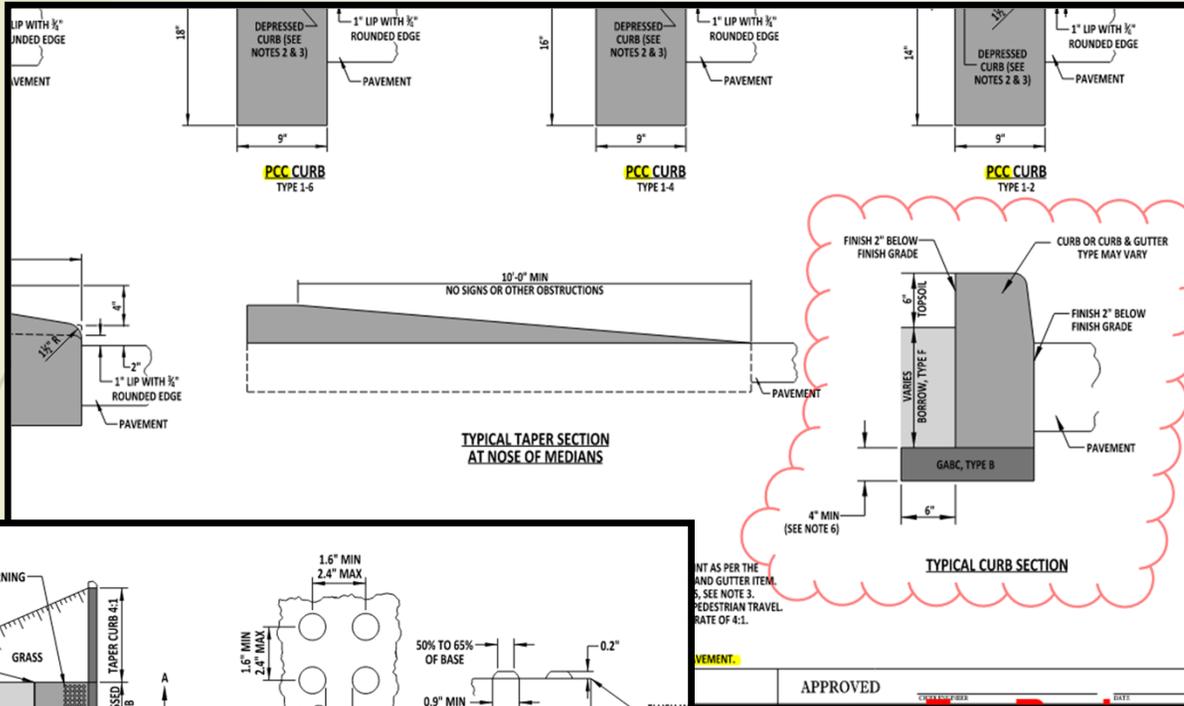
T.S.

BARRIER section to meet the 2016 edition of MASH

SHEET NO.	NAME
B-1 (2010)	- BARRIER LEGEND
B-1	- GUARDRAIL APPLICATION
	(2016) - 1 PLAN VIEWS
	(2017) - 2 ELEVATION VIEWS AND SECTION VIEWS
	(2018) - 3 SECTION VIEWS
B-2	- GRADING FOR GUARDRAIL
	(2013) - 1 GUARDRAIL END TREATMENT
	(2013) - 2 GUARDRAIL END TREATMENT
	(2010) - 3 GUARDRAIL END TREATMENT
B-3	- GUARDRAIL OVER CULVERT
	(2013) - 1 GUARDRAIL OVER CULVERT
	(2013) - 2 GUARDRAIL OVER CULVERT
	(2013) - 3 GUARDRAIL OVER CULVERT
B-4 (2012)	- END ANCHORAGE, TYPE 5
B-5	- GUARDRAIL TO BARRIER
	(2010) - 1 GUARDRAIL TO BARRIER
	(2010) - 2 GUARDRAIL TO BARRIER
	(2010) - 3 GUARDRAIL TO BARRIER
	(2012) - 4 GUARDRAIL TO BARRIER
	(2010) - 5 GUARDRAIL TO BARRIER
	(2010) - 6 GUARDRAIL TO BARRIER
B-6	- BRIDGE RAIL RETROFIT
	(2013) - 1 BRIDGE RAIL RETROFIT, END
	(2010) - 2 BRIDGE RAIL RETROFIT, TYPE
	(2010) - 3 BRIDGE RAIL RETROFIT, TYPE
	(2010) - 4 BRIDGE RAIL RETROFIT, TYPE
	(2010) - 5 BRIDGE RAIL RETROFIT, TYPE
B-7 (2010)	- W-BEAM, TYPE 1-27 TO TYPE
B-8	- RESERVED
B-9	- RESERVED
B-10	- RESERVED
B-11	- RESERVED
B-12	- RESERVED
B-13	- HARDWARE
	(2010) - 1 W-BEAM ELEVATION AND SECTION
	(2010) - 2 W-BEAM STEEL POST AND
	(2010) - 3 W-BEAM TERMINAL CONNECTION
	(2010) - 4 THREE BEAM AND THREE BEAM
	(2010) - 5 THREE BEAM STEEL POST AND
	(2010) - 6 ASYMMETRIC AND SYMMETRIC
	(2010) - 7 SHORT AND LONG WOOD
	(2012) - 8 SWAGED CABLE ASSEMBLY
	(2010) - 9 GUARDRAIL DELINEATOR
	(2010) - 10 GUARDRAIL MOUNTED BARRIER
B-14	- CONCRETE SAFETY BARRIER
	(2012) - 1 32" (1940) CONCRETE BARRIER
	(2009) - 2 32" (1940) CONCRETE BARRIER
	(2009) - 3 42" (1050) CONCRETE BARRIER
	(2009) - 4 SLOTTED PLATE CONNECTOR
B-15	- GUARDRAIL APPLICATION
	(2010) - 1 PLAN VIEWS
	(2010) - 2 ELEVATION VIEWS AND SECTION
	(2010) - 3 SECTION VIEWS

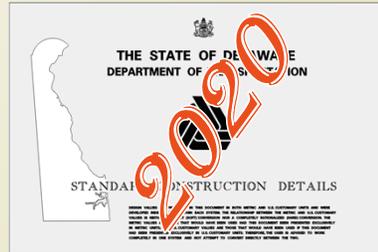


CURB & GUTTER



AS PER THE AND GUTTER ITEM. SEE NOTE 3. PEDESTRIAN TRAVEL RATE OF 4:1.

APPROVED



DRAINAGE

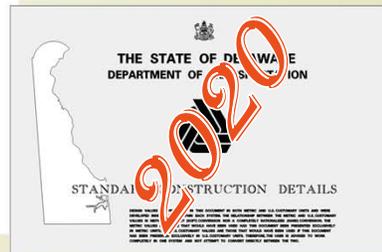
D-4 sheet 1 of 1

INLET BOX SCHEDULE		
L	W	FABRICATION TOLERANCE
17 $\frac{5}{8}$ "	11 $\frac{5}{8}$ "	+1"
24"	24"	+1"
34"	18"	-1"
34"	24"	-1"
48"	30"	+6"
48"	48"	+6"
66"	30"	+6"
66"	48"	+6"
66"	66"	+6"
72"	24"	-1"
72"	48"	-1"
72"	72"	-1"

WALL REINFORCEMENT SCHEDULE		
INTERIOR WALL DIMENSION	AREA OF HORIZONTAL REINFORCEMENT PER FOOT ²	AREA OF VERTICAL REINFORCEMENT PER FOOT ²
	IN ²	IN ²
LESS THAN 4'	0.132	0.132
4' TO 4.5'	0.163	0.132
4.5' TO 5'	0.198	0.132
5' TO 5.5'	0.239	0.132
5.5' TO 6'	0.284	0.132

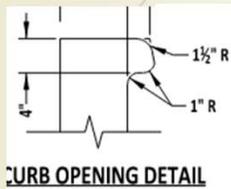
* - THESE BOXES ARE TO BE USED FOR LAWN INLETS AND ARE NOT INTENDED TO BE USED IN THE TRAVELWAY. THE MAX DEPTH FOR THESE BOXES IS 4'. SEE NOTE 8 FOR REINFORCEMENT.

** THE MAX DEPTH FOR THIS BOX IS 4'.

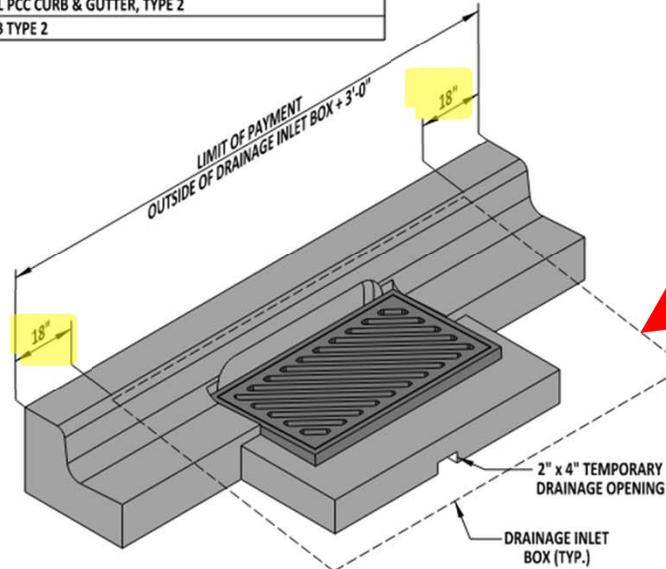
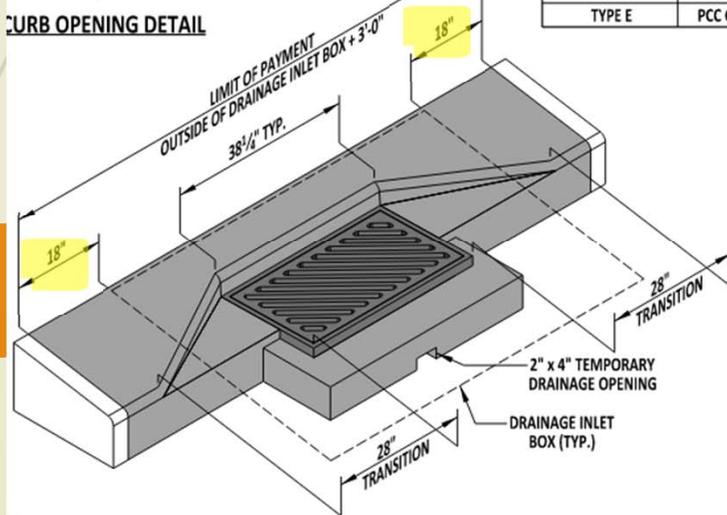


DRAINAGE

D-5 sheet 3 of 9



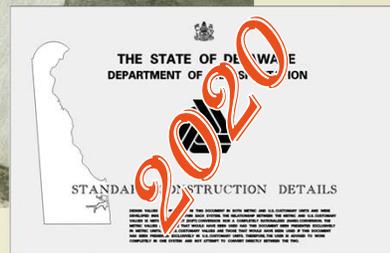
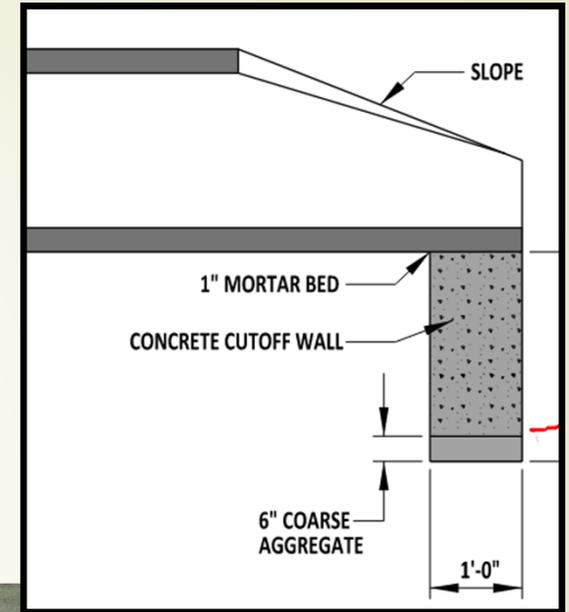
TOP UNIT	CURB
TYPE A	USE IN NON CURBED
TYPE B	INTEGRAL PCC CURB & GUTTER, TYPE 1-8 & 3-8, PCC CURB TYPE 1-8
TYPE C	INTEGRAL PCC CURB & GUTTER, TYPES 1-6, 3-6, 1-4, 3-4, 1-2 AND 3-2 AND PCC CURB TYPE 1-6, 1-4, AND 1-2.
TYPE D	INTEGRAL PCC CURB & GUTTER, TYPE 2
TYPE E	PCC CURB TYPE 2



DRAINAGE

CHANGES AHEAD

- DOGBOX INLET BOX
- MANHOLE DETAILS
- FLARED END SUPPORT



EROSION

Updates for:

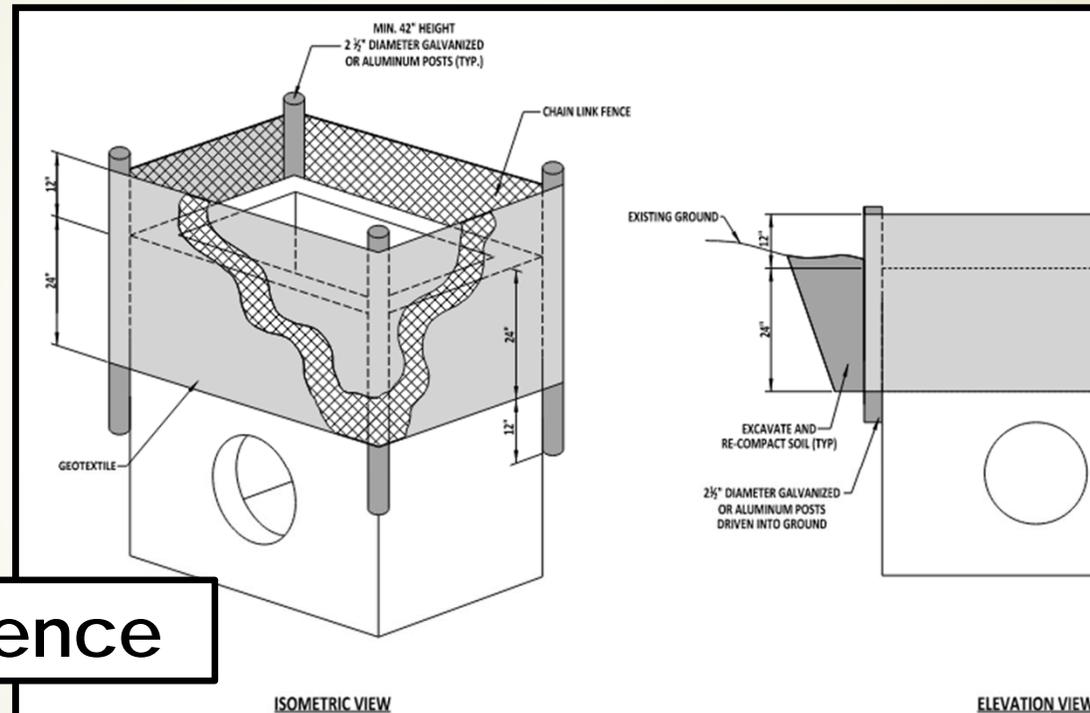
- STANDARD SPECIFICATIONS
- DNREC
- FIELD APPLICATIONS

SILT FENCE uniformity



EROSION

Use post and fence



DELAWARE
DEPARTMENT OF TRANSPORTATION

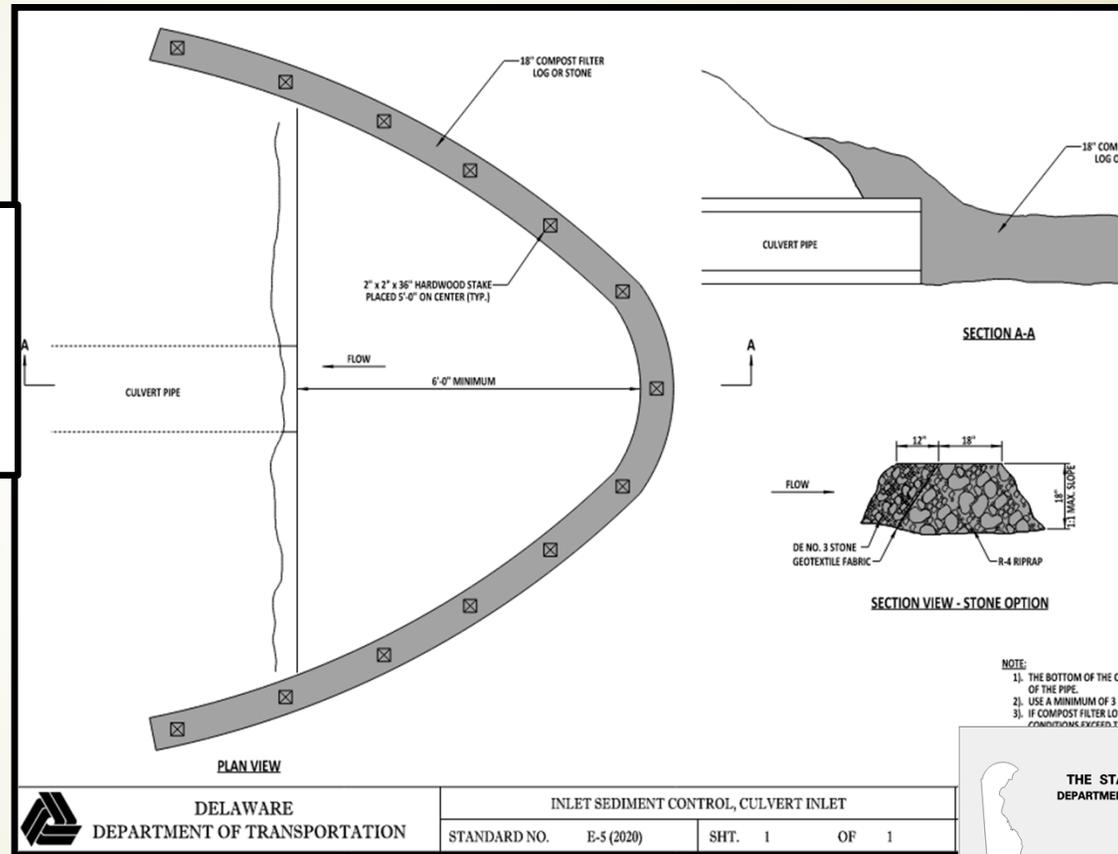
INLET SEDIMENT CONTROL, DRAINAGE INLET

STANDARD NO. E-4 (2020) SHT. 1 OF



EROSION

COMPOST FILTER LOG & STONE IS THE OPTION



DELAWARE DEPARTMENT OF TRANSPORTATION

INLET SEDIMENT CONTROL, CULVERT INLET
STANDARD NO. E-5 (2020) SHT. 1 OF 1

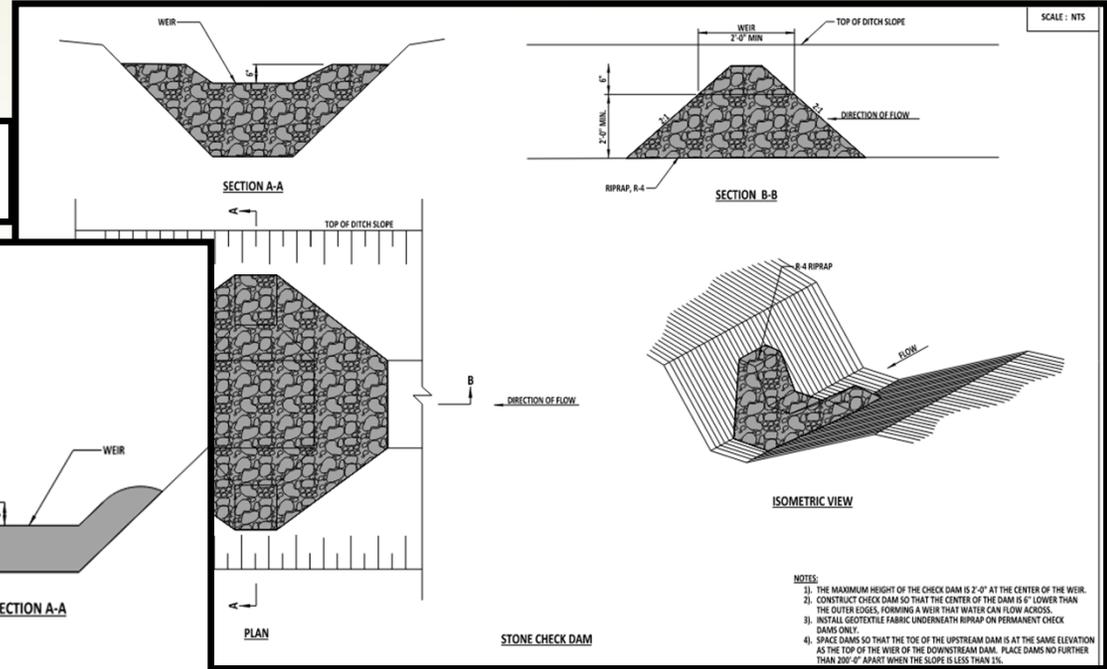
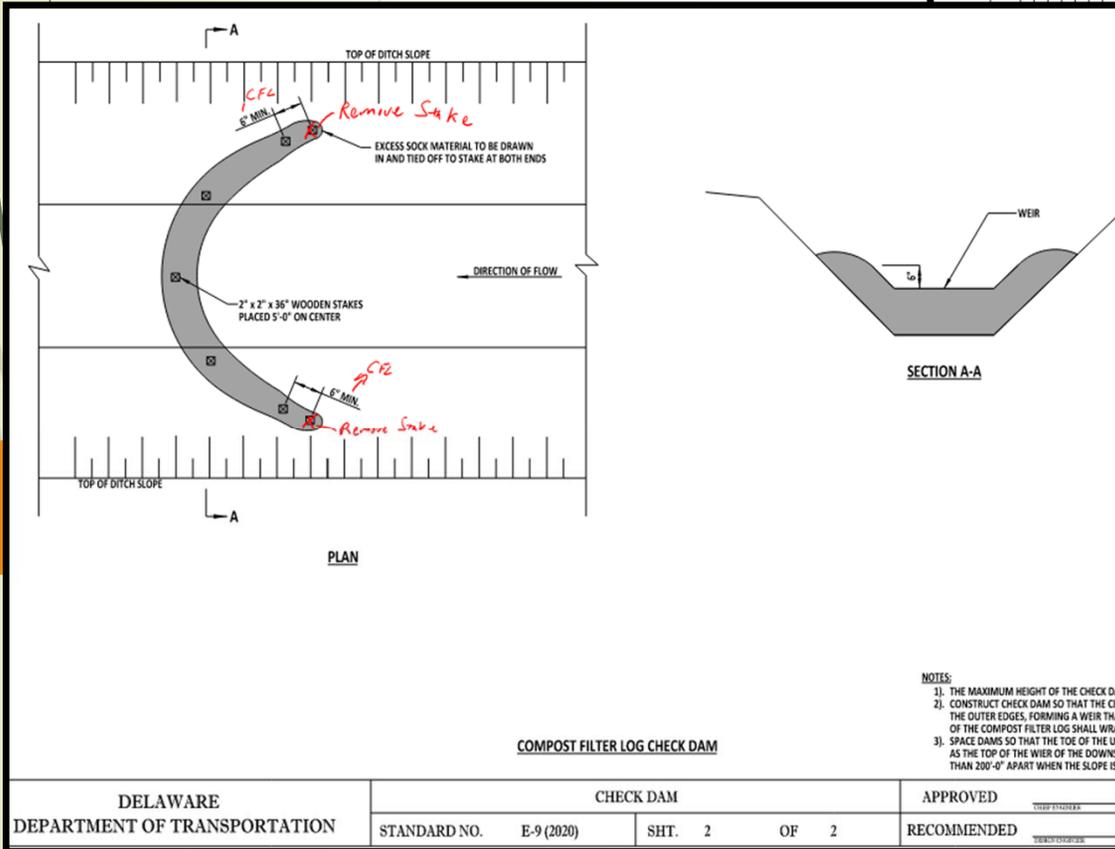
THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DETAILS

2020

EROSION

CHECK DAMS

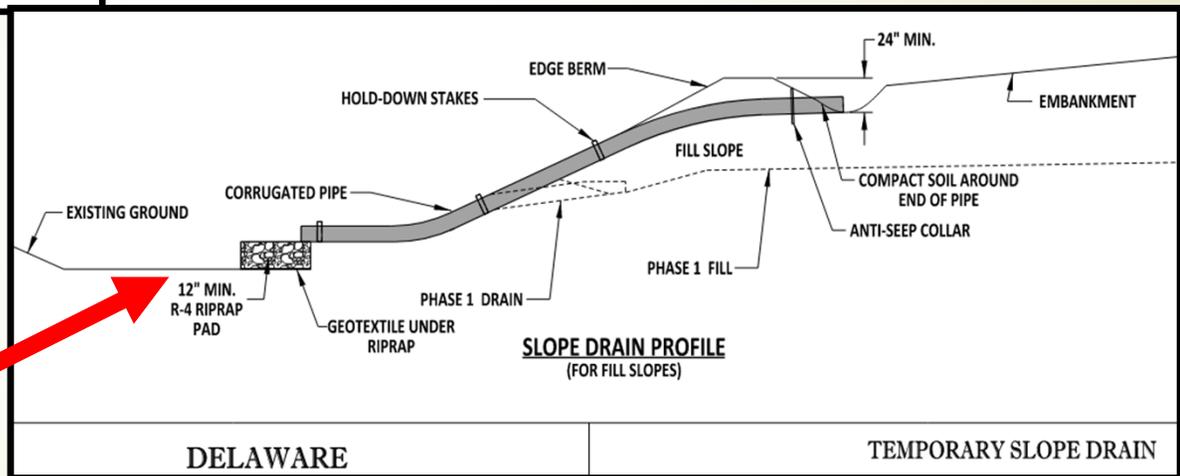


DELAWARE DEPARTMENT OF TRANSPORTATION	CHECK DAM				APPROVED
	STANDARD NO.	E-9 (2020)	SHT. 2	OF 2	RECOMMENDED



EROSION

TEMPORARY

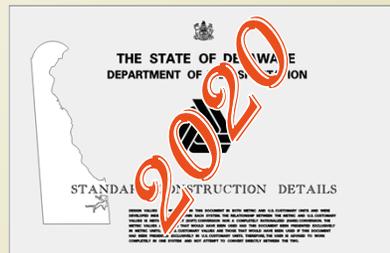
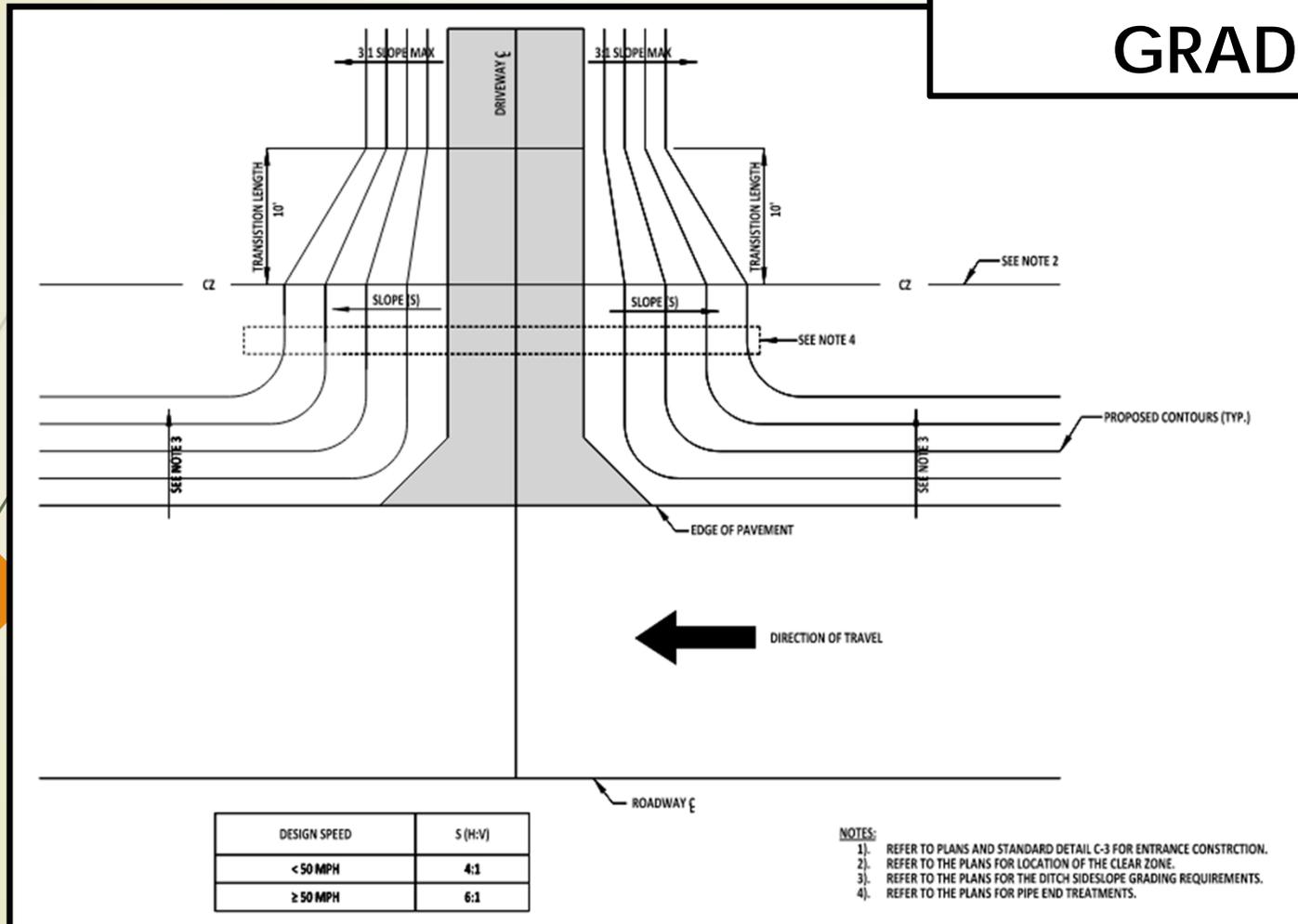


**INSTALL
NO EXCAVATION**

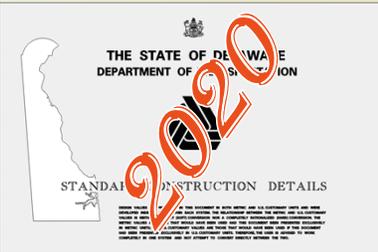
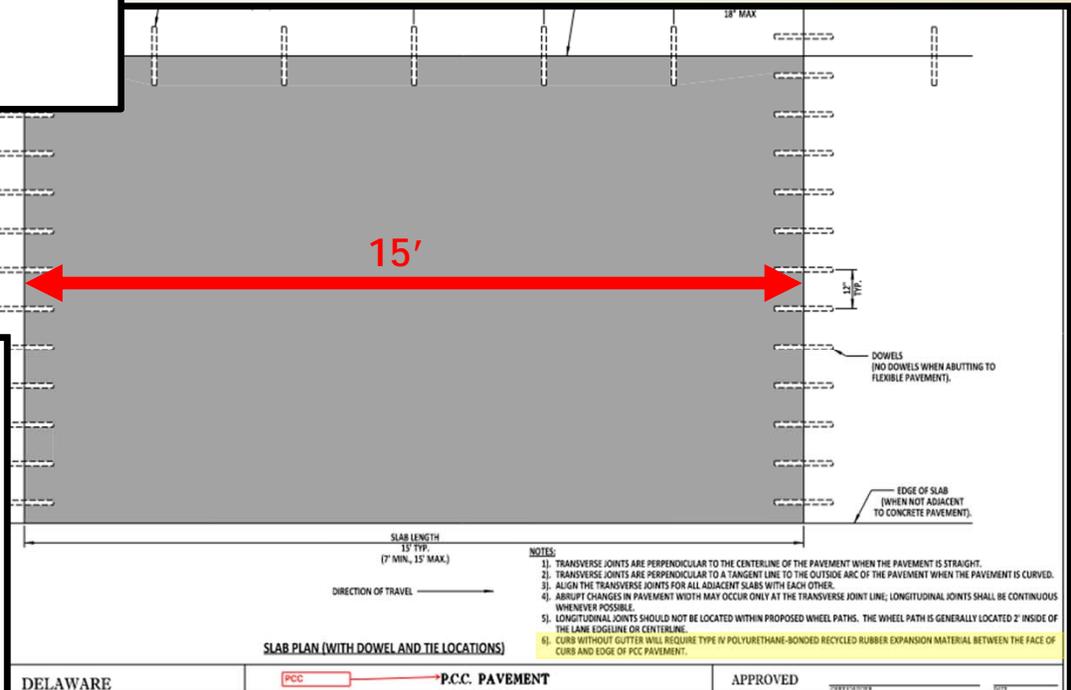
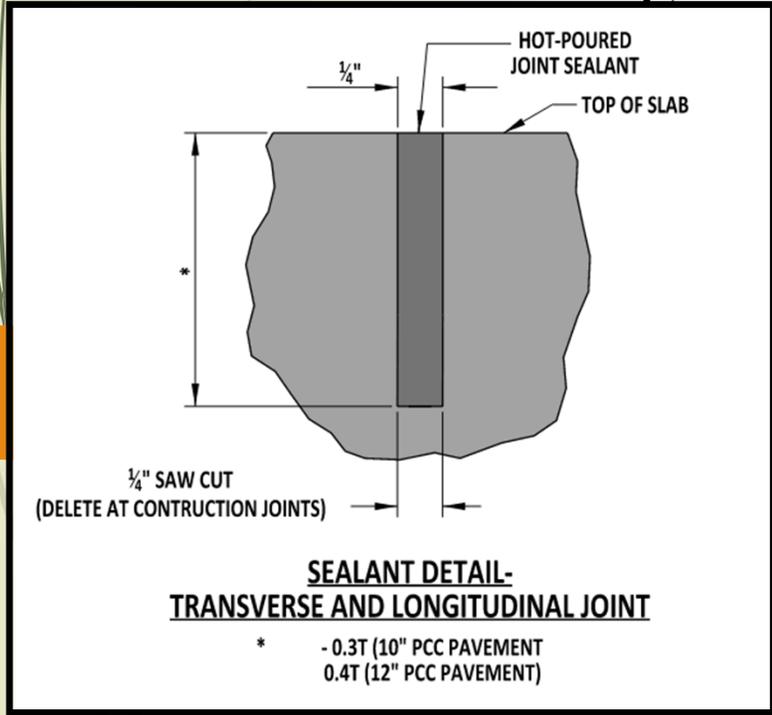


MISCELLANEOUS

DRIVEWAY GRADING

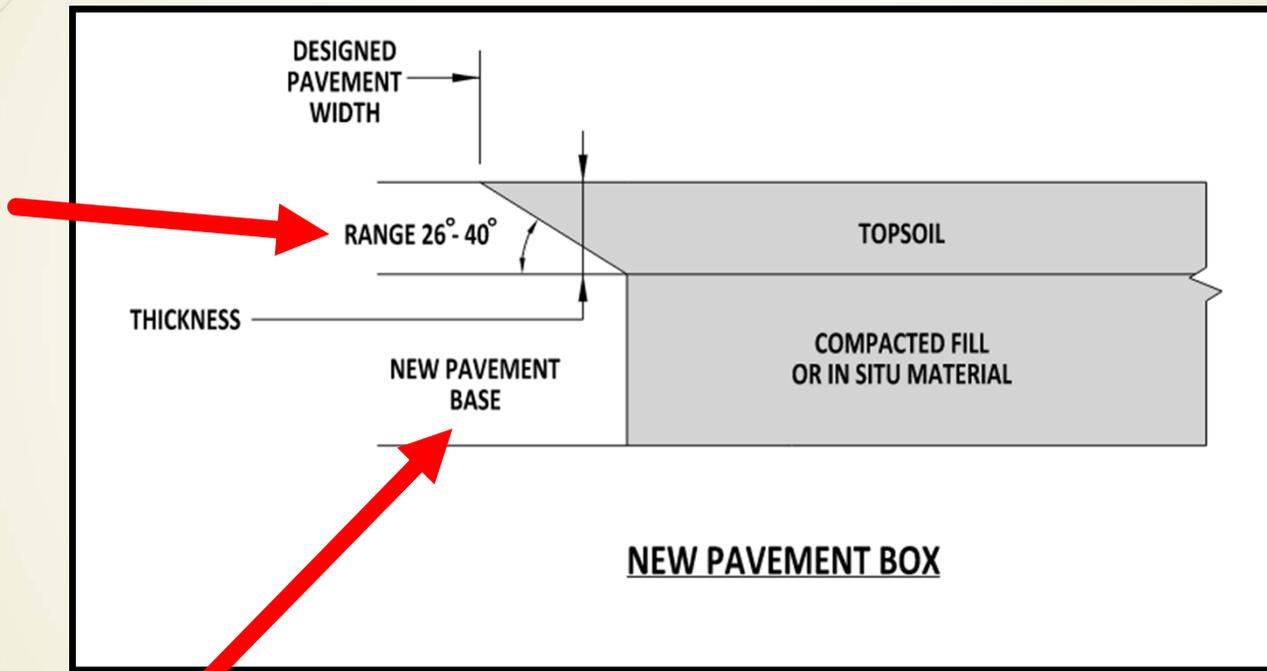


PAVEMENT



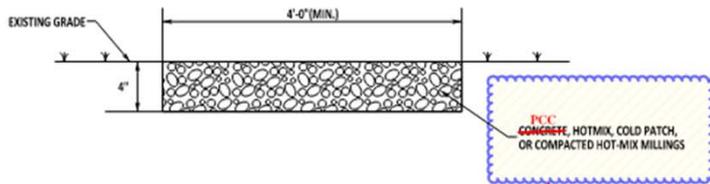
Pavement

PAVEMENT SAFETY EDGE



TRAFFIC

TEMPORARY PEDESTRAIN PATHWAY



TEMPORARY PEDESTRIAN PATHWAY
N.T.S.

COMPACTED
COLD
PATCH AND
HOT MIX
MILLINGS

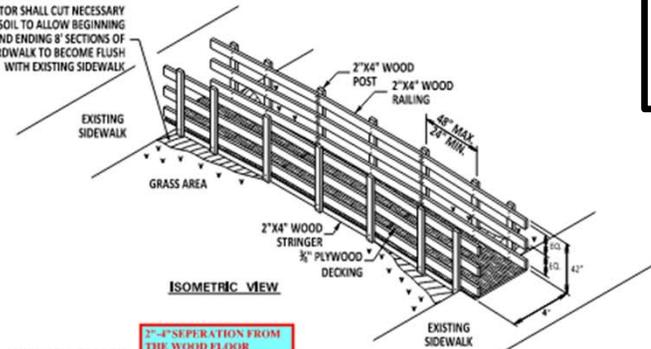
ADD NOTE: MAXIMUM ALLOWABLE RUNNING SLOPE NOT TO EXCEED 5%, MAXIMUM ALLOWABLE CROSS SLOPE NOT TO EXCEED 2% AND VERTICAL SURFACES NOT TO EXCEED 1/4\"/>

NOTES:

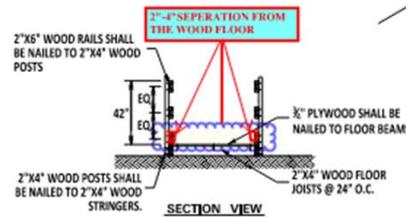
1. PROVIDE 4'-0" WIDE TEMPORARY PATHWAY, SUPPLY CONCRETE, HOTMIX, COLD PATCH OR MILLINGS TO A MINIMUM DEPTH OF 4", FLUSH WITH EXISTING GRADE.
2. IN THE EVENT THAT THE WALKING SURFACE OF THE TEMPORARY SIDEWALK IS LOCATED MORE THAN 30" FROM GRADE AT ANY POINT ALONG THE PROPOSED PATH, PROVIDE TYPE 2 TEMPORARY SIDEWALK.
3. ANY REQUIRED EXCAVATION TO CONSTRUCT THE PATHWAY IS INCIDENTAL TO ITEM 813503.
4. COST FOR SEEDING REQUIRED TO RESTORE THE AREA IS INCIDENTAL TO ITEM 908001, TOPSOIL. IF NO TOPSOIL IS REQUIRED, THEN SEEDING IS CONSIDERED INCIDENTAL TO ITEM 813503.

MAKE ITEMS PAYABLE BY THE DEPARTMENT

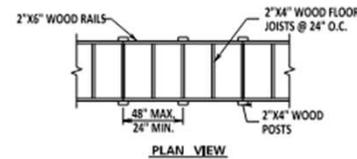
CONTRACTOR SHALL CUT NECESSARY DEPTH OF SOIL TO ALLOW BEGINNING AND ENDING 8' SECTIONS OF BOARDWALK TO BECOME FLUSH WITH EXISTING SIDEWALK



ISOMETRIC VIEW



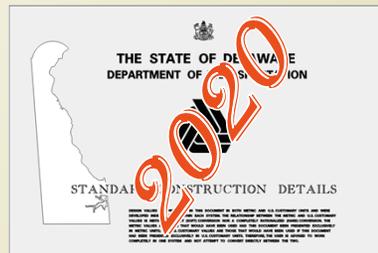
SECTION VIEW



PLAN VIEW

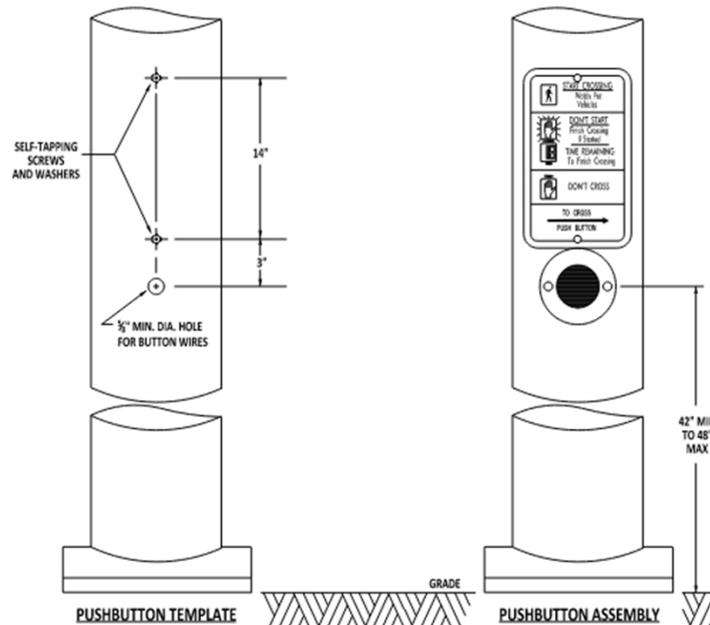
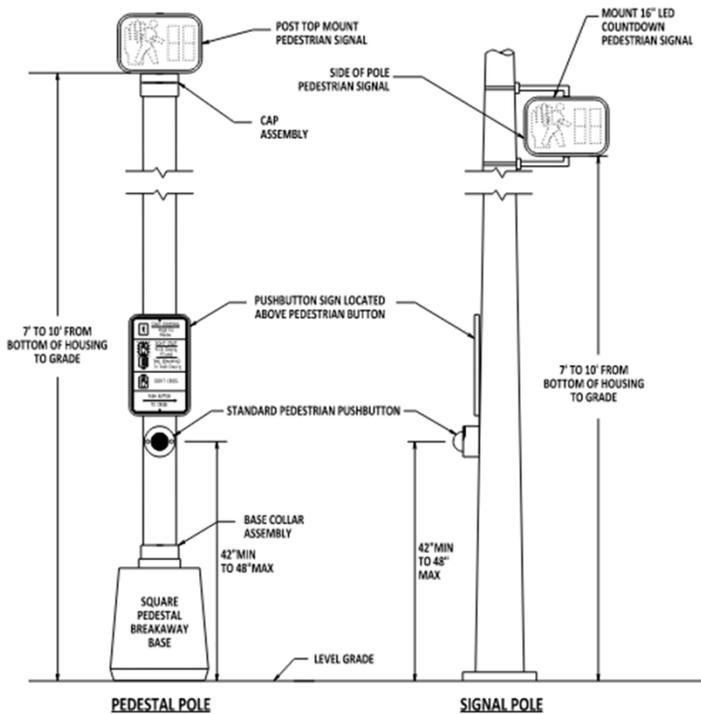
TEMPORARY SIDEWALK DETAIL - TYPE 2
N.T.S.

ADD NOTE: MAXIMUM ALLOWABLE RUNNING SLOPE NOT TO EXCEED 5%, MAXIMUM ALLOWABLE CROSS SLOPE NOT TO EXCEED 2% AND VERTICAL SURFACES NOT TO EXCEED 1/4\"/>



TRAFFIC

PEDESTRAIN PUSHBUTTONS



NOTES:

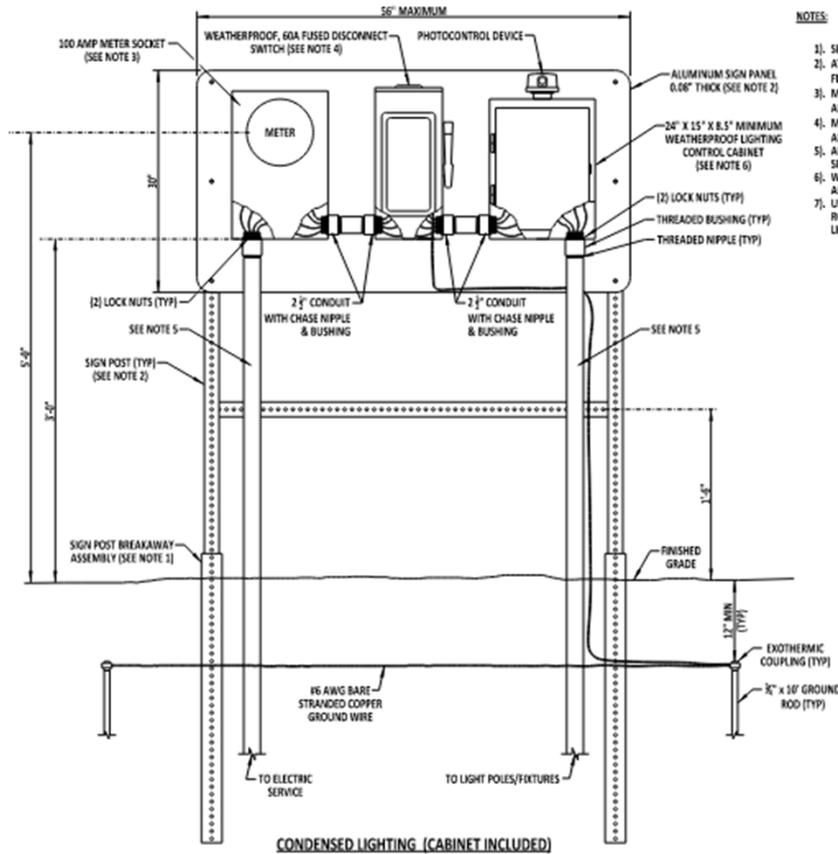
- 1). WHEN CUTTING IS REQUIRED, CONTRACTOR SHALL CONFIRM PROPER HEIGHT OF PEDESTAL IS MAINTAINED PRIOR TO CUTTING POLE.
- 2). REFER TO POLE MOUNTING FOR PEDESTRIAN SIGNAL HEADS STANDARD PLATES FOR DETAILS.

NOTES:

- 1). PUSHBUTTON ASSEMBLY SHALL BE SECURED TO WOOD POLES WITH 21#2" LAG BOLTS.

TRAFFIC

ELECTRICAL SERVICE PEDESTALS



NOTES:

1. SEE DETAIL T-15, SHEET 1, FOR SIGN POST AND BREAKAWAY ASSEMBLY DETAILS.
2. ATTACH ALUMINUM PANEL TO SIGN POSTS WITH (6) $\frac{3}{16}$ " x 2 $\frac{1}{2}$ " LONG GRADE 5 BOLTS, FLAT WASHERS, AND NYLON LOCK NUTS, 3 ON EACH SIDE.
3. MOUNT METER SOCKET TO ALUMINUM PANEL WITH (4) $\frac{3}{16}$ " x $\frac{1}{2}$ " STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
4. MOUNT DISCONNECT SWITCH TO ALUMINUM PANEL WITH (4) $\frac{3}{16}$ " x $\frac{1}{2}$ " STAINLESS STEEL BOLTS AND NYLON LOCK NUTS.
5. ALL CONDUITS AND OTHER ASSOCIATED PIECES SHALL BE 2" GALVANIZED UNLESS SPECIFIED DIFFERENTLY ON THE PLANS OR BY LOCAL UTILITY COMPANY.
6. WEATHERPROOF LIGHTING CONTROL CABINET SHALL CONTAIN LIGHTING CONTACTOR AND APPROPRIATE OVERCURRENT PROTECTION FOR LIGHTING CIRCUIT[S] BEING USED.
7. USE OF THESE DETAILS ARE MEANT FOR SMALLER INTERSECTION LIGHTING SYSTEMS, OR ROADWAY LIGHTING INSTALLATIONS WITH NO MORE THAN 8 LIGHT FIXTURES. FOR LARGER LIGHTING INSTALLATIONS, SEE DETAIL T-17, 4 OF 5.

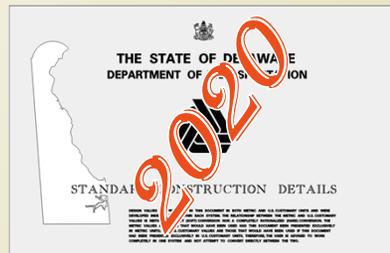


DELAWARE
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SERVICE PEDESTAL -
LIGHTING COMPONENT INSTALLATIONS (8 OR LESS FIXTURES)
STANDARD NO. T-17 (2020) SHT. 5 OF 5

APPROVED
RECOMMENDED

For Review





THANK YOU

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