

THE STATE OF DELAWARE



DEPARTMENT OF TRANSPORTATION
OFFICE OF TRANSPORTATION SOLUTIONS
PLANS AND SPECIFICATIONS FOR

CONTRACT NUMBER - T201606107

CANAL MAINTENANCE

FEDERAL AID NUMBER - NONE

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CONTRACT TITLE- PAVEMENT & REHABILITATION, NORTH VII, 2016

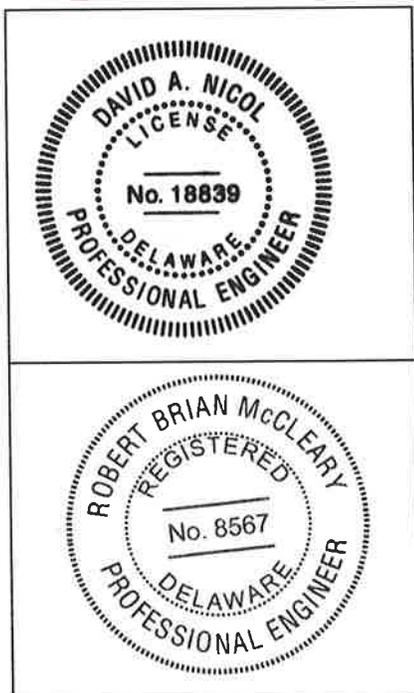
PLANS PREPARED BY: George LaCates
DESIGN TECHNICIAN

DATE RECOMMENDED: 2/9/16

Christopher Costello
GROUP ENGINEER, CONSTRUCTION - GROUP 1

DATE RECOMMENDED: 2-10-16
David A. Nicol
ASSIST. DIRECTOR, ENGINEERING SUPPORT

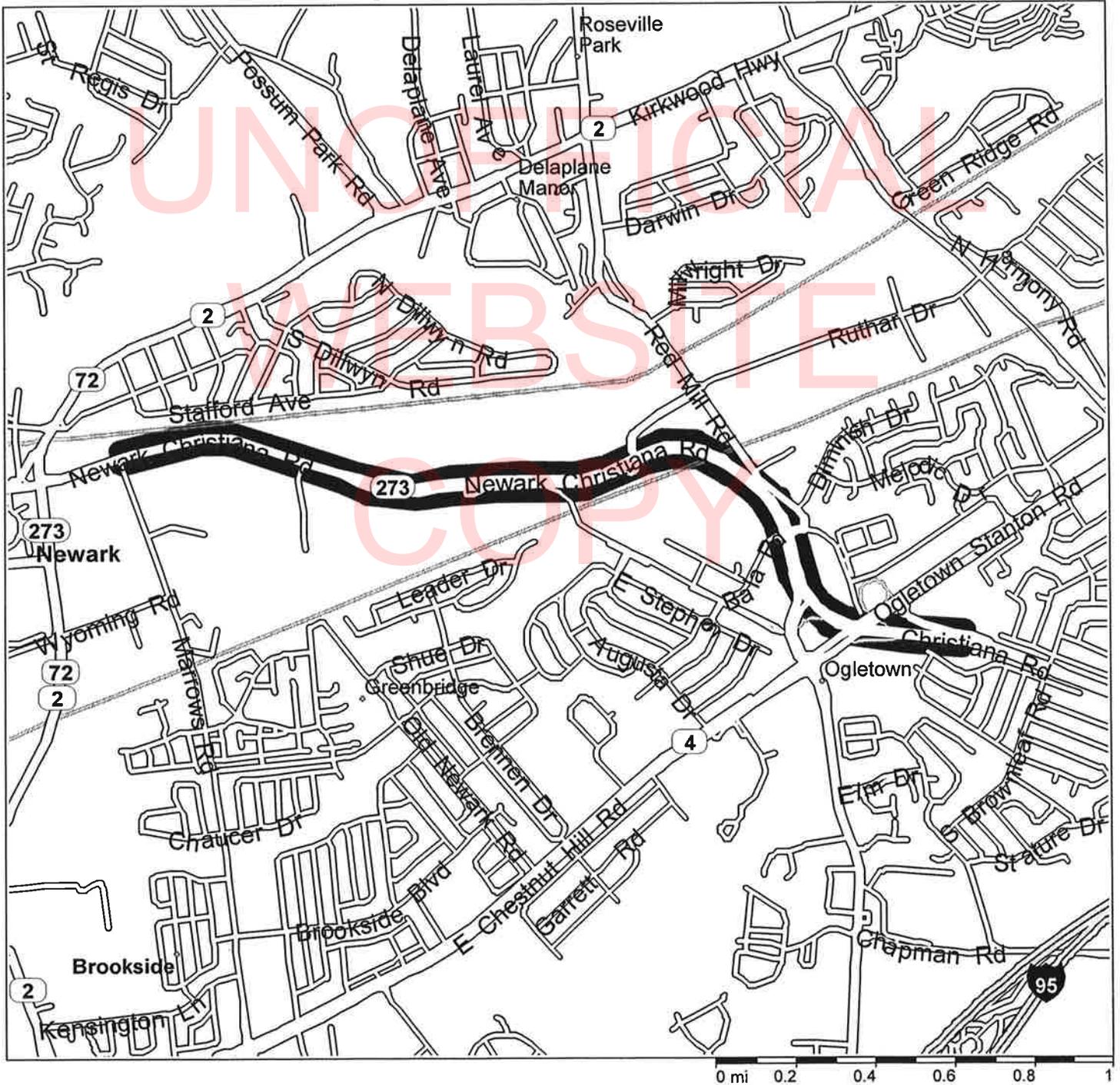
DATE RECOMMENDED: 2/10/16
Robert Brian McGleary
CHIEF ENGINEER



CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

LOCATION MAP

Location #1 - Christiana - Ogletown Road from Bit. Conc.-PCC Jt. 680' West of Bro...



GENERAL CONTRACT PLAN NOTES

REVISED 9/2015

GENERAL

1. CONSTRUCTION OF THIS CONTRACT SHALL CONFORM TO DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS DATED AUGUST 2001 AS AMENDED BY THE SUPPLEMENTAL SPECIFICATIONS, THE SPECIAL PROVISIONS, THE MOST RECENT STANDARD CONSTRUCTION DETAILS, DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THESE PLANS.

2. THE PURPOSE OF THIS CONTRACT IS TO MAKE GENERAL IMPROVEMENTS TO ROADS AND/OR STREETS WITHIN THE DISTRICT HEREIN SPECIFIED. DEPENDING ON FUND AVAILABILITY, THE DEPARTMENT RESERVES THE RIGHT TO ADD OR DELETE LOCATIONS AND/OR QUANTITIES FOR THIS CONTRACT. SUCH LOCATION OR QUANTITY ADDITIONS OR DELETIONS SHALL NOT BE CAUSE FOR AN INCREASE OR DECREASE IN ANY CONTRACT UNIT BID PRICES. NO ITEM PRICES ARE TO BE RENEGOTIATED DUE TO EITHER AN INCREASE OR DECREASE IN QUANTITY USAGE RESULTING FROM SAID ADDITIONS OR DELETIONS.

3. THE CONTRACTOR SHALL PROVIDE ALL RESIDENTS AND BUSINESSES WHO LIVE ADJACENT TO THE WORK ZONE A MINIMUM 48 HR. PRIOR WRITTEN NOTICE FOR THE START OF CONSTRUCTION WORK. THIS NOTIFICATION SHALL INCLUDE THE SCOPE OF WORK, WORKING HOURS, ANTICIPATED START AND COMPLETION DATES, CONTRACTOR NAME & ADDRESS, AND DELDOT CONTACT NUMBERS. FAILURE TO GIVE PROPER NOTICE WILL RESULT IN A SUSPENSION OF WORK REQUIRING NOTICE, UNTIL PROPER NOTICE IS PROVIDED. ACCESS TO ALL BUSINESSES AND RESIDENCES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THIS CONTRACT. ANY TEMPORARY CLOSURE OF A DRIVEWAY FOR TIE-IN PURPOSES SHALL BE COORDINATED WITH THE ENGINEER AND/OR PROPERTY OWNER IN ADVANCE OF THE CLOSURE.

4. THE CONTRACTOR SHALL SUBMIT THE REQUIRED COPIES OF A DETAILED PROGRESS SCHEDULE (PSC) AS OUTLINED IN STANDARD SPECIFICATION 108.04 PRIOR TO OR AT THE PRECONSTRUCTION MEETING. DETAILS SHALL INCLUDE A DESCRIPTION OF EACH WORK ACTIVITY, THE PLANNED DAYS OF WORK, MULTIPLE CREWS OR SHIFTS, AND SCHEDULED WORKING HOURS. DURING THE CONTRACT, THE CONTRACTOR SHALL SUBMIT TWO-WEEK (OR AS REQUIRED) "LOOK AHEAD" SCHEDULES TO THE AREA ENGINEER/ MANAGER NO LATER THAN NOON OF EACH THURSDAY.

GENERAL CONTRACT PLAN NOTES

FAILURE TO COMPLY WILL RESULT IN A SUSPENSION OF ALL CONTRACT WORK WITH TIME CHARGES CONTINUING TO BE ASSESSED.

MAINTENANCE OF TRAFFIC

5. THE CONTRACTOR SHALL BE REQUIRED TO SHOW PROOF THAT HE HAS SUFFICIENT APPROVED STRIPING MATERIALS ON HAND TO ENSURE STRIPING IS COMPLETED PRIOR TO FULL OPENING ROADWAY TO TRAFFIC.

6. WITHIN THE MAINLINE WORK AREA, PERMANENT ADVANCE WARNING SIGNS WITH THE LEGENDS "ROAD WORK 1500 FT", "ROAD WORK 1000 FT", AND "ROAD WORK 500 FT" SHALL BE INSTALLED IN ADVANCE OF THE WORK AREA IN BOTH DIRECTIONS. AN "END ROAD WORK" SIGN SHALL BE LOCATED 500 FEET DOWNSTREAM FROM THE WORK AREA. ON INTERSECTING ROADWAYS WITHIN THE PROJECT LIMITS, A "ROAD WORK AHEAD" SIGN SHALL BE PLACED AT A DISTANCE NOT LESS THAN 500 FEET DOWNSTREAM OF THE WORK AREA. ALL PERMANENT ADVANCE WARNING SIGNS SHALL BE GROUND-MOUNTED ON TWO NCHRP-350 OR MASH APPROVED BREAKAWAY POSTS AND SHALL BE MOUNTED IN COMPLIANCE WITH THE DE-MUTCD. PERMANENT ADVANCE WARNING SIGNS SHALL BE MOUNTED AT A HEIGHT OF 7 FEET, MEASURED FROM THE ROADWAY TO THE BOTTOM OF THE SIGN. THE USE OF SKID-MOUNTED SIGN SUPPORTS IS NOT ALLOWED UNLESS THE CONTRACTOR CAN DEMONSTRATE THAT A UTILITY CONFLICT EXISTS, WHICH SHALL BE VERIFIED BY THE ENGINEER; OR CONCRETE MEDIANS PREVENT THE INSTALLATION OF THE PERMANENT SIGNS IN THE APPROPRIATE LOCATION.

7. AT THE END OF EACH DAY'S OPERATION AND BEFORE TRAFFIC IS RETURNED TO UNRESTRICTED ROADWAY USE, TEMPORARY STRIPING SHALL BE UTILIZED AT LOCATIONS THAT REQUIRE PERMANENT STRIPING. TEMPORARY PAVEMENT STRIPING MUST MATCH PERMANENT PAVEMENT STRIPING IN ALL REGARDS. TEMPORARY PAVEMENT MARKINGS SHALL BE PAID AT THE APPLICABLE CONTRACT UNIT PRICE. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE TEMPORARY MARKINGS IN GOOD CONDITION SUCH THAT THE PAVEMENT IS PROPERLY DELINEATED AT ALL TIMES. ANY REFRESHING OF THE TEMPORARY MARKINGS WILL BE AT THE CONTRACTOR'S EXPENSE.

GENERAL CONTRACT PLAN NOTES

8. ALL WORK SHALL BE PERFORMED IN A MANNER THAT WILL REASONABLY PROVIDE THE LEAST PRACTICABLE OBSTRUCTION TO ALL ROAD USERS, INCLUDING VEHICULAR, PEDESTRIAN AND BICYCLE TRAFFIC, AND SHALL CONFORM TO THE REQUIREMENTS OF THE 2011 DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART 6, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT FOR BIDS.

9. CURB RAMP AND/OR SIDEWALK CONSTRUCTION (NOT INCLUDING MEDIAN ISLANDS) SHALL BE COMPLETED DURING A SINGLE OPERATION. THE RAMP/SIDEWALK SHALL BE REMOVED AND PLACED BACK THE SAME NIGHT/DAY AND OPEN TO PEDESTRIAN TRAFFIC THE FOLLOWING DAY. THE USE OF A MONOLITHIC POUR SHALL BE PERMITTED WITH A BOND BREAKER TO BE PLACED AT THE BACK OF THE CURB AND EDGE OF SIDEWALK. IF THE CURB RAMP/SIDEWALK CANNOT BE COMPLETED IN A SINGLE OPERATION THE EXCAVATED AREA MUST BE BACKFILLED TO GRADE WITH COMPACTED MILLING MATERIAL ONLY. THIS MATERIAL WILL BE INCIDENTAL TO THE CURB RAMP ITEM. THE DRESSING UP OF THE AREA BEING PAID AS A CURB RAMP WITH TOPSOIL AND SEED WILL BE INCIDENTAL TO THE CURB RAMP ITEMS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO AND ALONG PEDESTRIAN FACILITIES AT ALL TIMES DURING CONSTRUCTION. EARTH, STONE AND GRAVEL SURFACES ARE NOT ACCEPTABLE FOR PROVIDING PEDESTRIAN ACCESS. IF CURB RAMP CANNOT BE COMPLETED IN A SINGLE OPERATION AND PEDESTRIAN ROUTES ARE CLOSED OR BLOCKED, ALTERNATE PEDESTRIAN ACCESS SHALL BE PROVIDED USING TA-28 AND/OR TA-29 OF THE 2011 DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES OR TO THE SATISFACTION OF THE ENGINEER. PEDESTRIAN DETOUR ROUTES OR ALTERNATE PEDESTRIAN FACILITIES SHALL CONSIST OF ADA COMPLIANT FACILITIES TO THE LEVEL OF WHICH EXISTS ON THE PEDESTRIAN ROUTE. THE COST FOR ANY PROVISIONS SHALL BE INCIDENTAL TO ITEM 763XXX - MAINTENANCE OF TRAFFIC.

PEDESTRIAN MAINTENANCE OF TRAFFIC: THIS WORK SHALL CONSIST OF PROVIDING AND MAINTAINING AN ACCESSIBLE PEDESTRIAN ROUTE THROUGHOUT THE PROJECT'S LIMITS IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT OF 1990 (ADA) TITLE II, PARAGRAPH 35.130.

THE CONTRACTOR SHALL BE REQUIRED TO REVIEW EACH CURB RAMP LOCATION AND SUBMIT THE APPROPRIATE MAINTENANCE OF TRAFFIC DETAIL AND DEVICES TO THE ENGINEER FOR EACH LOCATION AT LEAST 2 WEEKS BEFORE CONSTRUCTION FOR REVIEW, COMMENT, AND APPROVAL BY THE DISTRICT TRAFFIC SAFETY OFFICER

GENERAL CONTRACT PLAN NOTES

THE FOLLOWING CONSIDERATIONS SHALL BE TAKEN INTO ACCOUNT WHEN ADDRESSING ACCESSIBLE PEDESTRIAN MAINTENANCE OF TRAFFIC:

ALL PEDESTRIANS, INCLUDING PERSONS WITH DISABILITIES, SHALL BE PROVIDED WITH A REASONABLY SAFE, CONVENIENT AND ACCESSIBLE PATH THAT REPLICATES AS MUCH AS PRACTICABLE THE EXISTING PEDESTRIAN FACILITIES.

MAINTAIN ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.

PROVIDE PEDESTRIAN ACCESS THROUGH OR AROUND THE WORK ZONE. IF A DETOUR IS CHOSEN THE CONTRACTOR MUST SUBMIT THE DETOUR ROUTE TO THE ENGINEER FOR REVIEW AND APPROVAL. THE DETOUR ROUTE MUST MEET OR EXCEED THE CURRENT CONDITIONS.

WORK SHOULD BE PHASED SO THAT ALL AREAS OF AN INTERSECTION/SIDEWALK PATH ARE NOT UNDER CONSTRUCTION AT THE SAME TIME UNLESS A CLEAR PATH IS PROVIDED AND IDENTIFIED.

TRAFFIC CONTROL DEVICES AND OTHER CONSTRUCTION MATERIALS AND FEATURES SHALL NOT INTRUDE INTO THE USABLE WIDTH OF THE SIDEWALK, TEMPORARY PATHWAY OR OTHER PEDESTRIAN FACILITY.

SIGNS AND OTHER DEVICES MOUNTED LOWER THAN 7 FT ABOVE THE TEMPORARY PEDESTRIAN PATHWAY SHALL NOT PROJECT MORE THAN 4 IN. INTO ACCESSIBLE PEDESTRIAN ROUTE.

A SMOOTH, CONTINUOUS HARD SURFACE SHALL BE PROVIDED THROUGHOUT THE ENTIRE LENGTH AND WIDTH OF THE PEDESTRIAN ROUTE THROUGHOUT CONSTRUCTION. THERE SHALL BE NO CURBS OR VERTICAL ELEVATION CHANGES GREATER THAN ¼ IN. IN GRADE OR TERRAIN THAT COULD CAUSE TRIPPING OR BE A BARRIER TO WHEELCHAIR USE.

GENERAL CONTRACT PLAN NOTES

10. AN AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR SHALL BE REQUIRED FOR ALL LOCATIONS SPECIFIED IN THE CONTRACT PLANS. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR. A COPY OF THE CERTIFICATION CARD FOR THE ATSSA TRAFFIC CONTROL SUPERVISOR SHALL BE SUBMITTED AT THE PRECONSTRUCTION MEETING. THE PAPER CERTIFICATE IS NOT ACCEPTABLE.

11. MESSAGE BOARDS SHALL BE PLACED 10 DAYS IN ADVANCE OF THE WORK AND SHALL REMAIN IN PLACE FOR 5 DAYS AFTER THE START OF WORK. LOCATIONS OF MESSAGE BOARDS AND MESSAGES DISPLAYED SHALL BE REVIEWED AND APPROVED BY THE DISTRICT SAFETY OFFICER.

PAVEMENT MARKINGS

12. SIGNING AND STRIPING PLANS WILL BE PROVIDED AT THE PRECONSTRUCTION MEETING. THE CONTRACTOR WILL NOT BE REQUIRED TO SUBMIT DETAILED DRAWINGS OF THE EXISTING PAVEMENT MARKINGS.

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, WHITE EDGE LINES SHALL WRAP AROUND THE RADIUS OF ALL SIDE STREETS AND MAJOR COMMERCIAL ENTRANCES TO A TANGENT POINT. YELLOW CENTERLINES SHALL BE CONTINUOUS AROUND MEDIAN ISLANDS. ALL DOUBLE YELLOW CENTERLINES SHALL BE PLACED IN A 5-6-5 CONFIGURATION (2 EACH, 5" YELLOW STRIPES WITH A 6" GAP BETWEEN).

13. ANY ERRONEOUS MARKING WILL NOT BE PAID FOR AND SHALL BE CORRECTED IMMEDIATELY AT THE CONTRACTORS EXPENSE. ERRONEOUS MARKINGS OR SHADOWS THAT EXCEED ONE (1) INCH IN WIDTH SHALL BE REMOVED BY EITHER SAND OR WATER BLASTING AS DIRECTED BY THE ENGINEER. NO OTHER REMOVAL METHODS WILL BE ALLOWED. A FLAT BLACK PAINT OR DRIVEWAY SEALER SHALL BE APPLIED IN THE AREA OF THE REMOVED MARKING TO MASK THE REPAIR. ANY DAMAGE TO THE PAVEMENT CAUSED BY REMOVAL OF ERRONEOUS MARKINGS SHALL BE REPAIRED / REPLACED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTORS EXPENSE.

GENERAL CONTRACT PLAN NOTES

14. STOP LINES "BARS" SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 3B.16 OF THE 2011 DELAWARE MUTCD.

15. ALL CROSSWALKS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 3B.18 OF THE 2011 DELAWARE MUTCD.

TRAFFIC SIGNAL NOTES

16. TRAFFIC DETECTION LOOPS SHALL BE PLACED IN THE FINAL WEARING SURFACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

17. TRAFFIC DETECTION LOOPS THAT ARE CURRENTLY 5'x7' SHALL BE REPLACED WITH LOOPS THAT ARE 6'x6' AT THE SAME LOCATION. STOP BAR DETECTION LOOPS SHALL BE THE SAME SIZE AS CURRENTLY EXISTING, AND SHOULD BE PLACED STARTING ONE FOOT BEHIND THE STOP BAR, BUT PLACEMENT MAY BE ADJUSTED TO ADDRESS FIELD REQUIREMENTS. IF SEPARATE SIGNAL PLANS HAVE BEEN DEVELOPED, THE PLANS SUPERSEDE THIS NOTE.

PROJECT

18. UNLESS SPECIFIED, OVERLAY WIDTHS SHALL MATCH EXISTING WIDTHS.

19. THE COST OF CLIPPING BACK THE EDGES OF THE ROADWAY, SHOULDERS, AND THE FIRST 3' OF UNPAVED DRIVEWAY ENTRANCES, PICKING UP AND DISPOSING OF WASTE AND EXCESS MATERIAL, AND CLEANING THE EXISTING PAVEMENT PRIOR TO OVERLAY SHALL BE INCIDENTAL TO SECTION 401(.). PREPARING UNPAVED DRIVEWAY ENTRANCES BEYOND THE FIRST 3' SHALL BE PAID UNDER THE APPROPRIATE CONTRACT ITEMS: 202000 AND/OR 30200X.

GENERAL CONTRACT PLAN NOTES

20. BUTT JOINTS SHALL BE PLACED AT ALL INTERSECTING HOT MIX ROADS AND ANY OTHER LOCATIONS AS DIRECTED BY THE ENGINEER. BUTT JOINTS AT DRAINAGE STRUCTURES NOT TO BE RESURFACED SHALL BE AS PER THE INCLUDED PLAN DETAIL OR LOCATION NOTES. BUTT JOINTS CUT PRIOR TO THE DAY OF THE PAVEMENT OVERLAY SHALL BE RAMPED WITH HOT MIX TRM. IN MILLING AREAS, THERE WILL BE NO SEPARATE PAYMENT FOR BUTT JOINTS. AFTER PAVEMENT MILLING, ALL TRANSVERSE VERTICAL DIFFERENCES, RAISED EDGES OF MANHOLES, CATCH BASINS, WATER VALVE BOXES, ETC...SHALL BE RAMPED WITH HOT-MIX TRM AT A 20:1 OR FLATTER SLOPE PRIOR TO OPENING THE ROADWAY TO TRAFFIC. PAVEMENT MILLINGS WILL NOT BE ALLOWED FOR USE AS RAMPING MATERIAL.

21. TAPER MILLING IS INTENDED FOR MILLING IN THE AREA OF FIXED STRUCTURES (I.E. CURBS GUARDRAIL, ETC.) THE MILLED DEPTH AT THE STRUCTURE SHALL BE THE DEPTH OF THE PROPOSED OVERLAY AND 0" AT A DISTANCE OF +/- 6½' FROM THE STRUCTURE. THE COMPUTED DEPTH FOR PAYMENT PURPOSES IS THE AVERAGE OF THE TWO DEPTHS.

22. ALL MILLED MATERIAL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE STATED.

23. EXCAVATION UP TO 1' IN FRONT OF CURB WILL BE INCIDENTAL TO ITEM 701XXX. HOT MIX PLACED IN FRONT OF CURB WILL BE PAID UNDER ITEM 401XXX. USE OF CONCRETE AS FILL IN FRONT OF CURB WILL NO LONGER BE ACCEPTED UNLESS DIRECTED BY THE ENGINEER. AT EACH LOCATION, BACKFILLING SHALL BE PERFORMED IMMEDIATELY UPON REMOVAL OF FORMS FOR CURB OR SIDEWALK. TOPSOIL, SEEDING, SEALING OF VALLEY GUTTERS, REMOVING OF FORMS, AND PARGING OF CATCH BASINS, SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS OF COMPLETION OF THE ITEM OF WORK. ITEM 732XXX, TOPSOIL, SHALL BE USED AS BACKFILL MATERIAL BEHIND CURB AND AROUND SIDEWALK OR/AS DIRECTED BY THE ENGINEER. TOPSOIL SHALL BE SCREENED/SIFTED SO AS NO MATERIAL GREATER THAN .5" IS PRESENT IN MATERIAL USED FOR BACKFILL. EXCAVATED MATERIAL, NOT NEEDED ON THE PROJECT, SHALL BE REMOVED FROM THE CONTRACT AT THE CONTRACTORS EXPENSE. FAILURE TO COMPLY WILL RESULT IN A SUSPENSION OF ALL OTHER CONTRACT WORK WITH TIME CHARGES CONTINUING TO BE ASSESSED.

24. ALL ADJUSTMENTS SHALL BE MADE NO MORE THAN SEVEN (7) CALENDAR DAYS PRIOR TO THE PLACEMENT OF THE FINAL COURSE OF HOT MIX UNLESS OTHERWISE APPROVED BY THE ENGINEER.

GENERAL CONTRACT PLAN NOTES

FAILURE TO COMPLY WILL RESULT IN A SUSPENSION OF ALL OTHER CONTRACT WORK WITH TIME CHARGES CONTINUING TO BE ASSESSED.

25. ALL PAVING, INCLUDING TURN LANES, SHOULDERS AND INTERSECTIONS, IS TO BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS FROM THE TIME THE AREA WAS MILLED. FAILURE TO COMPLY WILL RESULT IN A SUSPENSION OF ALL OTHER CONTRACT WORK WITH TIME CHARGES CONTINUING TO BE ASSESSED.

26. THE CONTRACTOR SHALL TAKE CARE IN REMOVING PAVEMENT AROUND UTILITIES, BUTT JOINTS, CURBS, ETC. SO THAT EXISTING PAVEMENT BEYOND THE SPECIFIED DEPTHS IS NOT DAMAGED. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS MAY RESULT IN PLACING LEVELING COURSES AT THE CONTRACTOR'S EXPENSE. THE REMOVAL AND CLEAN UP OF THE HOT MIX RESIDUE WEDGE REMAINING AFTER MILLING OPERATIONS SHALL BE INCIDENTAL TO THE MILLING ITEM. THE REMOVAL OF EXISTING RAISED PAVEMENT MARKERS (RPM'S) SHALL BE INCIDENTAL TO THE APPLICABLE MILLING AND/OR RECLAMATION ITEMS.

27. ALL PORTLAND CEMENT CONCRETE MUST BE RECEIVED FROM AN APPROVED PRODUCTION PLANT UNLESS OTHERWISE APPROVED BY THE ENGINEER. ONLY CALIBRATED VOLUMETRIC CONCRETE TRUCKS WILL BE PERMITTED TO PROVIDE ON-SITE MIXTURES. THIS PERTAINS TO BOTH WORK OCCURRING DURING NORMAL WORKING HOURS AND NIGHTTIME RESTRICTED WORK.

28. DRAINAGE INLETS, WHICH ARE 4' GREATER IN DEPTH AND ARE SLATED FOR REPAIR WILL HAVE STEPS INSTALLED IN ACCORDANCE WITH SECTION 708.07 OF THE STANDARD SPECIFICATIONS. PAYMENT SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR ITEM 710001.

29. THE PORTLAND CEMENT CONCRETE USED FOR ITEM 710001 - ADJUSTING AND REPAIRING EXISTING DRAINAGE INLET, ITEM 710002 - ADJUST AND REPAIR EXISTING MAN HOLES AND ITEM 750000 - ADJUST WATER VALVE BOX SHALL CONFORM TO THE REQUIREMENTS OF CLASS A CONCRETE (6 HOUR ROADWAY MIX) AS STATED WITHIN SECTION 503.02 OF THE DEPARTMENT'S STANDARD SPECIFICATIONS. ALSO, THE PERIMETER OF THE UTILITY ADJUSTMENT WILL BE SEALED AND WILL BE CONSIDERED INCIDENTAL TO THE APPLICABLE ADJUSTMENT ITEM.

GENERAL CONTRACT PLAN NOTES

30. WHEN JACKHAMMERING OR THE USE OF A BREAKER IS NECESSARY ON CONTRACTS THAT OCCUR DURING THE NIGHTTIME HOURS THE JACKHAMMERING AND BREAKING MUST CEASE AT 12:00AM REGARDLESS OF ANY NOISE WAIVER THAT MAY EXIST.

31. ANY MILLING MATERIAL REQUIRED TO MAKE AREAS ADA COMPLIANT IF NOT COMPLETED IN THE SAME SHIFT AT CURB, SIDEWALK, CURB RAMPS, ISLANDS, ETC. WILL BE INCIDENTAL TO THE PAY ITEM ASSOCIATED WITH THE WORK. MILLING MATERIAL IS THE ONLY APPROVED MATERIAL FOR THIS PRACTICE.

32. WHEN CONTRACT INCLUDES ITEMS 503001 AND 503002 PATCHES WILL BE PRESUMED TO BE STANDARD PATCH SIZES AND LOCATIONS WILL BE DETERMINED AT THE CONSTRUCTION PRE-WALK. THE USE OF STEEL PLATES WILL BE PROHIBITED. ROADWAY MUST BE RETURNED TO UNRESTRICTED USE AT THE END OF EACH WORK DAY. ALL PCC PAVEMENT WILL BE PRESUMED TO BE 9".

33. ITEM 763621 CONSTRUCTION ENGINEERING, REHABILITATION WILL COMPENSATE THE CONTRACTOR FOR THE FOLLOWING SURVEY ACTIVITIES. ANY LAYOUT ASSOCIATED WITH ADA IMPROVEMENTS, PROVIDING GRADES FOR UTILITY ADJUSTMENTS IF NECESSARY, THE LAYOUT OF LANE LINES FOR PAVING, GRADES FOR THE INSTALLATION OF DRAINAGE STRUCTURES OR OTHER ITEMS OF WORK AS DETERMINED BY THE ENGINEER OR PROGRAM MANAGER. THIS ITEM WILL NOT COMPENSATE THE CONTRACTOR FOR THE LAYOUT OF STRIPING AS THIS IS THE RESPONSIBILITY OF THE STRIPING SUBCONTRACTOR. THE HOURLY PAYMENT WILL BE BASED UPON ACTUAL HOURS OF SURVEYING PERFORMED IN THE FIELD. IT WILL NOT INCLUDE TIME SPENT IN VEHICLE OR OFFICE. THE SURVEY CREW WILL BE RESPONSIBLE UPON ARRIVAL AND DEPARTURE ON THE JOBSITE TO CONTACT A MEMBER OF THE INSPECTION STAFF SO THAT HOURS CAN BE TRACKED FOR PAYMENT. THE CONSEQUENCE FOR NOT DOING THIS WILL BE NON-PAYMENT FOR THE SURVEYING SERVICES.

34. UPON RECEIPT OF THE MONTHLY PAY ESTIMATE ANY ISSUES OR DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER/PROGRAM MANAGER IF POSSIBLE BEFORE THE ISSUANCE OF THE NEXT PAY ESTIMATE. TO ALLOW FOR INVOICES FROM SUBCONTRACTORS ETC., A 60 DAY TIME PERIOD TO REPORT DISCREPANCIES WILL BE PERMITTED. ANY DISCREPANCIES BEYOND THE 60 DAY TIME PERIOD WILL NOT BE ENTERTAINED.

35. FOR ITEM 743007 TRAFFIC OFFICERS, REQUIRED INVOICES WILL BE REVIEWED FOR ACCURACY. ANY MAJOR INACCURACIES WILL BE ADJUSTED ACCORDINGLY. FOR EXAMPLE, IF INVOICE SHOWS

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GENERAL CONTRACT PLAN NOTES

CHARGED HOURS ON A CERTAIN DATE AND WE HAVE DOCUMENTATION THAT NO WORK OCCURED THAT DATE OR NO OFFICERS WERE PRESENT THE INVOICE WILL BE ADJUSTED ACCORDINGLY.

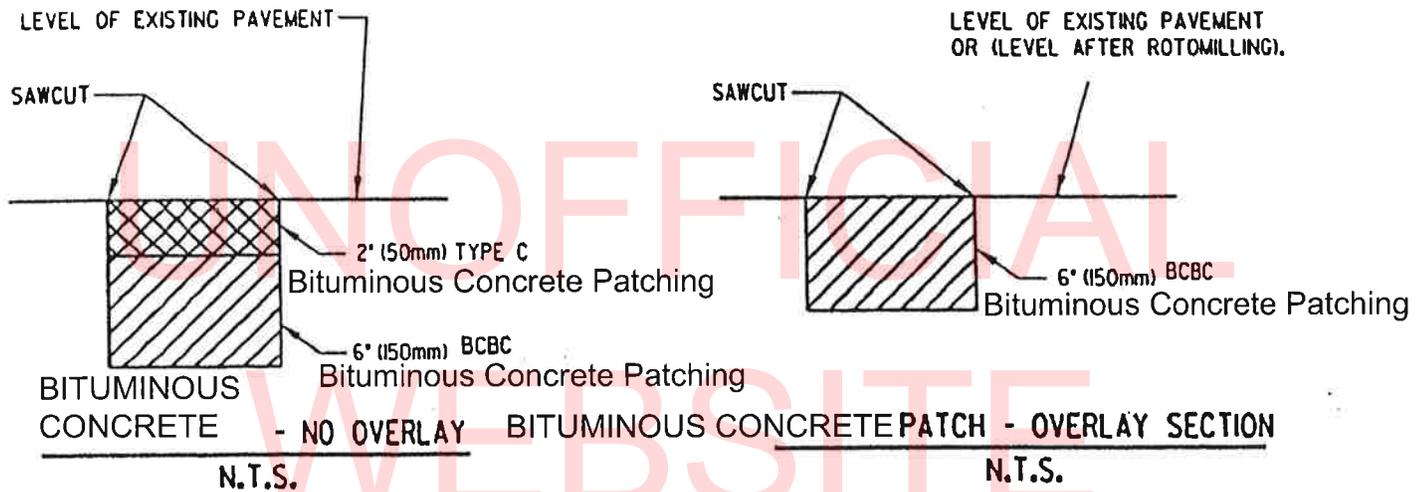
36. PCC PATCHING: WHEN THE PATCH SURFACE WILL BE PART OF THE FINAL SURFACE OF THE ROADWAY, THE PATCH SURFACE SHALL BE FINISHED TO MATCH THE TEXTURE OF THE ADJACENT PAVEMENT. THE PATCH SURFACE CROSS SECTION SHALL MATCH THE PRECEDING AND FOLLOWING PAVEMENT SURFACES. THE ENGINEER MAY TEST FOR EXCESSIVE DEVIATIONS WITH A 10 FOOT STRAIGHTEDGE. WHEN TESTED WITH A STRAIGHTEDGE, EXCESSIVE DEVIATIONS ARE SURFACE DEVIATIONS GREATER THAN 1/8 INCH FROM A REFERENCE LINE BETWEEN POINTS NOT GREATER THAN 10 FEET APART ALONG THE DIRECTION OF TRAFFIC. THE CONTRACTOR SHALL CORRECT UNACCEPTABLE DEVIATIONS IN THE PATCH AREAS.

WEBSITE
COPY

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET



•UNDERCUT EXCAVATION PATCHING TO BE UTILIZED BELOW 8" (200mm) WHEN DIRECTED BY THE ENGINEER.

•UNDERCUT EXCAVATION PATCHING TO BE UTILIZED BELOW 6" (150mm) WHEN DIRECTED BY THE ENGINEER.

NOTE: PREFERRED EXCAVATION METHOD TO BE BY ROTOMILLING. SAWCUTTING EDGES SHALL BE AS DIRECTED BY ENGINEER AND DEPENDENT ON THE CONDITION LEFT BY THE ROTOMILLING OPERATION. BACKFILL FOR UNDERCUT EXCAVATION SHALL BE SUPERPAVE BCBC PATCH (SEPERATE LIFT). MINIMUM WIDTH OF PATCHING 6' (1.8M). THIS DETAIL SHALL BE USED FOR ALL HOT MIX PATCHES UNLESS OTHERWISE SHOWN ON THE PLANS. ALL HOT MIX TO BE PLACED USING A PAVER.

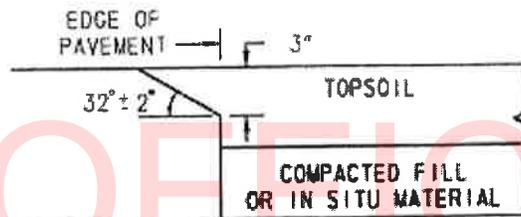
WHEN PCC PATCHING IS REQUIRED ON A COMPOSITE PAVEMENT(HOT-MIX OVER CONCRETE), THE CONTRACTOR MAY ELECT TO ELIMINATE ANY GRADE DIFFERENCE BETWEEN THE TOP OF THE CONCRETE PATCH AND THE TOP OF THE EXISTING HOT-MIX PAVEMENT BY EITHER PLACING HOT-MIX TRM MATERIAL(PAYMENT UNDER ITEM 402000) OR PLACING CONCRETE FLUSH WITH EXISTING HOT-MIX PAVEMENT(ADDITIONAL CONCRETE PAID AS ITEM 503503). IF CONCRETE IS PLACED FLUSH WITH EXISTING HOT-MIX, THE ROTOMILLING OF THE CONCRETE WILL BE PAID FOR AS ROTOMILLING HOT-MIX.

P.C.C. PATCHING NOTES

CANAL

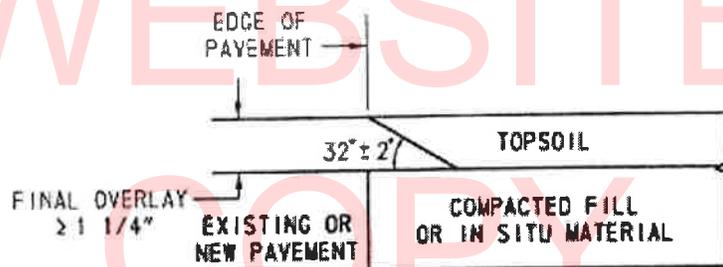
CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET



CONCRETE PAVEMENTS

N. T. S.



BITUMINOUS CONCRETE PAVEMENTS AND OVERLAYS

N. T. S.

Prior to placing concrete or bituminous concrete pavement, prepare the shoulder material where the Safety Edge will be placed to provide a foundation that will support its placement.

The Safety Edge is installed during a bituminous concrete resurfacing project using a special, removable wedge shape compaction device attached to and extending below the screed strike-off plate of the paver. This device is used to construct a pre-compacted, long lasting, low angle wedge fillet on the outside edge of the paved mat. The device has a self-adjusting internal spring that allows it to follow the surface independent of other paver components. The device has an angled surface that compacts the asphalt as it enters the device while another fixed-angle surface forms the tapered edge. As the asphalt continues under the wedge-forming surface, the asphalt is smoothed to create a finished surface on the tapered edge. Two wedge shape compaction devices that are commercially available are TransTech's Shoulder Wedge Maker and Advant-Edge Paving Equipment's Advant-Edger. The use of a single plate strike off is not allowed. Compaction of the edge should not be done with the first pass of the roller in order to give the Safety Edge a chance to harden some.

For concrete pavement or overlay, modify the paver screed to create the shoulder wedge as per the Safety Edge cross section.

CANAL

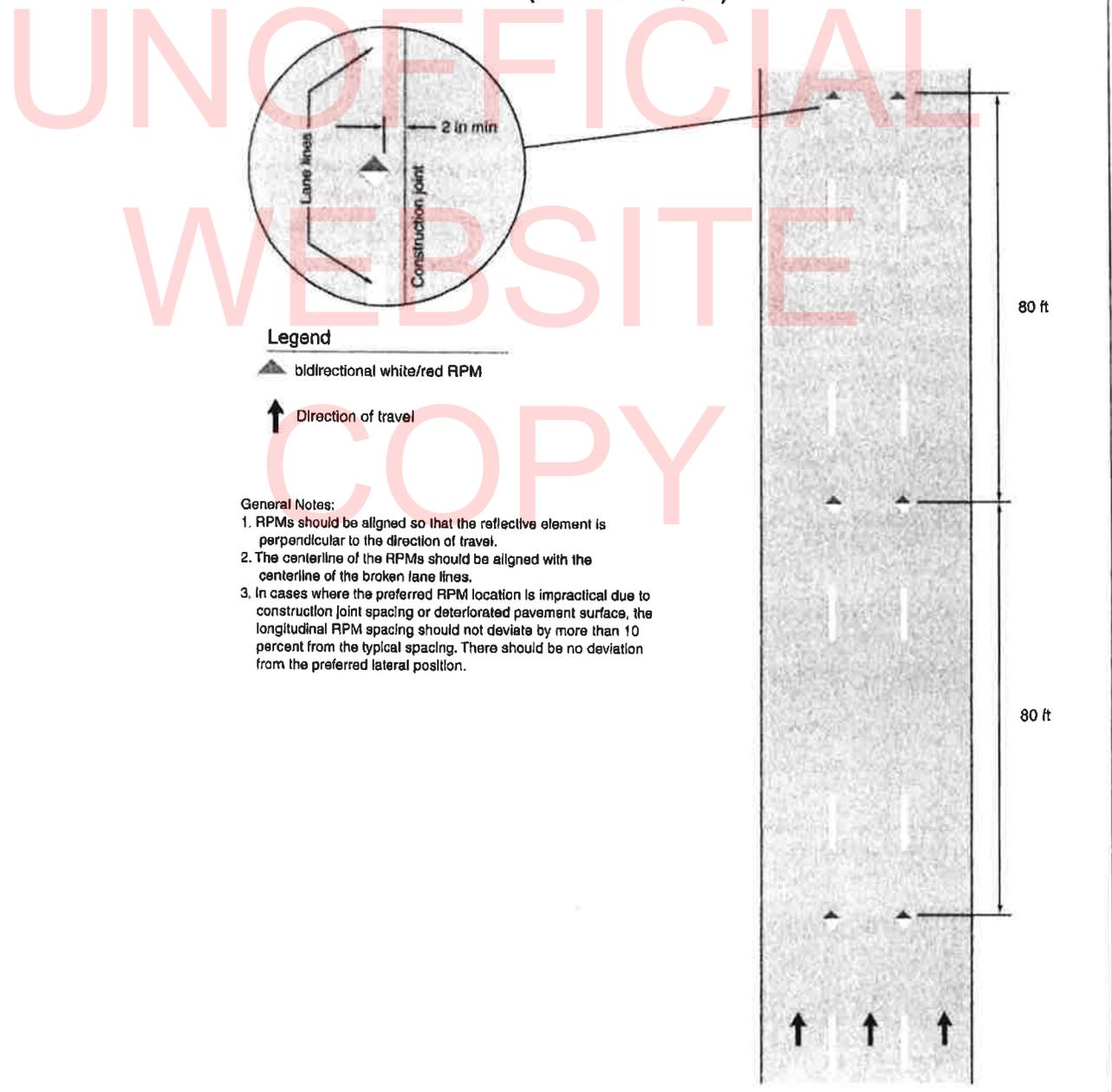
CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

DE MUTCD

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Figure 3B-15A. Example of Raised Pavement Marker (RPM) Application (Delaware Revision)



Legend

▲ bidirectional white/red RPM

↑ Direction of travel

General Notes:

1. RPMs should be aligned so that the reflective element is perpendicular to the direction of travel.
2. The centerline of the RPMs should be aligned with the centerline of the broken lane lines.
3. In cases where the preferred RPM location is impractical due to construction joint spacing or deteriorated pavement surface, the longitudinal RPM spacing should not deviate by more than 10 percent from the typical spacing. There should be no deviation from the preferred lateral position.

CANAL

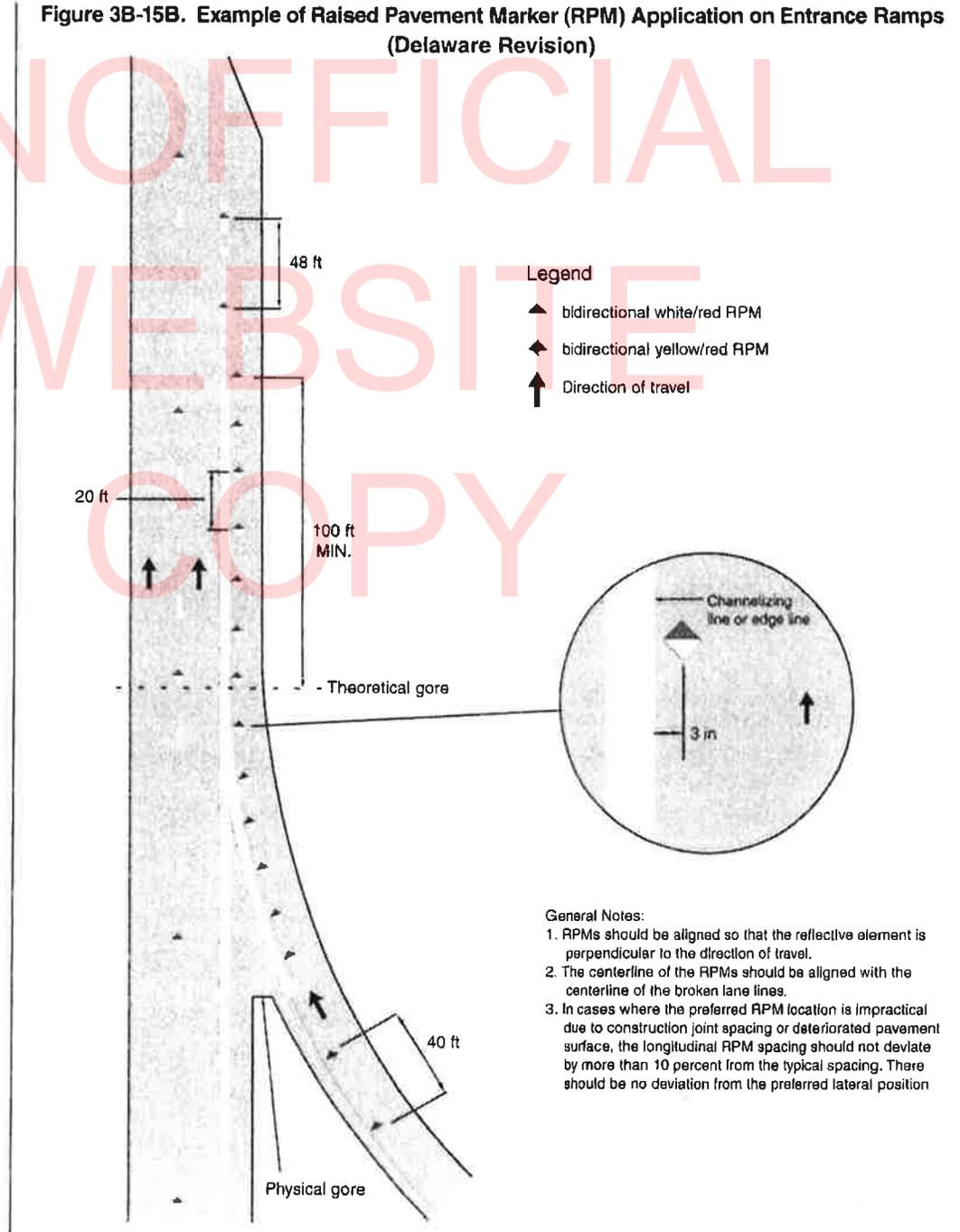
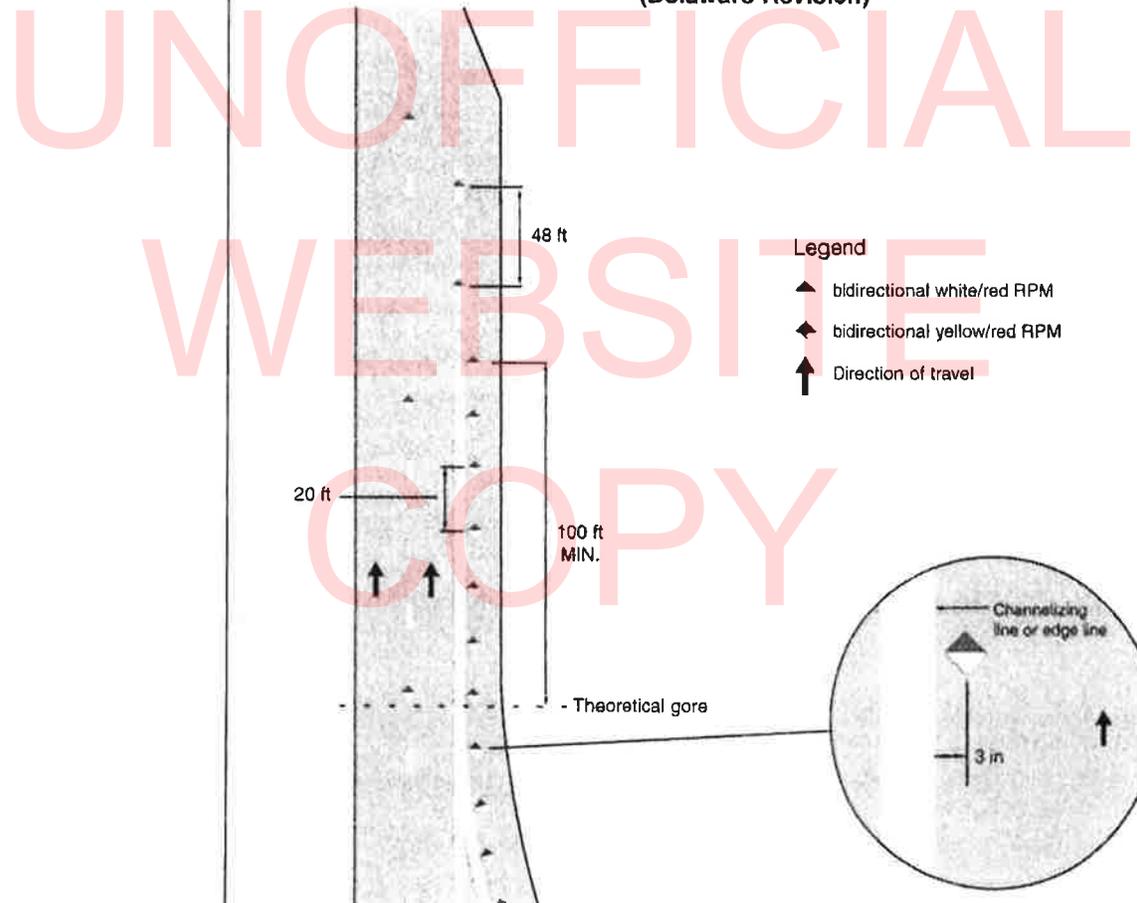
CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

Page 3B-50

DE MUTCD

Figure 3B-15B. Example of Raised Pavement Marker (RPM) Application on Entrance Ramps (Delaware Revision)



CANAL

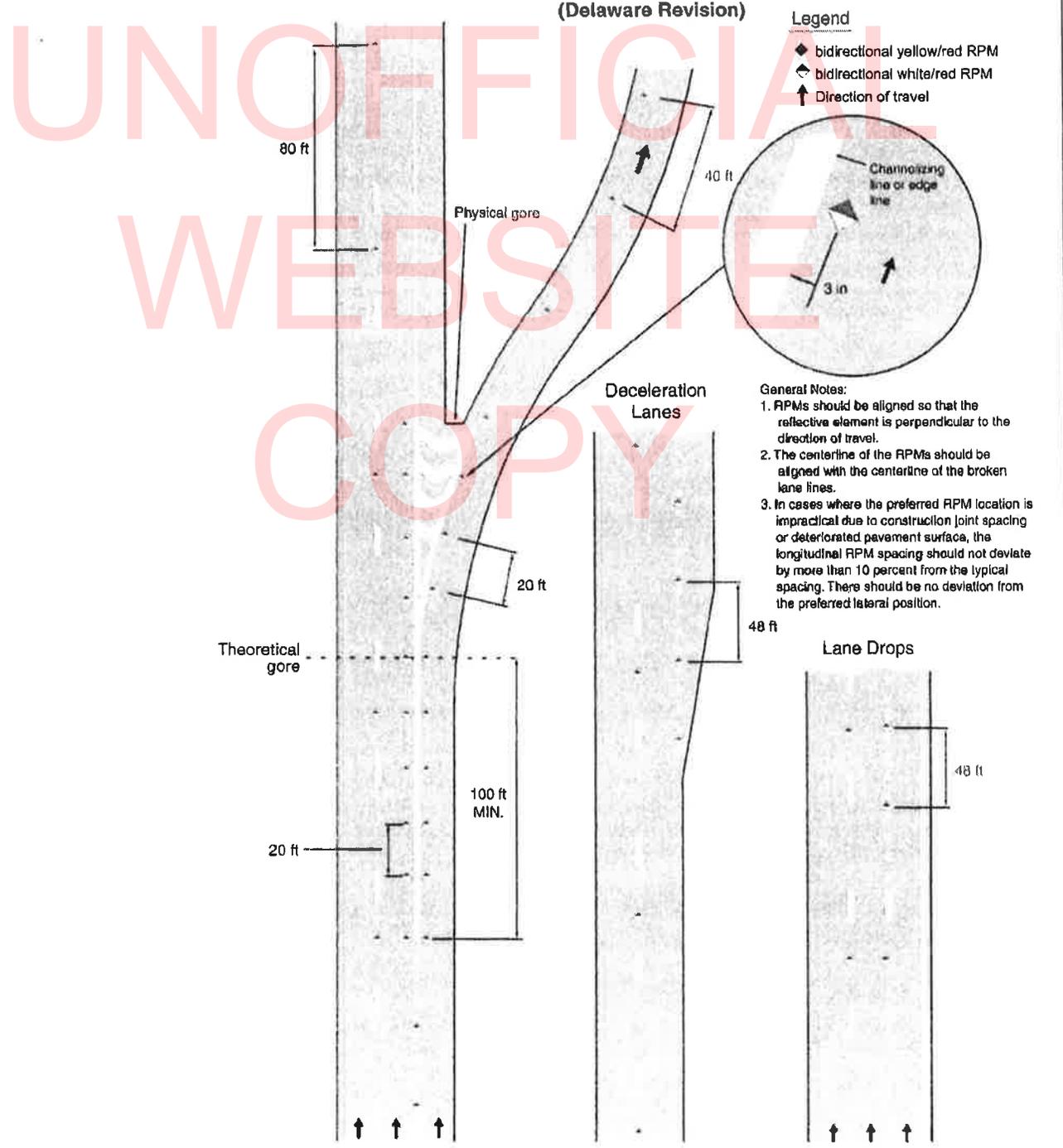
CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

DE MUTCD

Page 3B-51

Figure 3B-15C. Example of Raised Pavement Marker (RPM) Application on Exit Ramps (Delaware Revision)



Legend

- ◆ bidirectional yellow/red RPM
- bidirectional white/red RPM
- ↑ Direction of travel

General Notes:

1. RPMs should be aligned so that the reflective element is perpendicular to the direction of travel.
2. The centerline of the RPMs should be aligned with the centerline of the broken lane lines.
3. In cases where the preferred RPM location is impractical due to construction joint spacing or deteriorated pavement surface, the longitudinal RPM spacing should not deviate by more than 10 percent from the typical spacing. There should be no deviation from the preferred lateral position.

CANAL

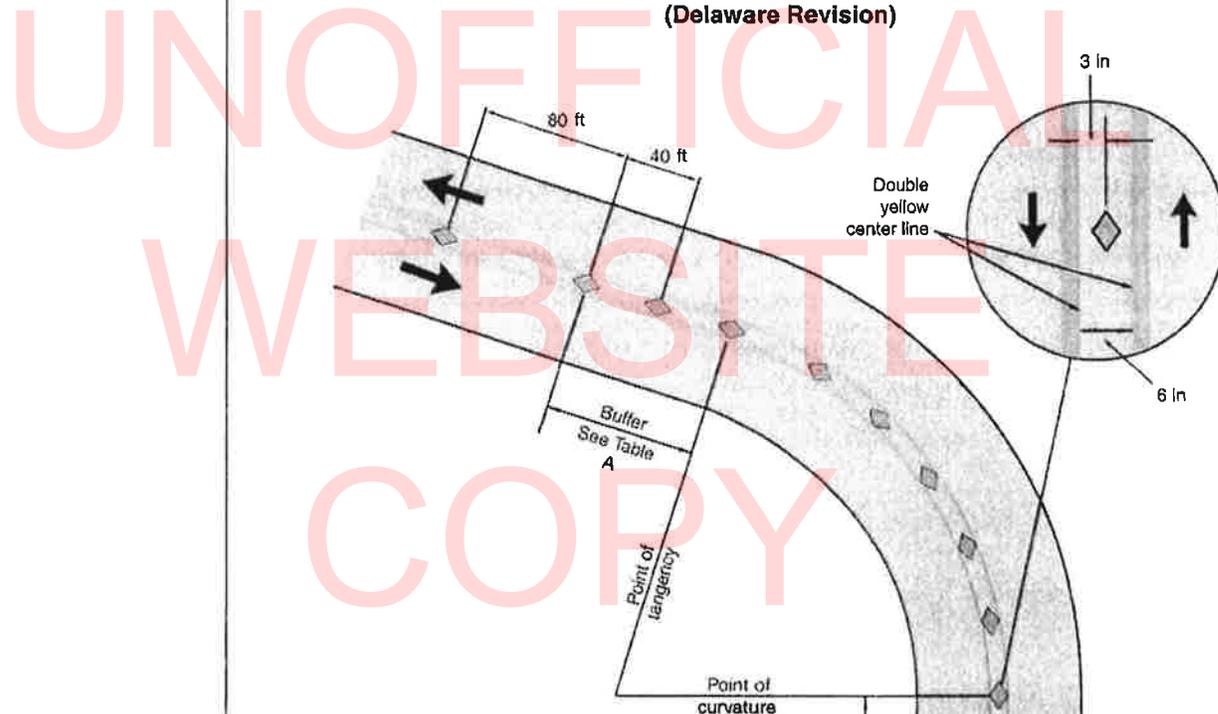
CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

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DE MUTCD

Figure 3B-15D. Example of Raised Pavement Marker (RPM) Application at Curves along Two-Lane Roads (Delaware Revision)



Legend

bldirectional yellow RPM

Direction of travel

Table A

Posted or 85 th Percentile Speed (MPH)	Buffer Distance (ft)
30	240
35	280
40	320
45	360
50	400
55	440
60	480
65	520

General Notes:

1. RPMs should be aligned so that the reflective element is perpendicular to the direction of travel.
2. The centerline of the RPMs should be aligned with the centerline of the broken lane lines
3. In cases where the preferred RPM location is impractical due to construction joint spacing or deteriorated pavement surface, the longitudinal RPM spacing should not deviate by more than 10 percent from the typical spacing. There should be no deviation from the preferred lateral position.

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

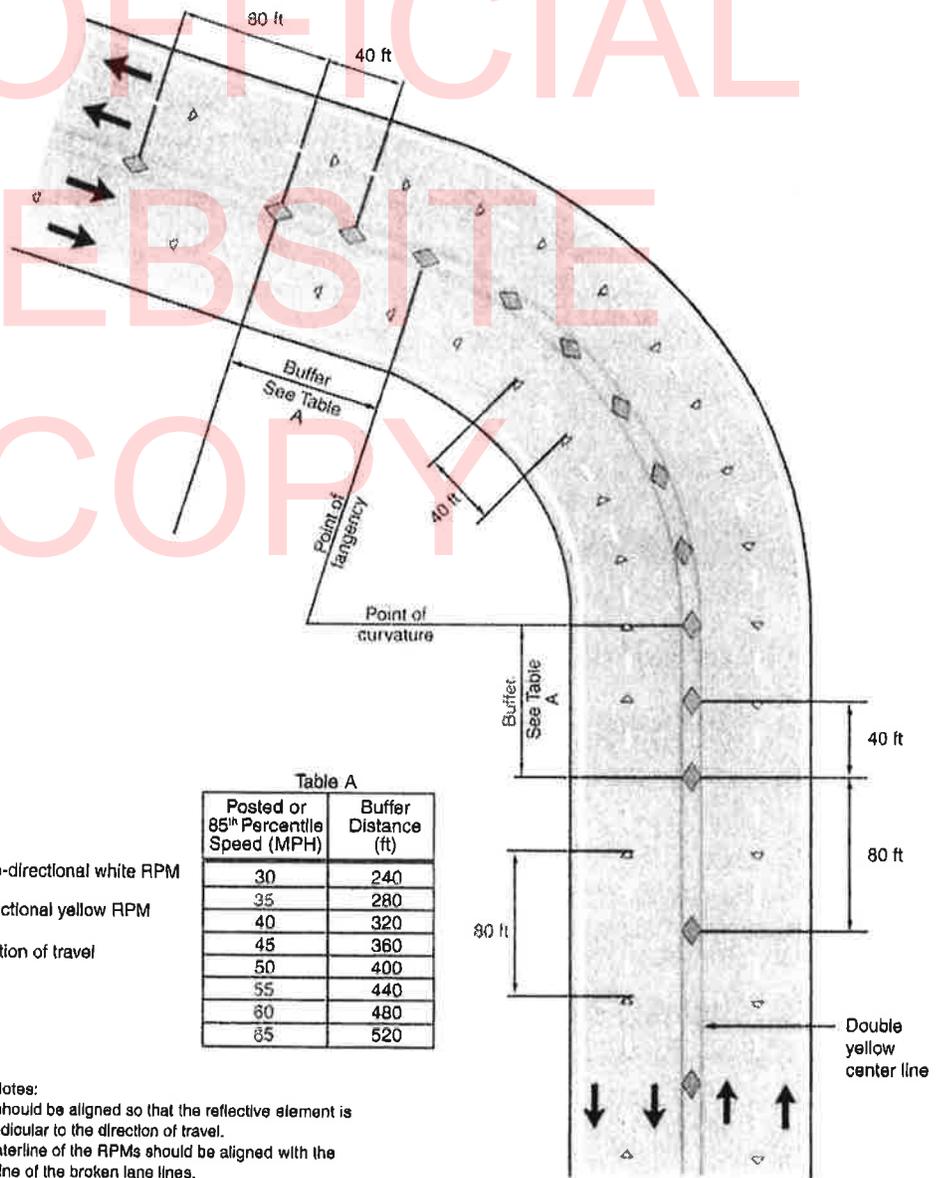
DETAILS SHEET

DE MUTCD

Page 3B-53

Figure 3B-15E. Example of Raised Pavement Marker (RPM) Application at Curves along Multi-Lane Roads (Delaware Revision)

UNOFFICIAL WEBSITE COPY



Legend

- △ mono-directional white RPM
- ◊ bidirectional yellow RPM
- ↑ Direction of travel

Table A

Posted or 85 th Percentile Speed (MPH)	Buffer Distance (ft)
30	240
35	280
40	320
45	360
50	400
55	440
60	480
65	520

General Notes:

1. RPMs should be aligned so that the reflective element is perpendicular to the direction of travel.
2. The centerline of the RPMs should be aligned with the centerline of the broken lane lines.
3. In cases where the preferred RPM location is impractical due to construction joint spacing or deteriorated pavement surface, the longitudinal RPM spacing should not deviate by more than 10 percent from the typical spacing. There should be no deviation from the preferred lateral position.

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

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DE MUTCD

Figure 3B-15F. Example of Raised Pavement Marker (RPM) Application for Left-Turn and Right-Turn Lanes (Delaware Revision)

Notes:

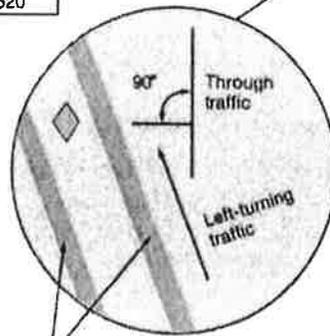
1. RPMs supplementing the double yellow center line should be installed between the two lines and oriented as shown in the detail below.
2. RPMs supplementing the double yellow center line along the length of the left-turn lane and taper should be spaced 20 ft apart if $A < 200$ ft. If $A \geq 200$ ft, RPMs should be spaced 40 ft apart along the length of the left-turn lane and taper, where A is the length of full-width left-turn lane and taper.
3. In cases where the preferred RPM location is impractical due to construction joint spacing or deteriorated pavement surface, the longitudinal RPM spacing should not deviate by more than 10 percent from the typical spacing. There should be no deviation from the preferred lateral position.
4. RPM spacing for all dotted lane lines should be 48 ft.
5. RPMs supplementing solid lines should be installed adjacent to the solid line. See inset in Figure 3B-15B for placement.

Legend

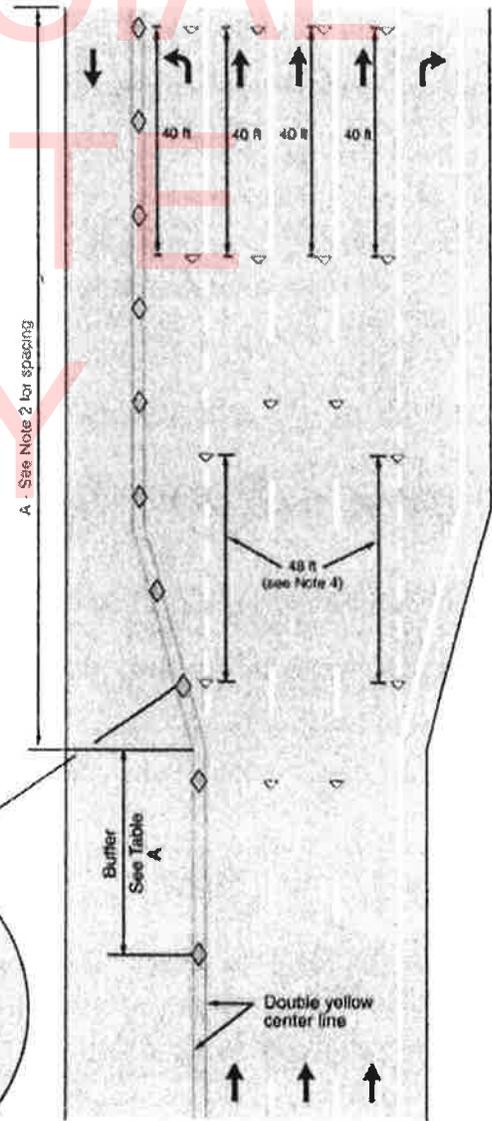
-  mono-directional white RPM
-  bidirectional yellow RPM
-  Direction of travel

Table A

Posted or 85 th Percentile Speed (MPH)	Buffer Distance (ft)
30	240
35	280
40	320
45	360
50	400
55	440
60	480
65	520



Double yellow center line



CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

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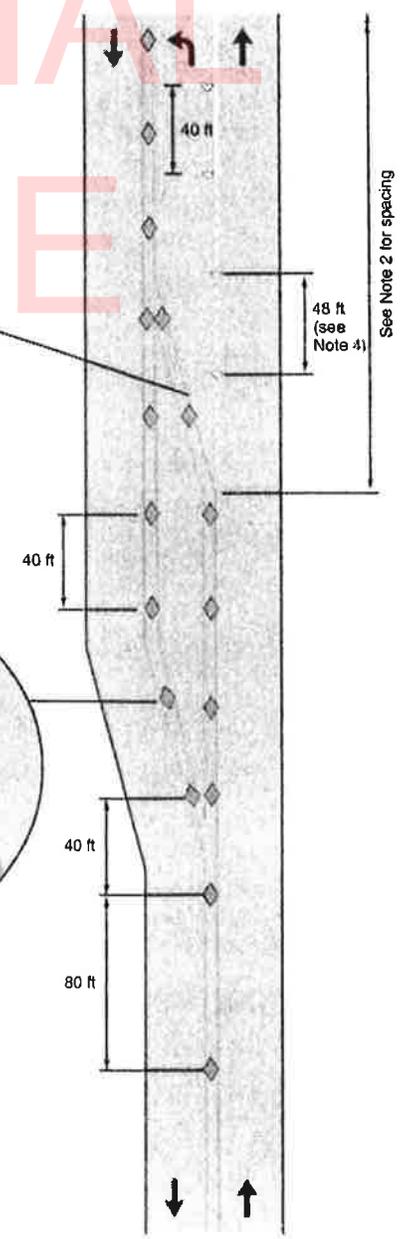
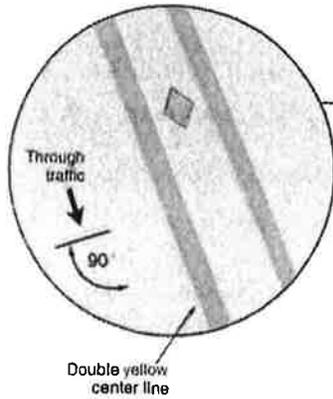
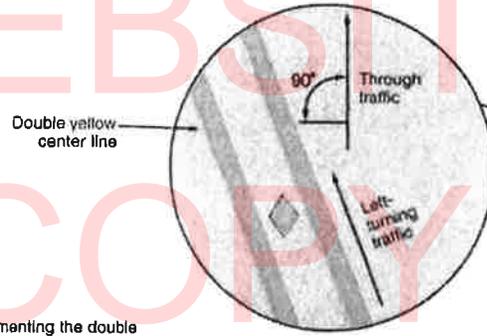
DE MUTCD

Figure 3B-15H. Example of Raised Pavement Marker (RPM) Application for Left-Turn Lane with Flush Median (Delaware Revision)

UNOFFICIAL WEBSITE COPY

Legend

- △ mono-directional white RPM
- ◇ bidirectional yellow RPM
- ↑ Direction of travel



- Notes:
1. RPMs supplementing the double yellow center line should be installed between the two lines and oriented as shown in the details.
 2. RPMs supplementing the double yellow center line along the length of the left-turn lane and taper should be spaced 20 ft apart if $A < 200$ ft. If $A \geq 200$ ft, RPMs should be spaced 40 ft apart along the length of the left-turn lane and taper, where A is the length of full-width left-turn lane and taper.
 3. In cases where the preferred RPM location is impractical due to construction joint spacing or deteriorated pavement surface, the longitudinal RPM spacing should not deviate by more than 10 percent from the typical spacing. There should be no deviation from the preferred lateral position.
 4. RPM spacing for all dotted lane lines should be 48 ft.
 5. RPMs supplementing solid lines should be installed adjacent to the solid line. See inset in Figure 3B-15B for placement.

See Note 2 for spacing

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

A. Edgeline Rumble Strips

1. Interstates, Freeways and Expressways (Limited Access Facilities)

- a. Continuous edgeline rumble strips should be installed on new, reconstructed and resurfaced shoulders (inside and outside shoulders) of all Interstates, freeways and expressways, regardless of crash history.
- b. Continuous edgeline rumble strips should be installed on both the inside and outside shoulders of new, reconstructed and resurfaced interchange ramps regardless of crash history.
- c. The design of the continuous edgeline rumble strips should be in accordance with Figures 1A, 1B and 1C.
- d. Rumble strips shall not be installed on bridge decks without approval from the DelDOT Bridge section.

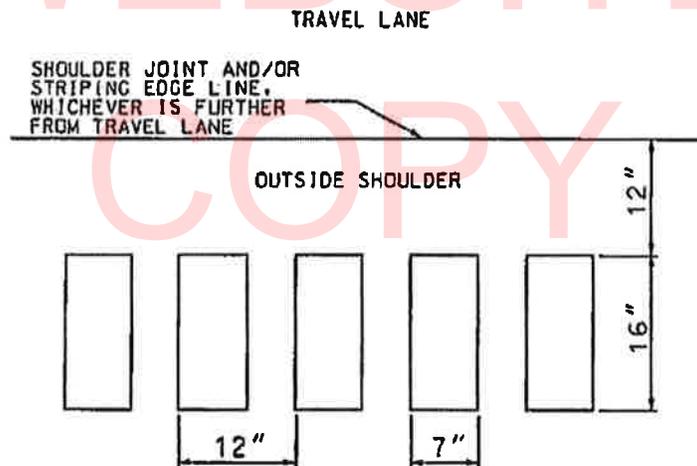


FIGURE 1A
CONTINUOUS EDGELINE RUMBLE STRIP DETAILS
NOT TO SCALE

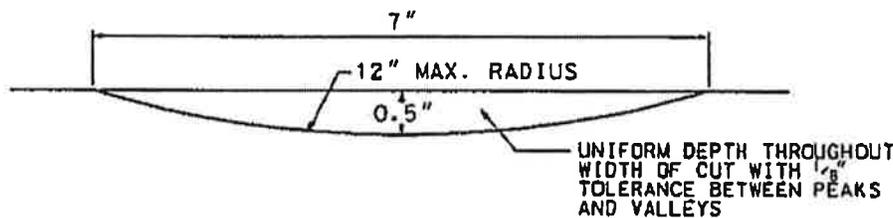


FIGURE 1B
RUMBLE STRIP SECTION – INTERSTATES, FREEWAYS AND EXPRESSWAYS
NOT TO SCALE

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

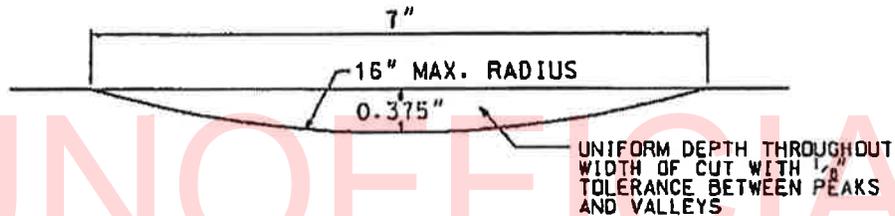


FIGURE 1C
RUMBLE STRIP SECTION – BRIDGE DECK RUMBLE STRIPS
NOT TO SCALE

2. Multilane Conventional Roadways

- a. Bicycle-Friendly Edgeline Rumble Strips should be installed on new, reconstructed or resurfaced outside shoulders of all multilane conventional roadways. Continuous edgeline rumble strips should be installed on new, reconstructed or resurfaced inside shoulders of all multilane conventional roadways. DelDOT's Bicycle Coordinator should be notified prior to new installations of edgeline rumble strips on any multilane conventional roadway.
- b. Bicycle-Friendly Edgeline Rumble Strips should be installed as shown in Figures 2A, 2B and 2C.
- c. Rumble strips shall not be installed on bridge decks without approval from the DelDOT Bridge section.
- d. Rumble strips are to be broken for all intersections and driveway entrances where the edgeline pavement markings tie into the driveway entrance or where the edgeline pavement markings are broken. The installation of rumble strips should be stopped 25 feet prior to the Point of Curvature (PC) and restarted 25 feet after the Point of Tangency (PT).
- e. Rumble strips should not be installed on acceleration, deceleration or bypass lanes, or two-way left turn lanes. Installation should stop 150 feet prior to the diverge point of a deceleration lane and should not commence until 150 feet downstream of the merge point for an acceleration lane.
- f. To accommodate bicyclists, a minimum effective clear shoulder width of 5 feet should be provided from the outside edge of the rumble strip groove to the outside edge of the paved shoulder (see Figure 2A), or 5 feet from the outside edge of the rumble strip groove to the front face of barrier (including curb) or guardrail. Rumble strips should be discontinued 50 feet before and started 50 feet after when adjacent to guardrail where there is less than 5 feet between the outside edge of the rumble strip and the face of the guardrail.
- g. If the above clear area cannot be maintained, then consider installing Bicycle-Friendly Edgeline Rumble Stripes within the painted edgeline. A Rumble Stripe is a milled rumble strip that is placed on the painted edgeline and the edgeline is repainted over the top of the milled rumble strip (see Figure 3). If no shoulder exists, the installation of Rumble Stripes should be considered. Rumble Stripes shall meet the longitudinal design of Bicycle-Friendly rumble strips.
- h. The Bicycle-Friendly Edgeline Rumble Strip pattern shall consist of 40-foot long segments of rumble strips with 12-foot segments of no rumble strips.

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC
JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE
MARROWS ROAD

DETAILS SHEET

3. Two-Lane Conventional Roadways

- a. Bicycle-Friendly Edgeline Rumble Strips should be installed on all rural two-lane roadways with a minimum of 11 foot lanes, 5 foot shoulders, and a posted speed limit or 85th percentile speed of 40 miles per hour or higher.
- b. Bicycle-Friendly Edgeline Rumble Strips should be considered for installation on all other two-lane roadways if an engineering study determines that road departure crash rates along the section of roadway exceed statewide or national averages for similarly classified roadways and if rumble strips are a viable crash reduction countermeasure for the particular roadway. DelDOT's Bicycle Coordinator should be notified prior to installation of edgeline rumble strips on any two-lane conventional roadway.
- c. Bicycle-Friendly Edgeline Rumble Strips should be installed in accordance with the details provided in Figures 2A, 2B and 2C.
- d. Rumble strips shall not be installed on bridge decks without approval from the DelDOT Bridge section.
- e. Rumble strips are to be broken for all intersections and driveway entrances where the shoulder edgeline pavement markings tie into the driveway entrance or where the edgeline pavement markings are broken. The installation of rumble strips should be stopped 25 feet prior to the turn radius PC and restarted 25 feet after the turn radius PT.
- f. Rumble strips should not be installed on acceleration, deceleration or bypass lanes, or two-way left turn lanes. Installation should stop 150 feet prior to the diverge point of a deceleration lane and should not commence until 150 feet downstream of the merge point for an acceleration lane.
- g. Generally, continuous longitudinal rumble strips should not be applied on the shoulders of roadways within developed and urban areas. In suburban and developing areas, the designer should consult with Engineering Support to determine if noise will be a concern.
- h. To accommodate bicyclists, a minimum effective clear shoulder width of 5 feet should be provided from the outside edge of the rumble strip groove to the outside edge of the paved shoulder (see Figure 2A), or 5 feet from the outside edge of the rumble strip groove to the front face of barrier (including curb) or guardrail. Rumble strips should be discontinued 50 feet before and started 50 feet after when adjacent to guardrail where there is less than 5 feet between the outside edge of the rumble strip and the face of the guardrail.
- i. If the above clear area cannot be maintained, then consider installing Bicycle-Friendly Edgeline Rumble *Stripes* within the painted edgeline. A Rumble Stripe is a milled rumble strip that is placed on the painted edgeline and the edgeline is repainted over the top of the milled rumble strip (see Figure 3.) If no shoulder exists, the installation of Rumble *Stripes* should be considered. Rumble *Stripes* shall meet the longitudinal design of Bicycle-Friendly rumble strips.
- j. The Bicycle-Friendly Edgeline Rumble Strip pattern shall consist of 40-foot long segments of rumble strips with 12-foot segments of no rumble strips.

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

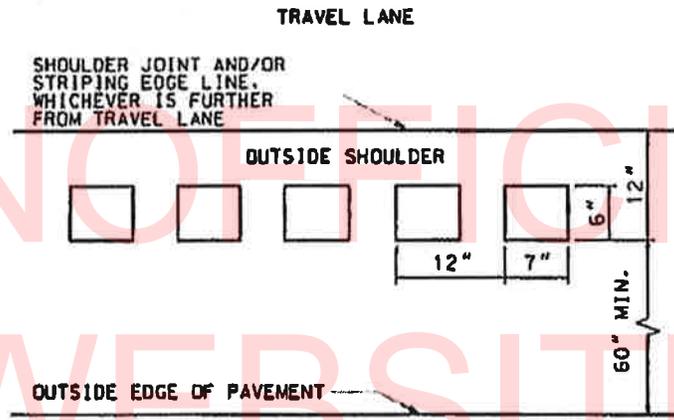


FIGURE 2A
BICYCLE-FRIENDLY EDGELINE RUMBLE STRIP DETAILS
NOT TO SCALE



FIGURE 2B
BICYCLE-FRIENDLY EDGELINE RUMBLE STRIP SEGMENT DETAILS
NOT TO SCALE

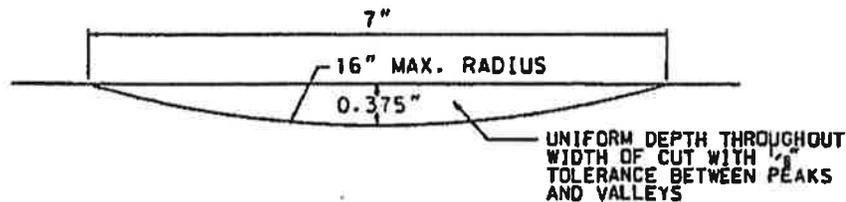


FIGURE 2C
RUMBLE STRIP SECTION - BICYCLE-FRIENDLY RUMBLE STRIPS
NOT TO SCALE

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET

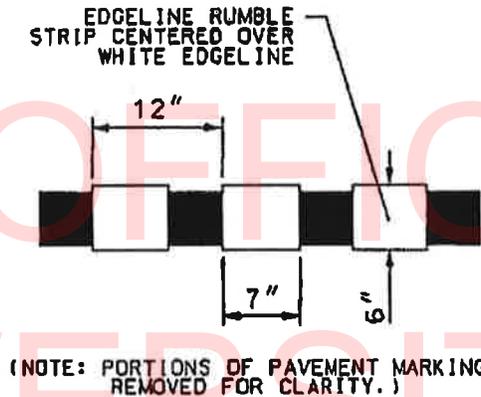


FIGURE 3
EDGELINE RUMBLE STRIPE DETAILS
NOT TO SCALE

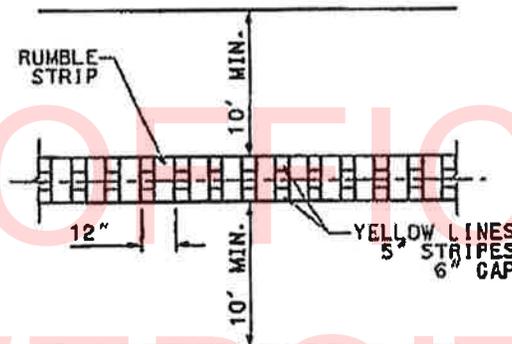
B. Center Line Rumble Strips

1. Center line rumble strips should be considered on all conventional two-lane and undivided multilane roadways where an engineering study determines that crossover or head-on crash rates along the section of roadway exceed statewide or national averages for similarly classified roadways and if rumble strips are a viable crash reduction countermeasure. The study should be reviewed and approved by the Chief Traffic Engineer.
2. The installation of center line rumble strips shall be in accordance with Figures 4A and 4B. Center line rumble strips should start and end following the center line striping.
3. Center line rumble strips shall not be installed on bridge decks without approval from the DelDOT Bridge section.
4. In areas where the center line leads into a raised concrete island, the rumble strips should be discontinued 25' in advance of these islands.
5. In areas where the center line splits to create, for example a turn lane, the rumble strips should be placed only along the double yellow center line that is *not* forming the left turn lane. Should a back-to-back left turn lane scenario exist, center line rumble strips should follow the double yellow center line in accordance with Figure 4A.
6. On roads with recessed pavement markers (RPMs), center line rumble strips should begin one foot downstream of the RPM housing and terminate one foot upstream of the RPM housing, as shown in Figure 5.

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

DETAILS SHEET



(NOTE: PORTIONS OF PAVEMENT MARKINGS REMOVED FOR CLARITY.)

FIGURE 4A

CENTER LINE RUMBLE STRIP DETAILS
NOT TO SCALE

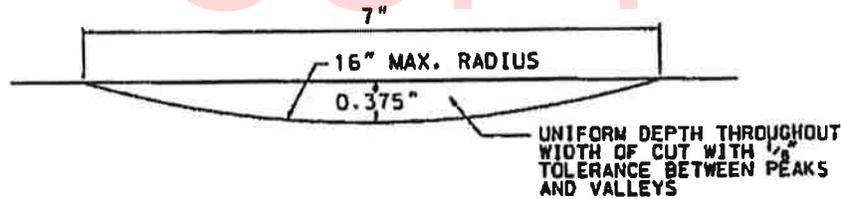
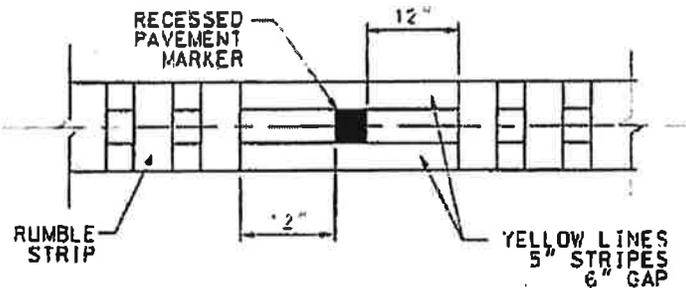


FIGURE 4B

CENTER LINE RUMBLE STRIP DETAILS
NOT TO SCALE



(NOTE: PORTIONS OF PAVEMENT MARKINGS REMOVED FOR CLARITY.)

FIGURE 5

CENTER LINE RUMBLE STRIP WITH RECESSED PAVEMENT MARKER DETAILS
NOT TO SCALE

CANAL

CHRISTIANA - OGLETOWN ROAD FROM BITUMINOUS CONCRETE/PCC
JOINT EAST OF ROUTE 4 TO END OF CONCRETE MEDIAN BEFORE
MARROWS ROAD

DETAILS SHEET

C. Other Considerations

The composition of the new pavement section or the thickness, condition, and type of existing pavement needs to be determined prior to the application of milled rumble strips. The installation of milled rumble strips on pavement that is of questionable thickness, condition, or type (e.g. hot-mix over P.C.C. pavement) needs to be evaluated to ensure that the installation of the rumble strip will be possible without adverse impact to the pavement or the performance of the strip. The designer should contact the Materials and Research Section for existing pavement cores. If no core data is available, pavement cores should be obtained and the information reviewed with the Materials and Research Section.

For construction projects on roadways with existing rumble strips, the rumble strips should be eliminated if the temporary traffic control plans require traffic to be shifted onto the shoulder or crosses a center line. Longitudinal rumble strips should be relocated when traffic patterns are changed within long-term stationary work zones. The use of milled rumble strips within the temporary traffic control plan should be reviewed with the Traffic Safety Section.

This guidance and the figures herein do not account for all possible applications (e.g. rural gore areas). Therefore, it may be necessary for the designer to develop special application plans or details for the application of milled or alternative longitudinal rumble strip treatments. All such plans and details should be submitted to the Traffic Safety Section for review prior to their use on a project. This includes the use of center line rumble strips on two-way highways where additional factors such as lane width, total roadway width, etc. should be considered.

DELAWARE DEPARTMENT OF TRANSPORTATION

CONTRACT T201606107

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CANAL

PAVEMENT AND REHABILITATION, NORTH VII, 2016

LOCATION 1 18(CHRISTIANA - OGLETOWN ROAD) FROM BITUMINOUS CONCRETE/PCC JOINT 675' WEST OF BROWNLEAF ROAD TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

LENGTH 4039.2096 m 13252.0000 L.F. AADT 31830

GENERAL IMPROVEMENTS

BITUMINOUS CONCRETE SECTION - 2" PROFILE MILL, BIT. CONC. PATCHING, 2" BIT. CONC. TYPE C PG 70-22, PAV'T MARKINGS, PCC SECTION - PCC PATCHING, PARTIAL DEPTH SPALL REPAIRS, CRACK AND JOINT SEALING, GUARDRAIL IMPROVEMENTS, PAV'T MARKINGS

COMMENTS:

Please see attached sheets for comments

MATERIAL ESTIMATE FOR LOCATION 1

202000	EXCAVATION AND EMBANKMENT	865.00	C.Y.
211002	REMOVAL OF STRUCTURES AND OBSTRUCTIONS (GUARDRAIL)	1,350.00	L.F.
302005	GRADED AGGREGATE BASE COURSE, TYPE B	1,370.00	TON
401696	ENTRANCE, DRIVEWAY AND INTERSECTING STREET PAVING SURCHARGE	1,142.00	TON
401755	RECYCLED ASPHALT PAVEMENT MILLINGS FOR ROADWAY EDGE	40.00	TON
401823	BITUMINOUS CONCRETE, SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22, PATCHING	480.00	TON
401830	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 70-22 (NON-CARBONATE STONE)	3,574.00	TON
402000	BITUMINOUS CONCRETE AND/OR COLD-LAID BITUMINOUS CONCRETE (TRM)	70.00	TON
406001	BITUMINOUS CONCRETE PATCHING	8,000.00	SY-IN
501534	INTERFACE JOINT SEALING REPAIR	180.00	L.F.
503001	PATCHING P.C.C. PAVEMENT, 6' TO 15', TYPE A	375.00	S.Y.
503002	PATCHING P.C.C. PAVEMENT GREATER THAN 15' TO 100', TYPE B	1,500.00	S.Y.
503006	DOWEL BARS	850.00	EACH
503501	CRACK AND JOINT SEALING LESS THAN 3/4" WIDE	65,000.00	L.F.
503502	CRACK AND JOINT SEALING 3/4" TO 1 3/4" WIDE	3,250.00	L.F.
503503	** PATCHING CONCRETE	2,500.00	SY-IN
503517	P.C.C. PATCHING, PARTIAL DEPTH	250.00	SY-IN
602629	CRACK SEALING BRIDGE DECKS, APPROACH SLABS, SIDEWALK, ETC.	400.00	L.F.
701011	PORTLAND CEMENT CONCRETE CURB, TYPE 2	760.00	L.F.
701032	CURB OPENING, 4' OPENING	2.00	EACH
705001	P.C.C. SIDEWALK, 4"	3,900.00	S.F.
705002	P.C.C. SIDEWALK, 6"	900.00	S.F.
705007	SIDEWALK SURFACE DETECTABLE WARNING SYSTEM	60.00	S.F.

DELAWARE DEPARTMENT OF TRANSPORTATION

CONTRACT T201606107

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CANAL

PAVEMENT AND REHABILITATION, NORTH VII, 2016

LOCATION 1 18(CHRISTIANA - OGLETOWN ROAD) FROM BITUMINOUS CONCRETE/PCC JOINT 675' WEST OF BROWNLEAF ROAD TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

LENGTH 4039.2096 m 13252.0000 L.F. AADT 31830

GENERAL IMPROVEMENTS

BITUMINOUS CONCRETE SECTION - 2" PROFILE MILL, BIT. CONC. PATCHING, 2" BIT. CONC. TYPE C PG 70-22, PAV'T MARKINGS, PCC SECTION - PCC PATCHING, PARTIAL DEPTH SPALL REPAIRS, CRACK AND JOINT SEALING, GUARDRAIL IMPROVEMENTS, PAV'T MARKINGS

COMMENTS:

Please see attached sheets for comments

MATERIAL ESTIMATE FOR LOCATION 1

705008	CURB RAMP, TYPE 1	150.00	S.F.
705009	CURB RAMP, TYPE 2, 3, AND/OR 4	350.00	S.F.
705010	CURB RAMP, TYPE 5	50.00	S.F.
705524	DECTABLE WARNINGS RETROFIT	40.00	S.F.
710001	ADJUSTING AND REPAIRING EXISTING DRAINAGE INLET	7.00	EACH
712020	RIPRAP, R-4	20.00	TON
713003	GEOTEXTILES, RIPRAP	50.00	S.Y.
720050	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1,663.00	L.F.
720052	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 3-31	5,069.00	L.F.
720585	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	2.00	EACH
720588	GUARDRAIL END TREATMENT ATTENUATOR,TYPE 3-31	15.00	EACH
725001	GUARDRAIL TO BARRIER CONNECTION (EXIT TYPE 31)	4.00	EACH
725002	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	4.00	EACH
743003	ARROWPANELS, TYPE C	200.00	EA-DY
743004	FURNISH AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	20.00	EA-DY
743005	FURNISH AND MAINTAIN PORTABLE LIGHT ASSEMBLY	500.00	EA-DY
743007	** TRAFFIC OFFICERS	1,280.00	HOUR
743010	FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	100.00	EA-DY
743050	FLAGGER, NEW CASTLE COUNTY, STATE	2,500.00	HOUR
743062	FLAGGER, NEW CASTLE COUNTY, STATE, OVERTIME	250.00	HOUR
744544	ADJUST OR REPAIR EXISTING CONDUIT JUNCTION WELL	2.00	EACH
746924	FURNISH & INSTALL LOOP WIRE 1-CONDUCTOR #14 AWG ENCASED IN 1/4" FLEXIBLE TUBING IN A LOOP SAWCUT	730.00	L.F.
748015	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND ALKYD-THERMOPLAST IC	7,503.00	S.F.
748019	TEMPORARY MARKINGS. PAINT. 4"	42,700.00	L.F.

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PAVEMENT AND REHABILITATION, NORTH VII, 2016

LOCATION 1 18(CHRISTIANA - OGLETOWN ROAD) FROM BITUMINOUS CONCRETE/PCC JOINT 675' WEST OF BROWNLEAF ROAD TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

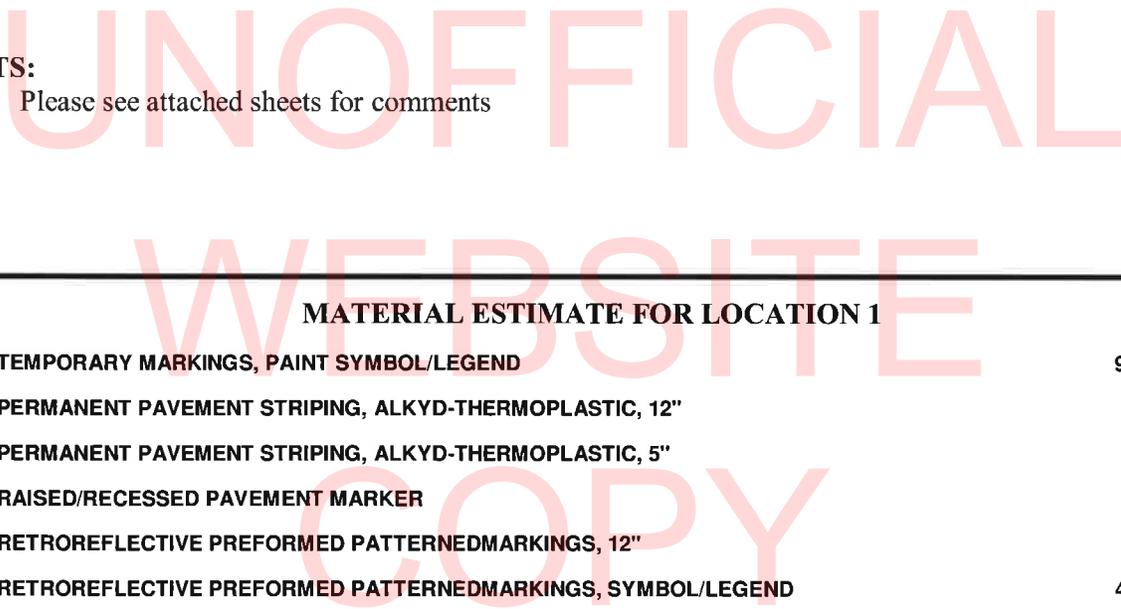
LENGTH 4039.2096 m 13252.0000 L.F. AADT 31830

GENERAL IMPROVEMENTS

BITUMINOUS CONCRETE SECTION - 2" PROFILE MILL, BIT. CONC. PATCHING, 2" BIT. CONC. TYPE C PG 70-22, PAV'T MARKINGS, PCC SECTION - PCC PATCHING, PARTIAL DEPTH SPALL REPAIRS, CRACK AND JOINT SEALING, GUARDRAIL IMPROVEMENTS, PAV'T MARKINGS

COMMENTS:

Please see attached sheets for comments



MATERIAL ESTIMATE FOR LOCATION 1

748026	TEMPORARY MARKINGS, PAINT SYMBOL/LEGEND	9,532.00	S.F.
748027	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, 12"	210.00	L.F.
748033	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, 5"	40.00	L.F.
748502	RAISED/RECESSED PAVEMENT MARKER	103.00	EACH
748513	RETROREFLECTIVE PREFORMED PATTERNED MARKINGS, 12"	310.00	L.F.
748529	RETROREFLECTIVE PREFORMED PATTERNED MARKINGS, SYMBOL/LEGEND	4,916.00	S.F.
748530	REMOVAL OF PAVEMENT STRIPING	5,204.00	S.F.
748548	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	81,510.00	L.F.
748549	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 10"	6,630.00	L.F.
748553	PREFORMED RETROREFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS, BIKE SYMBOL	14.00	EACH
748557	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 3"	23,110.00	L.F.
748559	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 5"	5,770.00	L.F.
748566	RETROREFLECTIVE PREFORMED PATTERNED MARKINGS, 8"	140.00	L.F.
748568	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 9"	10,610.00	L.F.
748569	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 14"	820.00	L.F.
749687	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	246.00	EACH
749688	INSTALLATION OF 4" DIAMETER HOLE, LESS THAN OR EQUAL TO 6" DEPTH	14.00	EACH
749690	INSTALLATION OR REMOVAL OF TRAFFIC SIGNS ON MULTIPLE SIGN POSTS	247.00	S.F.
750000	ADJUST WATER VALVE BOXES	3.00	EACH
758000	REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB, SIDEWALK, ETC.	850.00	S.Y.
760012	RUMBLE STRIPS, BIKE-FRIENDLY, HOT-MIX	1,900.00	L.F.
760507	PROFILE MILLING, BITUMINOUS CONCRETE	53,750.00	SY-IN
762001	SAW CUTTING, BITUMINOUS CONCRETE	5,680.00	L.F.
762002	SAW CUTTING, CONCRETE, FULL DEPTH	175.00	L.F.
763621	CONSTRUCTION ENGINEERING. REHABILITATION	15.00	HOUR

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PAVEMENT AND REHABILITATION, NORTH VII, 2016

LOCATION 1 **18(CHRISTIANA - OGLETOWN ROAD) FROM BITUMINOUS CONCRETE/PCC
JOINT 675' WEST OF BROWNLEAF ROAD TO END OF CONCRETE MEDIAN
BEFORE MARROWS ROAD**

LENGTH 4039.2096 m 13252.0000 L.F. AADT 31830

GENERAL IMPROVEMENTS

BITUMINOUS CONCRETE SECTION - 2" PROFILE MILL, BIT. CONC. PATCHING, 2" BIT. CONC.
TYPE C PG 70-22, PAV'T MARKINGS, PCC SECTION - PCC PATCHING, PARTIAL DEPTH SPALL
REPAIRS, CRACK AND JOINT SEALING, GUARDRAIL IMPROVEMENTS, PAV'T MARKINGS

COMMENTS:

Please see attached sheets for comments

MATERIAL ESTIMATE FOR LOCATION 1

905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	93.00	EACH
908001	TOPSOIL (TON)	490.00	TON
908014	PERMANENT GRASS SEEDING, DRY GROUND	3,200.00	S.Y.
908020	EROSION CONTROL BLANKET MULCH	240.00	S.Y.

** DENOTES FIXED PRICE ITEM

CANAL

PAVEMENT AND REHABILITATION, NORTH VII, 2016

LOCATION 1 18(CHRISTIANA - OGLETOWN ROAD) FROM BITUMINOUS CONCRETE/PCC JOINT 675' WEST OF BROWNLEAF ROAD TO END OF CONCRETE MEDIAN BEFORE MARROWS ROAD

COMMENTS:

Recommended Traffic Control: TA3A, TA10, TA17B, TA33, TA35C

Restricted Work Hours: 7:30PM to 5:30AM

Bituminous Concrete Section: The ride ability specification will be required for the bituminous concrete section only.

PCC Pavement section: When the patch surface will be part of the final surface of the roadway, the patch surface shall be finished to match the texture of the adjacent pavement. The patch surface cross section shall match the preceding and following pavement surfaces. The Engineer may test for excessive deviations with a 10 foot straightedge. When tested with a straightedge, excessive deviations are surface deviations greater than 1/8 inch from a reference line between points not greater than 10 feet apart along the direction of traffic. The Contractor shall correct unacceptable deviations in the patch areas.

Project Notes: Guardrail Specific

EXISTING FEATURES SHOWN ON THESE PLANS ARE BASED ON FIELD OBSERVATIONS, DELDOT 2012 AERIAL PHOTOS, AND CONSTRUCTION PLANS FROM CONTRACTS 79-107-01 AND 86-107-01. THE CONSTRUCTION BASELINE IS PROVIDED FOR REFERENCE TO APPROXIMATE THE LOCATION OF THE PROPOSED GUARDRAIL. THE FINAL LAYOUT OF THE GUARDRAIL SHALL BE IN ACCORDANCE WITH DELDOT STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS.

THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT IN THE MEDIAN DURING NON-WORKING HOURS.

ALL COSTS FOR REMOVAL OF EXISTING HOT-MIX PAVEMENT MAINTENANCE STRIPS WILL BE PAID FOR UNDER ITEM 202002 - EXCAVATION AND EMBANKMENT.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY PROTECTION IN ACCORDANCE WITH THE DELDOT MUTCD AND NCHRP 350 FOR ANY ROADSIDE HAZARD EXPOSED DURING THE REMOVAL OF EXISTING GUARDRAIL.

THE CONTRACTOR SHOULD MAKE EVERY EFFORT TO INSTALL PROPOSED GUARDRAIL IN SEGMENTS THAT CAN BE COMPLETED AT THE END OF EACH WORK DAY. IF UNFINISHED CONSTRUCTION LEAVES GAPS IN THE GUARDRAIL SUCH THAT IT WOULD NOT PERFORM AS DESIGNED IN THE EVENT OF AN IMPACT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TEMPORARY PROTECTION IN ACCORDANCE WITH THE DELDOT MUTCD AND NCHRP 350.

THE CONTRACTOR MAY NEED TO ADJUST THE PROPOSED GUARDRAIL POST SPACING TO AVOID CONFLICTS WITH EXISTING STORM SEWER PIPES. ANY DAMAGE TO THE EXISTING STORM SEWER OR DELDOT TRAFFIC EQUIPMENT IN THE MEDIAN WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

EXISTING SEGMENTS OF HOT-MIX CURB ADJACENT TO GUARDRAIL SHALL REMAIN IN PLACE. ANY DAMAGE TO THE EXISTING HOT-MIX CURB RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

ANY SIGNS WITHIN THE LOC THAT ARE IMPACTED BY THE PROPOSED GUARDRAIL INSTALLATION SHALL BE REMOVED AND/OR RELOCATED AND RESET BY THE CONTRACTOR. THE RELOCATION OF ANY EXISTING SIGNS SHALL BE INCIDENTAL TO ITEM 202000.

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PAVEMENT AND REHABILITATION, NORTH VII, 2016

LOCATION 1 18(CHRISTIANA - OGLETOWN ROAD) FROM BITUMINOUS CONCRETE/PCC
JOINT 675' WEST OF BROWNLEAF ROAD TO END OF CONCRETE MEDIAN
BEFORE MARROWS ROAD

Curb Ramp/Triangular Channelizing Island Locations:

Entrance to Lowes
Car Max
White Clay Creek Center
Alexanders

Entrance and Driveway Locations:

Alexanders
Car Max
Gore Area
FMC
National Guard
Marrows Road
White Clay Center
Potts Welding
Lowes
Ruthar Drive
Brookside Dist. Center

Utility Adjustments

Water Valves (3)

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CONTRACT QUANTITIES SUMMARY SHEET

202000	EXCAVATION AND EMBANKMENT	865.00	C.Y.
211002	REMOVAL OF STRUCTURES AND OBSTRUCTIONS (GUARDRAIL)	1,350.00	L.F.
302005	GRADED AGGREGATE BASE COURSE, TYPE B	1,370.00	TON
401696	ENTRANCE, DRIVEWAY AND INTERSECTING STREET PAVING SURCHARGE	1,142.00	TON
401755	RECYCLED ASPHALT PAVEMENT MILLINGS FOR ROADWAY EDGE	40.00	TON
401823	BITUMINOUS CONCRETE, SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22, PATCHING	480.00	TON
401830	BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 70-22 (NON-CARBONATE STONE)	3,574.00	TON
402000	BITUMINOUS CONCRETE AND/OR COLD-LAID BITUMINOUS CONCRETE (TRM)	70.00	TON
406001	BITUMINOUS CONCRETE PATCHING	8,000.00	SY-IN
501534	INTERFACE JOINT SEALING REPAIR	180.00	L.F.
503001	PATCHING P.C.C. PAVEMENT, 6' TO 15', TYPE A	375.00	S.Y.
503002	PATCHING P.C.C. PAVEMENT GREATER THAN 15' TO 100', TYPE B	1,500.00	S.Y.
503006	DOWEL BARS	850.00	EACH
503501	CRACK AND JOINT SEALING LESS THAN 3/4" WIDE	65,000.00	L.F.
503502	CRACK AND JOINT SEALING 3/4" TO 1 3/4" WIDE	3,250.00	L.F.
503503	** PATCHING CONCRETE	2,500.00	SY-IN
503517	P.C.C. PATCHING, PARTIAL DEPTH	250.00	SY-IN
602629	CRACK SEALING BRIDGE DECKS, APPROACH SLABS, SIDEWALK, ETC.	400.00	L.F.
701011	PORTLAND CEMENT CONCRETE CURB, TYPE 2	760.00	L.F.
701032	CURB OPENING, 4' OPENING	2.00	EACH
705001	P.C.C. SIDEWALK, 4"	3,900.00	S.F.
705002	P.C.C. SIDEWALK, 6"	900.00	S.F.
705007	SIDEWALK SURFACE DETECTABLE WARNING SYSTEM	60.00	S.F.
705008	CURB RAMP, TYPE 1	150.00	S.F.
705009	CURB RAMP, TYPE 2, 3, AND/OR 4	350.00	S.F.
705010	CURB RAMP, TYPE 5	50.00	S.F.

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CONTRACT QUANTITIES SUMMARY SHEET

705524	DECTABLE WARNINGS RETROFIT	40.00	S.F.
710001	ADJUSTING AND REPAIRING EXISTING DRAINAGE INLET	7.00	EACH
712020	RIPRAP, R-4	20.00	TON
713003	GEOTEXTILES, RIPRAP	50.00	S.Y.
720050	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	1,663.00	L.F.
720052	GALVANIZED STEEL BEAM GUARDRAIL, TYPE 3-31	5,069.00	L.F.
720585	GUARDRAIL END TREATMENT ATTENUATOR, TYPE 1-31	2.00	EACH
720588	GUARDRAIL END TREATMENT ATTENUATOR,TYPE 3-31	15.00	EACH
725001	GUARDRAIL TO BARRIER CONNECTION (EXIT TYPE 31)	4.00	EACH
725002	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1-31	4.00	EACH
743003	ARROWPANELS, TYPE C	200.00	EA-DY
743004	FURNISH AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	20.00	EA-DY
743005	FURNISH AND MAINTAIN PORTABLE LIGHT ASSEMBLY	500.00	EA-DY
743007	** TRAFFIC OFFICERS	1,280.00	HOURL
743010	FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	100.00	EA-DY
743050	FLAGGER, NEW CASTLE COUNTY, STATE	2,500.00	HOURL
743062	FLAGGER, NEW CASTLE COUNTY, STATE, OVERTIME	250.00	HOURL
744544	ADJUST OR REPAIR EXISTING CONDUIT JUNCTION WELL	2.00	EACH
746924	FURNISH & INSTALL LOOP WIRE 1-CONDUCTOR #14 AWG ENCASED IN 1/4" FLEXIBLE TUBING IN A LOOP SAWCUT	730.00	L.F.
748015	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND ALKYD-THERMOPLAST IC	7,503.00	S.F.
748019	TEMPORARY MARKINGS, PAINT, 4"	42,700.00	L.F.
748026	TEMPORARY MARKINGS, PAINT SYMBOL/LEGEND	9,532.00	S.F.
748027	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, 12"	210.00	L.F.
748033	PERMANENT PAVEMENT STRIPING, ALKYD-THERMOPLASTIC, 5"	40.00	L.F.
748502	RAISED/RECESSED PAVEMENT MARKER	103.00	EACH
748513	RETROREFLECTIVE PREFORMED PATTERNEDMARKINGS, 12"	310.00	L.F.
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748530	REMOVAL OF PAVEMENT STRIPING	5,204.00	S.F.
748548	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	81,510.00	L.F.
748549	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 10"	6,630.00	L.F.
748553	PERFORMED RETROREFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS, BIKE SYMBOL	14.00	EACH
748557	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 3"	23,110.00	L.F.
748559	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 5"	5,770.00	L.F.
748566	RETROREFLECTIVE PERFORMED PATTERNED MARKINGS, 8"	140.00	L.F.
748568	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 9"	10,610.00	L.F.
748569	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, BLACK, 14"	820.00	L.F.
749687	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	246.00	EACH
749688	INSTALLATION OF 4" DIAMETER HOLE, LESS THAN OR EQUAL TO 6" DEPTH	14.00	EACH
749690	INSTALLATION OR REMOVAL OF TRAFFIC SIGNS ON MULTIPLE SIGN POSTS	247.00	S.F.
750000	ADJUST WATER VALVE BOXES	3.00	EACH
758000	REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB, SIDEWALK, ETC.	850.00	S.Y.
760012	RUMBLE STRIPS, BIKE-FRIENDLY, HOT-MIX	1,900.00	L.F.
760507	PROFILE MILLING, BITUMINOUS CONCRETE	53,750.00	SY-IN
762001	SAW CUTTING, BITUMINOUS CONCRETE	5,680.00	L.F.
762002	SAW CUTTING, CONCRETE, FULL DEPTH	175.00	L.F.
763000	INITIAL EXPENSE	LUMP	SUM
763621	CONSTRUCTION ENGINEERING, REHABILITATION	15.00	HOUR
763643	MAINTENANCE OF TRAFFIC, ALL INCLUSIVE	LUMP	SUM
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	93.00	EACH
908001	TOPSOIL (TON)	490.00	TON
908014	PERMANENT GRASS SEEDING, DRY GROUND	3,200.00	S.Y.
908020	EROSION CONTROL BLANKET MULCH	240.00	S.Y.

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