

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

**PANYNJ**  
**Traffic Standard**  
**Details**

TRAFFIC

Title  
**TYPICAL LANE CLOSURE AND REDUCTION**

**TYPICAL LANES  
CLOSURES AND  
REDUCTION**

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with release handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, One Madison Avenue, 7th Floor, New York NY 10017. It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered by" followed by their signature and the date of such alteration, and a specific description of the alteration.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

Date **11/01/2010**

Contract Number \_\_\_\_\_

Drawing Number **TD140.01**

PID#

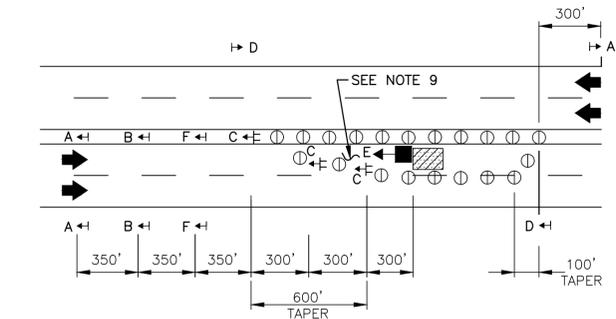
**LEGEND**

	TD140.01.08	DIRECTION OF TRAFFIC (PERMANENT CONDITIONS)
		TRAFFIC CONES
		PLASTIC DELINEATOR DRUMS
		BREAKAWAY BARRICADES (TYPE III)
		BACK-UP VEHICLE WITH IMPACT ATTENUATOR AND FLASHING ARROW SIGN UNIT (FASU)
		FLAG PERSON (GENERAL POSITION)
		WORK AREA
		SIGN LOCATION AND ORIENTATION ON TEMPORARY SIGN STAND
		BREAKAWAY BARRICADE (TYPE III) WITH ATTACHED SIGN
		TYPE B FLASHING WARNING LIGHT
	A	48"x48" (MUTCD W21-4) WITH TYPE B FLASHING WARNING LIGHTS
	B	48"x48" (MUTCD W20-5, LEFT, RIGHT OR CENTER AND NUMBER LANES IDENTIFIED) WITH TYPE B FLASHING WARNING LIGHTS
	C	48"x24" (MUTCD W1-6, LEFT OR RIGHT AS APPROPRIATE) ATTACHED TO BREAKAWAY BARRICADE (TYPE III) WITH ATTACHED SIGN
	D	48"x24" (MUTCD G20-2)
	E	FASU FASU FLASHING ARROW SIGN UNIT (FASU) LEFT OR RIGHT ARROW INDICATION
	F	48"x48" (MUTCD W4-2, LEFT OR RIGHT AS APPROPRIATE) WITH TYPE B FLASHING WARNING LIGHTS
	G	48"x48" (MUTCD W6-1, MODIFIED) WITH TYPE B FLASHING WARNING LIGHTS
	H	48"x48" (MUTCD W20-4 WITH DISTANCE) WITH TYPE B FLASHING WARNING LIGHTS
	I	36"x36" (MUTCD W20-7) WITH TYPE B FLASHING WARNING LIGHTS
	J	24"x24" (MUTCD W12-1)

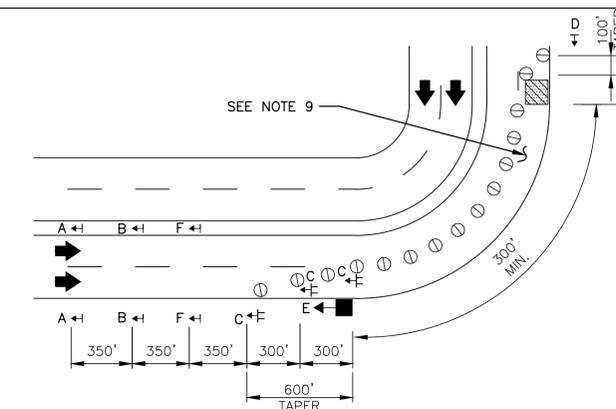
**GENERAL NOTES:**

TD140.01.01

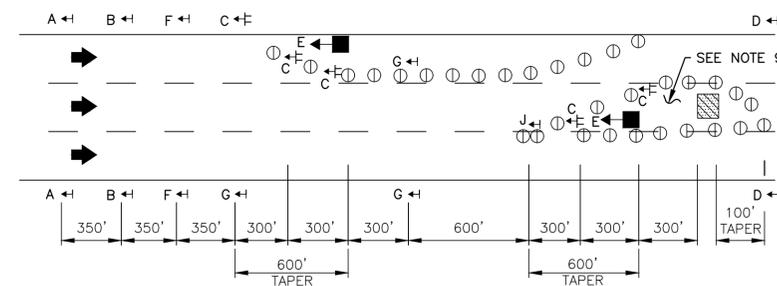
1. THE MAINTENANCE OF TRAFFIC CONTROL DEVICE LAYOUTS SHOWN ON THIS DRAWING REPRESENT THE MINIMUM REQUIREMENT. ADDITIONAL DEVICES MAY BE REQUIRED AS SHOWN ON THE CONTRACT DRAWINGS TO SUPPLEMENT THE DEVICES SHOWN ON THESE TYPICAL LAYOUTS. SIGN SPACING AND TAPER LENGTHS MAY DIFFER.
2. ON TWO-LANE, TWO-WAY ROADWAYS LESS THAN 30'-0" IN WIDTH, ONE-WAY TRAFFIC OPERATION SHALL BE MAINTAINED ON A TRAVEL PATH NOT LESS THAN 12'-0" IN WIDTH. TEMPORARY TRAFFIC SIGNAL EQUIPMENT OR TRAINED FLAG PERSONS SHALL BE PROVIDED BY THE CONTRACTOR TO DIRECT TRAFFIC AT EACH END OF THE WORK AREA WHERE A ONE LANE TRAVEL PATH IS USED FOR ALTERNATING TRAFFIC FLOW. FLASHING ARROW SIGN UNIT (FASU) SHALL NOT BE USED IN THE ARROW MODE FOR TWO-WAY ALTERNATING TRAFFIC FLOW OPERATIONS.
3. ON TWO-LANE, TWO-WAY ROADWAYS 30'-0" IN WIDTH OR MORE, TWO-WAY TRAFFIC SHALL BE MAINTAINED AND PROTECTED ON A TWO-LANE TRAVEL PATH NOT LESS THAN 22'-0" IN WIDTH WITH ONE 11'-0" TRAVEL LANE IN EACH DIRECTION.
4. ON ONE-WAY DIRECTIONAL ROADWAYS OF ONE OR TWO LANES, THE TRAVEL PATH MAY BE REDUCED TO A SINGLE LANE, MINIMUM 10'-0" IN WIDTH.
5. ON ONE-WAY DIRECTIONAL ROADWAYS THREE LANES OR GREATER, A MINIMUM OF TWO 10'-0" TRAVEL LANES SHALL BE PROVIDED.
6. UNLESS OTHERWISE NOTED, ALL CHANNELIZING DEVICES (TRAFFIC CONES, PLASTIC BARRELS, VERTICAL PANELS AND BREAKAWAY BARRICADES) SHALL BE PLACED AT 20'-0" INTERVALS.
7. WHERE POSTED SPEED LIMITS ARE LESS THAN 30 MILES PER HOUR (M.P.H.), THE 350'-0" DEVICE SIGN SPACINGS AND 600'-0" LANE REDUCTION TAPERS MAY BE REDUCED TO 100'-0" SPACINGS AND 200'-0" TAPERS.
8. FOR SHORT DURATION STATIONARY WORK, TRAFFIC CONES MAY BE SUBSTITUTED FOR THE BREAKAWAY BARRICADES/PLASTIC DRUM CHANNELIZING SCHEME SHOWN IN THE TYPICAL LAYOUTS, AS DEFINED IN THE SPECIFICATION SECTION OF DIVISION 1 - GENERAL PROVISIONS ENTITLED "MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION". SAID WORK SHALL INVOLVE THE ESTABLISHMENT AND OCCUPATION OF THE WORK AREA FOR A PERIOD OF TIME ONE DAY OR LESS, ALTHOUGH IT MAY BE NECESSARY TO RE-CONSTRUCT THE MAINTENANCE OF TRAFFIC SCHEMES ON FOLLOWING DAYS; AND MAY INCLUDE SUCH ACTIVITIES AS INSTALLING TRAFFIC SIGNS, INSTALLING OR REPAIRING GUIDE RAIL, REMOVING AND PATCHING DISTRESSED PAVEMENT, PAVEMENT CUTS FOR UTILITY WORK, OVERHEAD UTILITY REPAIR, AND WORK ON UNDERGROUND UTILITIES AT MANHOLES. TRAFFIC CONES SHALL NOT BE UTILIZED WHEN THE WORK AREA IS TO BE OCCUPIED BY EXCAVATIONS, MATERIALS, AND/OR EQUIPMENT AT TIMES WHEN WORKERS ARE NOT PRESENT.
9. SEE WORK AREA DETAIL ON DRAWING TD140.03 FOR BACK-UP TRUCK REQUIREMENTS.



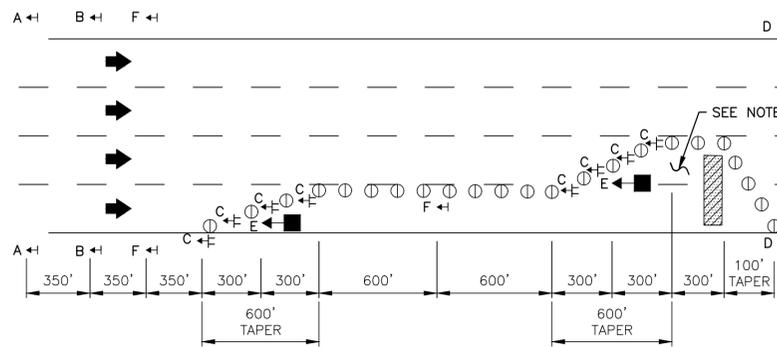
TYPICAL FOR LEFT LANE CLOSURES (50 MPH)  
N.T.S. TD140.01.02



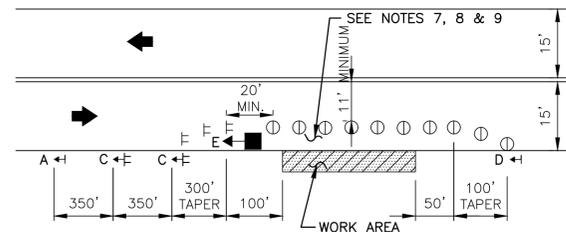
TYPICAL FOR RIGHT LANE AND CURVE CLOSURES (50 MPH)  
N.T.S. TD140.01.03



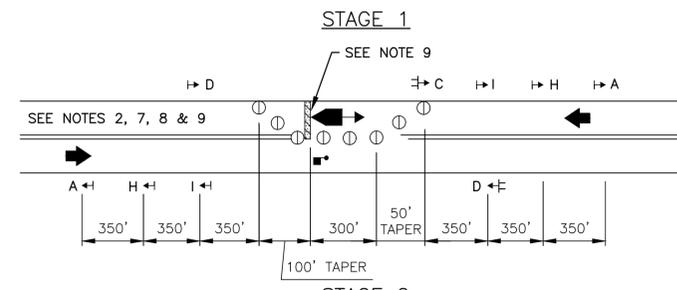
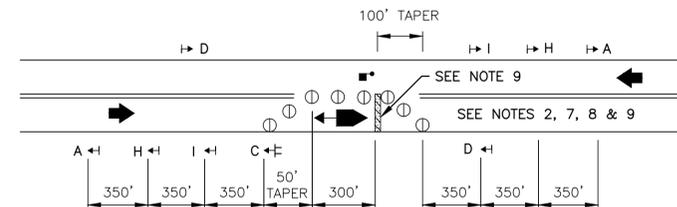
TYPICAL FOR CENTER LANE ROADWAY CLOSURES (50 MPH)  
N.T.S. TD140.01.04



TYPICAL FOR TWO LANE ROADWAY CLOSURES (50 MPH)  
N.T.S. TD140.01.05



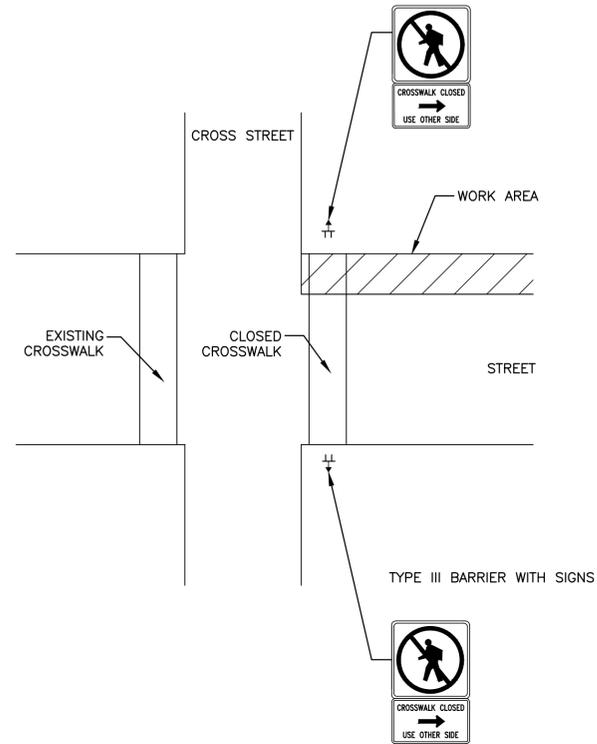
TYPICAL FOR LANE REDUCTION (50 MPH)  
N.T.S. TD140.01.06



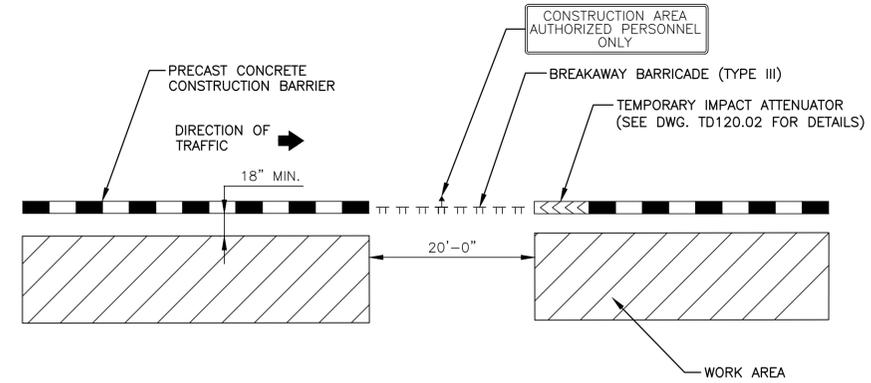
BI-DIRECTIONAL LANE CLOSURE (50 MPH)  
N.T.S. TD140.01.07

**NOTES:**

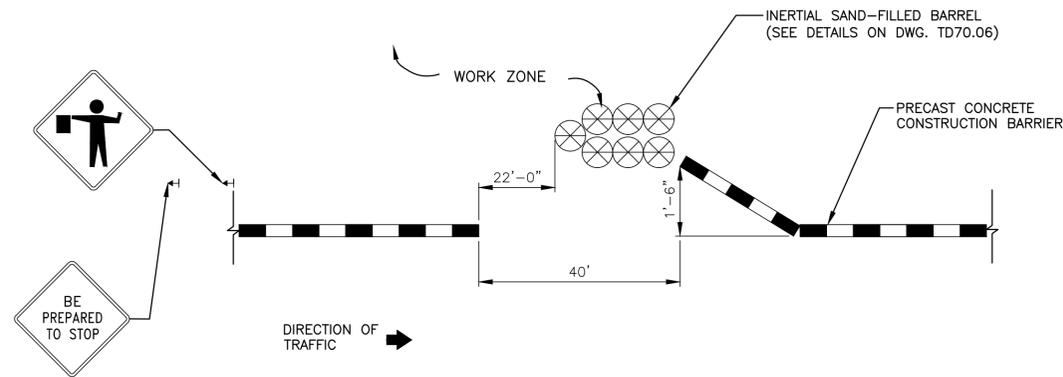
1. WORK ON THE STREET MUST PROGRESS SO THAT ONE CROSSWALK AT EACH INTERSECTION THAT IS CROSSING THE STREET WILL ALWAYS BE OPEN FOR PEDESTRIAN TRAFFIC UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. COVER EXISTING PEDESTRIAN SIGNALS ON CLOSED CROSSWALKS. ALL OTHER SIGNAL DISPLAY WILL BE FULLY OPERATIONAL.



**CROSSWALK CLOSING**  
N.T.S. TD140.02.04



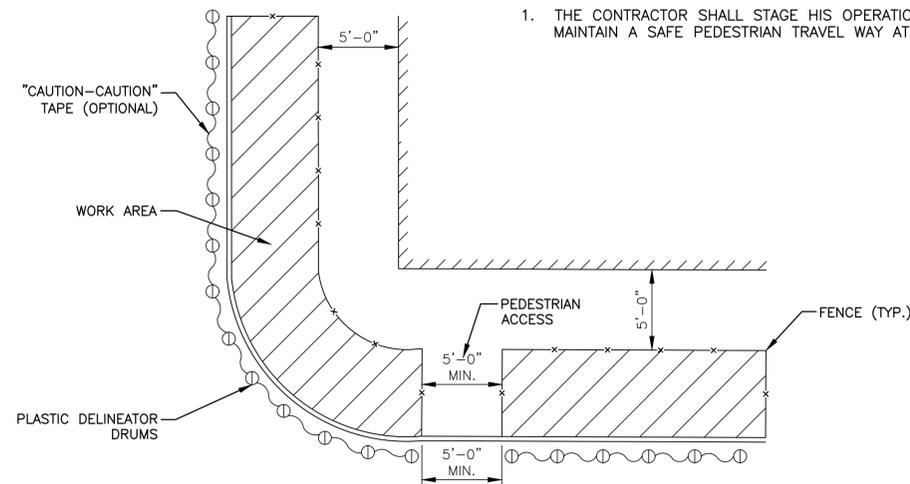
**CONSTRUCTION ACCESS DETAIL NO. 1**  
N.T.S. TD140.02.01



**CONSTRUCTION ACCESS DETAIL NO. 2**  
N.T.S. TD140.02.02

**NOTE:**

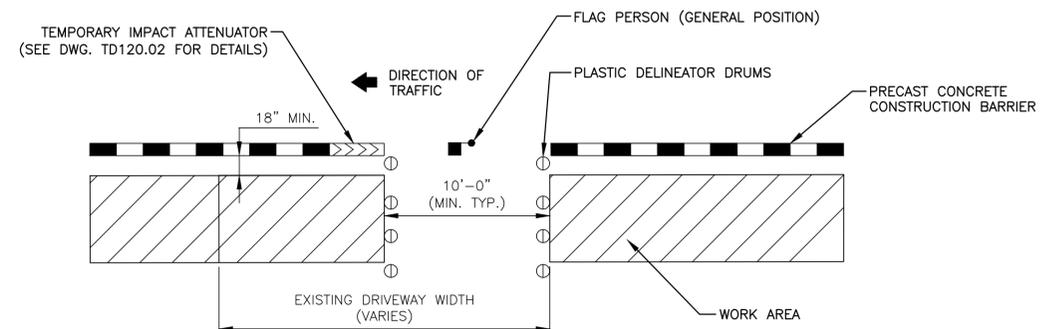
1. THE CONTRACTOR SHALL STAGE HIS OPERATIONS TO MAINTAIN A SAFE PEDESTRIAN TRAVEL WAY AT ALL TIMES.



**PEDESTRIAN ACCESS THROUGH WORK ZONE**  
N.T.S. TD140.02.05

**NOTES:**

1. AT THE END OF THE DAILY WORK PERIOD, ALL DRIVEWAYS SHALL BE FULLY OPENED TO TRAFFIC.
2. ANY EXCAVATIONS OR DISCONTINUITY OF PAVEMENT IN EXCESS OF 3" SHALL BE BACKFILLED WITH TEMPORARY ASPHALT PAVEMENT OR COVERED WITH A STEEL PLATE.



**DRIVEWAY ACCESS DETAIL**  
N.T.S. TD140.02.03

No.	Date	Revision	Approved

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**Traffic Standard**  
**Details**

TRAFFIC

Title  
**TYPICAL LANE CLOSURE AND REDUCTION**

**CROSSWALK CLOSING  
AND ACCESS DETAILS**

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Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

Date **11/01/2010**

Contract Number

Drawing Number **TD140.02**

PID#

CHIEF

No.	Date	Revision	Approved
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ENGINEERING DEPARTMENT

**PANYNJ**  
**Traffic Standard**  
**Details**

TRAFFIC

Title  
**TYPICAL LANE CLOSURE AND REDUCTION**

**TRAFFIC CONTROL  
DEVICE PLACEMENT,  
RAMPING AND WORK  
AREA DETAILS**

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Contract Number \_\_\_\_\_

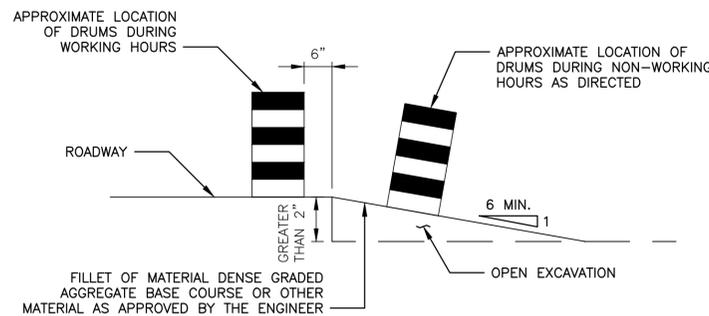
Drawing Number **TD140.03**

PID#

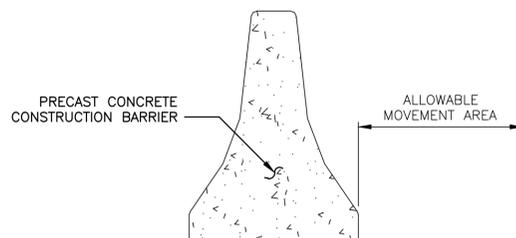
**NOTES:**  
TD140.03.01

- AVOIDANCE MANEUVER IS FOR A SPEED, PATH, AND/OR DIRECTION CHANGE PRIOR TO THE BEGINNING OF CHANNELIZING TAPERS.
- RECOMMENDED DISTANCES BETWEEN TWO SEPARATE LANE CLOSURES SHALL BE DOUBLE THE VALUES SHOWN IN THE TABLE.
- DESIRABLE VALUES SHALL BE PROVIDED WHEREVER POSSIBLE. IF IT IS NOT FEASIBLE OR PRACTICAL TO PROVIDE DESIRABLE VALUES BECAUSE OF HORIZONTAL OR VERTICAL CURVATURE OR IF RELOCATION OF THE TAPER IS NOT POSSIBLE, THEN MINIMUM VALUES CAN BE APPLIED. WHEN MINIMUM VALUES ARE USED, SPECIAL ATTENTION SHOULD BE GIVEN TO THE USE OF SUITABLE TRAFFIC CONTROL DEVICES FOR PROVIDING ADVANCED WARNING OF THE CONDITIONS THAT ARE LIKELY TO BE ENCOUNTERED.
- TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.
- ESCAPE RAMPS MUST BE CONSTRUCTED AND MAINTAINED DURING NON-WORKING HOURS WHERE A VERTICAL DROP GREATER THAN 2" EXISTS ADJACENT TO TRAVELED LANE.
- THE MAXIMUM DEVICE SPACING ALONG CURVES SHALL BE AS DEFINED FOR TAPERS (B) SHOWN IN THE TABLE.
- CHANGES TO THE PROPOSED JOINT CLASS AT ANY LOCATION MUST BE APPROVED BY THE ENGINEER.
- NO WORK OR STORAGE OF MATERIALS WILL BE PERMITTED IN THE ALLOWABLE MOVEMENT AREA.
- TYPICAL WORK AREA:
  - MAXIMUM WORK AREA LENGTH L OCCUPIED BY WORKERS ON FOOT SHALL NOT EXCEED 2S AS SHOWN IN TYPICAL WORK AREA DETAIL. ADDITIONAL CONTRACTOR VEHICLES (TIGHTLY GROUPED) MAY BE PARKED IN THE CLOSED LANE IMMEDIATELY BEYOND THE OCCUPIED WORK AREA.
  - SIGNS READING "(RIGHT, CENTER OR LEFT) LANE(S) CLOSED", AS APPROPRIATE, SHALL BE INSTALLED IN THE CLOSED LANE(S) ADJACENT TO TRAFFIC AT 500 FT. INTERVALS AFTER THE INITIAL DRUM LINE TAPER, EXCEPT BETWEEN WORK AREAS THAT ARE NOT MORE THAN 500 FT. APART.
  - FOR WORK AREAS THAT OCCUPY TWO OR MORE CONTIGUOUS LANES, EACH OCCUPIED LANE MUST BE CLOSED WITH ITS OWN BACK-UP VEHICLE. AT SUCH A LOCATION, ONLY THE BACK-UP VEHICLE(S) ADJACENT TO AN OPEN TRAFFIC LANE ARE REQUIRED TO BE EQUIPPED WITH A FASU.
- WORK AREAS EXCEEDING THE MAXIMUM WORK AREA LENGTH (L) SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
- MAINTAIN 30' UNOCCUPIED SPACE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

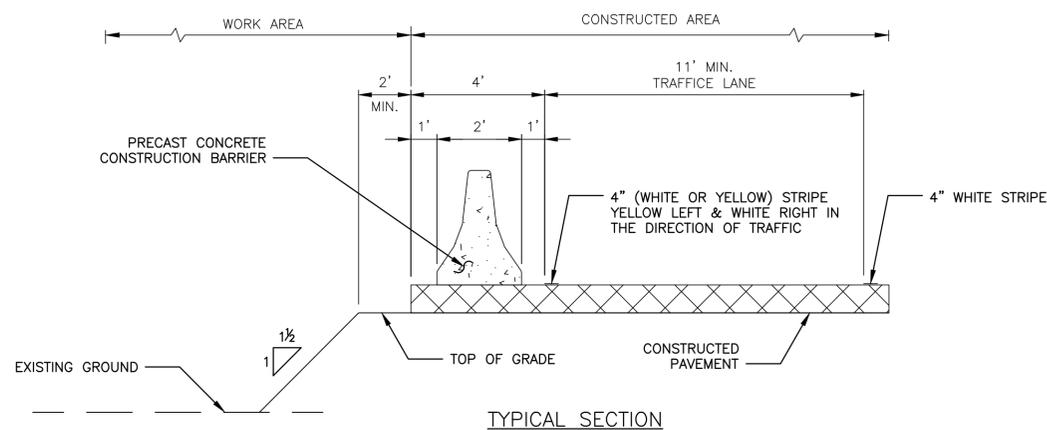
JOINT CLASS	JOINT AND ANCHORAGE TREATMENT	ALLOWABLE MOVEMENT
A	CONNECTION KEY ONLY	OVER 16 TO 20 INCHES
B	CONNECTION KEY & GROUT	11 TO 16 INCHES
C	CONNECTION KEY & MORTAR, IN EVERY JOINT & PIN EVERY OTHER UNIT, IN UNITS THAT ARE TO BE ANCHORED PINS SHALL BE REQUIRED IN EVERY ANCHOR RECESS	LESS THAN 11 INCHES



**ESCAPE RAMP DETAIL**  
SEE NOTE NO. 5  
N.T.S. TD140.03.04



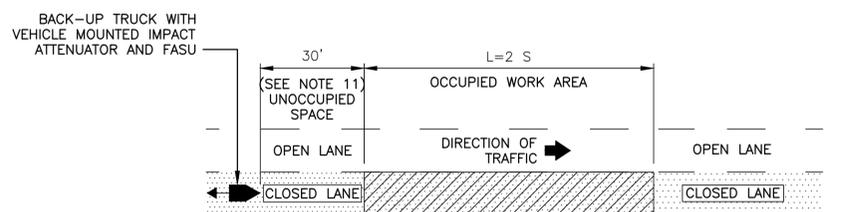
**PRECAST CONCRETE CONSTRUCTION BARRIER, TYPE 4  
JOINT CLASS AND ALLOWABLE MOVEMENT**  
SEE NOTE NO. 7  
N.T.S. TD140.03.03



**PLACEMENT OF PRECAST CONCRETE  
CONSTRUCTION BARRIER**  
N.T.S. TD140.03.05

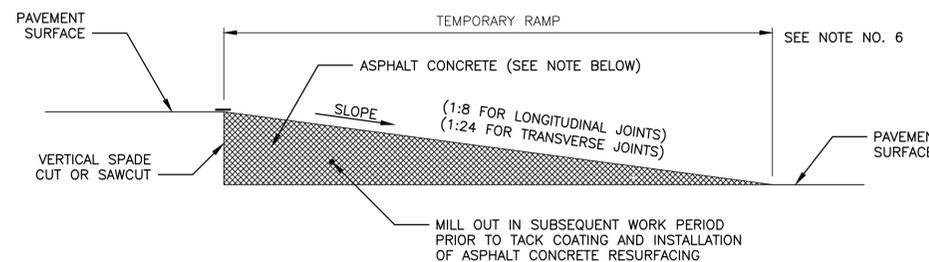
REGULATORY APPROACH SPEED OF TRAFFIC (MILES/HOUR)	RECOMMENDED SIGHT DISTANCE TO BEGINNING OF CHANNELIZING TAPERS	
	DESIRABLE (FEET)	MINIMUM (FEET)
25	525	150
30	625	200
35	725	250
40	825	325
45	925	400
50	1025	475
55	1150	550
60	1275	650

REGULATORY APPROACH SPEED OF TRAFFIC (MILES/HOUR)	MINIMUM TAPER RATIO IN LENGTH PER FOOT OF WIDTH	RECOMMENDED TAPER LENGTH AND SPACING FOR CHANNELIZING TAPERS			MAXIMUM DEVICE (B) SPACING ALONG TAPERS IN FEET	RECOMMENDED SPACING ALONG TANGENTS
		MINIMUM TAPER LENGTH L - FOR LANE WIDTHS				
		10'	11'	12'		
25	10.5:1	105	115	125	25	50
30	15:1	150	165	180	30	60
35	20.5:1	205	225	245	35	70
40	27:1	270	300	325	40	80
45	45:1	450	495	540	45	90
50	50:1	500	550	600	50	100
55	55:1	550	605	660	55	110
60	60:1	600	660	720	60	120
65	65:1	650	715	780	65	130



S=SPEED LIMIT (REGULATORY OR POSTED ADVISORY)	L (SEE NOTE 10)
25 MPH OR LESS	50' MAX.
30 MPH	60' MAX.
35 MPH	70' MAX.
40 MPH	80' MAX.
45 MPH	90' MAX.
50 MPH OR MORE	100' MAX.

**WORK AREA DETAIL**  
SEE NOTE NO. 9  
N.T.S. TD140.03.06



**TYPICAL TEMPORARY RAMPING DETAIL**  
N.T.S. TD140.03.02