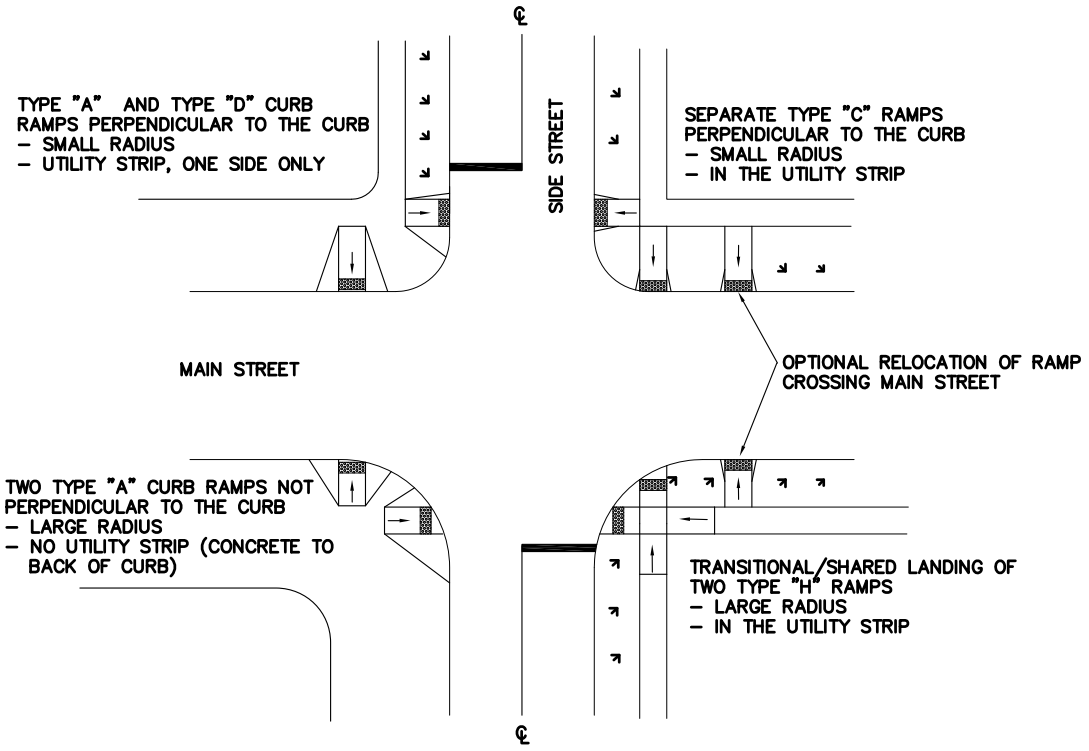
GENERAL NOTES, CURB RAMPS

1. CURB RAMP COMPONENTS: THE CURB RAMP INCLUDES THE RAMP PANEL, FLARED SIDES, AND LANDING WHEN NEEDED.

2. MATERIAL: THE RAMP PANEL AND FLARED SIDES SHALL BE CONCRETE. THE USE OF BRICK OR PAVERS IS NOT PERMITTED.

3. CURB RAMP TYPE: CURB RAMPS SHALL BE SPECIFIED BY THE APPROPRIATE TYPE AND SHALL BE PERPENDICULAR TO THE CENTERLINE OF THE CROSSING STREET
   - TYPE A – RAMP WITH LONG FLARES
   - TYPE C – RAMP IN UTILITY STRIP
   - TYPE D – RAMP OBSTRUCTED ON ONE SIDE
   - TYPE G – RAMP WITH RECESSED LOWER LANDING.
   - TYPE H – RAMP WITH RECESSED LOWER LANDINGIN A UTILITY STRIP
   - TYPE L – MEDIAN RAMP WITH CENTER LANDING
   - TYPE P1 – COMBINED PERPENDICULAR AND PARALLEL RAMP
   - TYPE P2 – COMBINED PERPENDICULAR AND PARALLEL RAMP IN ONE DIRECTION

NOTE: CITY OF HILLIARD ORDER OF PREFERENCE IS (1) KEEP RAMPS IN LINE WITH APPROACH WALKS AND (2) KEEP RAMPS IN FRONT OF SIDE STREET STOP SIGNS. RAMPS THAT DIRECT PEDESTRIANS INTO THE MIDDLE OF AN INTERSECTION AT AN ANGLE ARE NOT PERMITTED. WHEN RAMPS ARE NOT PERPENDICULAR TO THE CURB, A LANDING RECESSED SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP & THE GRADE BREAK SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL. EXAMPLES OF RECOMMENDED CURB RAMP ALIGNMENTS ARE SHOWN BELOW:



	CURB RAMP GENERAL NOTES	CITY OF HILLIARD, OHIO
DATE: March 6, 2015		STANDARD CONSTRUCTION DRAWING
SCALE: NTS		1/12 CR–1

4. CURB RAMPS AT ALLEY AND ARTERIAL CROSSINGS SHALL BE 8" THICK CONCRETE

5. RAMP RUNNING SLOPE: THE RUNNING SLOPE SHALL BE 5% TO 7.7%. THE RUNNING SLOPE MAY BE INCREASED TO 10 % WITH PRIOR WRITTEN CITY APPROVAL.

6. RAMP CROSS SLOPE: THE MAXIMUM CROSS SLOPE SHALL BE 1.56%.

7. FOR NEW CONSTRUCTION, MINIMUM RAMP WIDTH AND LANDING SIZE SHALL BE:
   - SIDEWALKS: 5' RAMP AND 5'X5' LANDING
   - MULTI-USE PATHS: 8' RAMP AND 5'X8' LANDING
   - LANDING AT INTERSECTING SIDEWALKS – WHEREVER SIDEWALKS INTERSECT, THERE SHALL BE A LANDING MEETING THE ABOVE REQUIREMENTS.

10. IN RETROFIT SITUATIONS, THE RAMP WIDTH MAY MATCH THE EXISTING APPROACH SIDEWALK OR MULTI-USE PATH OR 4' MINIMUM, WHICHEVER IS GREATER. THE MINIMUM LANDING SIZE SHALL BE 4' BY THE WIDTH OF THE EXISTING APPROACH WALK OR MULTI-USE PATH.

11. ALL JOINTS BETWEEN NEW AND EXISTING MATERIALS SHALL BE FLUSH.

12. LONG FLARES: THE LENGTH MEASUREMENT OF THE FLARE AT THE FACE OF CURB SHALL BE A MINIMUM OF 10 TIMES THE CURB HEIGHT

13. 1-FT FLARES: THE MEASUREMENT OF THE FLARE AT THE FACE OF CURB SHALL BE A MINIMUM OF 1-FT.

14. STREET COUNTER SLOPE: THE COUNTER SLOPE AT THE BASE OF THE RAMP SHALL BE A MAXIMUM OF 5% FOR A MINIMUM OF 2-FT.

15. RAMPS AT MARKED AND UNMARKED CROSSINGS: AT MARKED CROSSINGS THE RAMP AND STREET LANDING MUST BE FULLY CONTAINED WITHIN THE MARKED CROSSWALK. AT UNMARKED CROSSINGS THE RAMP AND STREET LANDING MUST BE WITHIN THE PEDESTRIAN RIGHT-OF-WAY AS DEFINED BY CITY CODE.

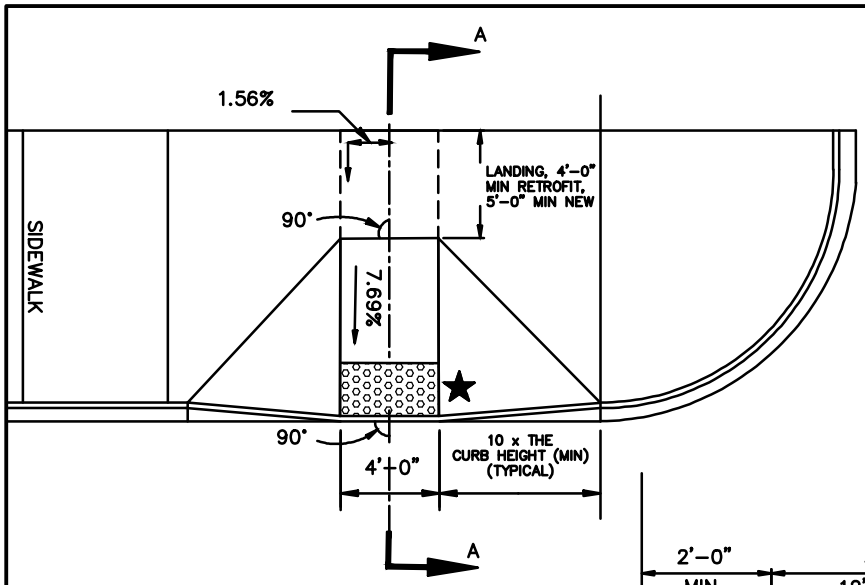
16. SURFACES: RAMP, FLARE, AND LANDING SURFACES MUST BE STABLE AND SLIP RESISTENT. RAMPS SHALL BE MEDIUM BROOMED TRANSVERSE TO THE DIRECTION OF TRAVEL. GRATINGS, VALVE BOXES, AND UTILITY BOXES SHALL NOT BE LOCATED IN THE RAMP, LANDING, OR TRANSITION AREAS.

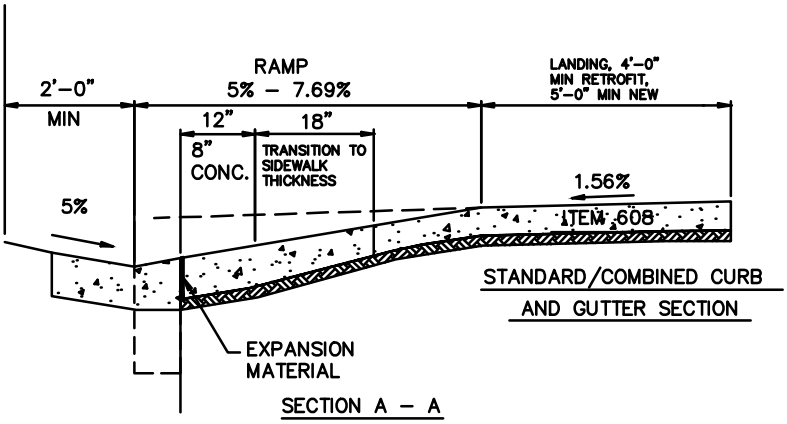
17. OFFSET INTERSECTIONS: AT OFFSET 'T' INTERSECTIONS RAMPS BETWEEN OFFSET STREETS MAY BE DELETED IF THE CENTERLINES OF OFFSET STREETS ARE NO MORE THAN 200-FT APART.

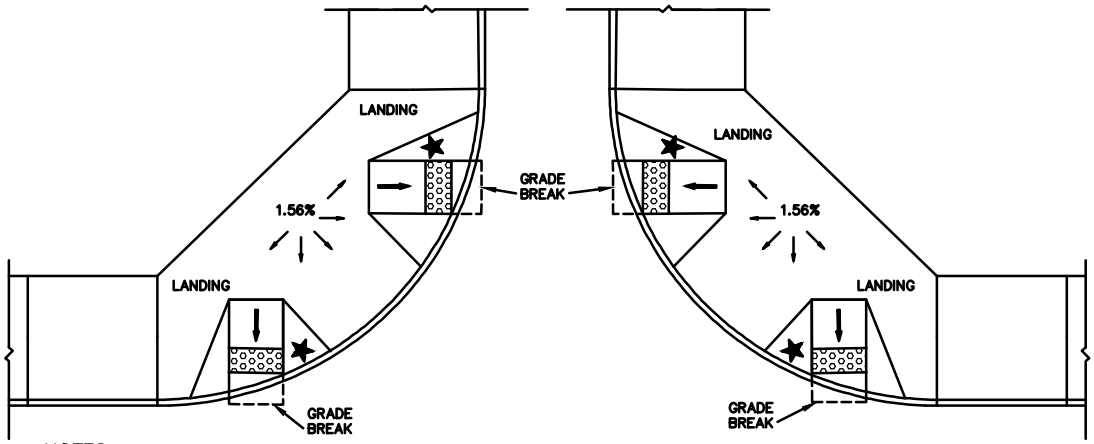
18. OPPOSING RAMPS SHALL HAVE A PEDESTRIAN WALKWAY ACROSS THE STREET, ATLEAST 7' WIDE, WITH A CROSS SLOPE (LONGITUDINAL STREET SLOPE) OF NO GREATER THAN 1.56%. VERTICAL CURVES SHALL BE INSTALLED AS NEEDED.

19. FOR SIDEWALK OR MULTI-USE PATH CROSSINGS OF PRIVATE DRIVEWAYS:
   - PEDESTRIANS HAVE THE RIGHT OF WAY FOR CROSSINGS OF UNSIGNALIZED PRIVATE DRIVEWAYS (RESIDENTIAL AND COMMERCIAL): THEREFORE, THE SIDEWALK OR PATH SHOULD EXTEND THROUGH THE DRIVEWAY AT GRADE WITH NO CURB RAMP OR DETECTABLE WARNING.
   - IN LOCATIONS WHERE TREE LAWN WIDTHS ARE NARROW MAKING THE DRIVEWAY APPROACH TOO STEEP TO PROVIDE A SAFE TRANSITION FOR VEHICLES BETWEEN THE STREET AND DRIVEWAY, THE SIDEWALK OR PATH MAY DROP IN ELEVATION 10'-15' ON EITHER SIDE OF THE DRIVEWAY. NO CURB RAMP OR DETECTABLE WARNING IS REQUIRED IN THIS CASE. THE MAX CROSS SLOPE SHALL BE 1.56%.
   - AT LARGE COMMERCIAL UNSIGNALIZED DRIVEWAYS, PROVISIONS FOR SIDEWALKS AND PATHS AND THE NEED FOR RAMPS AND DETECTABLE WARNINGS SHALL BE EVALUATED ON A CASE-BY-CASE BASIS.
   - LARGE COMMERCIAL SIGNALIZED DRIVEWAYS SHALL BE TREATED AS PUBLIC STREET INTERSECTIONS WITH RESPECT TO LOCATION AND DESIGN OF ALL SIDEWALKS, MULTI-USE PATHS, CURB RAMPS, AND DETECTABLE WARNINGS.

	CURB RAMP GENERAL NOTES	CITY OF HILLIARD, OHIO
DATE: March 6, 2015		STANDARD CONSTRUCTION DRAWING
SCALE: NTS		2/12 CR-1





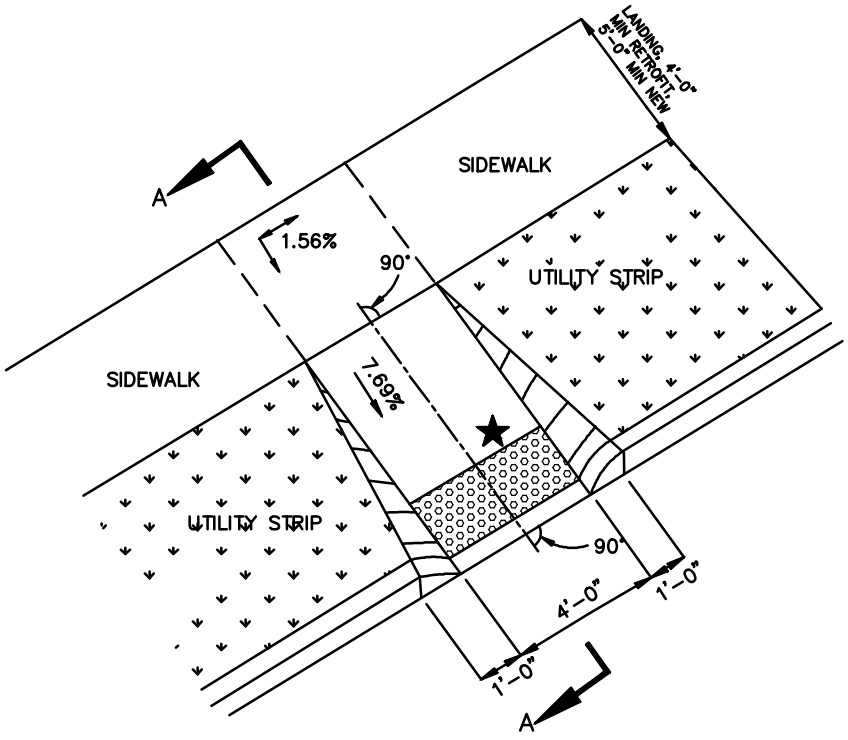


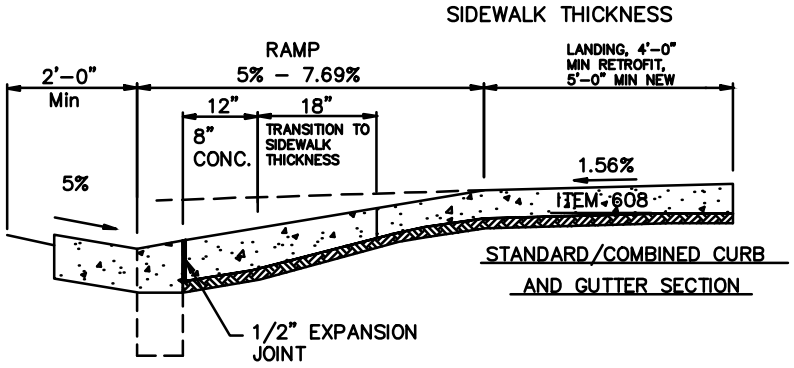
NOTES:

1. RAMP SHALL NOT ORIENT PEDESTRIANS INTO THE CENTER OF AN INTERSECTION. WHEN PLACED WITHIN THE RADIUS, A TYPE A RAMP SHALL BE ORIENTED DIRECTLY ACROSS FROM THE OPPOSING RAMP, PERPENDICULAR TO THE CENTERLINE OF THE CROSSING STREET.
2. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS
3. WHEN RAMPS ARE NOT PERPENDICULAR TO THE CURB, A RECESSED LANDING SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP AND THE GRADE BREAK SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE A	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	RAMP WITH LONG FLARES	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		3/12 | CR-1



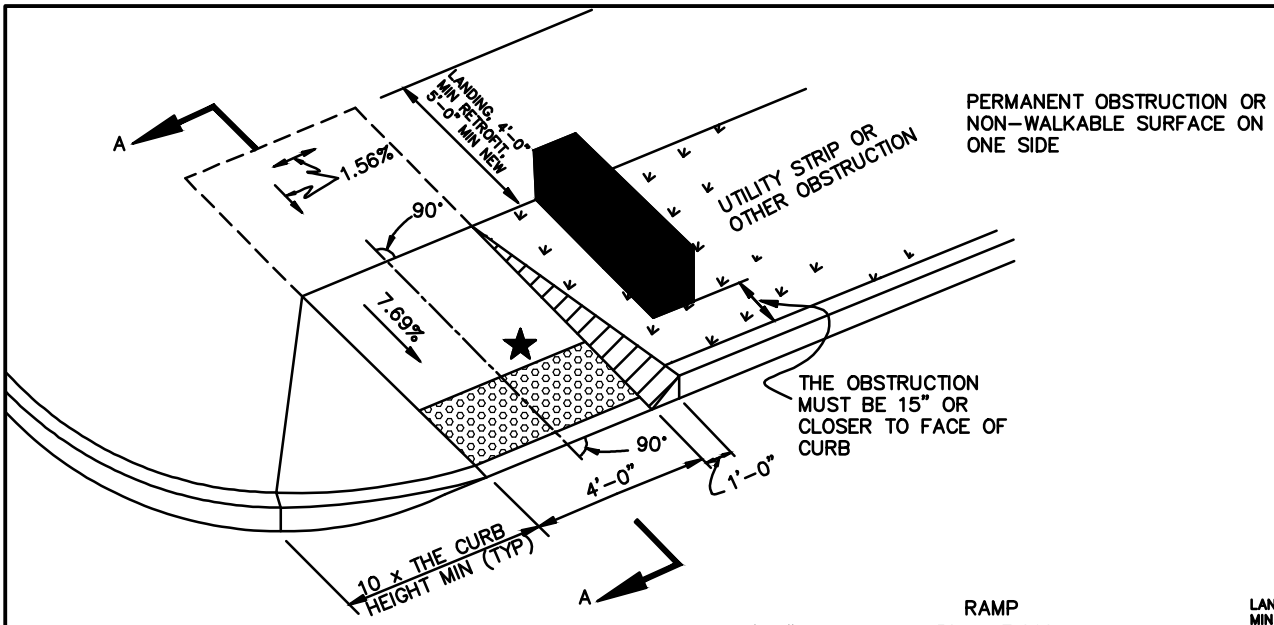


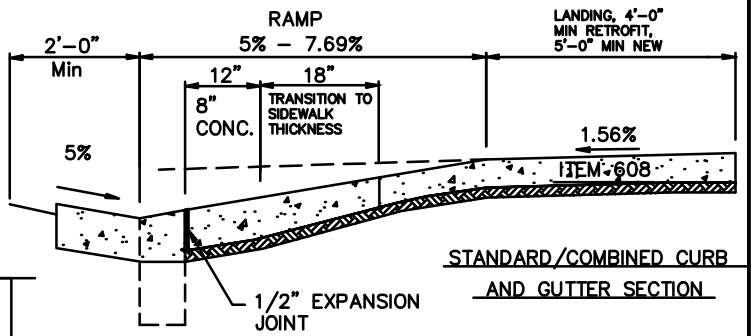
SECTION A – A

NOTES:
1. RAMP SHALL NOT NOT BE PLACED IN FRONT OF A STOP SIGN OR IN FRONT OF THE NORMAL STOPPING LOCATION OF VEHICLES AT A STOP OR SIGNAL CONTROLLED INTERSECTION. A TYPE H RAMP SHOULD BE USED INSTEAD.
2. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

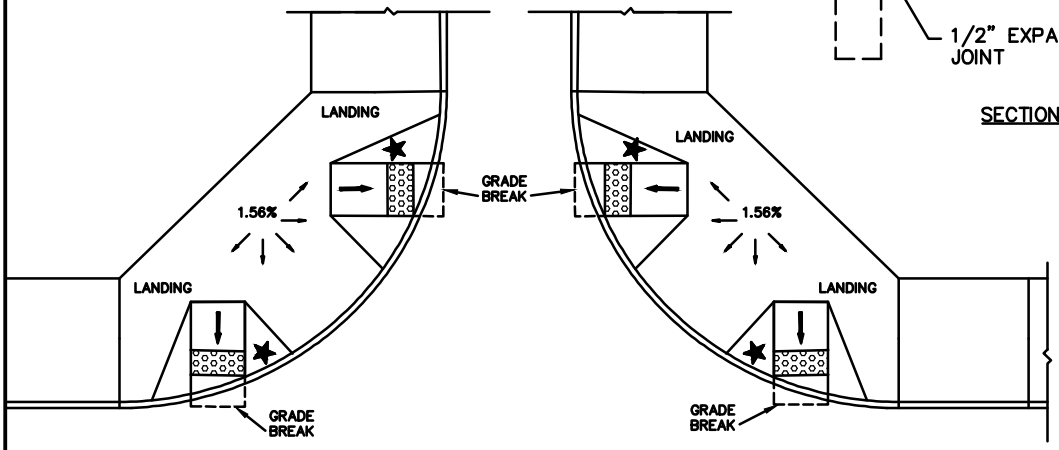
	CURB RAMP TYPE C	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	RAMP IN UTILITY STRIP	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		4/12 CR–1





STANDARD/COMBINED CURB AND GUTTER SECTION

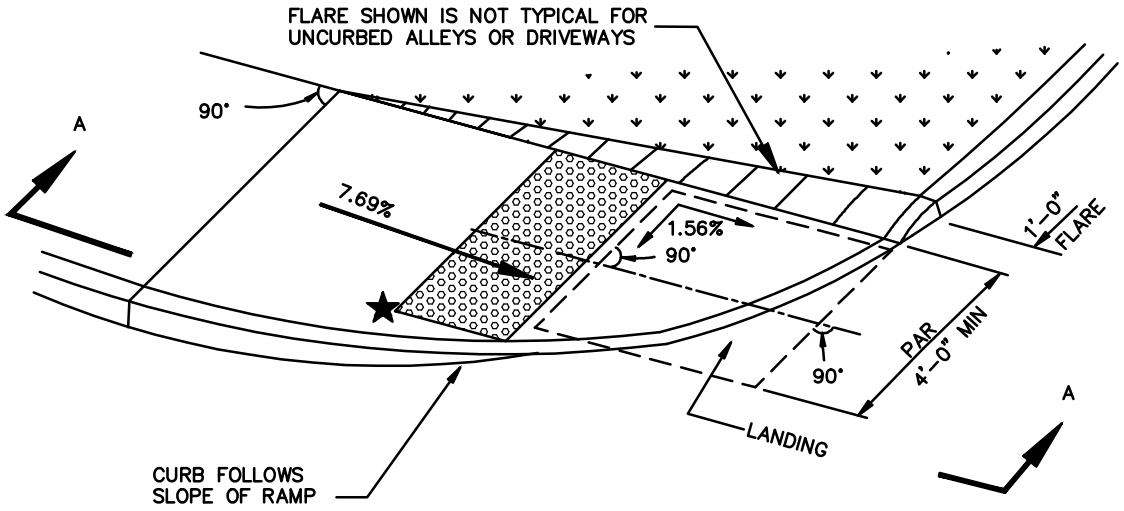
SECTION A – A

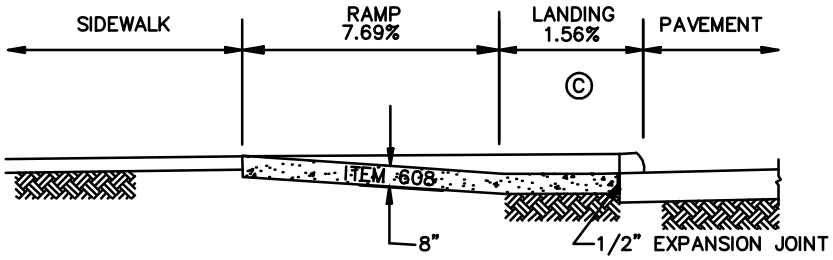


NOTES:
1. RAMP SHALL NOT ORIENT PEDESTRIANS INTO THE CENTER OF AN INTERSECTION. WHEN PLACED WITHIN THE RADIUS, A TYPE "D" RAMP SHALL BE ORIENTED DIRECTLY ACROSS FROM THE OPPOSING RAMP, PERPENDICULAR TO THE CENTERLINE OF THE CROSSING STREET.
2. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS
3. WHEN RAMPS ARE NOT PERPENDICULAR TO THE CURB, A RECESSED LANDING SHALL BE PROVIDED AT THE BOTTOM OF THE RAMP AND THE GRADE BREAK SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE D	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	RAMP OBSTRUCTED ON ONE SIDE	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		5/12 | CR-1





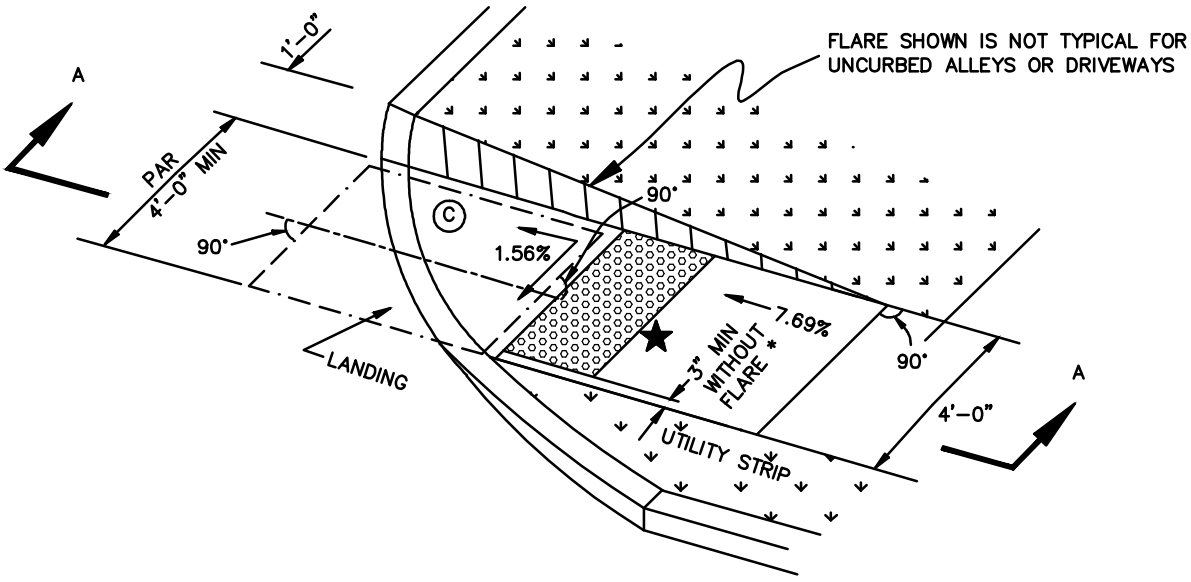
SECTION A–A

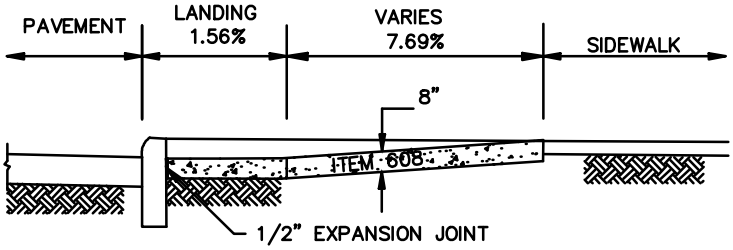
SUPPLEMENTAL NOTES

A. THE BOTTOM EDGE OF THE RAMP SHALL CHANGE PLANES PERPENDICULAR TO THE LANDING.
B. THE EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER.
C. THE LANDING AT THE BOTTOM OF THE RAMP SHALL BE >= 2.5–FT BY 4–FT WITH A MAXIMUM CROSS SLOPE OF 1.56% IN TWO DIRECTIONS.
D. THE PEDESTRIAN ACCESS ROUTE (PAR) BETWEEN THE TWO RAMPS SHALL HAVE A MAXIMUM OF 1.56% CROSS SLOPE WITH A 5% MAXIMUM RUNNING SLOPE
E. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE G	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	RAMP WITH RECESSED LOWER LANDING	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		6/12 | CR–1





SECTION A–A

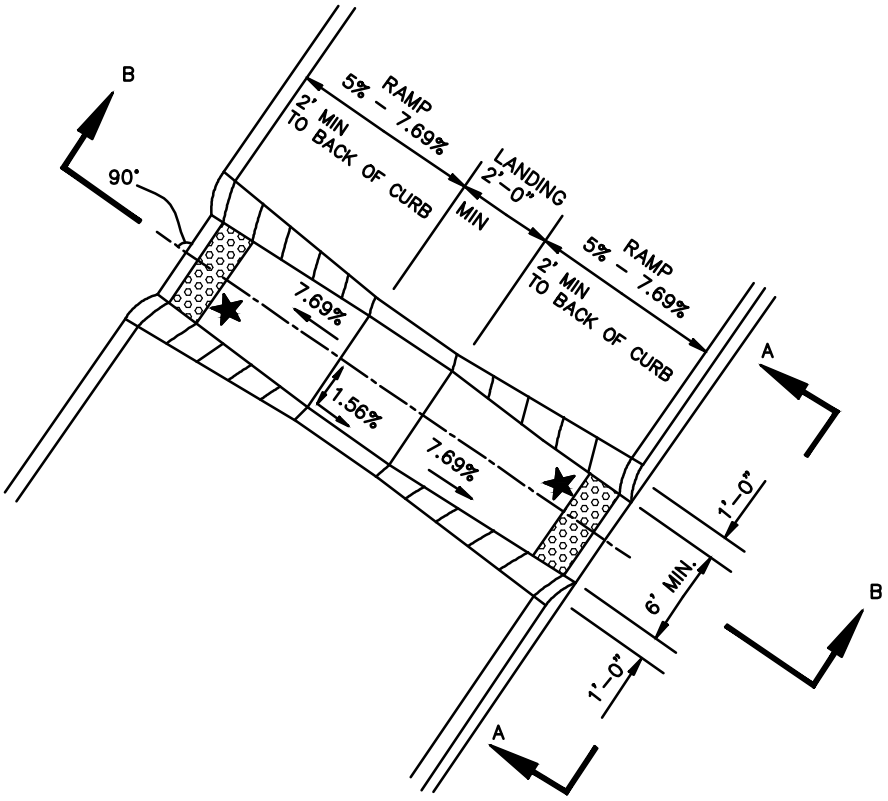
SUPPLEMENTAL NOTES

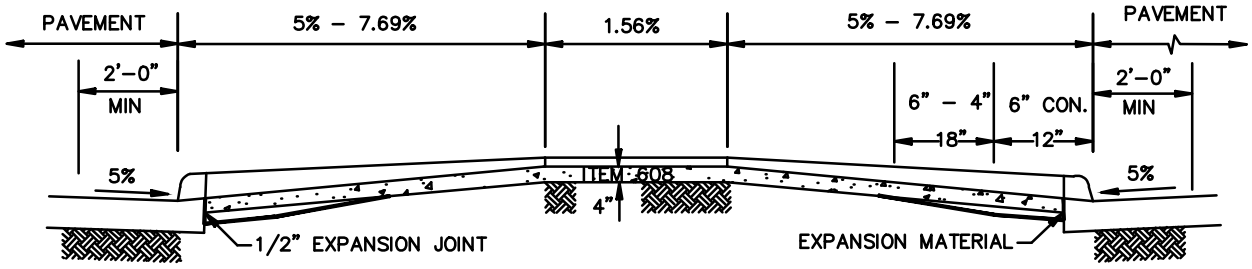
A. THE BOTTOM EDGE OF THE RAMP SHALL CHANGE PLANES PERPENDICULAR TO THE LANDING.
B. THE EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER.
C. THE LANDING AT THE BOTTOM OF THE RAMP SHALL BE >= 2.5–FT BY 4–FT WITH A MAXIMUM CROSS SLOPE OF 1.56% IN TWO DIRECTIONS.
D. THE PEDESTRIAN ACCESS ROUTE (PAR) BETWEEN THE TWO RAMPS SHALL HAVE A MAXIMUM OF 1.56% CROSS SLOPE WITH A 5% MAXIMUM RUNNING SLOPE
E. THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

* THIS IS FOR EMBEDDED (NON–SURFACE APPLIED) DETECTABLE WARNINGS ONLY

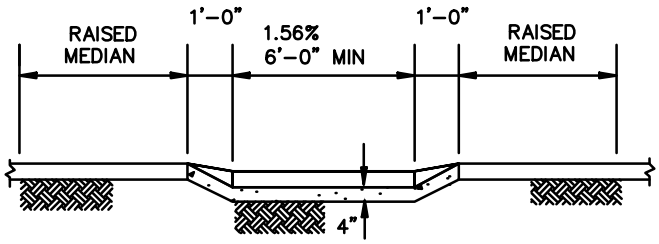
★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE H	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	RAMP WITH RECESSED LOWER LANDING IN UTILITY STRIP	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		7/12 CR–1





SECTION B–B

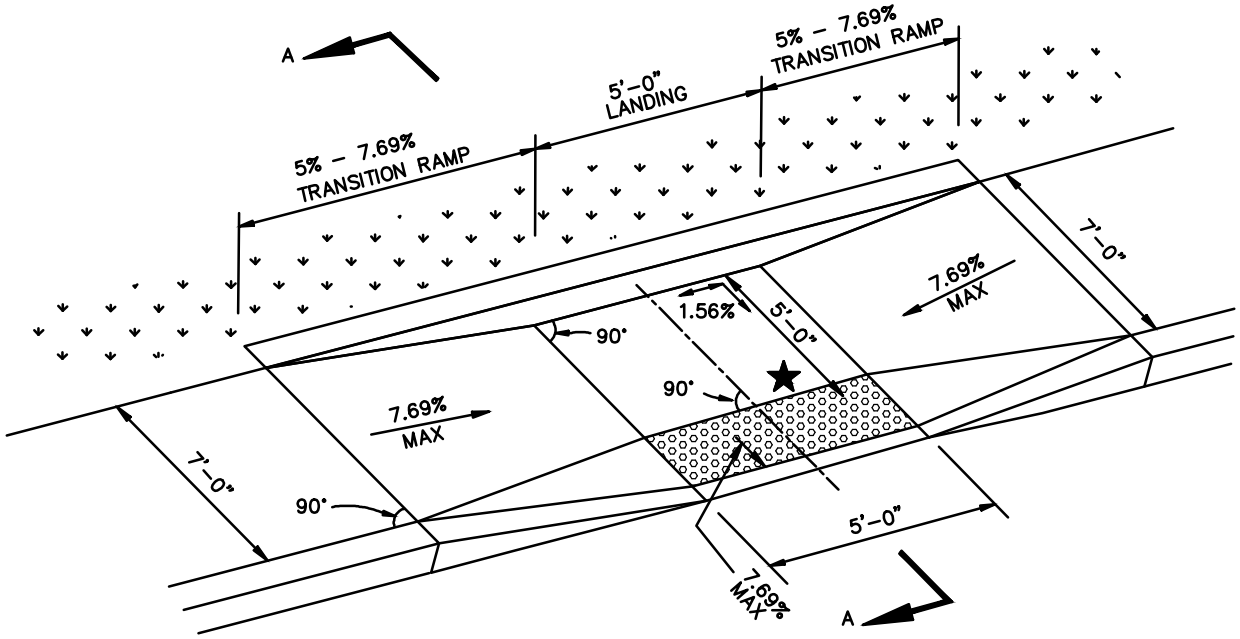


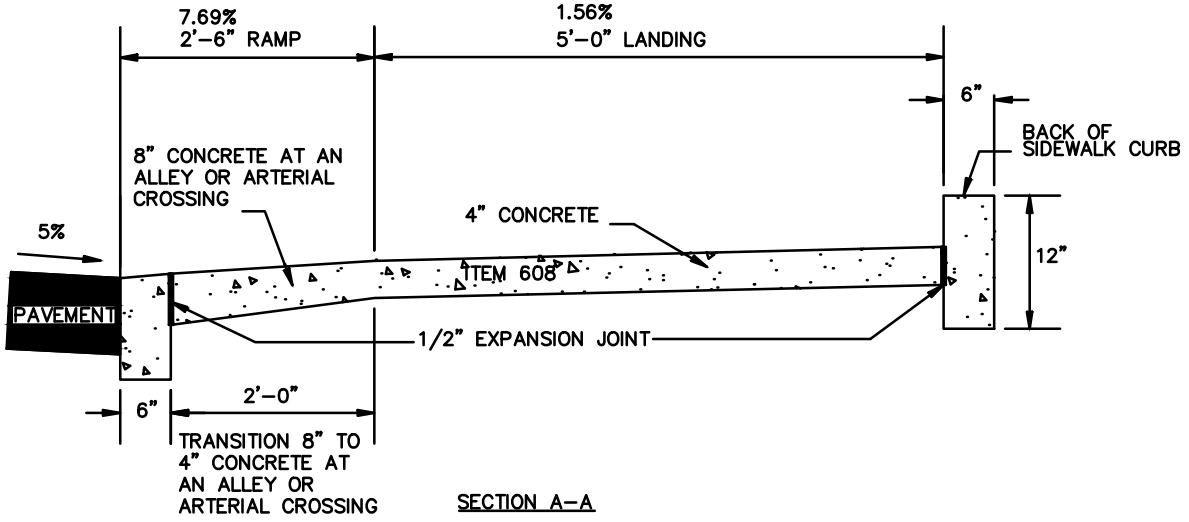
SECTION A–A

RAMPS MAY BE OMITTED IN MEDIANS IF PEDESTRIANS CAN CROSS THROUGH THE MEDIAN AT STREET GRADE

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE L	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	MEDIAN RAMP WITH CENTER LANDING	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		8/12 | CR–1



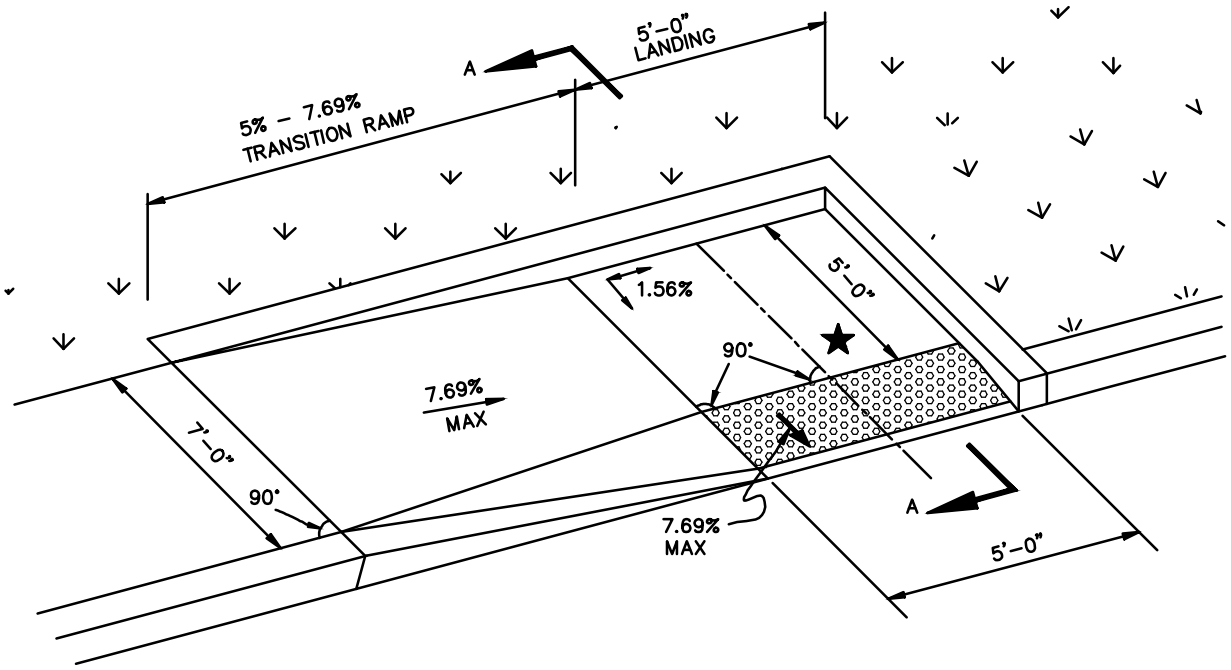


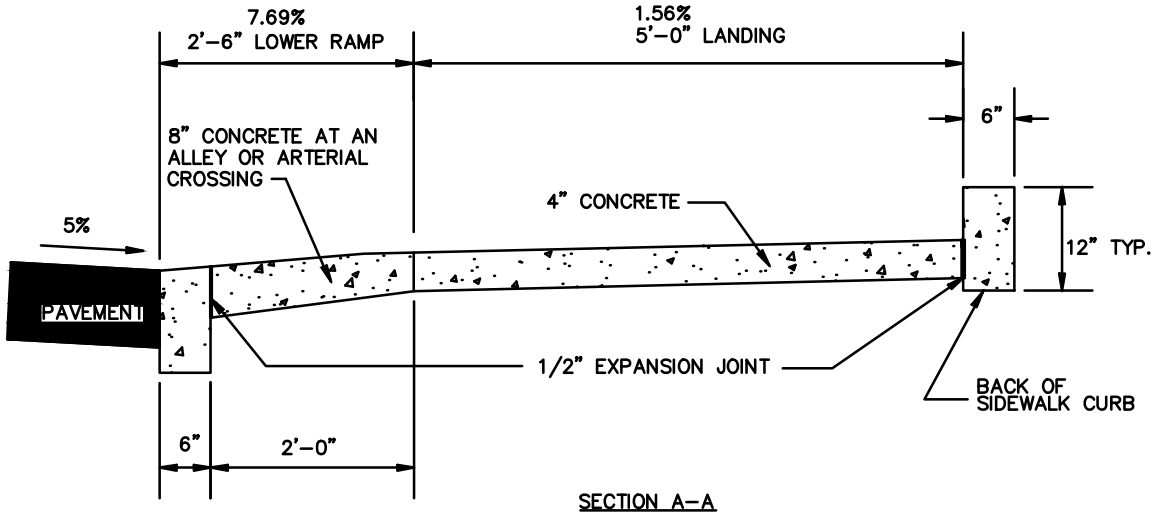
SECTION A–A

THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE P1	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	COMBINED PERPENDICULAR & PARALLEL RAMP	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		9/12 | CR–1





SECTION A–A

THE 5% MAXIMUM COUNTERSLOPE WHERE THE BOTTOM OF THE RAMP MEETS THE STREET APPLIES TO BOTH STRAIGHT CURB AND CURB AND GUTTER SECTIONS

★ SEE SHEET 12/12 FOR DETECTABLE WARNING DETAILS

	CURB RAMP TYPE P2	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	COMBINED PERPENDICULAR & PARALLEL RAMP IN ONE DIRECTION	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		10/12 | CR–1

NOTES

1. DETECTABLE WARNINGS SHALL BE PROVIDED WHEREVER A CURB RAMP CROSSES A VEHICULAR WAY. EXCLUDING UNSIGNALIZED DRIVEWAY CROSSINGS. SEE #19 OF GENERAL CURB RAMP NOTES.

2. DETECTABLE WARNINGS SHALL BE PROVIDED 24" IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. THE DETECTABLE WARNING SHALL BE LOCATED ADJACENT TO THE CURB LINE.

3. DETECTABLE WARNINGS SHALL BE PLACED 6" TO 8" BEHIND THE FACE OF CURB AND BEHIND CURB JOINT

4. CAST IN PLACE OR ANY NON-SURFACE APPLIED DETECTABLE WARNING SHALL HAVE A MIN OF 3" OF CONCRETE ON EACH SIDE OF THE WARNING.

5. MATERIALS SHALL COMPLY WITH C.O.C. SUPPLEMENTAL SPECIFICATION 1551 WITH THE FOLLOWING NOTED EXCEPTIONS:

   A. BRICK RED IS THE ONLY APPROVED COLOR UNLESS OTHERWISE APPROVED IN ADVANCE IN WRITING BY THE CITY ENGINEER

   B. TYPE "A", "B" AND "C" DETECTABLE WARNING SURFACES ARE NOT APPROVED

   C. TYPE "D" THIN TILE AND THIN MOLDED SHEET GOODS ARE APPROVED ON RETROFIT INSTALLATIONS ONLY.
      - THE PRE-APPROVED TYPE "D" MATERIAL IS "ARMOR TILE TACTILE SYSTEMS" FLAT SURFACE APPLIED MAT.
      - OTHER MATERIALS MAY BE SUBSTITUTED FOR THIS PRODUCT IF PRIOR APPROVAL IS GRANTED TO THE CITY ENGINEER

   D. TYPE "E" PRE-MANUFACTURED WET-SET PROJECTS ARE APPROVED FOR USE ON NEW CONSTRUCTION ONLY. THESE PRODUCTS MUST BE 24" WIDE AND ½" THICK. ONE PIECE PANELS SHOULD BE USED FOR SIDEWALK INSTALLATIONS. ALL PRODUCTS MUST BE APPLIED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND GUIDELINES. THE TYPE "E" PRODUCTS PRE-APPROVED FOR USE IN THE CITY OF HILLIARD ARE LISTED BELOW.

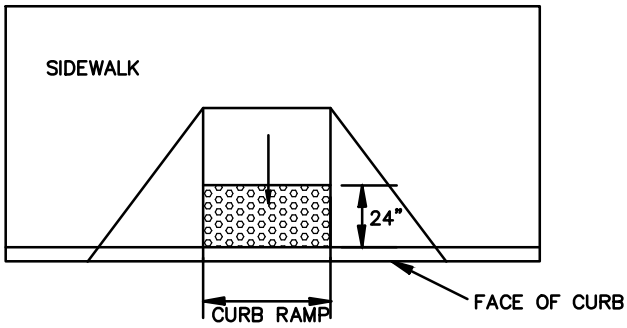
      - ENGINEERED PLASTICS, INC. – ARMOR-TILE CAST IN PLACE SYSTEMS
      - ADA SOLUTIONS, INC. – COMPOSITE (WET SET) REPLACEABLE TWS UNIT
      - ARMORCAST PRODUCTS COMPANY – CAST IN PLACE DETECTABLE WARNING PANEL
      - OTHER MATERIALS MAY BE SUBSTITUTED FOR THE ABOVE LISTED PRODUCTS IF PRIOR APPROVAL IS GRANTED BY THE CITY ENGINEER.

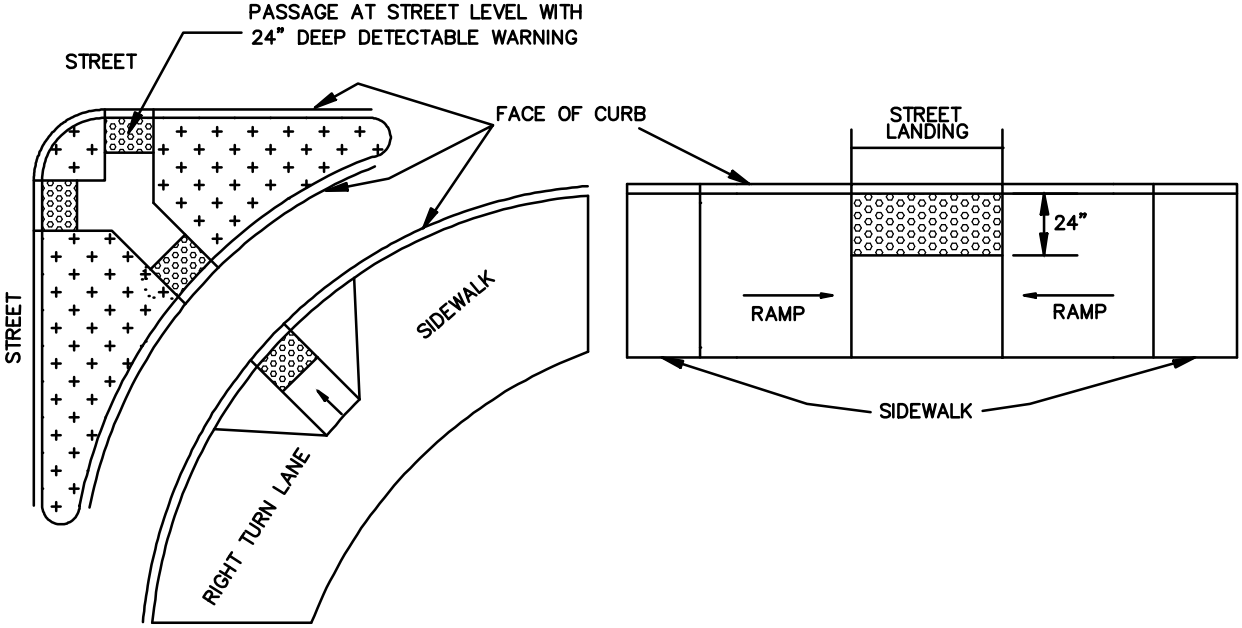
   E. DETECTABLE WARNINGS SHALL EXTEND THE ENTIRE WIDTH OF THE CURB RAMP FOR SIDEWALKS AND MULTI-USE PATHS LOCATED PARALLEL TO A PUBLIC STREET (SIDE PATHS).

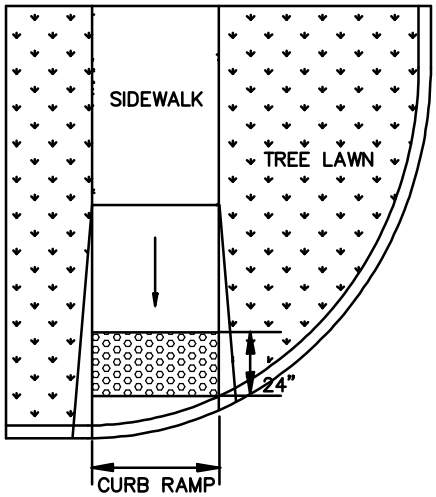
   F. DETECTABLE WARNING STRIPS MUST COMPLY WITH ADA SPECIFICATIONS FOR RAMP AREA, INCLUDING RUNNING SLOPE, CROSS-SLOPE, FLATNESS AND SMOOTHNESS CRITERIA AS WELL AS FLUSH TRANSITIONS BETWEEN THE CONCRETE RAMP AND THE DETECTABLE WARNING SURFACE.

   G. ALL DETECTABLE WARNING STRIP INSTALLATIONS SHALL BE WARRANTED BY THE INSTALLING CONTRACTOR AND MANUFACTURER TO BE FREE OF DEFECTS FOR A PERIOD OF THREE (3) YEARS FROM THE DATE OF INSTALLATION. THE DETECTABLE WARNING STRIP SHALL LOSE NO MORE THAN FIVE PERCENT (5.0 %) OF TRUNCATED DOMES DUE TO DELAMINATION BECAUSE OF PRODUCT FAILURE. SURFACE SHALL BE WARRANTED FOR THAT 3-YEAR PERIOD FROM FADING, CHIPPING, CRACKING, PEELING, OR LOSS OF COLOR DUE TO THE EXPOSURE TO WEATHERING, DE-ICING SALTS, AND SUNLIGHT.

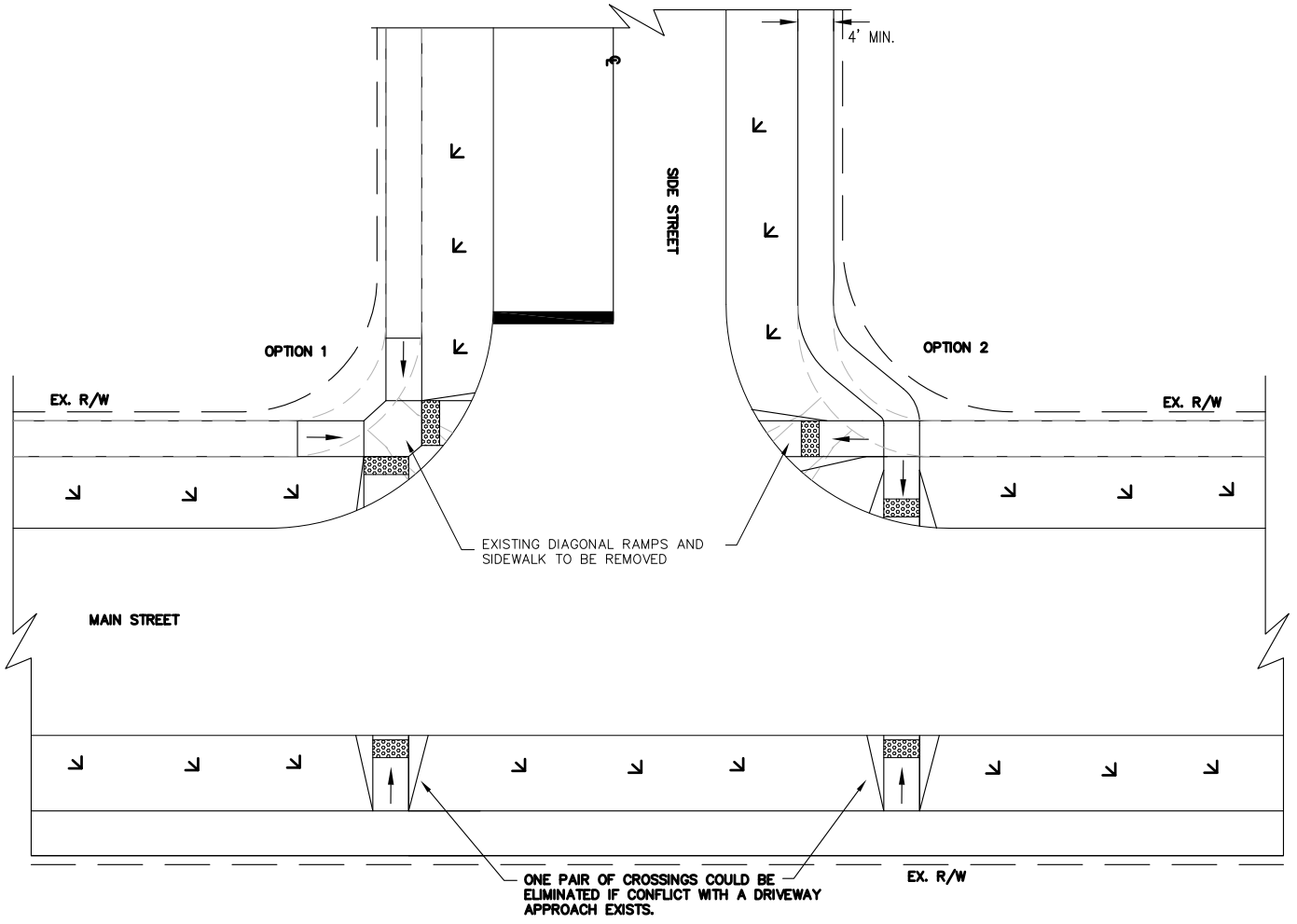
	CURB RAMP DETECTABLE WARNING NOTES	CITY OF HILLIARD, OHIO
DATE: March 6, 2015		STANDARD CONSTRUCTION DRAWING
SCALE: NTS		11/12 | CR-1







	CURB RAMP	CITY OF HILLIARD, OHIO
DATE: March 6, 2015	DETECTABLE WARNINGS	STANDARD CONSTRUCTION DRAWING
SCALE: NTS		12/12 CR-1



NOTES:

1. EXISTING DIAGONAL RAMPS AND APPROACH WALK SHALL BE REMOVED IN ORDER TO CONSTRUCT FULLY COMPLIANT ADA RAMPS IN THE MANNER SHOWN IN OPTION 1 OR OPTION 2.
2. OPTION 1 PROVIDES A SINGLE SHARED LOWER LANDING AREA AND TWO SEPARATE UPPER LANDING AREAS FOR EACH RAMP.
3. OPTION 2 PROVIDES A SINGLE SHARED UPPER LANDING AREA AND TWO SEPARATE LOWER LANDING AREAS FOR EACH RAMP.
4. FOR A 4-WAY INTERSECTION, 8 RAMPS SHALL BE PROVIDED. ELIMINATE THE SINGLE RAMP SHOWN ON THE BOTTOM OF THE MAIN STREET AND MIRROR THE CURB RAMP OPTIONS THAT ARE SHOWN ABOVE.
5. RAMP AND WALK WIDTH SHALL MATCH EXISTING OR 4' MIN, WHICHEVER IS GREATER.

	CURB RAMP RETROFIT	CITY OF HILLIARD, OHIO
DATE: March 6, 2015		STANDARD CONSTRUCTION DRAWING
SCALE: 1" = 20'		1/1 | CR-2

City of Hilliard Sign Specifications

Street Name Signs - General Specifications

Plan Designation: Item 630 Street Name Sign, Type ( ), As Per Plan

Plan Unit: Per Each

Plan Payment: Payment for each street name sign shall include brackets, stiffeners, stickers, and all incidental hardware to mount the street name sign(s) on the designated support type.

Submittals: Sign Fabricator shall submit preliminary layout of street name signs to the City of Hilliard Engineer (lschamp@hilliardohio.gov) or the City of Hilliard sign shop (signshop@hilliardohio.gov) before manufacturing signs. Layout shall be to scale and shall include all dimensions. Failure to submit a scaled layout could result in rejection of the street name sign and replacement will be at the manufacturer's expense.

New Street Name Approval & Submittals: All new street names shall be submitted to the City of Hilliard for pre-approval (email: mkelnhofer@hilliardohio.gov). For any street name greater than ten (10) characters (including prefix or suffix), a sign layout in accordance with these specifications shall be submitted prior to pre-approval of a new street name to ensure that the street name can adequately fit on the maximum sign blade without modification to font, lettering size, or standard spacing.

The following specifications apply to all street name signs in the City of Hilliard:

- All street name signs shall be made on an aluminum sign blank (0.0080 thickness).
- All street name signs shall use a white retroreflective sheeting made with prisms (ASTM D4956 Type IV or VIII as designated for each sign type provided below) with a blue electrocut film (color: 1175 - FHWA Blue) to create a blue sign with white lettering.
- Street name legends, prefixes, and suffixes shall be printed Federal Highway Administration, Office of Transportation Operations' Clearview Font Type 2-W using standard letter spacing. Legends, prefixes, and suffixes shall be centered horizontally and vertically on the sign face. If a street name contains a drop letter (y, p, j, etc.), the name shall be shifted ½" up on the sign face. Lettering sizes and clear spacing shall conform to the various sign types provided below.
- A modified Clearview Font is only permitted for existing street names in order to fit on the maximum sign blades designated for the various sign types provided below. All new street names shall comply with the standard provisions established herein.
- All street name sign installations shall include a City of Hilliard identification sticker, which provides the month and year that the sign is installed. Stickers shall be obtained from the City of Hilliard sign shop (contact: Dave Dale - (614) 334-2355).

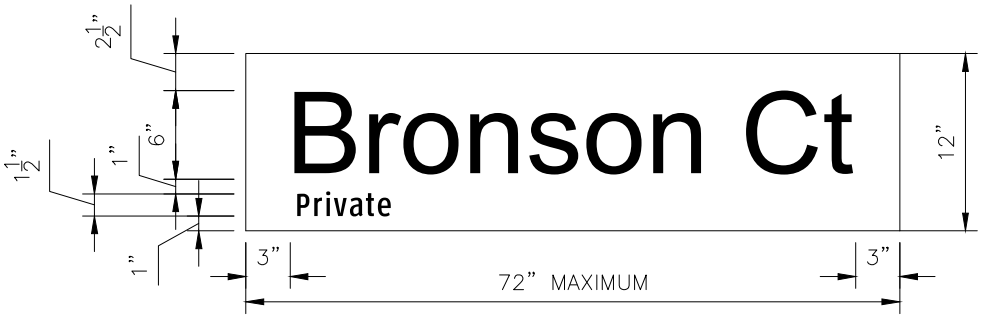
	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	GENERAL SPECIFICATIONS	1/10 TC-1

City of Hilliard Sign Specifications

Street Name Signs - General Specifications (cont.)

- These standards shall apply to all public street intersections and to intersections of a public street with a named private driveway. Non-reflective public or private street name signs within the public right-of-way are prohibited on new installations. Existing street name signs that do not meet these standards shall be upgraded as part of the normal city sign maintenance schedule.

- At locations where a named private driveway intersects a public street, the word "Private" shall be positioned beneath the private street name as shown in the example below.



	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	GENERAL SPECIFICATIONS	2/10 TC-1

City of Hilliard Street Name Sign Reference Table

		Installation			Post, Anchor & Bracket			Sign Size & Layout				
Type of Intersection	Speed Limit of Major Street	Type of Mounting	Number of signs per intersection (min)	Vertical Clearance of Sign from Street	Post Type (galvanized; black in Old Hilliard)	Anchor Type (galvanized)	Bracket Type (galvanized; black in Old Hilliard)	Sign Blade Height	Sign Blade Max Length	Initial Upper Case Letter Height	1/2-inch Rounded Border	Single or Double Sided
Type A - Signalized - Mast Arm (all new City signal installations)	any	Overhead (On Mast Arm)	one per arm	on arm	N/A	N/A	Band or Cable-Mntd	20"	96"	12"	Yes	Single
Type B - Signalized - Strain Pole (existing signals or former FCEO signals)	Any	Side/Corner (On Strain Pole)	2 signs on 2 poles (opposite corners)	15'	N/A	N/A	2 cantilevered brackets & double-tee stiffeners (4 bands per sign)	20"	72"	9"	No	Double
Type C - Roundabout	Any	2 Posts per sign (in splitter islands)	one sign per splitter island	5'	2" square x 14 gauge galvanized w/ rain caps	2-1/4" square x 42" long; 8" min lap	N/A	16"	72"	7"	Yes (& chevron-arrow)	Single
Type D - Unsignalized - Arterial or Collector - high speed (includes subdivision street at Arterial/Collector - e.g. Dublin Rd cross streets)	40+ MPH	Side/Corner & Cantilevered (On Post)	1 sign @ T intersection; 2 signs @ X intersection	12'	2" square x 12 gauge galvanized w/ rain caps	2-1/4" square x 48" long; 18" min lap	2 cantilevered brackets & double-tee stiffeners	16"	72"	8"	No	Double
Type E - Unsignalized - Arterial or Collector - low speed (includes subdivision street at Arterial/Collector - e.g. Cemetery Rd cross streets)	25 - 35 MPH	Side/Corner & Cantilevered (On Post)	1 sign @ T intersection; 2 signs @ X intersection	12'	2" square x 12 gauge galvanized w/ rain caps	2-1/4" square x 48" long; 18" min lap	2 cantilevered brackets & double-tee stiffeners	12"	72"	6"	No	Double
Type F - Unsignalized - Subdivision (e.g. internal subdivision streets - not primary street intersection with arterial or collector)	25 MPH	Side/Corner & Cross-Mounted (On Post)	One (2 if street name changes at cross street)	10'	2" square x 12 gauge galvanized - without rain caps	2-1/4" square x 30" long; 8" min lap	12" square post bracket & 12" cross piece bracket	9"	60"	5"	Yes	Double

Note:

SNS legends, prefixes, and suffixes shall be printed in FHWA **Clearview Font Type 2-W** using standard horizontal letter spacing and edge spacing. Lettering size and space reductions are permitted only on existing street names. New subdivision street names shall comply with all standards.

DATE: July 30, 2015

SCALE: N.T.S.

TRAFFIC CONTROL NOTES AND DETAILS

STREET NAME SIGNS

REFERENCE TABLE

CITY OF

HILLIARD, OHIO

STANDARD CONSTRUCTION DRAWING

3/10

TC-1

Type A Street Name Signs

Type A signs are to be installed at all signalized intersections with mast arms.

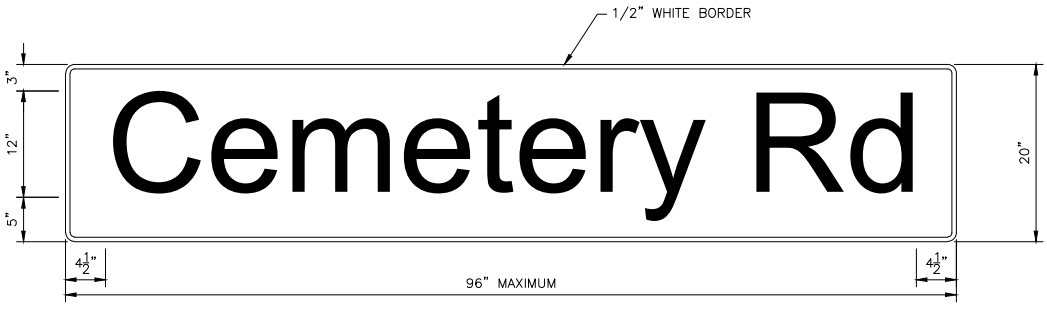
Installation. Signs shall be mounted on the mast arm. The preferred location is centered between signal heads as far left as possible over the oncoming lanes of traffic. One sign per arm.

Brackets. No brackets are required for Type A installations. Each sign shall be mounted to the arm using a band or cable-mounted system (Astro-Brac or approved equal).

Sign Size. The sign blade shall be 20" high. Maximum sign blade length shall be 96".

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type VIII (3M Diamond Grade LDP 3970, Avery Dennison MVP Prismatic T-7500, or approved equal).

Sign Layout. The initial upper case letter height shall be 12". Prefixes and suffixes shall be the same size as the legend. A ½-inch white border with rounded corners shall be provided. A 4 ½ -inch clear space shall be provided between the edge of the sign and the edge of the first and last letter (horizontally). The sign shall be single sided with the backs of the signs painted black.



	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	TYPE A	4/10 TC-1

Type B Street Name Signs

Type B signs are to be installed at all signalized intersections with strain poles.

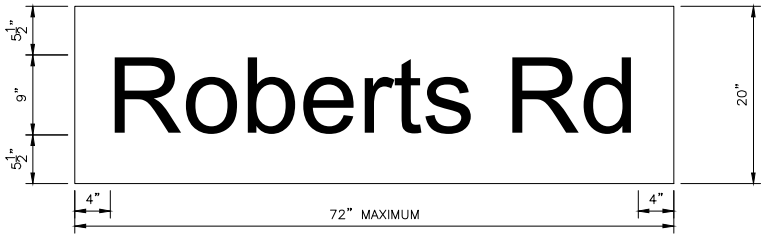
Installation. Signs shall be mounted on opposite corners on the traffic signal strain pole. Judgment may be used in determining the appropriate location based on visibility. Two signs may be installed per pole. The vertical clearance between the adjacent ground and the bottom of the lowest sign shall be 15 feet.

Brackets. Two cantilevered square brackets and double tee stiffeners (Sign-Fix, Xcessories Squared, or approved equal) shall be used. Each sign shall be banded to the vertical pole using four bands.

Sign Size. The sign blade shall be 20" high. Maximum sign blade length shall be 72".

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type VIII (3M Diamond Grade LDP 3970, Avery Dennison MVP Prismatic T-7500, or approved equal).

Sign Layout. The initial upper case letter height shall be 9". Prefixes and suffixes shall be the same size as the legend. No border shall be used for signs that use cantilevered brackets for installation. A 4-inch clear space shall be provided between the edge of the sign and the edge of the first and last letter (horizontally). The sign shall be double sided.



	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	TYPE B	5/10 TC-1

Type C Street Name Signs

Type C signs are to be installed at all roundabout locations.

Installation. Signs shall be mounted in the splitter islands with one sign per island at each leg of the roundabout. The vertical clearance between the adjacent top of curb and the bottom of the sign shall be 5 feet. The horizontal clearance between the edge of the sign and the face of the splitter island curb shall be 2' minimum.

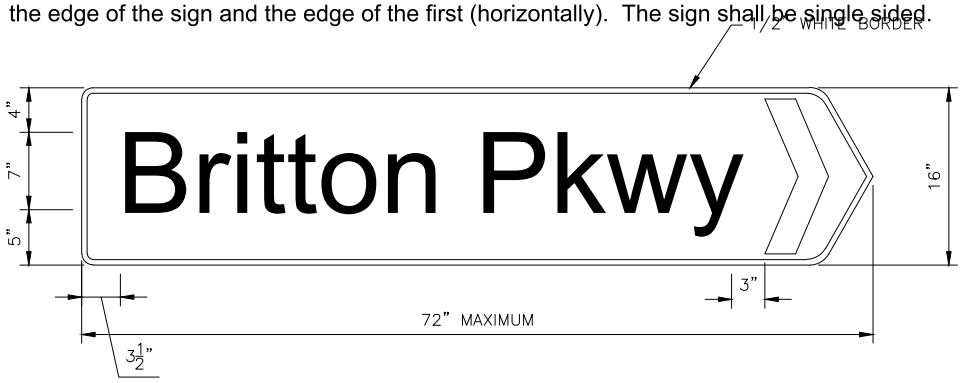
Brackets. No brackets are used for Type C sign installations.

Post/Anchor. Type C street name sign supports shall be two 2-inch square x 14 gauge square galvanized posts with die-cut knock-outs (typical regulatory sign posts). Pyramid rain caps shall be used. A single break-away anchor shall be used for each post. Anchors shall be 2 ¼-inch square, 42 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 8 inches minimum. For all signs installed in concrete or paver islands, a six-inch PVC pipe box out shall be provided for the post anchor. The PVC box out shall be installed prior to pouring concrete or placing pavers. After the sign post anchor is installed, granular material shall be installed between the post anchor and the PVC box out.

Sign Size. The sign blade shall be 16” high. Maximum sign blade length shall be 72”.

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type VIII (3M Diamond Grade LDP 3970, Avery Dennison MVP Prismatic T-7500, or approved equal).

Sign Layout. The initial upper case letter height shall be 7”. Prefixes and suffixes shall be the same size as the legend. A ½-inch white border with rounded corners and a chevron-style arrow shall be provided. A 3 ½ -inch clear space shall be provided between the edge of the sign and the edge of the first (horizontally). The sign shall be single sided.



	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	TYPE C	6/10 TC-1

Type D Street Name Signs

Type D signs are to be installed at unsignalized intersections along arterial or collector streets with speed limits of 40 mph or greater. This includes intersections of a primary subdivision street and the arterial/collector street. Examples include the intersections of Alton Darby Road/Strider Lane and Dublin Road/River Landings Blvd.

Installation. At four-way intersections, two pairs of signs should be installed, mounted on opposite corners. At three-way (tee) intersections, one pair of signs should be installed. Judgment may be used in determining the appropriate location based on visibility. Two signs should be installed per pole. The vertical clearance between the adjacent ground and the bottom of the lowest sign shall be 12 feet. Signs shall be erected so that one sign does not block visibility of the other sign.

Brackets. Two cantilevered square brackets and double tee stiffeners (Sign-Fix, Xcessories Squared, or approved equal) shall be used.

Post/Anchor. Type D street name sign supports shall be 2-inch square x 12 gauge square galvanized posts with die-cut knock-outs. Pyramid rain caps shall be used. A single break-away anchor shall be used. Anchors shall be 2 ¼-inch square, 48 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 18 inches minimum.

Sign Size. The sign blade shall be 16” high. Maximum sign blade length shall be 72”.

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type VIII (3M Diamond Grade LDP 3970, Avery Dennison MVP Prismatic T-7500, or approved equal).

Sign Layout. The initial upper case letter height shall be 8”. Prefixes and suffixes shall be the same size as the legend. No border shall be used for signs that use cantilevered brackets for installation. A 4-inch clear space shall be provided between the edge of the sign and the edge of the first and last letter (horizontally). The sign shall be double sided.

	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	TYPE D	7/10 TC–1

Type E Street Name Signs

Type E signs are to be installed at unsignalized intersections along arterial or collector streets with speed limits of 35 mph or less. This includes intersections of a primary subdivision street and the arterial/collector street. Examples include the intersections of Avery Rd/Dixon Dr, Davidson Road/Heather Ridge Dr, and Scioto Darby Rd/Hoffman Farms Dr.

Installation. At four-way intersections, two pairs of signs should be installed, mounted on opposite corners. At three-way (tee) intersections, one pair of signs should be installed. Judgment may be used in determining the appropriate location based on visibility. Two signs should be installed per pole. The vertical clearance between the adjacent ground and the bottom of the lowest sign shall be 12 feet. Signs shall be erected so that one sign does not block visibility of the other sign.

Brackets. Two cantilevered square brackets and double tee stiffeners (Sign-Fix, Xcessories Squared, or approved equal) shall be used.

Post/Anchor. Type E street name sign supports shall be 2-inch square x 12 gauge square galvanized posts with die-cut knock-outs. Pyramid rain caps shall be used. A single break-away anchor shall be used. Anchors shall be 2 ¼-inch square, 48 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 18 inches minimum. When one or more sign erected on a 2-inch square post exceeds 60 inches, the anchor shall be modified with flanges to provide additional stability and reduce torque from wind loading.

Sign Size. The sign blade shall be 12” high. Maximum sign blade length shall be 72”.

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type VIII (3M Diamond Grade LDP 3970, Avery Dennison MVP Prismatic T-7500, or approved equal).

Sign Layout. The initial upper case letter height shall be 6”. Prefixes and suffixes shall be the same size as the legend. No border shall be used for signs that use cantilevered brackets for installation. A 3-inch clear space shall be provided between the edge of the sign and the edge of the first and last letter (horizontally). The sign shall be double sided.

	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	TYPE E	8/10 TC–1

Type F Street Name Signs

Type F signs are to be installed at unsignalized intersections within subdivisions with speed limits of 25 mph only. Type F signs apply to internal neighborhood streets, not the intersection of the primary subdivision street and the arterial/collector street.

Installation. One pair of signs should be installed unless the street name changes on either side of a street. Judgment may be used in determining the appropriate location based on visibility. Two signs should be installed per post. The vertical clearance between the adjacent ground and the bottom of the lowest sign shall be 10 feet.

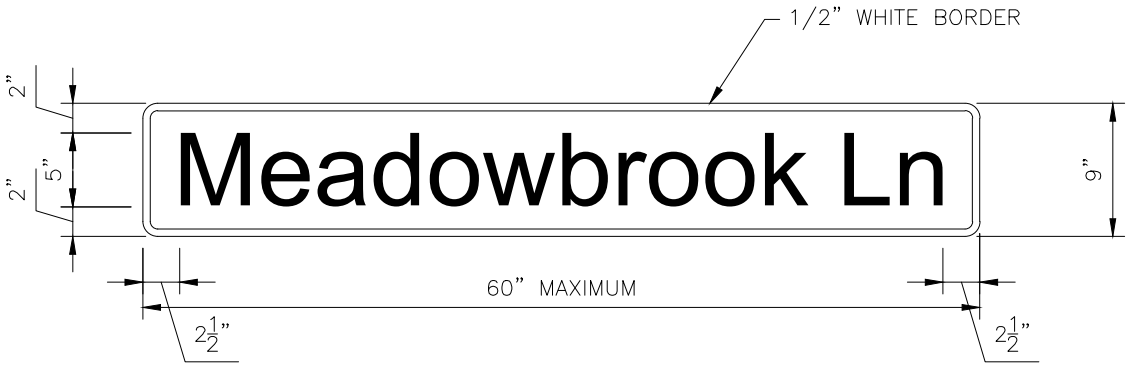
Brackets. One 12-inch square post bracket and one 12-inch cross piece bracket shall be used. Note: Type F signs are mounted using a cross-mounted system, not cantilevered like Type D and Type E street name signs.

Post/Anchor. Type F street name sign supports shall be 2-inch square x 12 gauge square galvanized posts with die-cut knock-outs. Pyramid rain caps are not used. A single break-away anchor shall be used. Anchors shall be 2 ¼-inch square, 30 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 8 inches minimum.

Sign Size. The sign blade shall be 9” high. Maximum sign blade length shall be 60”.

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type IV (3M High Intensity Prismatic 3930, Avery Dennison High Intensity Prismatic T-6500, or approved equal).

Sign Layout. The initial upper case letter height shall be 5”. Prefixes and suffixes shall be the same size as the legend. A ½-inch white border with rounded corners shall be provided. A 2 ½ -inch clear space shall be provided between the edge of the sign and the edge of the first and last letter (horizontally). The sign shall be double sided.



	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	TYPE F	9/10 TC-1

Street Name Sign Support and Anchor Specifications

Plan Designation: Item 630 Street Name Sign Support and Anchor (Type ___), As Per Plan

Plan Unit: Per Each

Plan Payment: Payment for each street name sign support shall include the appropriate length anchor and the appropriate post length required to obtain the required minimum lap length and the proper vertical clearance for the various street name sign types. Payment for the sign supports shall include the pyramid rain caps, rivets, bolts, nuts, and all incidental hardware needed for a complete installation.

Type A Street Name Sign Supports and Anchors. Type A street name signs are installed on mast arms at signalized intersections. A separate support and anchor are not required.

Type B Street Name Sign Supports and Anchors. Type B street name signs are installed on strain poles at signalized intersections. A separate support and anchor are not required.

Type C Street Name Sign Supports and Anchors. Type C street name sign supports shall be two 2-inch square x 14 gauge square galvanized posts with die-cut knock-outs (typical regulatory sign posts). Pyramid rain caps shall be used. A single break-away anchor shall be used for each post. Anchors shall be 2 ¼-inch square, 42 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 8 inches minimum. For all signs installed in concrete or paver islands, a six-inch PVC pipe box out shall be provided for the post anchor. The PVC box out shall be installed prior to pouring concrete or placing pavers. After the sign post anchor is installed, granular material shall be installed between the post anchor and the PVC box out.

Type D Street Name Sign Supports and Anchors. Type D street name sign supports shall be 2-inch square x 12 gauge square galvanized posts with die-cut knock-outs. Pyramid rain caps shall be used. A single break-away anchor shall be used. Anchors shall be 2 ¼-inch square, 48 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 18 inches minimum.

Type E Street Name Sign Supports and Anchors. Type E street name sign supports shall be 2-inch square x 12 gauge square galvanized posts with die-cut knock-outs. Pyramid rain caps shall be used. A single break-away anchor shall be used. Anchors shall be 2 ¼-inch square, 48 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 18 inches minimum.

Type F Street Name Sign Supports and Anchors. Type F street name sign supports shall be 2-inch square x 12 gauge square galvanized posts with die-cut knock-outs. Pyramid rain caps are not used. A single break-away anchor shall be used. Anchors shall be 2 ¼-inch square, 30 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 8 inches minimum.

Old Hilliard District. In the Old Hilliard District, the above street name sign support and anchor specification apply except all sign supports and hardware shall be black.

Conservation District. In the Conservation District, the type C-F street name sign support and anchor specifications for unsignalized intersections are per Hilliard standard construction drawing TC-3. The vertical clearance and installation requirements provided herein the table on sheet 3/10 apply.

	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 30, 2015	STREET NAME SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	SUPPORT & ANCHOR SPECIFICATIONS	10/10 TC-1

Regulatory, Warning, and Guide Signs - General Specifications

Plan Designation: Item 630 Sign, Flat Sheet (ASTM Type ___), As Per Plan

Plan Unit: Per SF

Plan Payment: Payment for Sign, Flat Sheet shall be per square foot and shall include the City of Hilliard identification stickers.

All sign installations shall include a City of Hilliard identification sticker, which provides the month and year that the sign is installed. Stickers shall be obtained from the City of Hilliard sign shop (contact: Dave Dale (614) 334-2355).

Sign Material. Sign sheeting material shall comply with ASTM D4956 Type VIII (3M Diamond Grade LDP 3970, Avery Dennison MVP Prismatic T-7500, or approved equal) for the following types of signs:

- School Zone Speed Limit signs
- School Crossing/Warning signs and placards
- Pedestrian and Bicycle Warning signs
- STOP signs along or intersecting arterial/collector streets
- YIELD signs at roundabouts

Sign sheeting material shall comply with ASTM D4956 Type IV (3M High Intensity Prismatic 3930, Avery Dennison High Intensity Prismatic T-6500, or approved equal) for all other types of signs.

Reflective Strips. 2-inch wide reflective sheeting strips shall be used on all sign posts located in raised medians for emphasis and to increase visibility; these reflective strips may be used on sign posts at other locations as determined by the City of Hilliard.

	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 29, 2015	REGULATORY, WARNING & GUIDE SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	GENERAL SPECIFICATIONS	1/2 TC-2

Regulatory, Warning, and Guide Signs - Support and Anchor Specifications

Plan Designation: Item 630 Ground Mounted Sign Support, As Per Plan

Plan Unit: Per Linear Foot

Plan Payment: Payment for each ground mounted sign support shall include the appropriate length post to obtain an 8-inch minimum lap length into the anchor and the proper vertical clearance as indicated below. Payment for the sign supports shall include the anchors, pyramid rain caps, rivets, bolts, nuts, and all incidental hardware needed for a complete installation.

Sign Supports. All sign supports shall be 2-inch by 14 gauge square galvanized posts with die cut knockouts (Telespar quik-punch signposts or approved equal) and a single breakaway anchor. Pyramid rain caps shall be used.

Anchors. Anchors shall be 2 ¼-inch square, 42 inches long, and embedded such that 2 inches of the anchor remains above ground level. The overlap of the post within the anchor sleeve shall be 8 inches minimum. For all signs installed in concrete or paver islands, a six-inch PVC pipe box out shall be provided for the post anchor. The PVC box out shall be installed prior to pouring concrete or placing pavers. After the sign post anchor is installed, granular material shall be installed between the post anchor and the PVC box out.

Vertical Clearance. Signs shall be erected with a 7-foot vertical clearance between the edge of the pavement or top of curb and the bottom of the primary sign, unless otherwise stated in the plans. For signs with more than one sign on a post, the vertical clearance for any secondary sign or placard may be between 5 feet and 7 feet. No signs shall be erected with less than a 5-foot vertical clearance.

Horizontal Clearance. Horizontal clearance for both curb and open ditch street sections shall be per OMUTCD standards.

Old Hilliard District. In the Old Hilliard District, the above sign supports and anchor specifications apply except all sign supports and hardware shall be black.

Conservation District. In the Conservation District, the sign support and anchor specifications are per Hilliard standard construction drawing TC-3. The vertical and horizontal clearance and installation requirements herein apply.

	TRAFFIC CONTROL NOTES AND DETAILS	CITY OF HILLIARD, OHIO
DATE: July 29, 2015	REGULATORY, WARNING & GUIDE SIGNS	STANDARD CONSTRUCTION DRAWING
SCALE: N.T.S.	SUPPORT & ANCHOR SPECS	2/2 TC-2

CONDITION I

DROP-OFFS BETWEEN ADJACENT TRAVELED LANE(S) / PAVED SHOULDER
(Freeways, Expressways, other Roadways ≥ 45 mph)

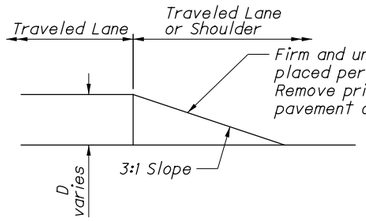
These treatments are to be used for resurfacing or pavement planing, etc. where a drop-off is located between or within traveled lanes and/or shoulder.

D	Treatment
≤ 1-½"	Erect W8-11 or W8-9 sign as appropriate.
> 1-½" - ≤ 3"	1) Optional Wedge Treatment; or, 2) Close a lane and/or shoulder per Condition II.
> 3"	Close a lane and/or shoulder per Condition II.

OPTIONAL WEDGE TREATMENT

(MILLING OR RESURFACING)

1. W8-9/W8-11 sign shall be used as appropriate.
2. This treatment shall not be used where a hot longitudinal joint per CMS 446 is required.



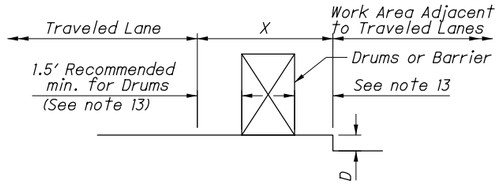
All labor, equipment, materials, and incidentals to provide and subsequently remove the pavement wedge shall be included and paid for under the lump sum bid for CMS 614 - Maintaining Traffic.

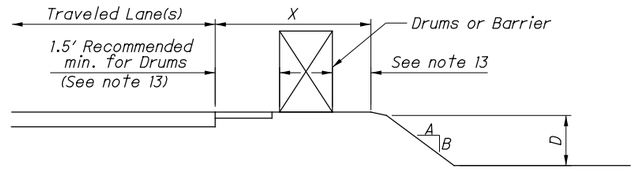
CONDITION II

DROP-OFFS BEYOND EDGE OF TRAVELED LANES / PAVED SHOULDER
(Freeways, Expressways, other Roadways ≥ 45 mph and minimal driveways)

1. The treatments indicated below are for use in conjunction with resurfacing, planing, or excavations located beyond the edge line of the traveled lanes.
2. The treatments indicated below are applicable for pavement/shoulder drop-offs and for locations where foreslopes "A/B" are steeper than 3:1.
3. Where the drop-off is located outside the clear zone, no treatment is necessary (see Table II and SCDs MT-95.30, 95.40, or 102.10).
4. Where foreslopes "A/B" are 3:1 or flatter, no treatment is necessary.

D	Method of Drop-off Protection to be used to separate the traffic from the drop-off						
	Drop-off location "X" from traveled lane <4'	Drop-off location "X" from traveled lane 4' - 12'		Drop-off location "X" from traveled lane > 12' - 20'		Drop-off location "X" from traveled lane > 20' -30'	
		Daytime Only	Night	Daytime Only	Night	Daytime Only	Night
≤ 3"	DRUMS or OPTIONAL WEDGE TREATMENT	NONE	NONE	NONE	NONE	NONE	NONE
> 3" - ≤ 5"	DRUMS or OPTIONAL WEDGE TREATMENT	DRUMS	DRUMS	NONE	NONE	NONE	NONE
> 5" - ≤ 12"	PB	DRUMS	DRUMS	NONE	NONE	NONE	NONE
> 12" - ≤ 24"	PB	DRUMS	PB	DRUMS	DRUMS	NONE	NONE
> 24"	PB	DRUMS	PB	DRUMS	PB	DRUMS	PB



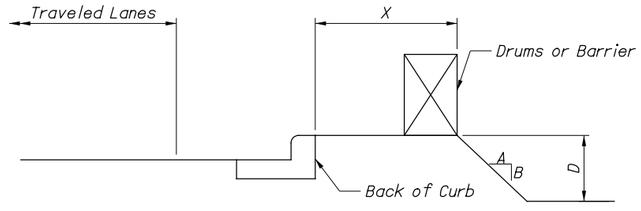


NOTES:

1. It is intended that this drawing be used for treatment of drop-offs that develop during construction operations and that are not otherwise provided for in the construction plans. Where the plans do not provide specific items for labor, equipment, or materials to implement the drop-off treatments specified herein, they shall be included for payment in the lump sum bid for CMS 614 - Maintaining Traffic.
2. Minimum lane widths shall be 10' unless otherwise specified in the plans.
3. While the need for certain advisory signing is noted herein, it is not intended that this be indicative of all signing that may be required to advise or warn motorists, and all requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) must be fulfilled.
4. In urban or otherwise heavily developed areas where intersections, driveways, pedestrians and/or bicyclists may be present in significant numbers, additional signing and protective measures other than those shown herein may be required.
5. The drop-off treatment selected for use at any given location shall be as appropriate for the prevailing conditions at the site.
6. Where portable barrier is specified, it shall be in accordance with SCD RM-4.1 or 4.2 and with CMS 622.
7. For locations such as at ramps, lane shifts, lane closures, etc., where traffic is required to negotiate a difference in elevation between pavements, the Optional Wedge Treatment shall be provided.
8. Pavement Repairs (or similar work):
   a) Lengths greater than 60' - utilize appropriate treatment from Condition I.
   b) Lengths of 60' or less - repairs shall be effected in accordance with CMS 255.08. Drums may be used as a separator adjacent to the traveled lane.
9. When drums are specified for a drop-off condition, a minimum number of 4 drums shall be used. Spacing shall be as indicated in the plans or as specified in the OMUTCD. Provisions shall be made to stabilize the drums (cones) to prevent them from blowing over.
10. When UNEVEN LANES (W8-11) signs or LOW SHOULDER (W8-9) signs are required, they shall be placed 750' in advance of the condition on all intersecting entrance ramps within the limits of the condition. When the drop-off condition extends more than 0.5 miles, additional signs should be erected at intervals of 1.0 mile or less.
11. Cones may be substituted for drums as follows:
    a) Cones used for daytime traffic control shall have a minimum height of 28".
    b) Cones used for nighttime traffic control shall have a minimum height of 42".
    c) Cones used at night shall be reflectorized.
    d) Use of cones at night shall be prohibited along tapers.
    e) Intermixing of drums and cones within the same run of barrier protection shall not be permitted.
12. Where drums are used and their presence would reduce traveled lane widths to less than 10', drums may be placed on the opposite level from that of traffic, provided the drop-off depth does not exceed 5" and approval is granted by the Project Engineer.
13. Portable barrier shall be placed on the same level as the traffic surface and shall not encroach on width(s) designated as the minimum required for traffic use. Offset from the travel way to the barrier toe shall be a minimum of 2'. Offset from the back side of the barrier toe to the work area shall be a minimum of 2' unless otherwise specified in the plans due to anchoring.

CONDITION III

DROP-OFFS BEHIND CURB WHERE CURB IS 6" OR GREATER IN HEIGHT AND THE LEGAL SPEED IS 40 MPH OR LESS



X	D	A/B	Treatment Required	
			Day	Night
0' - 10'	≤ 12"	Any	None	Drums
0' - 10'	> 12"	Any	Drums	Drums
>10'	Any	Any	None	None

THIS DRAWING REPLACES MT-101.90 DATED 07-17-2015.

REVISION DATE 07-21-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

STDS. ENGINEER Soisson

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

DROP-OFFS IN WORK ZONES

SCD NUMBER MT-101.90

TEMPORARY SIGN SUPPORT REQUIREMENTS

PLACEMENT OF SIGNS

1A. Lateral placement to nearest edge of signs shall be as follows:

a) On the right side of the road for approaching traffic (except for dual-mounted signs and signs designated in the plans for left-side mounting).
b) Curbed roadway - minimum 2′ behind face of curb.
c) Uncurbed roadway - 12′ from edge of traffic lane or 6′ from edge of paved or useable shoulder, whichever is greater.
d) Behind guardrail or portable barrier - See table

SIGN OFFSET

Barrier Type / Support Class	BEHIND FACE OF GUARDRAIL	BEHIND FACE OF PORTABLE BARRIER
Class A Supports	2′ Preferred 1′ Minimum	1′ Minimum*
Class B Supports	6.5′ Minimum	1′ Minimum*

*unless barrier top mounting is required by the plans

1B. Vertical clearance of signs, as measured from near side roadway edge, shall be as follows:

a) Rural - 5′ when parked cars, construction equipment, etc. will not obscure sign visibility.
b) Rural areas with parked cars or construction equipment - 7′
c) Urban - 7′
d) Care shall be taken to assure that signs will not be obscured by construction equipment, trees, weeds or other obstacles. Brush, weeds or grass within the right-of-way shall be trimmed as necessary.
e) For signing which will remain for three days or less, minimum vertical clearance shall be 1′ from the roadway to bottom of sign.

CLASSES OF SUPPORTS

2A. The Contractor shall choose sign supports of adequate strength and with adequate foundations and anchorage to support the sign sizes erected. Sign supports which fail under typical wind load conditions shall be immediately modified or replaced with a support of adequate strength.

2B. All temporary sign supports shall be of the following types:

CLASS A:

Class A supports shall include the following:

a) All No. 2 and No. 3 posts when installed singly or in pairs (side-by-side) according to the details of Standard Construction Drawings (SCDs) TC-41.10 and TC-41.20.
b) Wood posts as shown in Solid Wood Posts detail.
c) All breakaway connection beam supports, when installed according to the proper details shown on SCD TC-41.10 with a minimum clear distance between supports of 7′ for supports larger than 6 x 9.
d) Any breakaway post or post and connection which are certified as per CMS 614.03.
e) Portable supports.

Use of Class A supports shall be required at unprotected locations on ODOT's roadway system. They may also be used on other roadway systems.

CLASS B:

Class B supports shall include the following:

a) All beam type supports without breakaway connections.
b) Supports similar to but larger than permitted for Class A.

Class B supports shall be used only at the following locations:

a) Within the clear zone where protected by guardrail or concrete barrier or where positively protected from traffic such as on retaining walls.
b) Outside the clear zone.

2C. All Class A and B supports shall be NCHRP 350 compliant.

SUPPORTS AND SIGNS

3A. Supports for signs which will remain in place more than three days should be fixed rather than portable except in situations where the sign must rest on permanent pavement or other surface which would be damaged by insertion of post type supports.

3B. Portable signing, including portable supports, ballasting of the supports, and signs shall be NCHRP 350 compliant.

3C. Ballasting of portable supports shall be in accordance with NCHRP 350 testing of the subject support.

THIS DRAWING REPLACES MT-105.10 DATED 07-20-2012.

REVISION DATE 07-19-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR Michael Bline

STDS. ENGINEER Stargell

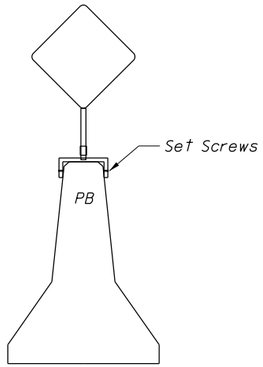
OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

TEMPORARY SIGN SUPPORT

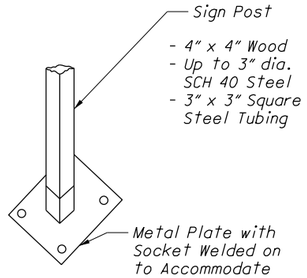
SCD NUMBER MT-105.10

CLASS A SUPPORTS FIXED



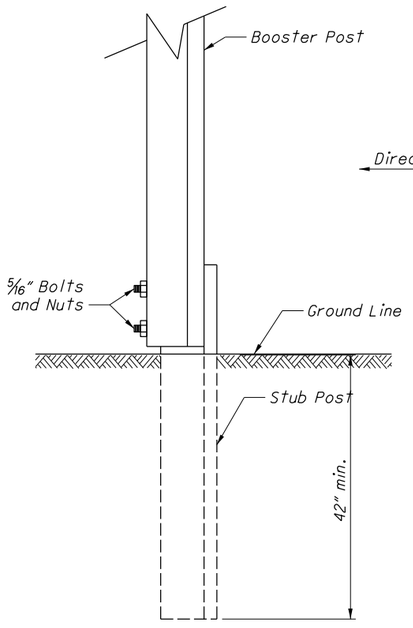
TYPE 1

Fasten to Top of PB with Expansion Bolts, etc.



TYPE 2

CLASS A SUPPORTS STUBBING STANDARD



NOTES:

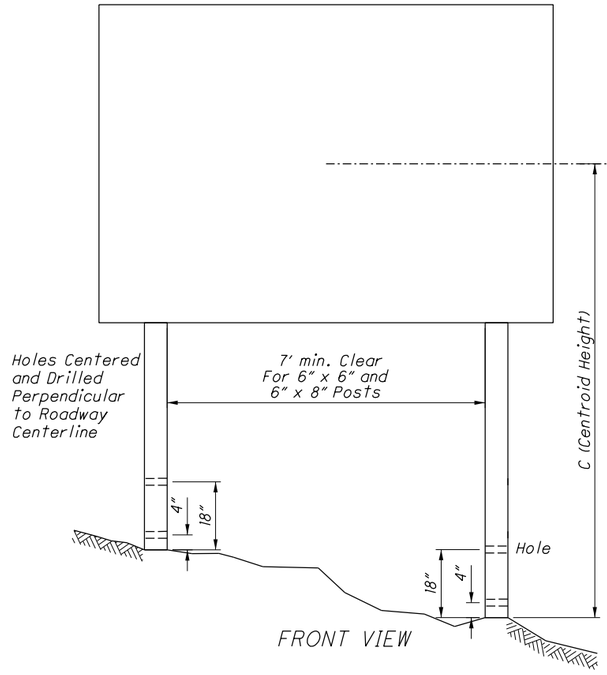
1. For use with No. 2 or No. 3 posts.
2. Booster post shall be the same or 1 lb/ft less than stub post.
3. When the booster post is smaller than the stub post, the booster post shall be mounted in front of the stub post.
4. When the booster post is the same size as the stub post, the booster post shall be mounted behind the stub post.
5. Bolts and nuts and other fasteners shall be steel or aluminum.
6. A minimum of two bolts and nuts or other fasteners shall be used per post assembly.
7. With steel bolts, the minimum center-to-center spacing between bolts shall be 4".
8. Stub height should be limited to 4" above the ground when using the aluminum bolts for the connection.

SOLID WOOD POSTS

TOP VIEW

When flat sheet signing is provided, bolt the flat sheet directly to the wood posts. Do not use U-Channels.

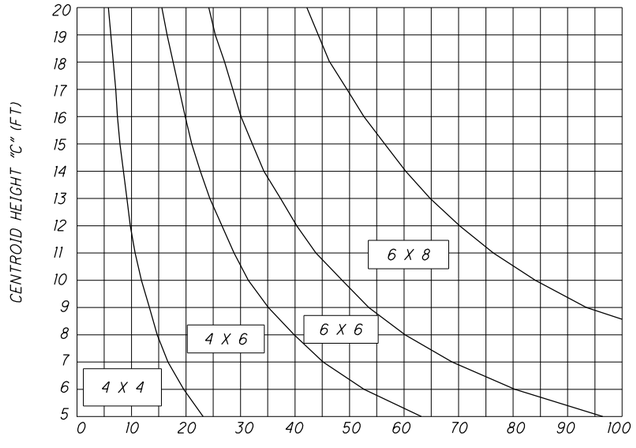
NORMAL POST SIZE (IN)	HOLE DIAMETER (IN)	NO. OF POSTS PERMITTED IN 7' PATH IN EXPOSED LOCATIONS	MINIMUM RECOMMENDED EMBEDMENT DEPTH (FT)
4 X 4	NONE	2	3.5
4 X 6	1 ½	2	4
6 X 6	2	1	4.5
6 X 8	3	1	5



FRONT VIEW

DESIGN CHART FOR WOOD POSTS TWO-POST INSTALLATIONS

(Nominal Post Size in Inches)



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REVISION DATE 07-19-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR Michael Bline

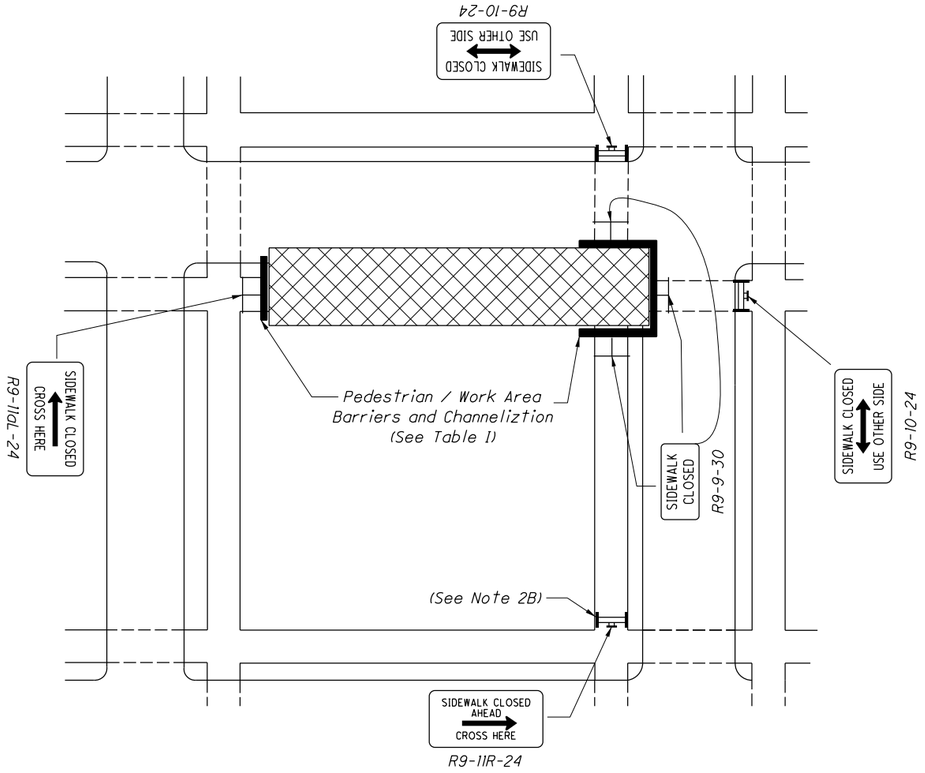
STDS. ENGINEER Stargell

OFFICE OF ROADWAY ENGINEERING

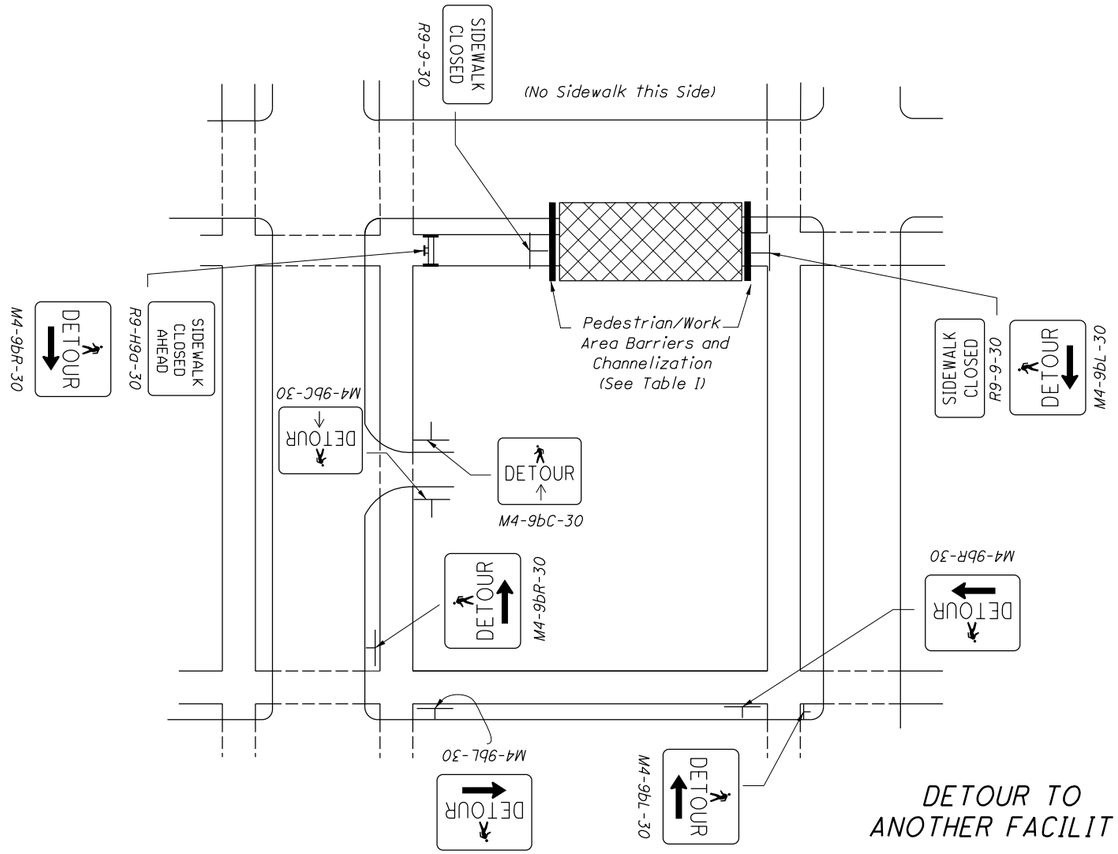
STANDARD ROADWAY CONSTRUCTION DRAWING

TEMPORARY SIGN SUPPORT

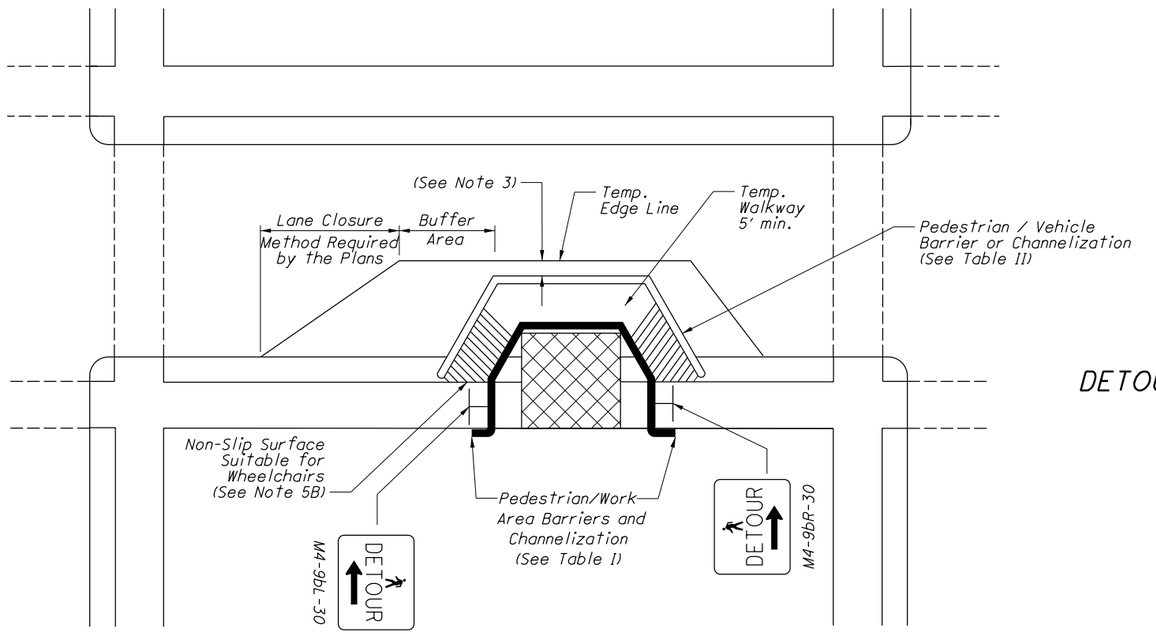
SCD NUMBER MT-105.10



DETOUR TO OTHER SIDE OF STREET



DETOUR TO
ANOTHER FACILITY



DETOUR TO TEMPORARY WALKWAY ("RUNAROUND")
ON ROADWAY

LEGEND

WORK AREA

TYPE I BARRICADE
WITH SIGN

THIS DRAWING REPLACES MT-110.10 DATED 07-20-2012.

REVISION DATE 07-19-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
Michael Bline

STDS. ENGINEER
Stargell

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

PEDESTRIAN DETOUR METHODS

SCD NUMBER
MT-110.10

NOTES:

GENERAL

1A. This drawing presents traffic controls only for pedestrian traffic. Vehicular traffic control shall be provided as required.

1B. The purpose of the traffic control devices provided herein is to divert and guide pedestrians whose path would otherwise enter the work area. The Contractor must take additional precautions as appropriate to protect other pedestrians or residents (including children) from exposure to hazards resulting from construction operations.

SIGNS AND BARRICADES

2A. All signs and barricades shall be placed so that they do not cause a hazard for pedestrians. All signs, not on barricades or channelizing devices, near or over active sidewalks shall have a minimum 7′ vertical clearance. Signs mounted on barricades or channelizing devices shall have a minimum 1′ clearance above the sidewalk.

2B. Advance signing for sidewalk closure shall be mounted on Type I Barricade, placed such that they will not block more than one-half the sidewalk.

PAVEMENT MARKING

3. Maintain 2′ minimum when possible, between the work zone edge line and the barrier or channelizing device separating the pedestrian path from the vehicle path.

STAGED WORK

4. For repair or reconstruction work involving sidewalks on both sides of the street, the work shall be staged so that one side is rebuilt before the other is disrupted.

TEMPORARY WALKWAYS

5A. Pedestrian walkways constructed by the Contractor shall be kept free of any obstructions or hazards including holes, debris and mud. Other walkways damaged or dirtied by the Contractor shall be immediately repaired or cleaned.

5B. For construction of temporary walkway the maximum grade shall be 5 percent unless specified otherwise in the plans. The maximum cross slope shall be 2 percent.

LIGHTING AND DELINEATION

6A. At night, in otherwise unlighted areas, pedestrian-channelizing devices and barricades and pedestrian detour signs shall be provided with lighting as follows:

a) Illumination shall provide a minimum of 1.2 foot-candles on temporary walkways.
b) Illumination shall be controlled by photocells.
c) Illumination fixtures may consist of floodlights or other protected fixtures mounted at least 10′ above ground.
d) Illumination supports may be standard highway lighting poles, 4″ x 4″ wood posts or other supports approved by the Engineer.

6B. For barricades and channelizing devices located between the pedestrian way and the vehicle travel lane in unlighted areas, the devices shall be delineated or lighted at night as follows:

a) Delineation of the portable barrier (PB) located between the vehicle lane and the pedestrian path shall be by barrier reflectors on the vehicle side of the PB and by object markers as per Standard Construction Drawing (SCD) MT-101.70.
b) Channelizing devices other than PB shall be provided with Type C steady burning lights on the vehicle side of the channelizer.

CHANNELIZATION REQUIREMENTS

7A. All channelization devices used to separate pedestrians from the work area or from the vehicular lane shall be as determined from the adjacent tables.

7B. Wood railing shall be a min. of a 2″ x 4″ rail at 32″ above ground. It shall be secured to 2″ x 4″ posts at not more than 6′ spacing with secure attachment hardware. It shall be installed and braced to be essentially rigid and able to support the following loads:

a) A horizontal transverse load of 100 pounds at each post top.
b) A vertical load of 250 pounds at midpoint between each post.

7C. Wood snow fence shall be nominally 42″ high, securely supported by wood or steel posts at 6′ maximum spacing. Plastic/nylon construction fence shall be bright orange. It shall be securely fastened to wood or metal posts at not more than 6′ spacing. It shall be nominally 42″ high and the top edge shall not sag below 30″ (12″ max. sag). Either of the fence sections with extensive broken slots or holes greater than 12″ x 12″ shall be repaired or replaced.

7D. Chain link fence, Type CLT shall conform to CMS 607 and appropriate details on Roadway Standard Construction Drawings F-1.1, F-3.1 and F-3.2, except that materials need not be new nor shall certification and tests be required.

7E. Plywood walls shall be a minimum of ⅝″ exterior plywood, supported by a 2″ x 4″ or heavier framing securely anchored and buttressed to resist wind load and/or persons. They shall be designed for a minimum wind loading of 30 pounds per square foot (or larger if local codes require). Height of the wall shall be not less than 7′ above the walkway and if within range of thrown objects, shall be of sufficient height to screen pedestrians and passing cars.

7F. When PB is provided, it shall be 32″ PB as per CMS 622. Delineation of PB shall be as per SCD MT-101.70.

7G. Barrier located along a "runaround" within the roadway pavement shall meet the following requirements:

a) Be a minimum of 36″ in height and continuous with the ground surface.
b) Extend along the entire length of the runaround.
c) Have no breaks or gaps along the full length of the barrier.
d) Have a solid, continuous bottom rail between 4″ and 12″ in height.
e) Be of high contrast color and material.
f) Provide temporary ramps and boardwalks as required to ensure a smooth and continuous surface that complies with Americans with Disabilities Act Accessibility Guidelines.

BARRIER AND CHANNELIZING DEVICE SELECTION TABLES

TABLE I - CHANNELIZATION TYPE WHEN USED BETWEEN THE PEDESTRIAN WALKWAY AND THE WORK AREA

DISTANCE FROM WORK ACTIVITY TO CHANNELIZATION	WORK CHARACTERISTICS *					
	< 2 FT DROPOFF	2 - 5 FT DROPOFF	> 5 FT DROPOFF	DIRT/MUD SPLASHED	EQUIPMENT WHICH MOVES OR HAS EXPOSED MOVING PARTS	OPERATION WHICH THROWS STONE/ETC.
< 5 ft.	A-E	B-E	C-D	D	D-E	D
5 - 10 ft.	A-E	B-E	B-E	D	B-E	D
> 10 - 30 ft.	A-E	A-E	B-E	N/A	A-E	D
> 30 ft.	N/A	A-E	B-E	N/A	A-E	D

* These requirements shall not apply to paving, grinding or other similar operations.

TABLE II - CHANNELIZATION TYPE WHEN USED BETWEEN THE PEDESTRIAN WALKWAY AND THE VEHICULAR LANE

DISTANCE FROM EDGE OF TRAFFIC LANE TO FACE OF CHANNELIZATION	SPEED LIMIT (MPH)		
	25	30 - 40	> 40
0 - 2 ft.	E	E	E
> 2-6 ft.	B-E	E	E
> 6 ft.	B-E	B-E	E

SELECTION LIST

A. Wood Railing
B. Snow Fence, Wood or Orange Plastic Construction Fence.
C. Chain Link Fence, Type CLT
D. Plywood Wall
E. Portable Barrier

THIS DRAWING REPLACES MT-110.10 DATED 07-20-2012.

REVISION DATE 07-19-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR Michael Bline

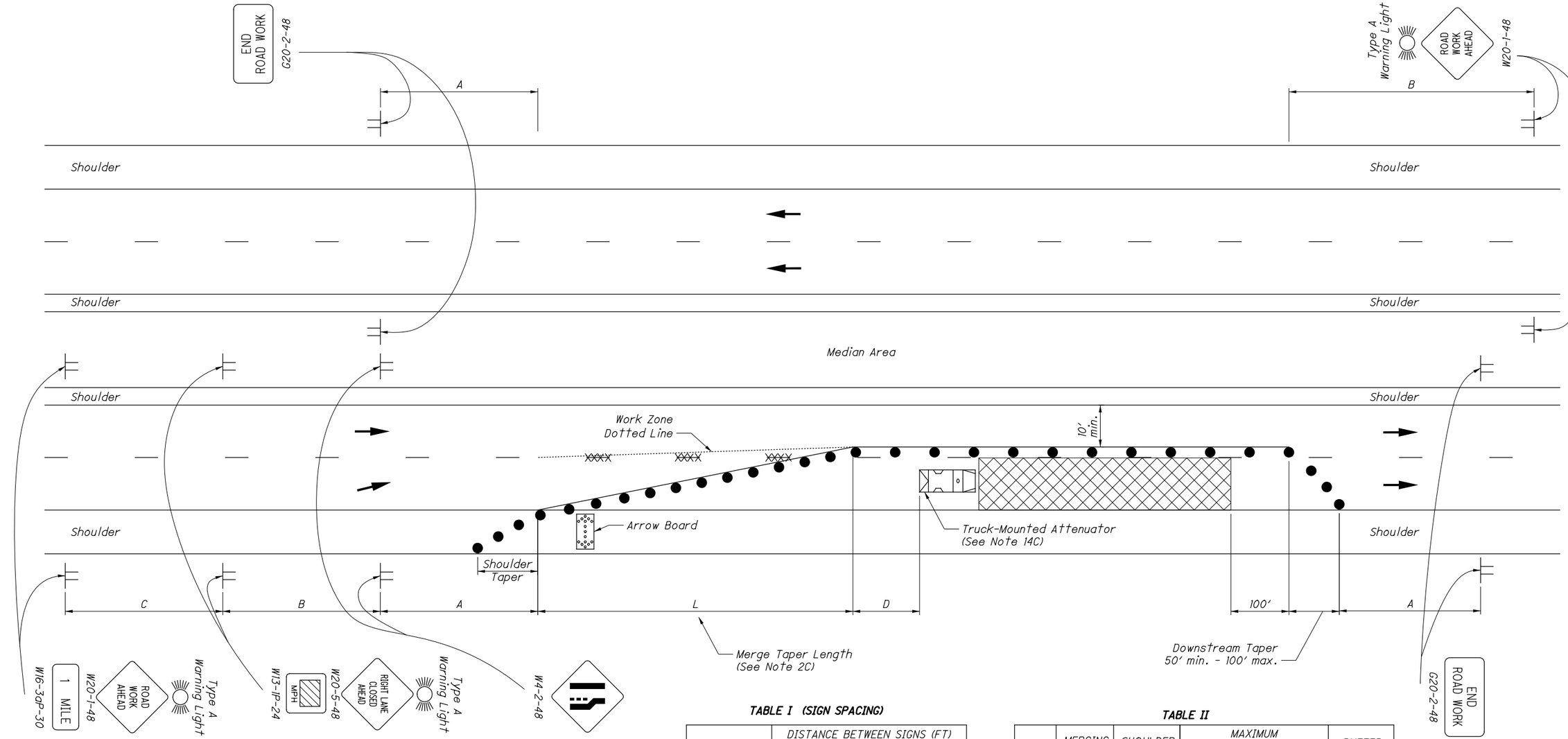
STDS. ENGINEER Stargell

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

PEDESTRIAN DETOUR METHODS

SCD NUMBER MT-110.10



LEGEND

- WORK AREA
- DRUMS/CONES
- REMOVE EXISTING MARKINGS
- DIRECTION OF TRAVEL
- SHADOW VEHICLE

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT)
			TAPER SEC.	TANGENT SEC.	
25	11:1	4:1	25	40	155
30	15:1	5:1	30	40	200
35	21:1	7:1	35	40	250
40	27:1	9:1	40	80	305
45	45:1	15:1	45	80	360
50	50:1	17:1	50	80	425
55	55:1	19:1	55	80	495
60	60:1	20:1	60	120	570
65	65:1	22:1	65	120	645
70	70:1	24:1	70	120	730

THIS DRAWING REPLACES MT-95.30 DATED 07-15-2016.

REVISION DATE 07-21-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
David L. Holstein

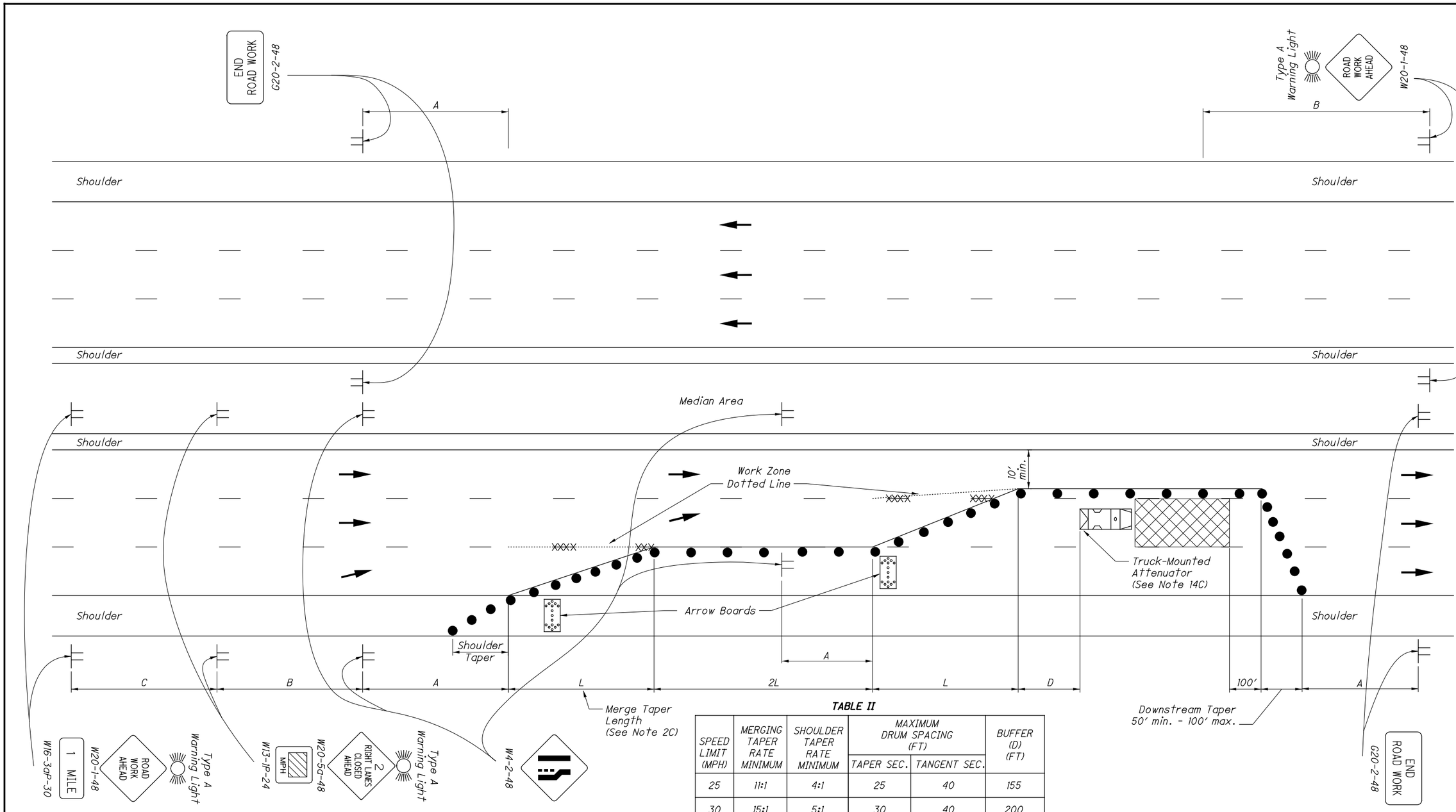
STDS. ENGINEER
Soisson

OFFICE OF ROADWAY ENGINEERING

CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

STANDARD ROADWAY CONSTRUCTION DRAWING

SCD NUMBER
MT-95.30



LEGEND

- WORK AREA
- DRUMS/CONES
- REMOVE EXISTING MARKINGS
- DIRECTION OF TRAVEL
- SHADOW VEHICLE

TABLE I (SIGN SPACING)

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SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT)
			TAPER SEC.	TANGENT SEC.	
25	11:1	4:1	25	40	155
30	15:1	5:1	30	40	200
35	21:1	7:1	35	40	250
40	27:1	9:1	40	80	305
45	45:1	15:1	45	80	360
50	50:1	17:1	50	80	425
55	55:1	19:1	55	80	495
60	60:1	20:1	60	120	570
65	65:1	22:1	65	120	645
70	70:1	24:1	70	120	730

THIS DRAWING REPLACES MT-95.30 DATED 07-15-2016.

REVISION DATE 07-21-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR
David L. Holstein

STDS. ENGINEER
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OFFICE OF ROADWAY ENGINEERING

CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

STANDARD ROADWAY CONSTRUCTION DRAWING

SCD NUMBER
MT-95.30

NOTES:

DESIGN SPEED

1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

TAPERS

2A. The minimum acceptable length for the merge taper shall be determined by multiplying the width of offset by the merge taper rate. The merge taper rate is provided in Table II.

2B. The minimum acceptable length for the shoulder taper shall be determined by multiplying the width of the shoulder by the shoulder taper rate. The shoulder taper rate is provided in Table II.

2C. The tangent section between the two merge tapers should be two times the longer of the two merge tapers.

SIGN SPACING

3A. The work zone sign spacings shown in Table I are minimums. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200′ for speeds of 45 mph or less and a minimum of 400′ for speeds 50 mph or greater.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the merging taper and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 signs which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.

6B. When the approach speed limit is 40 mph or less, 36″ warning signs may be used.

6C. The distance plaque W16-3aP (or W16-2aP if the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than 1 mile may be expressed in feet. The plaque may be omitted if Extra Advance Sign Groups are not used.

6D. Provide signing on the inactive side of the highway, as shown, when specified in the plans.

6E. Provide the appropriate word or symbol legend necessary on Lane Reduction (W4-2, W20-5, W20-5a) signs to correctly identify which lane is to be closed.

EXTRA ADVANCE WARNING SIGNING

7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5), LANES CLOSED AHEAD (W20-5a), and WATCH FOR STOPPED TRAFFIC (W3-H4b) signs plus Distance plaques may be specified in the plans or may be required to be erected, as determined by the Engineer (See Standard Construction Drawing (SCD) MT-95.50).

PAVEMENT MARKINGS / RPMs

8A. If the construction operation requires a lane closure for more than 1 day, the existing conflicting reflectors shall be removed from the raised pavement markers (RPMs).

8B. Additionally, if a lane closure of greater than 3 days is required, the following shall be performed:

a) The appropriate color work zone edge lines shall be applied along the taper and tangent sections.
b) The existing conflicting pavement markings shall be removed or covered per CMS 614.11G.
c) Work zone dotted lines, 3′ in length separated by 9′ gaps, shall be provided to identify the merge.

8C. Work zone pavement markings which would conflict with final traffic lanes shall be removable tape (CMS 740.06, Type I) unless the area will be resurfaced prior to project completion.

8D. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed in accordance with CMS 614.11I. The original markings and raised pavement marker reflectors shall be restored at no additional cost unless separately itemized in the plans.

(RESERVED FOR FUTURE USE)

9A. (intentionally blank)

ARROW BOARD

10. The arrow board shall be chosen from the ODOT approved list and follow the guidelines in Supplemental Specification 821.

FLASHING WARNING LIGHTS

11. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs, on the LANE CLOSED AHEAD (W20-5), and on the LANES CLOSED AHEAD (W20-5a) signs are required whenever a night lane closure is necessary.

INTERSECTION / DRIVEWAY ACCESS

12. Within the length of the closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:

a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25′ beyond the projected pavement edges of the driveway or cross highway, as shown in SCD MT-97.11. For barricades, see SCD MT-101.60.

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

DRUMS / CONES

13A. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 5 drums shall be used to close the upstream shoulder. The downstream taper drum spacing shall be approximately 20′.

13B. Cones may be substituted for drums as follows:

a) Use of cones is permissible for either daytime operation or for nighttime operation, but shall not be used continuously, day and night. Upon completion of work within the work period, the cones shall be removed. They may again be placed on the highway in order to resume work in the following such work period.
b) Cones used for daytime traffic control shall have a minimum height of 28″.
c) Cones used for nighttime traffic control shall have a minimum height of 42″.
d) Use of cones at night shall be prohibited along tapers.
e) Cone spacing at night shall be at a maximum of 40′.
f) Where cones are substituted for drums along tangents, intermixing of channelizing devices within the same run will not be permitted. Either cones shall be used for the entire length of the tangent section, or drums shall be used for the entire length.

13C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

13D. All drums and cones should have a minimum offset from the edge of the traveled lanes of 1.5 feet.

SHADOW VEHICLE

14A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.

14B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).

14C. The shadow vehicle shall be equipped with a truck-mounted attenuator when specified in the plans.

BUFFER SPACE

15A. Where space constraints do not allow for the buffer space, a shorter length may be used.

THIS DRAWING REPLACES MT-95.30 DATED 07-15-2016.

REVISION DATE 07-21-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

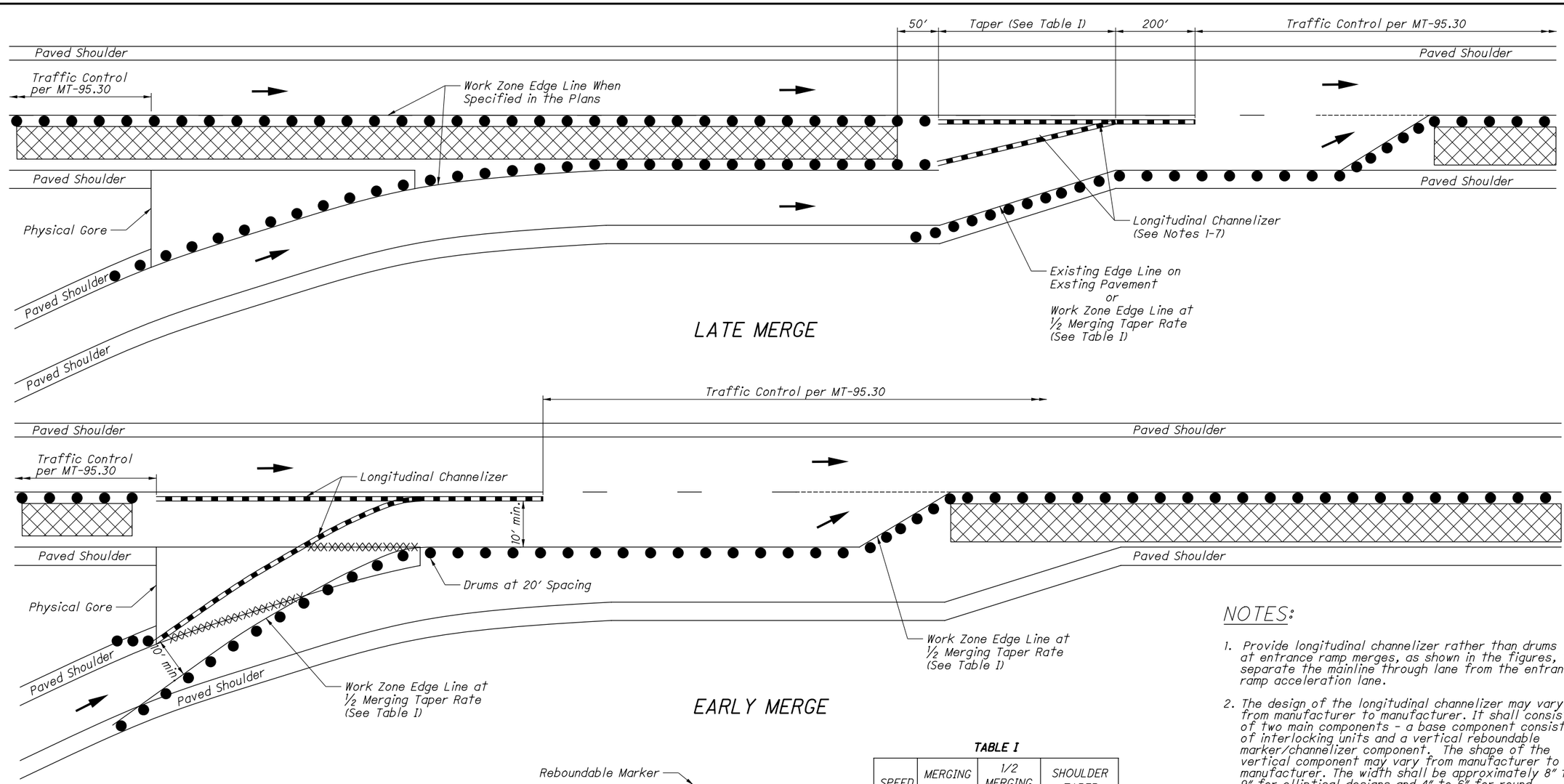
STDS. ENGINEER Soisson

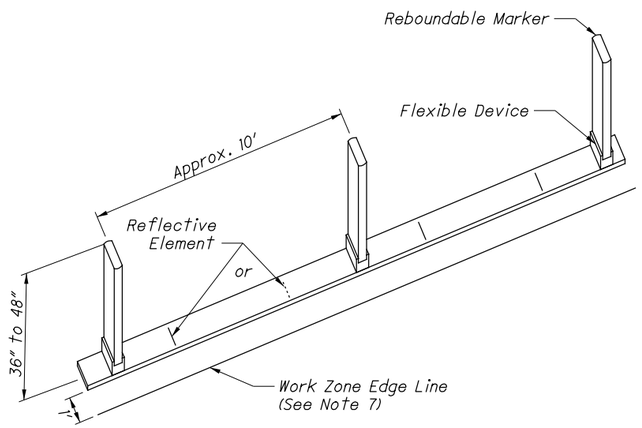
OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

SCD NUMBER MT-95.30





LONGITUDINAL CHANNELIZER

LEGEND

- WORK AREA
- DRUMS
- LONGITUDINAL CHANNELIZER
- REMOVE EXISTING MARKINGS
- DIRECTION OF TRAVEL

TABLE I

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	1/2 MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM
25	11:1	6:1	4:1
30	15:1	8:1	5:1
35	21:1	11:1	7:1
40	27:1	14:1	9:1
45	45:1	23:1	15:1
50	50:1	25:1	17:1
55	55:1	28:1	19:1
60	60:1	30:1	20:1
65	65:1	33:1	22:1
70	70:1	35:1	24:1

NOTES:

1. Provide longitudinal channelizer rather than drums at entrance ramp merges, as shown in the figures, to separate the mainline through lane from the entrance ramp acceleration lane.
2. The design of the longitudinal channelizer may vary from manufacturer to manufacturer. It shall consist of two main components - a base component consisting of interlocking units and a vertical reboundable marker/channelizer component. The shape of the vertical component may vary from manufacturer to manufacturer. The width shall be approximately 8″ to 9″ for elliptical designs and 4″ to 6″ for round (tubular) designs. The height of the vertical component shall be within the range of 36″ minimum to 48″ maximum.
3. The longitudinal channelizer shall be NCHRP 350 compliant.
4. The vertical component shall be equipped with retroreflective sheeting or with retroreflective stripes. Where stripes are used, the stripes shall consist of two 3″ wide bands placed a maximum of 2″ from the top with a maximum of 6″ between the bands.
5. The base component shall be equipped with reflectors.
6. The color of the base component, including the attached reflectors, and of the retroreflective sheeting or bands for the vertical components shall be in conformance with the pavement marking colors established in the Ohio Manual of Uniform Traffic Control Devices.
7. Where edge line is provided adjacent to the longitudinal channelizer, the edge line should be located 1′ from the longintudinal channelizer. The edge line should be provided if the resulting lane width would be 11′ or greater.
8. For additional information regarding traffic control at entrance ramps, see Standard Construction Drawings MT-98.10 and MT-98.11.

OFFICE OF ROADWAY ENGINEERING

DESIGNED XXX REVIEWED XXX

REVISION DATE 07-19-2013 CHECKED CHECKED

PLAN INSERT SHEET

LONGITUDINAL CHANNELIZER DETAIL

THIS DRAWING REPLACES PIS 2010180 DATE 4-17-2009.

PIS 2010180

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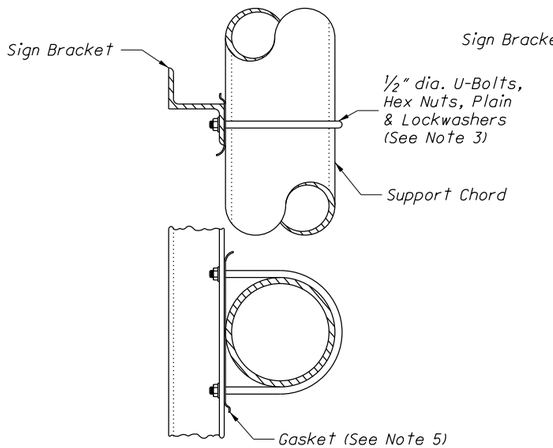
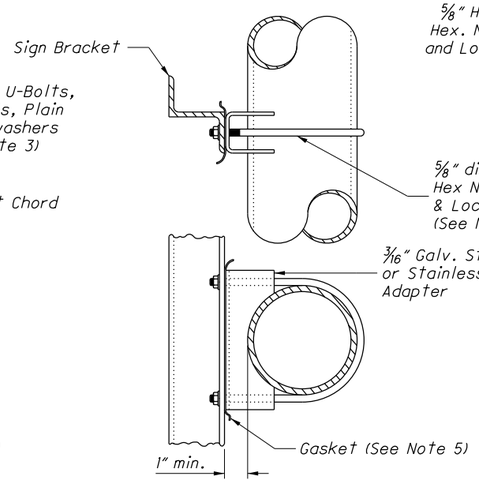
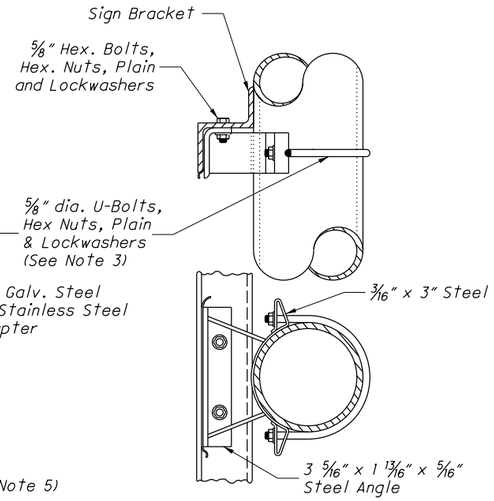


DOUBLE CHORDS



SINGLE ARM



ALTERNATE CLAMP

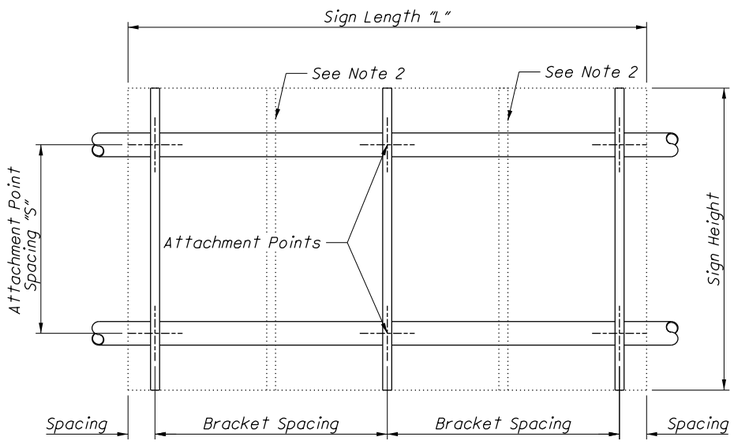
NOTES:

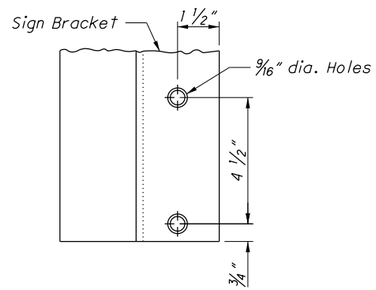
1. Sign brackets shall be a 4" x 3" x ¼" aluminum zee at 2.85 lb/ft.
2. Provide intermediate sign brackets if the sign extends more than 4' above or below an attachment point.
3. U-bolts, other bolts, nuts and washers shall be stainless steel for use with aluminum chords. When used with galvanized sign structures the U-bolts only may be galvanized steel.

   The inside diameter of U-bolts used to attach the sign attachment assembly aluminum zee brackets to the overhead sign support horizontal member shall have a tolerance of +0.5, -0.0" relative to the outside diameter of the overhead sign support horizontal member at the attachment point.
4. The outer flange of the sign attachment assembly aluminum zee brackets may be oriented in either direction. However, at least one zee bracket per each individual sign shall be oriented with the outer flange in the opposite direction of the others.
5. Prevent contact between aluminum and galvanized parts with a minimum 1/16" thick chloroprene gasket or approved equal.
6. Type A shall be for supports where the sign height is less than 1' greater than the attachment point spacing.
7. Type B shall be for back-to-back mounted signs.
8. Detail "C" - fixture support arm mounting for lighted signs complying with Plan Insert Sheet 203121.
9. Attach gusset plates by bolting or welding.

ATTACHMENT POINT SPACING

SUPPORT TYPE	DESIGN	S
7.2	1	2'-4"
	2	3'
	3	4'
7.3	1 & 2	3'
	3 & 4	4'
7.4 7.5 7.6	1	3'
	2 & 3	4'
	4	5'
7.65	6 & 6 Alt.	3'
	8 & 8 Alt.	5'
9.12	Single Arm	
9.24	1 Thru 4	4'
10.48	1 Thru 5	4'
	6 Thru 8	6'
11.08	Single Arm	
12.24	1 Thru 4	4'
	5 Thru 8	6'
12.30	1 - 4 Alt.	4'
	5 - 12 Alt.	6'
15.8	All	3'
15.115	All	5'
16.10	Single Arm	





DETAIL "C"
(See Note 8)

THIS DRAWING REPLACES TC-22.20 DATED 10-18-2013.

REVISION DATE 01-17-2014

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR Reynaldo Stargell

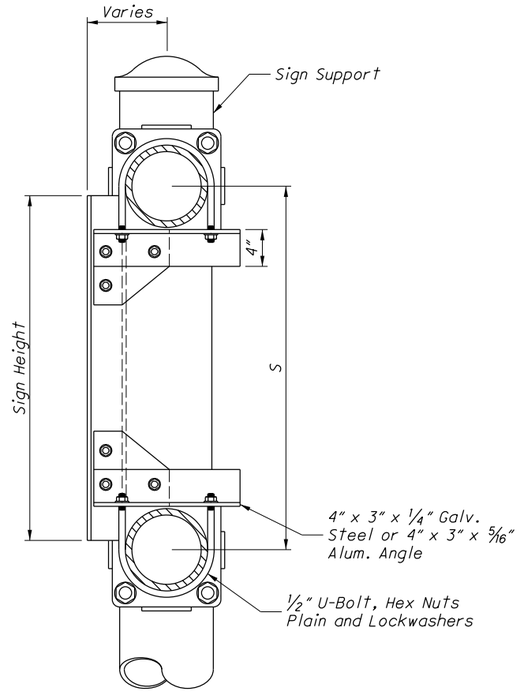
STDS. ENGINEER H. Suter

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

SIGN ATTACHMENT ASSEMBLIES

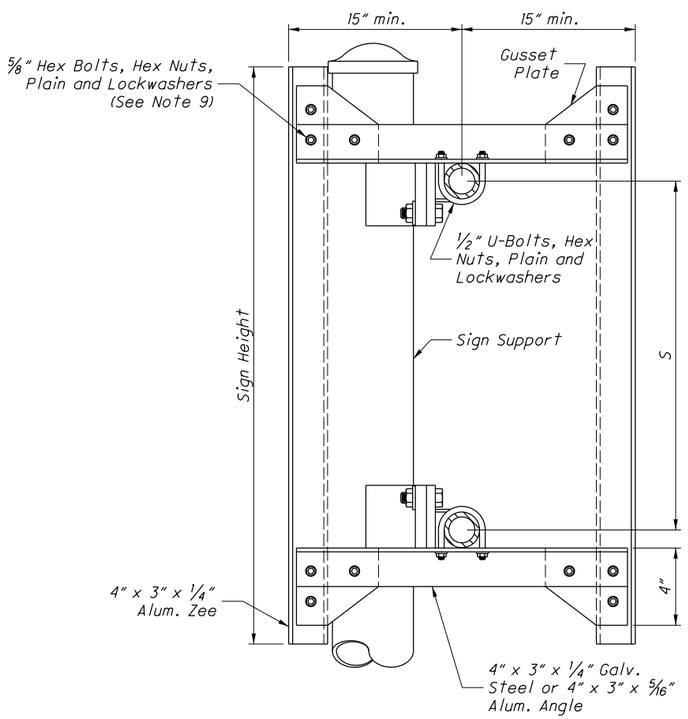
SCD NUMBER TC-22.20



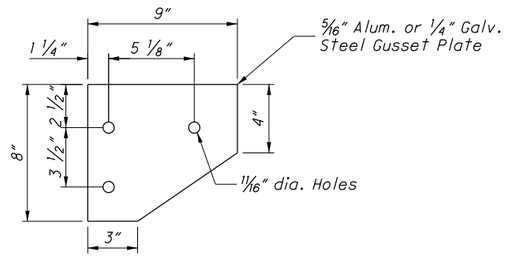
TYPE A
(See Note 6)

SIGN BRACKET

L (FEET)	NUMBER OF BRACKETS	BRACKET SPACING (INCHES)								
4	2	6	36	6						
5		6	48	6						
6		6	60	6						
7		6	72	6						
8		12	72	12						
9		12	84	12						
10		12	96	12						
11		18	96	18						
12	3	6	66	66	6					
13		6	72	72	6					
14		12	72	72	12					
15		18	72	72	18					
16		12	84	84	12					
17		18	84	84	18					
18		12	96	96	12					
19		18	96	96	18					
20	4	12	72	72	72	12				
21		18	72	72	72	18				
22		6	84	84	84	6				
23		12	84	84	84	12				
24		18	84	84	84	18				
25		6	96	96	96	6				
26		12	96	96	96	12				
27		18	96	96	96	18				
28	5	12	78	78	78	78	12			
29		6	84	84	84	84	6			
30		12	84	84	84	84	12			
31		18	84	84	84	84	18			
32		12	90	90	90	90	12			
33		18	90	90	90	90	18			
34		12	96	96	96	96	12			
35		18	96	96	96	96	18			
36	6	6	84	84	84	84	84	6		
37		12	84	84	84	84	84	12		
38		18	84	84	84	84	84	18		
39		9	90	90	90	90	90	9		
40		15	90	90	90	90	90	15		
41		6	96	96	96	96	96	6		
42		12	96	96	96	96	96	12		
43		18	96	96	96	96	96	18		
44	7	12	84	84	84	84	84	84	12	
45		18	84	84	84	84	84	84	18	
46		6	90	90	90	90	90	90	6	
47		12	90	90	90	90	90	90	12	
48		18	90	90	90	90	90	90	18	
49		6	96	96	96	96	96	96	6	
50		12	96	96	96	96	96	96	12	
51		18	96	96	96	96	96	96	18	
52	8	18	84	84	84	84	84	84	84	18
53		24	84	84	84	84	84	84	84	24
54		9	90	90	90	90	90	90	90	9
55		15	90	90	90	90	90	90	90	15
56		21	90	90	90	90	90	90	90	21
57		6	96	96	96	96	96	96	96	6
58		12	96	96	96	96	96	96	96	12
59		18	96	96	96	96	96	96	96	18



TYPE B
(See Note 7)



GUSSET PLATE

THIS DRAWING REPLACES TC-22.20 DATED 10-18-2013.

REVISION DATE 01-17-2014

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR Reynaldo Stargell

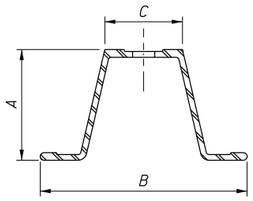
STDS. ENGINEER H. Suter

OFFICE OF ROADWAY ENGINEERING

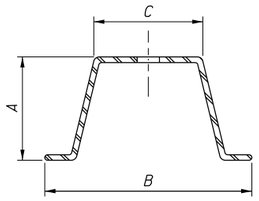
STANDARD ROADWAY CONSTRUCTION DRAWING

SIGN ATTACHMENT ASSEMBLIES

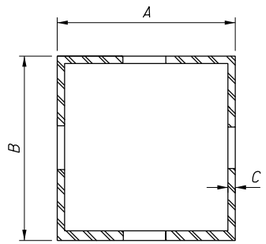
SCD NUMBER TC-22.20



TYPE P

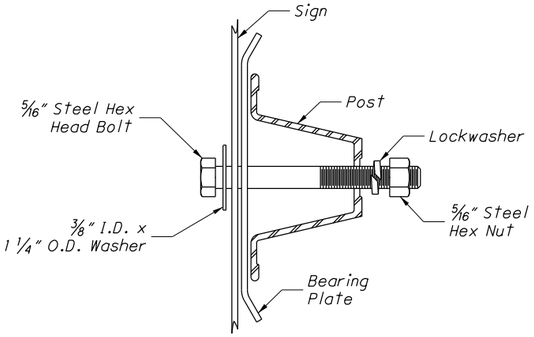


TYPE F



TYPE S

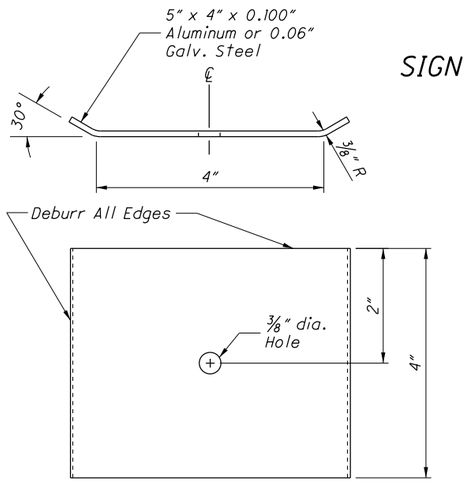
POST NO.	TYPE	LB/FT	POST DIMENSIONS (INCHES)			ANCHOR DIMENSIONS			# OF POSTS PERMITTED IN 7' PATH IN EXPOSED LOCATIONS
			A	B	C	A	B	C	
1	F	1.12	0.875	2.063	0.813				
2	P	2.00	1.469	3.063	1.281				2
	F	2.00	1.516	3.125	1.250				2
	S		1.750	1.750	0.083	2.000	2.000	0.105	2
3	P	3.00	1.875	3.500	1.313				2
	F	3.00	1.750	3.500	1.625				2
	S		2.00	2.00	0.083	2.250	2.250	0.105	2
4	P	4.00	TWO NO.2 POST						0
	F	4.00	TWO NO.2 POST						0
	S		2.500	2.500	0.105	3.000	3.000	0.188	1
6	P	6.00	TWO NO.3 POST						0
	F	6.00	TWO NO.3 POST						0



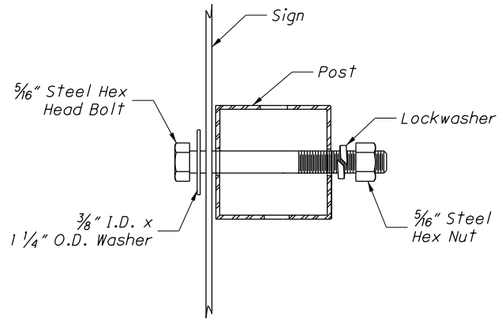
U-CHANNEL
SIGN ATTACHMENT DETAIL

NOTES:

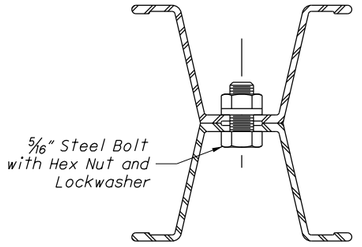
1. Install No. 4 type P and F posts, and No. 6 type P and F posts, only in protected locations (e.g., behind guardrail). Install two post installations of number 4 type S posts within 7 foot path only in protected locations.
2. Use of anchor base with No. 2 and No. 3 square post is optional. Use of anchor base with No. 4 square post is required.
3. Square post may have die-cut knockouts or open holes.



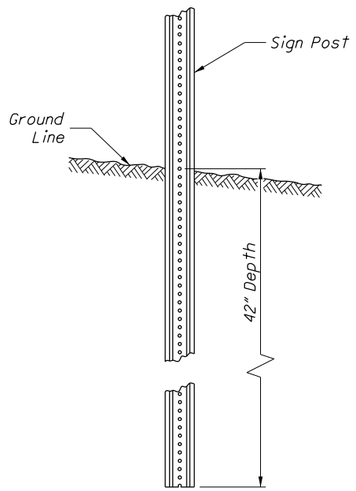
BEARING PLATE



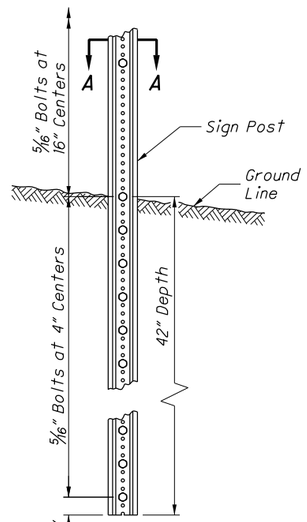
SQUARE POST
SIGN ATTACHMENT DETAIL



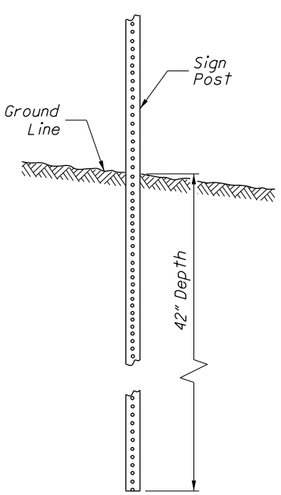
SECTION A-A



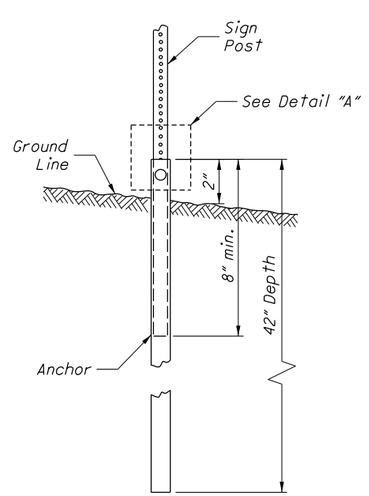
TYPICAL NO. 1, NO. 2
AND NO. 3 U-CHANNEL
DRIVEN INSTALLATION



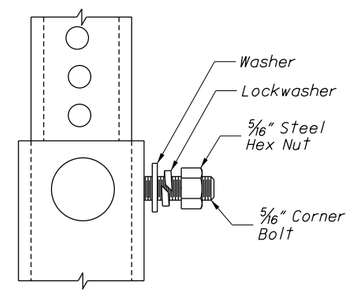
TYPICAL NO. 4 AND
NO. 6 U-CHANNEL
DRIVEN INSTALLATION



TYPICAL SQUARE POST
DRIVEN INSTALLATION



TYPICAL SQUARE POST ANCHOR
BASE INSTALLATION



DETAIL "A"

THIS DRAWING REPLACES TC-41.20 DATED 01-19-2001.

REVISION DATE 10-18-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR James Young

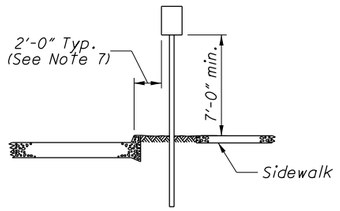
STDS. ENGINEER H. Suter

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

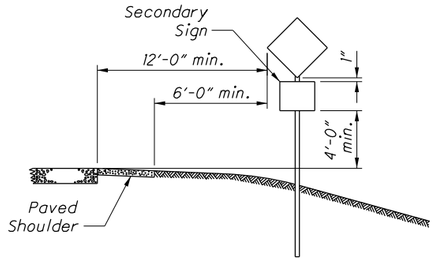
YIELDING POST

SCD NUMBER TC-41.20



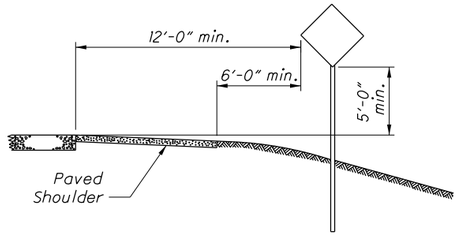
URBAN-RESIDENTIAL AND BUSINESS

AND ALL AREAS WITH SIDEWALKS

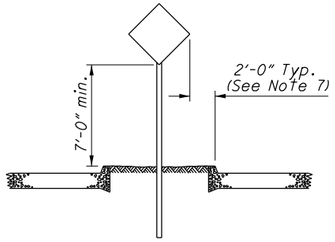


RURAL

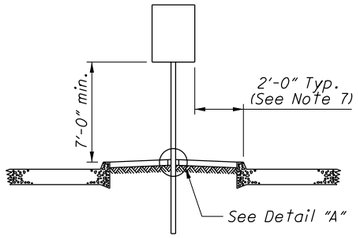
WITH SECONDARY SIGN



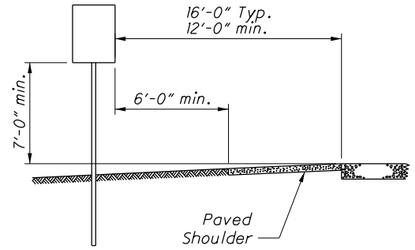
RURAL



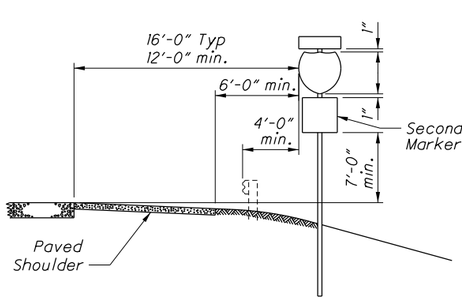
MEDIAN



PAVED MEDIAN

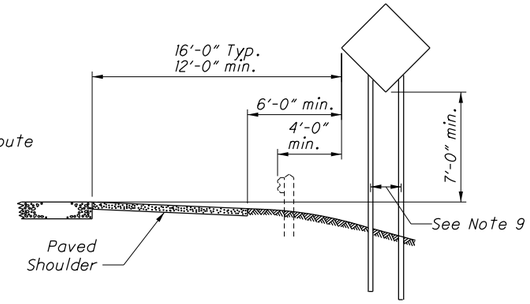


MEDIAN - EXPRESSWAY OR FREEWAY

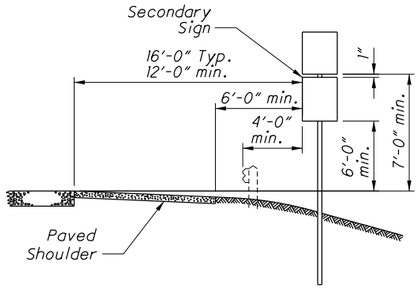


EXPRESSWAY OR FREEWAY

WITH SECONDARY SIGN

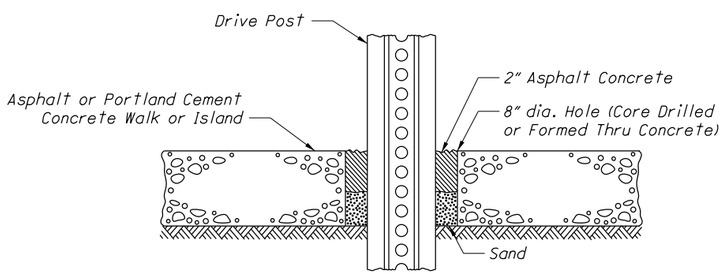


EXPRESSWAY OR FREEWAY

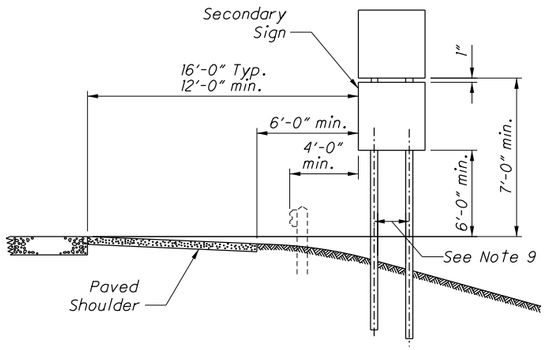


EXPRESSWAY OR FREEWAY

WITH SECONDARY SIGN



DETAIL "A"

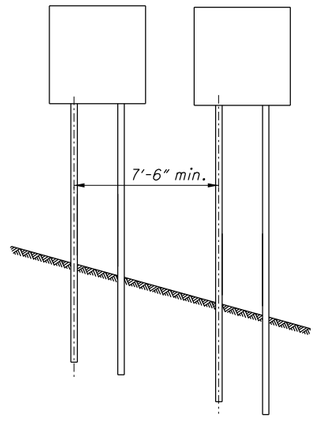


EXPRESSWAY OR FREEWAY

WITH SECONDARY SIGN

NOTES:

1. See Standard Construction Drawing (SCD) TC-41.20 for details on yielding supports.
2. All signs shall be placed 90° to the roadway, except as described in notes 3 and 4 below.
3. Install chevron alignment and one-direction large arrow signs on the outside of a turn or curve in line with and at approximately 90° to approaching traffic flow.
4. Install parking signs with arrows at an angle of not less than 30° nor more than 45° with the line of traffic flow.
5. Install chevron alignment signs at a minimum mounting height of 4' above the near edge of the traveled way.
6. Install object markers at a minimum mounting height of 4' above the near edge of the traveled way for obstructions 8' or less from the edge of shoulder or curb. Install object markers at a minimum mounting height of 4' above the ground for obstructions more than 8' from the edge of the shoulder or curb.
7. Install signs with a minimum lateral offset of 1' from the face of curb where sidewalk width is limited or where existing poles are close to the curb.
8. On conventional roads where it is impractical to locate a sign with the lateral offsets shown, install signs with a minimum lateral offset of 2'.
9. See SCDs TC-52.10 and TC-52.20 for dimensions between supports.



ADJACENT SIGN INSTALLATION

FOR NO. 2 AND NO. 3 YIELDING POST SUPPORTS IN EXPOSED LOCATIONS

THIS DRAWING REPLACES TC-42.20 DATED 01-21-2011.

REVISION DATE 10-18-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR James Young

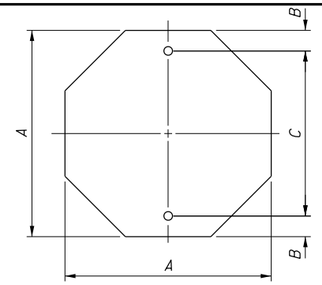
STDS. ENGINEER H. Suter

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

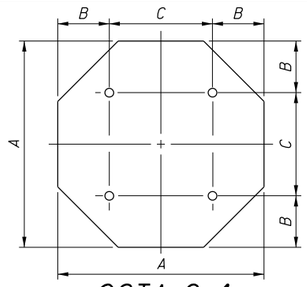
TYPICAL FLAT SHEET SIGN PLACEMENT

SCD NUMBER TC-42.20



OCTA-1-2

A	B	C	THICKNESS	AREA (FT^2)
18	3	12	0.080	2.25
24	3	18	0.080	4.00
30	3	24	0.080	6.25
36	3	30	0.080	9.00



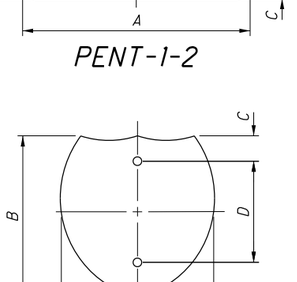
OCTA-2-4

A	B	C	THICKNESS	AREA (FT^2)
48	9	30	0.100	16.00

Shape — OCTA-2-4 — No. Bolts Required; No. Supports Required

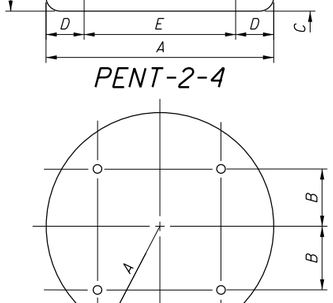
NOTES:

1. All bolt holes shall be ⅜" in diameter, and may be drilled or punched to finished size.
2. Dimensions between bolt holes shall be to tolerance of ± 1/32".
3. All route shields shall be 0.080" thick and attached to extrusheet signs with aluminum blind rivets.
4. For back-to-back mounting of STOP (R1-1) and DO NOT ENTER (R5-1) sign, follow details shown on Standard Construction Drawing TC-41.50.



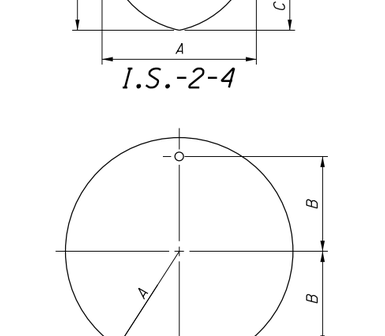
DIA-1-2

A	B	C	THICKNESS	AREA (FT^2)
18	9	1.5	0.080	2.25
24	12	1.5	0.080	4.00
30	15	1.875	0.080	6.25
36	18	2.25	0.080	9.00



DIA-2-4

A	B	C	D	THICKNESS	AREA (FT^2)
48	15	15	3	0.100	16.00
60	18	18	3.75	0.100	25.00



ISOS-1-2

A	B	C	D	E	THICKNESS	AREA (FT^2)
40	30	7.5	12	1.875	0.080	3.86
48	36	9	15	2.25	0.100	5.56

TRI-1-2

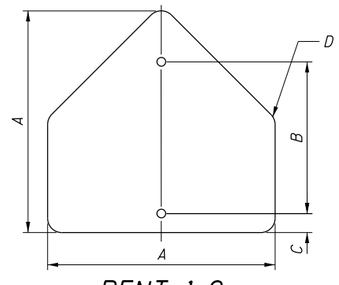
A	B	C	D	THICKNESS	AREA (FT^2)
24	2	14	1.5	0.080	1.73
30	3	18	1.5	0.080	2.71
36	3	21	2	0.080	3.90

TRI-2-4

A	B	C	D	E	THICKNESS	AREA (FT^2)
48	3	12	12	3	0.100	6.93
60	3	18	15	4	0.100	10.83

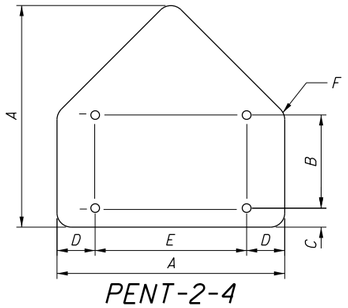
CO-1-2

A	B	C	D	E	THICKNESS	AREA (FT^2)
18	15	1	5	2	0.080	2.25
24	18	2	5.313	2.688	0.080	4.00
30	24	2	6.625	3.375	0.080	6.25



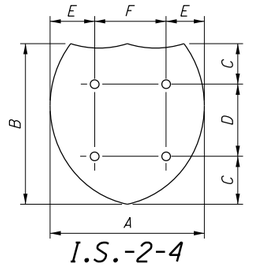
PENT-1-2

A	B	C	D	THICKNESS	AREA (FT^2)
30	21	3	1.875	0.080	6.25
36	24	3	2.25	0.080	9.00



PENT-2-4

A	B	C	D	E	F	THICKNESS	AREA (FT^2)
48	18	6	9	30	3	0.100	16.00



I.S.-2-4

A	B	C	D	E	F	THICKNESS	AREA (FT^2)
48	48	9	30	9	30	0.100	16.00
60	48	9	30	12	36	0.100	20.00

I.S.-1-2

A	B	C	D	THICKNESS	AREA (FT^2)
24	24	3	18	0.080	4.00
24	30	3	18	0.080	5.00
30	30	3	24	0.080	6.25
37.5	30	3	24	0.080	7.81
36	36	6	24	0.080	9.00
45	36	6	24	0.080	11.25

CIR-2-4

A	B	THICKNESS	AREA (FT^2)
24	15	0.100	16.00

CIR-1-2

A	B	THICKNESS	AREA (FT^2)
9	6	0.080	2.25
12	9	0.080	4.00
15	12	0.080	6.25
18	15	0.080	9.00

REVISION DATE 10-18-2013

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR James Young

STDS. ENGINEER H. Suter

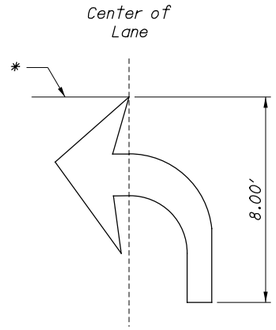
OFFICE OF ROADWAY ENGINEERING

THIS DRAWING REPLACES TC-52.10 DATED 01-18-2013.

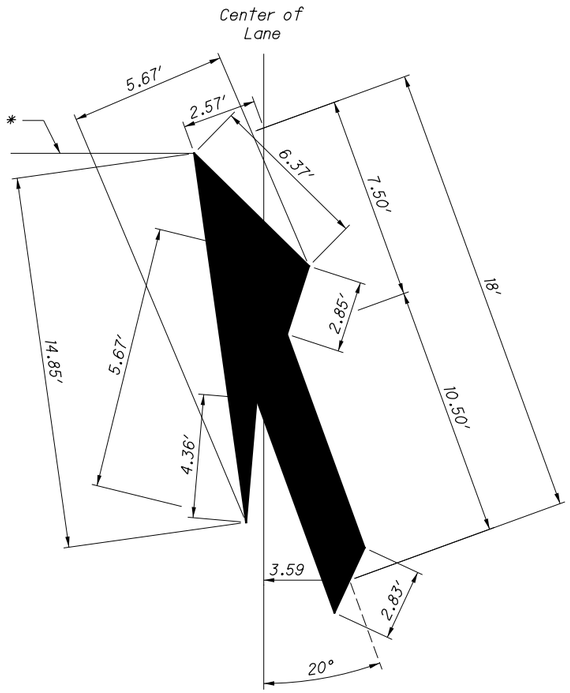
STANDARD ROADWAY CONSTRUCTION DRAWING

SIGN BLANK DETAILS I

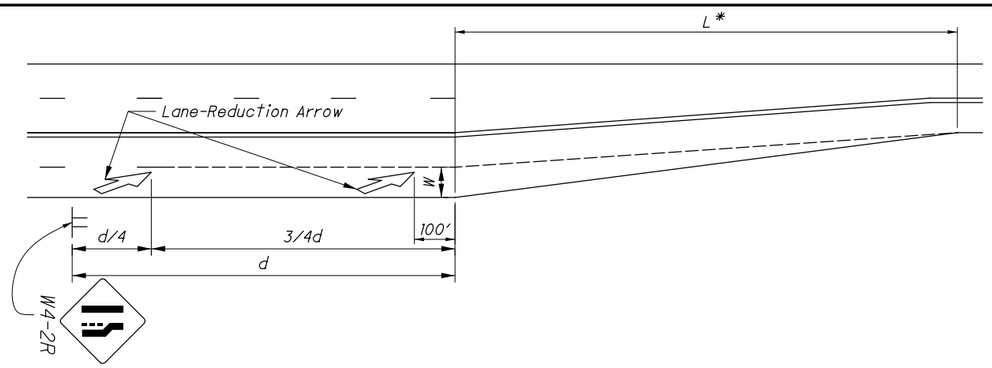
SCD NUMBER TC-52.10



TURN ARROW
(Right Arrow Opposite)



LANE-REDUCTION ARROW (RIGHT)
(For Left Lane, Use Mirror Image)

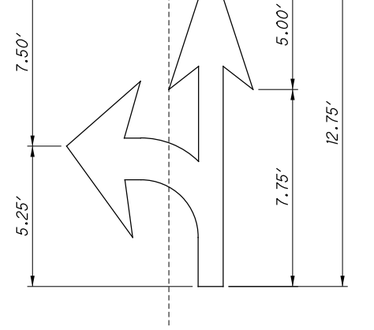


Speed (S) (MPH)	Lane Width (W) (FT)	Taper Length (L)* (FT)	Advance Warning Distance (d) (FT)
25	12	125	325
30	12	180	460
35	12	245	565
40	12	320	670
45	12	540	775
50	12	600	885
55	12	660	990
60	12	720	1100
65	12	780	1200
70	12	840	1250

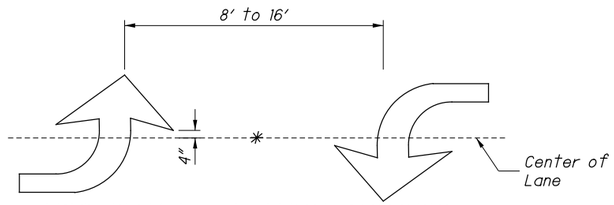
* Taper Length (L) shown is for 12 foot lane width (W). Use formula for other lane widths.

S - Posted, 85th-percentile or statutory speed, in MPH
W - Lane width or offset, in feet
L - Taper length in feet for Speed < 45 MPH = $WS^2/60$
L - Taper length in feet for Speed ≥ 45 MPH = WS
d - Advance Warning Distance, in feet

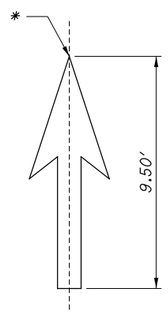
LANE-REDUCTION ARROW MARKING DETAIL
(See Note 8)



TURN AND THROUGH ARROW
(Three-Headed Directional Arrows Can be Achieved by the Combination of Turn Arrows.)



TWO-WAY LEFT-TURN ARROWS
(See Note 6)

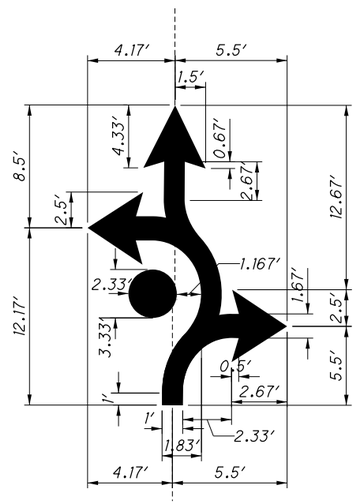


THROUGH ARROW

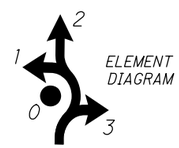
TABLE 1 - LANE-USE ARROWS

ARROW TYPE	SIZE (FT)	AREA (SQ FT)
Turn Arrow	8.00	17
Through Arrow	9.50	13
Turn and Through Arrow	12.75	28
Lane-Reduction Arrow	18.00	46

* - Indicates Station Reference Point



FISH-HOOK ARROW (ROUNDABOUTS)



OVERALL DIMENSIONS		
ELEMENTS INCLUDED	OVERALL WIDTH	OVERALL HEIGHT
1	6.5'	14.67'
1 & 2	6.5'	20.67'
1 & 3	9.67'	14.67'
1, 2 & 3	9.67'	20.67'
0 & 2*	4.5'	20.67'
0, 2 & 3*	7.67'	20.67'
2	3.833'	20.67'
2 & 3	7.0'	20.67'
3	6.0'	8.0'

* THE DOT (ELEMENT 0) IS ONLY USED IN SYMBOLS FOR THE LEFTMOST LANE.

THIS DRAWING REPLACES TC-71.10 DATED 07-15-2016.

REVISION DATE 01-20-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

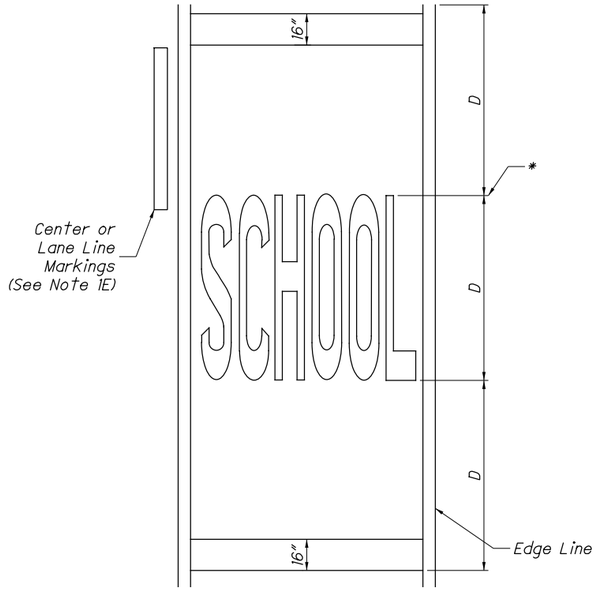
STDS. ENGINEER P. Singh

OFFICE OF ROADWAY ENGINEERING

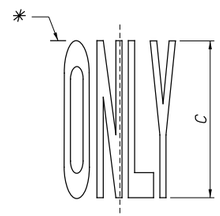
STANDARD ROADWAY CONSTRUCTION DRAWING

WORD AND SYMBOL PAVEMENT MARKINGS

SCD NUMBER TC-71.10



SCHOOL WORD MARKING
(See Note 1)



ONLY WORD MARKING
(See Note 4)

TABLE 3 - WORDS (SQ FT)

WORD	HEIGHT (C, D)		
	URBAN 6′	RURAL 8′	MULTI-LANE 10′
ONLY (C)	17	23	N/A
SCHOOL (D)	27	37	90

TABLE 4 - LANE USE MARKINGS

ROADWAY TYPE	DIMENSIONS (FT)		
	A (MIN.)	B	C
RURAL	30	88	8
URBAN	10	66	6

(See Note 5)

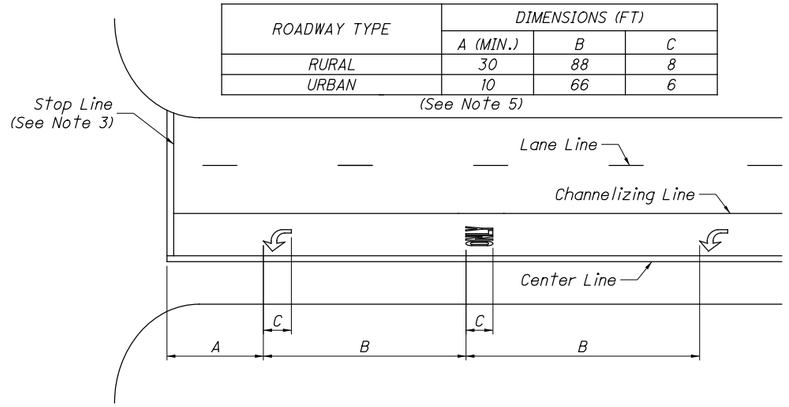
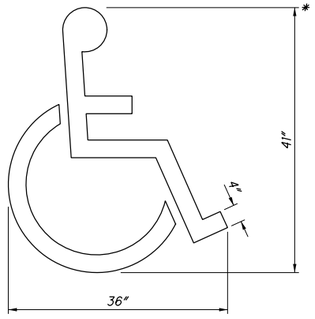
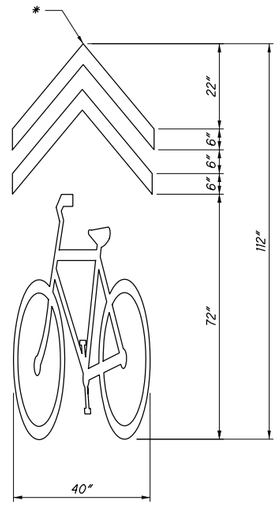


TABLE 2 - HANDICAP, BIKE & CHEVRON MARKINGS

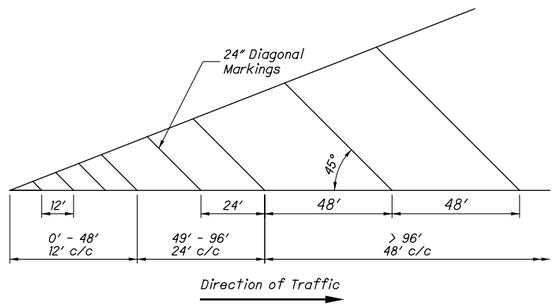
SYMBOL	HEIGHT (IN)	WIDTH (IN)	AREA (SQ FT)
HANDICAP	41	36	2.7
BIKE	72	40	16
CHEVRON	40	40	3.3 (.83 x 4)



HANDICAP SYMBOL MARKING

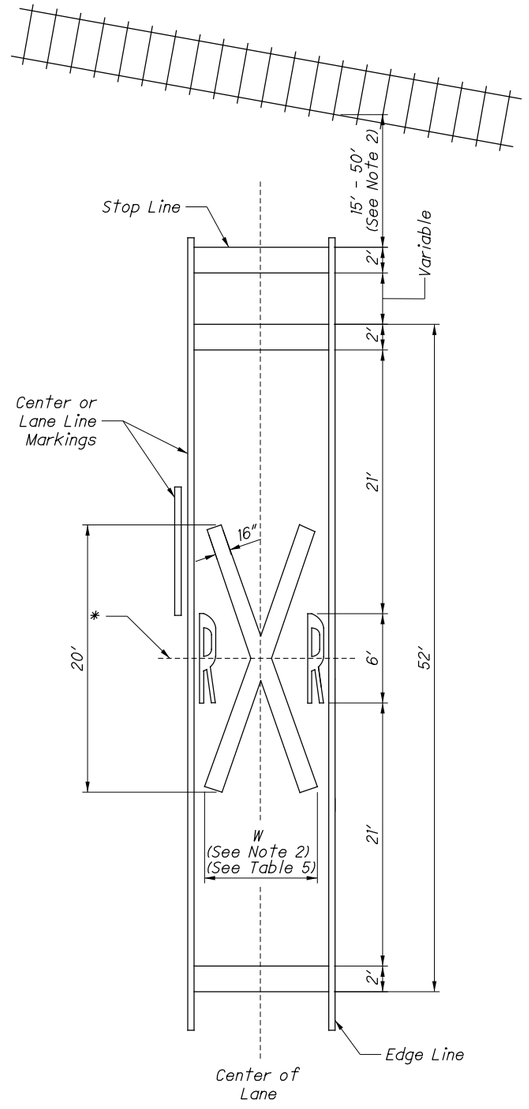


SHARED LANE MARKING
(See Note 7)



TYPICAL SPACING DETAIL FOR 24" DIAGONAL MARKINGS
(Chevron Markings, Including a Spacing Table, are Shown on SCD TC-72.20.)

* - Indicates Station Reference Point



RAILROAD SYMBOL MARKING
(See Note 2)

TABLE 5 - R X R SYMBOL

W, R X R	WIDTH (W) (FT)	8	9	10	11	12
	AREA (SQ FT)	67	68	70	71	72

THIS DRAWING REPLACES TC-71.10 DATED 07-15-2016.

REVISION DATE 01-20-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

STDS. ENGINEER P. Singh

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

WORD AND SYMBOL PAVEMENT MARKINGS

SCD NUMBER TC-71.10

NOTES:

SCHOOL Marking

1A. The SCHOOL markings shall be installed on all paved approaches in advance of all School Zones.

1B. The SCHOOL markings should be placed at least 100′ in advance of the School Zone. The preferred placement of the SCHOOL marking is adjacent to the School Zone Advance sign.

1C. On two-way, two-lane highways the following shall apply:

1.) When the approach lane to the School Zone is 11′ or more in width -

a.) The SCHOOL word marking and transverse lines shall be contained in, and centered in, the lane.

b.) The character height shall be 6′ for urban areas and 8′ for rural areas.

2.) When the approach lane to the School Zone is less than 11′ in width -

a.) One installation of the SCHOOL word marking and transverse lines shall extend across both lanes of traffic.
b.) The characters shall be 10′ in height.

1D. On multi-lane approaches the following shall apply -

1.) When the approach lanes to the School Zone are 11′ or more in width -

a.) The SCHOOL word marking and transverse lines shall be contained in, and centered in, each lane.
b.) The character height shall be 6′ for urban areas and 8′ for rural areas.

2.) When the approach lanes to the School Zone are less than 11′ in width -

a.) One installation of the SCHOOL word marking shall extend to the width of two approach lanes.
b.) Transverse lines shall extend across all approach lanes of traffic.
c.) The characters shall be 10′ in height.

1E. Center or lane lines shall not pass through the SCHOOL word marking.

1F. 6′ and 8′ high SCHOOL word marking shall be marked with 4″ strokes.

10′ high SCHOOL word marking shall be marked with 8″ strokes.

1G. The area of the transverse lines varies with the width of the pavement; therefore, the area must be added to the value in Table 3 (sheet 2).

Railroad Crossing Markings

2A. On multi-lane approaches, markings shall be as follows -

a.) The RXR symbol shall be placed in each approach lane.
b.) Transverse lines used with the railroad symbols shall extend across all appraoch lanes.

2B. The railroad symbol should be located so that the Railroad Advance Warning (W10-1) sign is within the two transverse boundary lines of the railroad symbol.

2C. The stop line shall be located for best sight distance between 15′ - 50′ of the near edge of the tracks.

2D. The stop line shall be approximately 8′ from a gate (if present).

2E. Width (W) of the "X" will vary according to the lane width.

2F. The height of the "R" shall be 6′.

2G. The area of the transverse lines and stop lines varies with the width of the pavement; therefore the area must be added to the value in Table 5 (sheet 2).

Stop Line Marking

3A. Except as specified in Notes 3B and 3C, the stop line should be placed as follows:

a.) The stop line should be placed where cross-corner vision is maximum.
b.) In no case shall the stop line be placed more than 30′ or less than 4′ from the nearest edge of the intersecting roadway.
c.) For normal intersections the maximum distance should be 10′.

3B. If a marked crosswalk is present the stop line should be placed 4′ in advance of, and parallel to, the nearest crosswalk line.

3C. For signalized intersections the stop line should be placed at a minimum distance of 40′ from the nearest signal head.

ONLY Word Marking

4A. The ONLY word marking is optional.

4B. Where used, the spacing between ONLY and arrow markings should be based on Table 4 (sheet 2).

4C. When lane-use arrow markings are used and the ONLY marking is not, an additional lane-use arrow should be used in its place to retain the spacing as shown in Table 4 (sheet 2).

Lane-Use Arrow Markings

5A. Lane-use arrow markings are optional except where a through traffic lane(s) approaching an intersection becomes a mandatory turn lane(s).

5B. Where used, the spacing between markings should be based on Table 4 (sheet 2). However, based on the turn lane length, the spacing between the markings may be adjusted.

Two-Way Left-Turn Only (TWLTO) Arrows

6A. Arrow sets should be longitudinally spaced at intervals of:

a.) 500′ - 1000′ for speeds less than or equal to 40 mph,
b.) 1000′ - 1500′ for speeds over 40 mph

6B. In addition, an arrow set should be placed:

a.) 100′ - 200′ from the near edge of an intersecting roadway, or
b.) Inside both ends of TWLTO lanes.

Shared Lane Marking

7A. When chevron markings are used, its area must be added to the value of the bike symbol markings (see Table 2 on sheet 1).

7B. When used, the shared lane marking should be placed immediately after an intersection and spaced at intervals not greater than 250′ thereafter.

Lane-Reduction Arrow Markings

8A. Lane-reduction arrow markings should be placed where a lane reduction transition occurs on a roadway as follows:

a.) Lane-reduction arrow markings may be placed for speeds of less than 45 mph, if determined to be appropriate based on engineering judgement.
b.) Lane-reduction arrow markings should be placed for speeds of 45 mph or over.
c.) Lane-reduction arrow markings may be placed in long acceleration lanes.
d.) Where lane-reduction arrows are used, they should be placed as follows:

i.) First lane-reduction arrow 100′ in advance of the 'Begin Taper' point.
ii.) Second lane-reduction arrow placed at the 3/4d point.

THIS DRAWING REPLACES TC-71.10 DATED 07-15-2016.

REVISION DATE 01-20-2017

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

STDS. ENGINEER P. Singh

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

WORD AND SYMBOL PAVEMENT MARKINGS

SCD NUMBER TC-71.10