General Rules, Regulations, and Guidelines

for

Work Within

the

Right-of-Way

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Bureau of Engineering | 433 River St., Ste. 5001 | Troy, New York 12180 | (518) 270-7179

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APPENDICES

1.0 GENERAL INFORMATION

1.1 INTRODUCTION

The City of Troy has developed the enclosed set of guidelines to collect the various rules and regulations for pavement and sidewalk restoration work performed by citizens, contractors, and utility companies within the City of Troy's Right-of-Way.

All items included in the Specifications are to be employed as a minimum standard of quality for the work described herein or shown in the drawings.

Throughout this document references are made to the New York State Department of Transportation (NYSDOT) Standard Specifications and Pay Items. The current version of these documents, including any Engineering Instructions issued, shall govern.

This information is provided as a guide and is not intended to state every official ordinance, regulation, or policy of the City. Nor is this guide intended to take the place of professional engineering services when required.

1.2 PERMIT REQUIRED

All work within the Right-of-Way of City of Troy requires a Work Permit, which may be obtained at the Bureau of Code Enforcement. Other City and regulatory agency reviews, permits, or approvals may be required. Any permittee shall allow sufficient time for the review and permit process.

Permit Questions:	518-279-7180
Bureau of Engineering:	518-279-7179
Department of Public Works:	518-270-4579
Water and Sewer Questions:	518-237-0193

Sufficient plans and details shall provide an accurate illustration of the proposed work.

The utility companies shall be wholly responsible for ensuring that all work performed in conjunction with their services, either by their own forces or outside contractors, shall comply with all of the stipulations as stated herein and/or in accordance with any other Local-, State or Federal guidelines.

All utility companies or their contractors must notify the City Engineer's Office by phone or email, a minimum of forty-eight (48) hours before commencing any project within the city limits, except for emergency work. The City Engineer's Office must be notified within twenty-four (24) hours of any emergency work.

1.2.1 Excavation Permit Fees (per §251-9 and 11)

A. Work in the ROW: $50.00 base fee

B. In addition, for excavation in ROW:
$2.50/sq. ft. up to 100 sq. ft., plus $1.50/sq. ft. over 100 sq. ft.

1.3 INSURANCE

The Contractor shall procure and maintain at their own expense, until final completion of the work covered by the Permit, insurance for liability for damages imposed by law of the kinds and in the amounts hereinafter provided. Said insurance shall be with companies authorized to do such business in the State of New York covering all operations under the Permit whether performed by them or by their subcontractors. Before commencing the work the Contractor shall furnish to the Office of Code Enforcement a certificate or Certificates of Insurance in form satisfactory to the City Comptroller showing that they have complied with this paragraph, which certificate or certificates shall provide that the policies shall not be changed or

canceled until thirty (30) days written notice has been given to the Corporation Counsel. In each policy of insurance, except insurance for Workers' Compensation, **the City shall be named as an additional insured for all situations arising under this Permit.** Except for Workers' Compensation Insurance, no insurance required herein shall contain any exclusion of municipal operations performed in connection with this Permit. The kinds and amounts of insurance are as follows:

1.3.1 Workers' Compensation Insurance

A policy covering the operations of the Contractor in accordance with the provisions of Chapter 41 of the Laws of 1914, as amended, known as the Worker's Compensation Law, covering all operations under the Permit, whether performed by him or by his subcontractors. The Permit shall be void and no effect unless the person or corporation making or executing same shall secure compensation coverage for the benefits of, and keep insured during the life of said Permit, such employees in compliance with the provisions of the Worker's Compensation Law.

1.3.2 Liability and Property Damage Insurance

Unless otherwise specifically required by special specifications each policy with limits of not less than:

BODILY INJURY LIABILITY	PROPERTY DAMAGE LIABILITY
Single Limit	Single Limit
$ 1,000,000	$ 1,000,000
or	
$ 2,000,000	$ 2,000,000

shall be furnished in two types of insurance specified for all dam-ages arising during the policy period. Amounts of insurance required shall be the limits as specified herein depending on project risk exposure as defined by the City.

1.3.3 Contractors' Liability Insurance

Issued to the Contractor and covering the liability for damages imposed by law upon the Contractor with respect to all work performed by them under the Permit.

1.3.4 Contractors' Protective Liability Insurance

Issued to the Contractor and covering the liability for damages imposed by law upon the said Contractor for the acts or neglect of each of his subcontractors under the agreement.

1.3.5 Motor Vehicle Insurance

Issued to the Contractor and covering public liability and property damage on the Contractors' vehicles in the amount of:

BODILY INJURY LIABILITY		PROPERTY DAMAGE LIABILITY	
Each Person	Each Occurrence	Each Accident	Aggregate
$500,000.00	$1,000,000.00	$100,000.00	$250,000.00

1.3.6 Further Requirements

In addition to all the requirements for insurance defined in the proceeding, the Required Public Liability and Property Damage Insurance shall afford coverage for explosion, collapse, and underground work; commonly referred to as XCU coverage.

1.3.7 Fire and Extended Coverage

Unless otherwise specified in the Permit Documents, The Contractor shall effect and maintain insurance against loss by fire, lightning, windstorm, cyclone, tornado, hail, explosion, riot, attending a strike, aircraft, vehicle or smoke damage, vandalism and malicious mischief upon all work in place and all material and equipment in connection therewith stored at the site of the work performed under the Permit, whether or not furnished or delivered by any person or Contractor other than the Contractor or by the City, itself. This insurance shall be in an amount equal to the full insurable value thereof at all times and shall be for the benefit of the City, the Contractor and each subcontractor as their interest may respectively appear. This insurance may be obtained on either the "completed value" form or on the "Monthly Reporting Form".

In the event that the latter form is used, the Contractor shall for each month during the life of the Permit furnish to the City certificate in duplicate by the insurer evidencing the fact that the policy (or policies remains in force and stating the basis upon which the monthly premiums are computed and containing adjustments made to provide for additional cover-age as the work progresses. Any deductibles shall be at the Contractor's expense.

1.4 PEAK TRAFFIC PERIOD WORK RESTRICTION

On major thoroughfares or in the Central Business District, no utility work shall be allowed on Saturday or Sunday unless written permission is granted by the City Engineer or Commissioner of Public Works or if the work is declared as an emergency repair. The Central Business District encompasses all streets bounded on the North by Federal Street, on the West by the Hudson River, on the South by Ferry Street and on the East by Eighth Street. The following streets are major Thoroughfares:

125th Street	Fifteenth Street	Northern Drive
Brunswick Road	Fifth Avenue	Oakwood Avenue
Burden Avenue	First Street	Pawling Avenue
Campbell	Fourth Street	Peoples Avenue
Avenue	Hoosick Street	River Street
Congress Street	King Street	Second Avenue
Federal Street	Mill Street	Spring Avenue
Ferry Street	Morrison Avenue	Vandenburgh Avenue

1.5 NOISE ORDINANCE

The Code of Ordinances of the City prohibits excessive and unnecessary noise, specifically; §19-20(5) prohibits construction work (excepting permitted emergencies) before 6:00 am and after 9:00 pm. §19-20 prohibits excessive noise adjacent to schools, hospitals, houses of worship, etc. while the same is in session. §19-20(13)(14) prohibit unnecessary or unreasonable noise during construction.

1.6 EMERGENCY TELEPHONE NUMBERS

Any persons or corporations performing construction work in the Right of Way must provide the City Engineer's Office with a list of names and telephone numbers of the personnel of their company and also of any Contractors they hire to contact on nights, weekends, or holidays if an emergency arises. These numbers must be provided prior to commencing any work.

The list may be emailed to engineering@troyny.gov.

The following are 24-hour emergency contact numbers for the City of Troy:

Department of Public Utilities:	518-000-0000
Water and Sewer:	518-237-0611
Police and Fire:	518-270-4411

1.7 RESTORATION NOTIFICATION

The City Engineer's Office, 518-279-7179, must be notified, by phone or email at least forty-eight (48) hours in advance of any street or sidewalk restoration work.

This will allow the City to arrange for proper inspection to assure compliance with the specifications.

Failure to adhere to this requirement will result in a termination of all work on all ongoing projects within the city of Troy by the violator for a period of time to be determined by the City of Troy.

Notifications:
Phone: 518-279-7179
Email: engineering@troyny.gov

2.0 UTILITY LOCATION

2.1 UTILITY CORRIDORS

Utility companies shall make every effort to locate new facilities to interfere as little as possible with existing or proposed facilities. Longitudinal transmission mains shall not be located beneath curbing nor above existing water or sewer lines. Grass strips and single sidewalk panel locations shall be employed where possible.

2.2 UTILITY LINES DEPTH OF BURIAL

All utility mains and service laterals must have a minimum cover of twenty-four inches (24") for any installation within the City of Troy Right of Way.

Service laterals should be connected to the sides of the mains whenever possible.

2.3 VAULT ROOFS DEPTH OF BURIAL

All new or reconstructed underground utility vault roofs shall be constructed so that there is a minimum of twelve inches (12") depth of burial below the lowest pavement surface elevation, allowing for future street reconstruction operations. In addition, the manhole(s) frame(s) shall be set on a "chimney" of at least two courses of fully grouted solid concrete brick to allow for future minor street grade adjustments.

Precast manhole lids shall be similarly as deep, with "chimney".

3.0 WINTER OPERATIONS

Effective when local asphalt plants are closed.

3.1 EXCAVATION & BACKFILL

Every effort shall be made to avoid excessive "overbreak" in excavation operations. Insulation and temporary heat shall be employed to prevent deep frost penetration***. All excavations must be backfilled with flowable fill*** to within four inches (4") of the adjacent pavement surface. The flowable fill must then be covered with a layer of plastic sheeting and four inches (4") of high early strength concrete. ***Steel plating of open excavations is not allowed between October 15th and April 15th due to possible need for snow plowing.***

3.2 CONCRETE

Cast in place concrete operations shall conform to Section 306R-16 (or latest revision) of the recommendations of the American Concrete Institute (ACI). The concrete shall be covered with an insulating blanket to prevent freezing before reaching its initial set.

3.3 PERMANENT REPAIR

When the hot mix asphalt plants reopen in the Spring, the concrete and plastic shall be removed and properly disposed of. All sides of the excavation should be either sawcut or jackhammered in a straight line and 2½ inches of binder and 1½ inches of top course, conforming to NYSDOT specifications and City of Troy standard details, should be placed. The edges of the patch must be sealed and covered with a light sand mixture (to prevent tracking). A one-foot (1') cutback and a new concrete base is not required.

4.0 PERMANENT STREET RESTORATION

4.1 GENERAL RULES

There are two standard street restorations. See enclosed drawing illustrating types "A" and "B". The City maintains a list of streets requiring each type, and will provide this information on request. The restoration should always be assumed as Type "A" unless the City grants a Type "B" restoration.

4.2 COMPLIANCE

The City may, at its discretion, employ the services of an independent testing firm to verify compliance with the street restoration specifications. This cost shall be paid by the applicant listed on the approved Permit Application, as so stated in Section 1 of said application.

If the test results indicate non-compliance with the specifications, the applicant or his designated contractor shall remove and properly dispose of the unsatisfactory materials and complete the restoration as per the specifications. This replacement must only take place in the presence of a City designated inspector. This replacement must only take place in the presence of a City designed inspector.

4.3 EXCEPTIONS

There are always exceptions to any rule which, in this case, are streets/alleys with concrete, brick or paving block surfaces. These streets/alleys, whether designated as primary or secondary, shall be restored with six (6) inch, 5,000 PSI High Early Portland Cement Concrete as the final pavement surface - No Asphalt.

A singular exception is Valleyview Drive from Hoosick street to Grandview Avenue. This street is the only red brick paver street now in existence in the City of Troy. Any utility excavation in this street will require the resetting of the excavated red brick pavers or the installation of City approved replacement pavers over a six (6) inch 5,000 PSI Portland Cement Concrete base. Concrete or asphalt patches are only acceptable as temporary on this street.

Any questions relative to the type of restoration if required should be directed to the City Engineer's Office in writing. The decision of the City Engineer will be final.

4.4 ASPHALT PLACEMENT

Bituminous plant mix shall not be placed on any wet surface or when the surface temperature is less than 40° Fahrenheit for 3" or greater compacted placement depth and 45° Fahrenheit for 1" - 3" compacted placement depth.

The vertical sides of the excavations must be thoroughly cleaned prior to placing asphalt and any visible loose sections of adjoining pavement must be removed and replaced.

The Bituminous plant mix shall be placed at a temperature between 250° to 325° Fahrenheit. Any material below 250° Fahrenheit must be properly disposed.

See Appendix A for standard details.

5.0 CURBING RESTORATION

Any curbing disturbed or destroyed by contractors' operations shall be reset or replaced as directed by the City. Curb shall be precast concrete or granite as specified by the City. See Appendix A for standard details.

Special Note: Curbing installed at driveways shall have a minimum reveal of one inch (1") and a maximum reveal of two inches (2"). Curbing at all handicap ramps shall be flush with the adjoining pavement.

6.0 SIDEWALK RESTORATION

6.1 PORTLAND CEMENT CONCRETE SIDEWALK

6.1.1 Materials

All concrete used for sidewalks shall meet the requirements of Class A under Section 501 of the New York State Department of Transportation Standard Specification Latest Edition.

The concrete shall be designed based on the following criteria:

Air Content:	5% - 7%
Design Slump:	3"
Allowance Slump:	2½" - 3½"
28-Day Compressive Strength:	4,500 psi
Coarse Aggregate:	Type CA 2
Fibrous Reinforcement:	Polypropylene Fibers, 15 lbs/cy. (Fibermesh, Fiberstrand 100, or Gracefibers)

All concrete tested resulting in a slump greater than 4 inches shall be rejected without exception. Water shall not be added to the mix in the truck unless authorized by the E.I.C.

6.1.2 Preparation

All existing materials in the sidewalk area shall be excavated to a depth sufficient to accommodate the placement of six inches of subbase course and the concrete sidewalk to the grade shown on the plans. The excavated material shall be properly disposed.

The subgrade shall be evenly trimmed and six inches (6") of subbase course 304.05 shall be placed and compacted, unless shown otherwise on the drawings.

6.1.3 Miscellaneous Structures

All miscellaneous structures encountered in the sidewalk area such as manholes, water valves, drains, basement gratings, entrances, windows, etc. shall be properly adjusted to grade to the satisfaction of the Engineer.

6.1.4 Placement

Concrete shall be placed at minimum thickness of five inches (5") and a minimum width of four feet (4'). Design cross slope shall be 1.5% (3/16" per foot).

6.1.5 Joints

Jointing and general practice shall meet the recommendations of the Portland Cement Association.

1. Longitudinal Expansion: continuous, formed four feet (4') from the back of the curb, or as directed by the Engineer, utilizing a half-inch (½") wide pre-molded bituminous joint filler.

2. Transverse Expansion: Formed utilizing half-inch (½") wide pre-molded bituminous joint filler at a maximum spacing of twenty feet (20').

3. Isolation Expansion: Formed around or adjacent to all fixed objects within entrances, basement gratings, stoops, building walls, and any other structures. Must be wrapped or faced full depth with quarter-inch (¼") wide expansion joint filler material. All fire hydrants and utility poles shall be boxed out approximately eighteen inches (18") square. This boxed out area shall be filled with NYSDOT Item 608.020102, *Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips*, to a depth equal to the thickness of the adjacent concrete sidewalk.

4. Scoring Pattern: Typically, a four-foot (4') strip bordered by the curb and the continuous longitudinal expansion joint shall be scored in four foot by four-foot (4' x 4') panels.

The remaining width of sidewalk shall be scored in approximately equal panels but in no case exceeding four foot by six foot (4' x 6'), unless approved by the Engineer.

Joints shall be scored off the corners of all buildings, stoops, tree wells, boxed out hydrants and utility poles and all cellar entrance ways.

6.1.6 Sealing Joints

An approved joint sealing material (such as Tremco® Vulkem® 116, SikaFlex® 1a, Sealtight Purthane or equal) shall be used to fill all joints which are one-quarter inch (¼") or wider at the time of sealant installation, in conjunction with installing the proper size backer rod. Sealer must be gray in color.

6.1.7 Finishing

Concrete shall be well vibrated to fill all voids and corners and shall be placed to a depth slightly over that of the side forms. It shall be screeded to a smooth, flat surface. Finishing shall be accomplished by wood floating to a fine granular surface with radius tooled edges and joints. Floating shall not begin until the water sheen has completely disappeared from the screeded surface, and no cement adheres to the float upon troweling. **No** water shall be applied to the concrete surface during finishing unless approved by the E.I.C.

6.1.8 Curing

Concrete shall be protected from extremes in temperatures, and shall be kept covered and moist for a period of seven (7) days or spray cured in conformance with NYSDOT Section 502-3.11

6.1.9 Defective or Damaged Concrete

All defective or damaged concrete which occurs prior to the final acceptance of the work shall be repaired or replaced at the Contractor's expense. The defects shall include but not be limited to spalling and irregular cracking at joints, edge spall, honeycombing and damage or other imperfections caused by traffic, vandalism or construction operations. Any repairs shall be performed according to the methods described in these specifications unless otherwise approved by the Engineer. Any concrete requiring complete replacement, as determined by the Engineer, shall be replaced in kind as concrete originally called for. The type of repair shall be subject to the approval of the Engineer. When a repair is made, the defective or damaged concrete shall be removed by chipping the unsuitable material to sound concrete with pneumatic tools. The type and size of tools and the depth at which sound concrete is reached shall be approved by the Engineer.

All surfaces to be repaired shall be thoroughly blast cleaned with sandblast sand conforming to MIL-S-l7726B, Class 4 or Class 5 unless otherwise approved by the Engineer.

6.2 PORTLAND CEMENT CONCRETE DRIVEWAYS

Portland Cement Concrete driveways shall be constructed in accordance with NYSDOT Item 608.0101, Concrete Sidewalks and Driveways. In addition, driveways are to be six inches (6") thick and driveway widths shall be measured from the top of curb transition to top of curb transition.

6.3 HISTORIC BRICK PAVING

6.3.1 Material

New brick pavers shall be Boston City Hall Paving Brick from The Stiles and Hart Brick Company, P.O. Box 367, Bridgewater, Massachusetts, (800) 320-8700 or approved equivalent. Sample of brick paver shall be submitted to the City Engineer's Office for approval prior to placing any orders. Bricks shall be 2¼" thick.

6.3.2 Durability and Abrasion

Brick Pavers shall meet, or exceed, the following specifications: ASTM C902 Class SX, Type 1, PA with average water absorption of not more than 4% with the five-hour boil and an average compressive strength of 8,000 psi or more. Laminated brick will not be accepted.

6.3.3 Existing Brick Removal

Contractor shall exercise extreme care and diligence in excavating and removing the existing brick. Contractor must salvage all reusable bricks. Contractor shall clean and stockpile reusable brick on-site. **All salvageable brick shall be reused.**

6.3.4 Installation

Brick Pavers shall be installed in a herringbone pattern (similar to existing). Where and as necessary, the contractor shall saw cut the brick to form a straight-line edge where full brick will not fit. Where additional new brick is required, Contractor shall use a consistent mixture of new and reused brick, establishing a consistent pattern throughout the project. Bricks shall be set in a 1½" dry pack setting bed consisting of 5-parts mason sand to 1-part Portland Cement, over a three-inch (3") course of asphalt binder. Binder shall be placed over a three inch (3") compacted lift of NYSDOT Item 304.12. Joints shall be hand tight.

6.3.5 Edging

Contractor shall install 2" x 6" pressure treated lumber staked in place on all open sides of brickwork not directly bounded by either the curbing or sidewalk. Top of lumber shall lay one inch (1") below the final grade of the brick pavers.

6.4 ASPHALT CONCRETE SIDEWALK AND DRIVEWAYS

The installation of new asphalt sidewalks is discouraged and shall only be performed with explicit approval of the City Engineer. The following specifications are intended for replacement in-kind of existing asphalt sidewalks or the installation of asphalt driveways.

6.4.1 Materials

All asphalt concrete for sidewalks shall meet the requirements of Section 402 of the New York State Department of Transportation, Standard Specification, Latest Edition.

Top Course:	NYSDOT Item 402.098304 - 9.5 F3 Top Course HMA, 80 Series Compaction
Binder Course:	NYSDOT Item 402.198904 - 19 F9 Binder Course HMA, 80 Series Compaction

6.4.2 Preparation

All existing materials in the sidewalk area shall be excavated to a depth sufficient to accommodate the placement of six inches (6") of subbase course and the asphalt concrete sidewalk to the grade shown on the plans. The excavated material shall be properly disposed.

The subgrade shall be evenly trimmed and six inches (6") of subbase course, NYSDOT Item 304.12.

6.4.3 Miscellaneous structures

All miscellaneous structures encountered in the sidewalk area, such as manholes, water valves, drains, basement gratings, entrances, windows, etc., shall be properly adjusted to grade to the satisfaction of the Engineer.

6.4.4 Placement

Asphalt concrete shall be placed in two courses; a binder course of 1½" compacted depth for sidewalks, 2½" compacted depth for driveways, and a top course of 1½" compacted depth. Design cross slopes shall be 3/16 inch per foot. Edge lines and curves shall be accurately shaped and formed, if necessary.

6.5 NEW BLUESTONE SLATE SIDEWALK

6.5.1 Materials

The new Bluestone slate shall be Natural Cleft North River Bluestone from Helderberg Bluestone and Marble, Inc. of East Berne, New York, or approved equivalent. The stone shall be greater than two inches (>2") in thickness, and shall be in widths of five or six-feet (5' or 6') as necessary to match existing widths, and lengths no less than two feet (2') and not to exceed four-feet six inches (4'-6").

6.5.2 Technical Data

The new Bluestone Slate shall either meet or exceed the following:

Absorption Test:	1.16-48 hours
Compressive strength across strata:	18,000 psi
Compressive strength with strata:	17,500 psi
Specific Gravity:	2.7
Weight per cubic foot:	167 lbs

Chemical analysis

Loss on Ignition:	2.83%
Calcium Oxide:	0.16%
Magnesium Oxide:	1.62%
Silica Dioxide:	73.98%
Iron Oxide:	4.07%
Aluminum Oxide:	10.77%
Sodium Oxide:	0.06%

Surface - Natural cleft within inch variation in smoothness.

Contractor shall provide a sample to the City for approval prior to placing any order.

6.5.3 Installation

The new Bluestone Slate shall be placed consecutively and not mixed with reset Bluestone. Slate shall be set in a 1½" to 2" dry pack setting bed consisting of 5 parts Mason Sand to 1 part Portland Cement over a three-inch (3") course of asphalt binder. The asphalt binder shall be placed over a three inches (3") compacted lift of NYSDOT Item 304.12. Joints shall be hand tight.

6.6 RESET BLUESTONE SLATE SIDEWALK

Contractor shall exercise extreme care and diligence in excavating, cleaning, stockpiling, and resetting existing bluestone slate sidewalks. The contractor shall be held responsible for salvaging all of the existing Bluestone and stockpiling at the site, for reuse. The contractor shall be held responsible for salvaging **all** of the existing Bluestone and stockpiling at the site, for reuse.

Details for installation shall be the same as for New Slate Sidewalk.

6.7 HANDICAP RAMPS

6.7.1 General

1. Curb ramps shall be provided wherever an accessible route crosses a curb.

2. Sidewalk curb ramp type and location must be constructed as shown on the attached drawings.

3. All sidewalk curb ramp types may be used in straight or curved curb sections.

4. Sidewalk curb ramp types may be different at each location within an intersection.

6.7.2 Sidewalk Curb Ramp Criteria

1. The maximum grade (running slope) of a sidewalk curb ramp for design and layout shall be 1:13⅓ (7.5%); 1:12 (8.33%) shall be the maximum slope for acceptance of work. The length of a curb ramp shall not exceed fifteen feet (15').

2. The cross slope of a sidewalk curb ramp for design and layout shall not exceed 1.5%; 2% shall be the maximum slope for acceptance of work.

3. The minimum width of a sidewalk curb ramp shall be five feet (5'), exclusive of flared sides.

4. All sidewalk curb ramps shall have flush, smooth transitions to the adjacent street or highway surface.

5. All handicap ramps must comply with the current NYSDOT and Federal ADA requirements.

6.7.3 Surface Finish

The surface of all sidewalk curb ramps shall be stable, firm, and slip resistant. (e.g., a coarse broom finish perpendicular to the ramp slope is acceptable on cement concrete curb ramps).

6.7.4 Sidewalk Curb Ramp Placement

At a corner, where the curb radius is twenty-five (25') or less, a single ramp (either type A, B, or C) located diagonally can often serve crosswalks in two directions. However, a single ramp shall only be used where there is a minimum clear space of forty-eight inches (48") falling entirely within the projection of the intersecting curbs (refer to NYSDOT Standard Sheets, Appendix B). Where the radius exceeds 25' or the minimum 48" clear space is not achievable, then separate ramps should be provided for each crosswalk.

6.7.5 PAVEMENT MARKINGS AT CROSSWALKS

1. Sidewalk curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.

2. At a corner, where a single ramp (either Type A, B, or C) located diagonally serves two crosswalks, there shall be a 48 inch minimum clear space at the ramp bottom wholly contained within the intersecting crosswalk markings (refer to NYSDOT Standard Sheets, Appendix B).

3. Where stop lines are necessary, they shall be located in advance of sidewalk curb ramps.

6.7.6 UTILITIES AND DRAINAGE INLETS OR GRATES

1. Where feasible provide for drainage inlets or grates immediately upstream from the curb ramps. Reticuline or rectangular drainage grates are to be used in the area of curb ramps.

2. Do not place signal poles, sign posts, utility poles, fire hydrants, etc., within the ramp or side flare areas.

7.0 TOPSOIL & SEEDING

7.1 MATERIAL REQUIREMENTS

Topsoil shall be the surface layer of soil and shall be free from refuse, any material toxic to plant growth, subsoil, woody vegetation, and stumps, roots, brush, stones, clay lumps or similar objects larger than two inches in greatest dimension. Sod and herbaceous growth such as grass and weeds need not be removed but shall be thoroughly broken up and mixed with the soil during handling operations.

Topsoil shall meet the following requirements:

1. The pH of the material shall be between 5.5 and 7.6.

2. The organic content shall be between 5% and 20%.

3. Gradation:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
2 inch	100%
1 inch	85 to 100%
1/4 inch	65 to 100%
No. 200 mesh	20 to 70%

The Contractor may amend natural topsoil with approved materials and by approved methods to meet the above specifications.

All topsoil shall be placed in two (2) lifts. The first lift shall be placed equal with the final grade and then compacted with a small hand roller, approved by the Engineer. The second lift shall be placed at the depth required to return to and meet final grades and then loosely raked free of all stones and miscellaneous debris in preparation for seeding.

7.2 SOIL CONDITIONING AND SEEDING

Topsoil and seed shall conform to NYSDOT 610-1 and 610-2, current version, inclusive of the following: This work shall consist of the establishment and care of grass seeding turf as shown on the plans or as

ordered by the Engineer. This work shall include preparing ground surface for seeding, furnishing and sowing seed, furnishing and applying fertilizer and furnishing mulching as specified. Any restoration area exceeding 200 square feet must be hydro-seeded.

7.3 SEEDING

1. Seed Mixture: Northern Economy Hydro Mix consisting of: Percentage of Weight in Mixture

Kentucky Bluegrass	25%
Creeping Red Fescue	25%
Annual Ryegrass	25%
Perennial Ryegrass	25%

2. The seed shall be fresh, reclined and of the latest crop year. Each type of grass in the mixture shall meet or exceed the minimum percentage of purity and germination listed for that type of seed.

3. All seeds will be rejected if the label lists any of the following contaminants: Timothy, Orchard Grass, Sheep Rescue, Meadow Rescue, Canada Bluegrass, Alta Rescue, Kentucky 31 Rescue of Bent Grass.

4. Quality of Seed: Seed shall be prepackaged and readily available to the public with quality and purity as specified above.

5. Apply at a rate of 5 lbs per 1,000 sq. ft.

7.4 FERTILIZER

1. Commercial fertilizer (5-10-5) shall contain not less than five percent nitrogen, ten percent available phosphoric acid and five percent water soluble potash. The fertilizer shall be inorganic or a combination of inorganic and organic substances. The methods used to determine the various elements shall be those adopted by the Association of official Agricultural Chemists.

2. If, as an alternative, the Contractor wishes to substitute for commercial fertilizer 5-10-5, another commercial fertilizer with a 1-2-1 ratio, such as 10-20-10 or 6-12-6, he may do so with the approval of the Engineer and the rate of fertilizer to be used shall be whatever amount is required to furnish same amount of nitrogen as would be supplied by 5-10-5.

3. Commercial fertilizer shall be delivered in standard size bags of the manufacturer, showing weight, analysis, and the name of the manufacturer. The Engineer reserves the right to make tests of the material at any time and acceptance or rejection shall be based on the results of these tests.

4. If the commercial fertilizer is not used immediately after delivery, the Contractor shall store it in a place that its effectiveness will not be impaired.

5. Apply at a rate of 25 lbs per 1,000 sq. ft.

7.5 MULCH

1. Straw mulch shall consist of stalks of oat, wheat, rye or other approved crops which are free of noxious weeds. Weight shall be calculated on the basis of the straw having not more than 15% moisture content.

2. Apply at a rate of 10 lbs per 100 sq. ft.

8.0 MAINTENANCE AND PROTECTION OF TRAFFIC

Traffic shall be maintained and protected on this Project by the Contractor in accordance with the provisions of Specification Section 619, New York State Department of Transportation Standard Specifications.

All signage, symbols, etc. shall be in accordance with the New York Manual of Traffic Control Devices (MUTCD). Reflectorized plastic drum-type delineators shall be used along drop-offs and at other edge locations, and as directed by the Commissioner of Public Works. Traffic shall be maintained over a reasonably smooth traveled way which shall be so marked by signs, delineators, guiding devices and other methods that a person who has no knowledge of conditions may safely and with a minimum of discomfort and inconvenience ride, drive or walk, day or night, over all or any portion of the highway or structure under construction where traffic is to be maintained. Contractor shall be responsible for coordinating the posting for any No Parking areas in the work zone on a daily basis as needed. All work shall conform to the requirements of the New York State Manual of Uniform Traffic Control Devices. The basic maintenance and protection requirements shall be as follows:

8.1 SURFACE

Maintain the surface condition of the traveled way so it is consistent with the appropriate speed limit.

8.2 DRAINAGE

Maintain the drainage facilities and other highway elements, old or new, including detours.

8.3 BUS STOPS

Maintain existing bus stops, if any, so bus passengers are reasonably accommodated. If impossible to do so, the appropriate Transit Authority must be notified as soon as possible.

8.4 PEDESTRIAN TRAFFIC

Provide pedestrian access crossovers of concrete pours, curb, or pipe trenches, etc. shall be securely set up at each residence and shall be a minimum of three feet (3') in width, acting as a single unit. Individual planks not fastened securely together are not acceptable. As approved by the Engineer.

Four foot (4') wide ramps (acting as a single unit) shall be set up at all locations designated by the Engineer to accommodate all businesses and any building frequented by handicapped persons.

All precautions must be taken to allow safe access to and from all buildings and to enable pedestrians to travel the street/sidewalk without having to walk in the roadway, unless a designated and protected walk area is established.

Intersecting Highways. Provide ingress and egress to and from intersecting highways, homes, business and commercial establishments.

8.5 DUST CONTROL

Keep the traveled way free from materials spilled from hauling equipment. This shall also apply to dust control and spilled material resulting from the Contractors' operations in the areas outside the contract limits. The Contractor shall furnish and distribute a sufficient amount of calcium chloride on each street on a daily basis from the time the existing asphalt pavement is removed until resurfacing occurs unless otherwise directed by the Engineer at no additional cost. All street cleaning to be performed by the Contractor in accordance with this item, shall utilize a type of self-propelled sweeper capable of applying water to control dust and picking up the debris by either mechanical means or vacuum. The water system must be functional and operated throughout the brooming operation. Waterless, towable brooms are no longer acceptable for any work within the City limits. This debris must not be allowed to enter the city's sewer system. If it does enter the sewer system, the contractor/utility shall be responsible for its removal, to the satisfaction of the City of Troy's Superintendent of Water and Sewer.

8.6 TWO WAY TRAFFIC

On any City street where two-way traffic was previously allowed, the Contractor will maintain two-way traffic with a minimum of two (2), ten foot (10') wide travel lanes as indicated on the "Maintenance and protection of Traffic" drawings.

8.7 FLAG PERSONS

On any City street where one-way traffic previously existed, or on two-way streets where two (2), ten-foot (10') lanes cannot be provided, one (1), twelve-foot (12') lane with flag persons for alternating traffic shall be provided. Note that this provision is for temporary work hour traffic control only, and this system shall not be allowed to remain after the close of each workday. In addition, this work area plan shall be as short as possible in length and shall be subject to the directions and orders of the City Engineer, Flag persons shall be required to employ two-way radios or other positive communication devices when they are maintaining traffic and one flagperson is not visible to the other; or, if in the opinion of the City Engineer, this communication is necessary. The cost of any radio system or other form of communication shall be included in the price bid for this item.

8.8 STREET CLOSING

Under no circumstances may any City street be closed to traffic without specific permission of the City Engineer. If closure is approved, said closure will be limited to between the hours of 9:00 am and 4:00 pm, and only when the Contractor is actively working on project items that require the closing. The Contractor is actively working on project items that require reasons of sole convenience. The City streets are for the convenience of the traveling public, and every effort shall be made to maintain them safely open.

8.9 PROTECTION

Protect the public from damage to person and property, which may result directly or indirectly from any construction operation. The specification requirements of NYSDOT Section 107, Legal Relations and Responsibility to Public, shall apply.

8.10 POSTING FOR NO PARKING

Contractor/ utility shall be solely responsible for providing, installing and maintaining city approved signage for No Parking in the work zone as needed daily. The City of Troy will provide any no parking signs for the contractor/utility. The contractor/utility shall provide adequate time to coordinate such signage. All signs are to be removed immediately upon completing the work to restore the parking and lessen the impact on residents and businesses. In order to perform any towing, the posting for No Parking must have been completed a minimum of 24 hours in advance. The spacing of the signs shall not exceed a maximum spacing of fifty (50) feet.

8.11 SCHEDULE

The Contractor shall schedule work to keep at a minimum, and consistent with the physical requirements of the contract, the amount of existing pavement or facilities that are destroyed or substantially torn up at any one time. The Contractor may not have more than three (3) projects under construction at any one time, except when the Contractor has submitted and the Engineer has approved a detailed schedule of operations reflecting a proposal to the contrary. The contractor shall further maintain and protect the traffic by conducting his work operations so that the public is subject to a minimum of delay and hazard.

8.12 SITE PATROL

The contractor is responsible for maintenance of the various traffic control devices and signs. He shall diligently assure that all signs, cones, flashers, barrels, etc. are in place and in good operating condition, 24 hours per day, seven days per week. The sole judge of the Contractor's efforts towards the protection of traffic and personnel shall be the City Engineer. The contractor shall provide personnel to patrol the contract area as necessary to ensure that conditions on the site are adequate for public safety and

convenience at all times. The contractor shall instruct his personnel to inspect all sites currently under construction or not fully completed at the close of each work day and at least once on Saturdays, Sundays, Legal Holidays, "rained out" days, or any other day when work is not being performed on the contracted projects. The Contractor is placed on notice that maintenance and protection of traffic over a highway during construction is considered as important as the construction itself. The contractor shall, therefore, at all times conduct his operations in a manner to insure the convenience of all travelers and the abutting property owners and their safety as well as the safety of his own employees.

Such conduct shall include, but not be limited to, ensuring that all construction materials and equipment are removed from the work site during non-working hours, or are protected in such manner as to minimize the amount of time during which fixed objects and steep side slopes are without guide rail protection; shoulder construction and paving operations shall be conducted in such a manner to minimize the period of the time the traveling public is exposed to sharp drop offs; and workers shall not be allowed to park personal vehicles in the shoulder area.

8.13 STORAGE

The contractor shall not park equipment nor store materials overnight where it is deemed to be a safety hazard by the City Engineer. Vehicles belonging to the Contractor or the Contractor's employees shall not be parked on the pavement or shoulders along or adjacent to the travel lanes open to traffic within the project limits. If the City Engineer notifies the Contractor of any hazardous construction practices, all operations in that work area shall immediately discontinue, and immediate remedial action shall be taken to the satisfaction of the City Engineer prior to work recommencing.

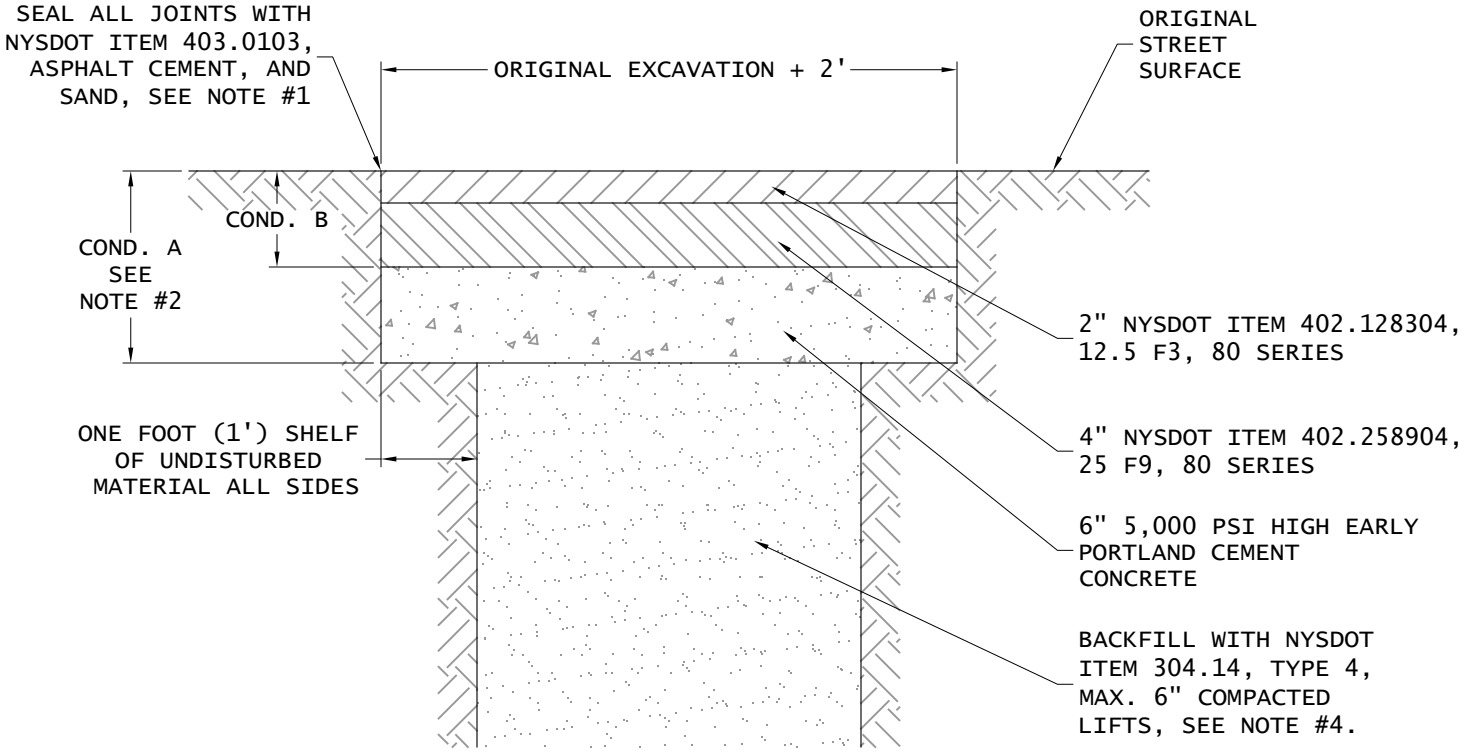
8.14 MAINTENANCE AND PROTECTION OF TRAFFIC SUBMITTAL

The City of Troy may direct the Utility Company or Contractor to submit a detailed plan for Maintenance and Protection of Traffic to the City Engineer for approval prior to commencing or at any time during the course of construction should it determine that the project will have an adverse impact on either pedestrian safety or vehicular traffic. The plan must be designed by a Licensed Professional Engineer.

8.15 EXCAVATIONS

All excavations that do not allow for a minimum travel lane of ten feet between the excavation and the centerline of the roadway must be covered with steel plates capable of handling traffic loading.

Appendix A
City of Troy Standard Details



NOTES:

1. SAWCUT CONTINUOUS STRAIGHT LINE CONSTRUCTION JOINTS FORMING REGULARLY SHAPED SQUARES OR RECTANGLES WITH RIGHT ANGLE CORNERS. MULTIPLE PATCHES TO BE ALL SAME SIZE. PATCHES FIVE FEET (5') APART OF LESS SHALL BE CONNECTED. PATCHES TWO FEET (2') OR LESS FROM THE CURB OR EDGE OF PAVEMENT SHALL BE EXTENDED TO SUCH BOUNDARY.

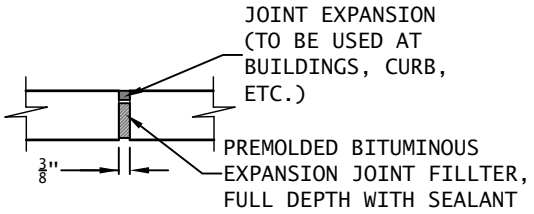
2. REFER TO GENERAL RULES, REGULATIONS, AND GUIDLINES FOR WORK WITHIN RIGHT OF WAY FOR REQUIRED CONDITION.

3. MINIMUM THICKNESS SHALL MATCH EXISTING PAVEMENT THICKKNESS.

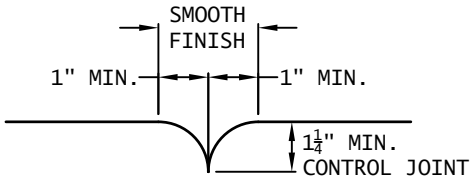
4. ALL EXCAVATED MATERIAL SHALL BE LEGALLY DISPOSED OF OFF-SITE.

01 C-501 Typical Street Restoration

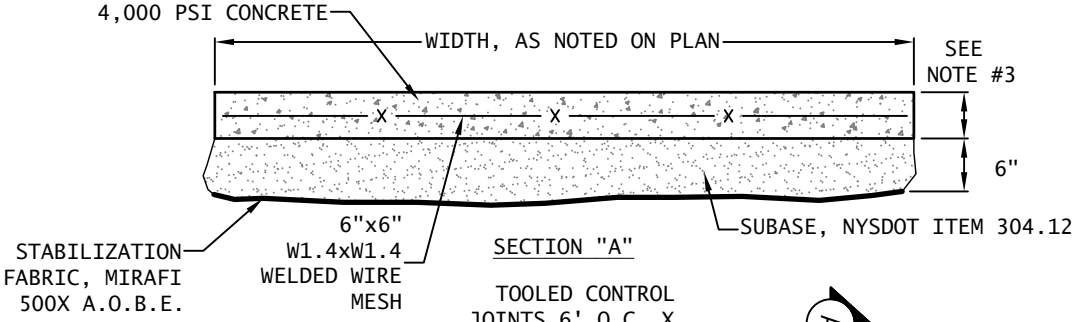
N.T.S.



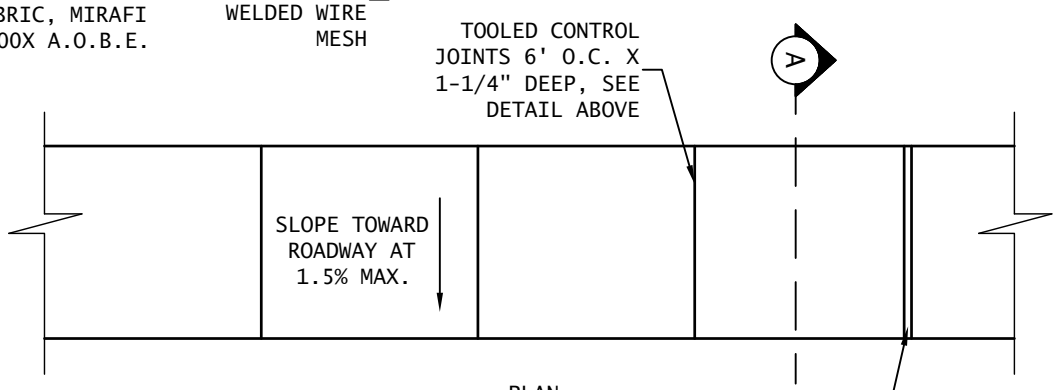
EXPANSION JOINT DETAIL



TOOLED CONTROL JOINT DETAIL



SECTION "A"



PLAN

EXPANSION (ISOLATION) JOINTS SPACED NOT MORE THAN 20' APART AND BETWEEN SIDEWALK AND FOUNDATIONS. PROVIDE 3/8" x 5' BITUMINOUS JOINT FILLER, SEE DETAIL ABOVE

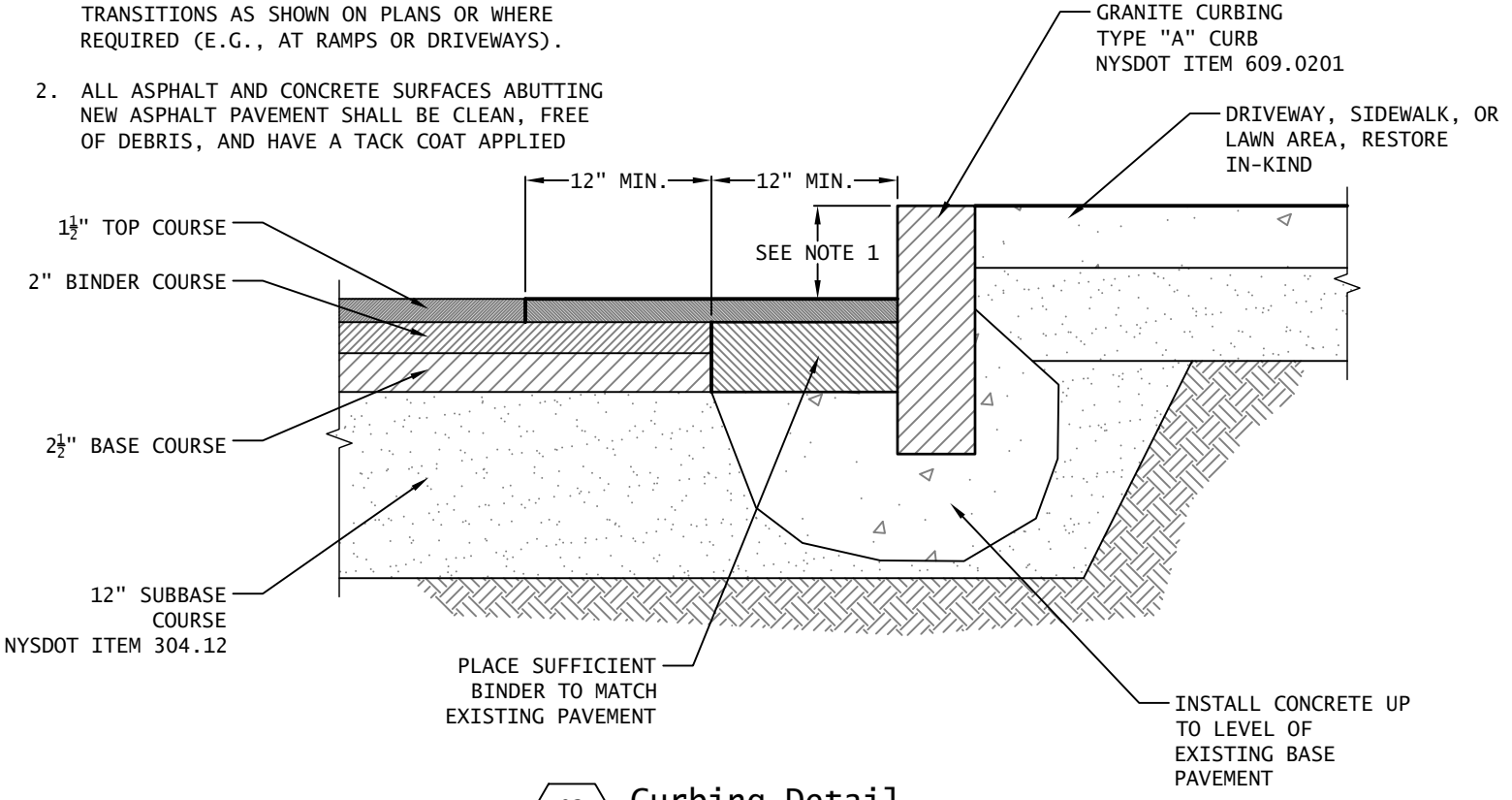
NOTES:

1. FINISH CONCRETE EDGES WITH 1/4" RADIUS EDGING TOOL.
2. MAGNESIUM FLOAT FINISH CONCRETE PERPENDICULAR TO DIRECTION OF TRAVEL TO PRODUCE UNIFORM SURFACE.
3. DEPTH SHALL BE MINIMUM 4". A MINIMUM OF 6" IS REQUIRED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.

NOTES:

1. NEW CURBING HEIGHT SHALL BE SIX INCHES (6"). IN AREAS OF REPLACEMENT, MATCH EXISTING CURBING HEIGHT. PROVIDE TRANSITIONS AS SHOWN ON PLANS OR WHERE REQUIRED (E.G., AT RAMPS OR DRIVEWAYS).

2. ALL ASPHALT AND CONCRETE SURFACES ABUTTING NEW ASPHALT PAVEMENT SHALL BE CLEAN, FREE OF DEBRIS, AND HAVE A TACK COAT APPLIED



03
C-501

Curbing Detail

N.T.S.

Appendix B
NYSDOT Standard Sheets

GENERAL NOTES:

1. THESE SHEETS ARE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA), AND THE REQUIREMENTS OF THE 2011 PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT OF WAY (PROWAG).

2. THE DIMENSIONS SHOWN IN THE DETAILS AS MINIMUMS AND MAXIMUMS ARE THE LIMITS FOR DESIGN AND FIELD LAYOUT. FOR WORK ACCEPTANCE VALUES SEE "CRITICAL ELEMENTS FOR THE DESIGN, LAYOUT, AND ACCEPTANCE OF PEDESTRIAN FACILITIES" ON SHEET 11 OF 12 AND SHEET 12 OF 12.

   A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL ELEVATIONS AND DIMENSIONS TO ENSURE THAT THE FINAL LAYOUT OF PEDESTRIAN FACILITIES MEETS ADA REQUIREMENTS. ANY SURVEY WORK NECESSARY TO MEET THESE REQUIREMENTS SHALL BE PAID FOR UNDER ITEM 625.01 - SURVEY OPERATIONS.

3. FACILITIES THAT CANNOT BE CONSTRUCTED TO MEET THE DESIGN STANDARDS, DUE TO DESIGN CONSTRAINTS, SHALL BE CONSTRUCTED TO MEET THE STANDARDS TO THE GREATEST EXTENT PRACTICABLE. FEATURES THAT CANNOT MEET THE VALUES FOR WORK ACCEPTANCE SHALL BE JUSTIFIED AS NONSTANDARD PER HIGHWAY DESIGN MANUAL CHAPTER 2.

4. TO CHECK FIELD LAYOUT AND TO VERIFY WORK ACCEPTANCE, ALL MEASUREMENTS SHALL BE MADE IN ACCORDANCE WITH THE "NOTES ON INSPECTION METHODS (MEASUREMENT)" ON SHEET 11 OF 12.

5. JOINTS BETWEEN SIDEWALKS, CURB RAMPS, TURNING SPACES AND ROADWAYS SHALL BE FLUSH AND FREE FROM ABRUPT VERTICAL CHANGES GREATER THAN ¼". VERTICAL SURFACE DISCONTINUITIES BETWEEN ¼" AND ½" SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE JOINT. SEE "VERTICAL SURFACE DISCONTINUITIES" DETAIL ON SHEET 2 OF 12.

6. SIDEWALKS ARE CONNECTED TO ROADWAYS BY BLENDED TRANSITIONS OR CURB RAMPS. BLENDED TRANSITIONS ARE CONNECTIONS BETWEEN THE SIDEWALK LEVEL AND THE ROADWAY LEVEL THAT HAVE A MAXIMUM GRADE (RUNNING SLOPE) OF 5%. CONNECTIONS WITH A MAXIMUM GRADE (RUNNING SLOPE) GREATER THAN 5% ARE CONSIDERED CURB RAMPS.

7. CURB RAMPS AND BLENDED TRANSITIONS MAY REQUIRE THE INSTALLATION OF DETECTABLE WARNINGS. SEE ADDITIONAL "DETECTABLE WARNING NOTES" ON THIS SHEET, AND THE DETAILS ON SHEET 2 OF 12 FOR DIMENSIONS AND ORIENTATION.

8. GRADE BREAKS WITHIN THE PEDESTRIAN ACCESS ROUTE SHOULD BE PERPENDICULAR TO THE DIRECTION OF TRAVEL AND SHALL NOT BE ROUNDED. VERTICAL ALIGNMENT SHALL BE GENERALLY PLANAR.

9. MATERIAL DEPTHS SHOWN ON THESE SHEETS ARE TYPICAL MINIMUM VALUES AND MAY BE DIFFERENT IN THE CONTRACT DOCUMENTS.

10. SIDEWALK GRADE (RUNNING SLOPE) SHALL NOT EXCEED 4.5% FOR DESIGN AND LAYOUT OR 5% FOR WORK ACCEPTANCE, EXCEPT WHEN MATCHING INTO EXISTING SIDEWALK OR WHEN THE ADJACENT HIGHWAY GRADE IS STEEPER THAN 5%. WHEN THE ADJACENT HIGHWAY GRADE IS GREATER THAN 5%, THE SIDEWALK GRADE SHALL NOT EXCEED THE HIGHWAY GRADE.

11. THE CROSS SLOPE OF PEDESTRIAN ACCESS ROUTES SHALL BE 1.5% MAXIMUM FOR DESIGN AND LAYOUT, AND 2% MAXIMUM FOR WORK ACCEPTANCE. THE FOLLOWING EXCEPTIONS ARE ALLOWED:

   A. WHERE PEDESTRIAN STREET CROSSINGS ARE PROVIDED AT INTERSECTIONS WITHOUT YIELD- OR STOP-CONTROL, OR WHERE THERE IS ANY TRAFFIC SIGNAL WITHOUT A FLASHING RED, THE CROSS SLOPE OF A PEDESTRIAN ACCESS ROUTE CONTAINED WITHIN A STREET CROSSING SHALL BE 4.5% MAXIMUM FOR DESIGN AND LAYOUT, AND 5% MAXIMUM FOR WORK ACCEPTANCE.

   B. WHERE MIDBLOCK PEDESTRIAN STREET CROSSINGS ARE PROVIDED, THE CROSS SLOPE OF A PEDESTRIAN ACCESS ROUTE CONTAINED WITHIN A MIDBLOCK STREET CROSSING SHALL BE PERMITTED TO EQUAL THE STREET OR HIGHWAY GRADE.

12. THE MINIMUM CLEAR WIDTH FOR PEDESTRIAN ACCESS ROUTES IS 4'-0", EXCLUSIVE OF THE CURB. THE DEPARTMENT'S PREFERRED CLEAR WIDTH IS 5'-0". WHEN WALKWAY WIDTHS ARE LESS THAN 5'-0", 5'-0" x 5'-0" PASSING SPACES (SHOWN IN DETAIL A OR B ON THIS SHEET), OR A FEATURE OF EQUAL OR GREATER DIMENSIONS THAT MEETS THE SLOPE AND SURFACE CRITERIA, SHALL BE PROVIDED AT A MAXIMUM INTERVAL OF 200'. EXISTING DRIVEWAYS AND STREET CROSSINGS MAY SERVE AS PASSING SPACES, PROVIDED THEY MEET SLOPE AND SURFACE REQUIREMENTS FOR A PEDESTRIAN ACCESS ROUTE.

13. THE BUFFER ZONE IS A PHYSICAL DISTANCE SEPARATING THE PEDESTRIAN ACCESS ROUTE FROM THE VEHICLE TRAVELED WAY. THE BUFFER ZONE MAY BE PLANTED OR PAVED. WHERE THE BUFFER ZONE WIDTH, EXCLUSIVE OF CURB, IS LESS THAN 3'-0", THE SURFACE SHOULD BE PAVED OR CONSTRUCTED WITH HARDSCAPE MATERIALS.

14. THE MAXIMUM RECOMMENDED CROSS SLOPE OF A TURF BUFFER ZONE OR SLOPE TRANSITION BEHIND SIDEWALK IS 25%. BUFFER ZONES WITH A CROSS SLOPE GREATER THAN 25% SHOULD BE PAVED, PLANTED OR CONSTRUCTED WITH HARDSCAPE MATERIALS.

15. WHEN CROSSING DRIVEWAYS, THE WORK SHALL BE IN CONFORMANCE WITH STANDARD SHEET 608-03.

16. FOR PEDESTRIAN SIGNALS AND PEDESTRIAN PUSH BUTTONS, REFER TO SHEET 12 OF 12 AND STANDARD SHEET 680-10 FOR DETAILS.

17. WHERE EXISTING ROADWAYS ARE SAWCUT TO INSTALL CURBING AND/OR SIDEWALK, THE ROADWAY SHOULD BE SAWCUT AT LEAST 2'-0" FROM THE PROPOSED CURB LINE TO ALLOW FOR ADEQUATE COMPACTION OF ASPHALT. IF THE SAWCUT IS LESS THAN 2'-0" FROM THE PROPOSED CURB LINE, THE ROADWAY SHALL BE REBUILT USING CLASS A, C, OR D CONCRETE. SEE DETAILS ON SHEET 9 OF 12.

CURB RAMP NOTES:

18. THE MINIMUM CLEAR WIDTH OF A CURB RAMP SHALL BE 4'-0". THE DEPARTMENT'S PREFERRED CLEAR WIDTH IS 5'-0".

19. THE MAXIMUM GRADE (RUNNING SLOPE) FOR DESIGN AND LAYOUT OF A CURB RAMP SHALL BE 7.5%. THE GRADE FOR WORK ACCEPTANCE SHALL BE A MAXIMUM OF 8.3%.

20. WHERE THE TERRAIN DOES NOT ALLOW CONSTRUCTION OF A CURB RAMP WITH A GRADE (RUNNING SLOPE) OF 8.3% OR LESS WITHIN 15'-0", THE RAMP LENGTH SHALL NOT BE REQUIRED TO EXCEED 15'-1" FOR DESIGN AND LAYOUT OR 15'-0" FOR WORK ACCEPTANCE.

21. THE CROSS SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS POSSIBLE AND STILL PROVIDE POSITIVE DRAINAGE. THE CROSS SLOPE OF A CURB RAMP SHALL BE 1.5% MAXIMUM FOR DESIGN AND LAYOUT, AND 2% MAXIMUM FOR WORK ACCEPTANCE. THE FOLLOWING EXCEPTIONS ARE ALLOWED:

   A. WHERE PEDESTRIAN STREET CROSSINGS ARE PROVIDED AT INTERSECTIONS WITHOUT YIELD- OR STOP-CONTROL, WHERE THERE IS ANY TRAFFIC SIGNAL WITHOUT A FLASHING RED, OR AT MISDBLOCK CROSSINGS, THE CROSS SLOPE OF THE CURB RAMP SHALL BE PERMITTED TO EQUAL THE STREET OR HIGHWAY GRADE.

22. WHERE THE EXISTING ROADWAY GRADE EXCEEDS THE MAXIMUM ALLOWABLE CROSS SLOPE FOR A CURB RAMP, AND CANNOT BE CORRECTED WITHIN THE SCOPE OF THE PROJECT, THE RAMP SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE "CURB RAMP CROSS SLOPE TRANSITION" DETAIL ON SHEET 8 OF 12. THE RAMP MAY NEED TO BE JUSTIFIED AS A NONSTANDARD FEATURE. SEE NOTE 3 ON THIS SHEET.

23. RAMP SIDE OPTIONS ARE DETAILED ON SHEET 3 OF 12. WHERE A PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP, FLARED SIDES SHALL BE INSTALLED WITH A MAXIMUM SLOPE OF 9.5% FOR DESIGN AND LAYOUT, AND 10% MAXIMUM FOR WORK ACCEPTANCE. A PEDESTRIAN CIRCULATION PATH IS ASSUMED TO CROSS THE CURB RAMP WHEN AREA ADJACENT TO THE RAMP IS PAVED AND FREE OF VERTICAL OBSTRUCTIONS THAT WOULD PREVENT PEDESTRIAN PASSAGE. THERE IS NO MAXIMUM FLARE SLOPE FOR A RAMP THAT IS NOT CROSSED BY A PEDESTRIAN CIRCULATION PATH.

24. THE BACK SIDE OF A PARALLEL RAMP SHOULD BE GRADED TO A MAXIMUM SLOPE OF 25% TO MATCH EXISTING TERRAIN, UNLESS OTHERWISE SHOWN IN THE CONTRACT DOCUMENTS. WHERE GRADING IS NOT FEASIBLE DUE TO LIMITED ROW OR PHYSICAL CONSTRAINTS, A BACK CURB MAY BE INSTALLED. SEE DETAILS ON SHEET 3 OF 12 AND SHEET 9 OF 12.

25. THE DEPARTMENT'S PREFERENCE IS TO INSTALL TWO SEPARATE CURB RAMPS AT A STREET CORNER THAT SERVES TWO SEPARATE PEDESTRIAN CROSSINGS, WITH EACH RAMP ALIGNED TO THE CROSSING THAT IT SERVES. WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT SEPARATE RAMPS, A SINGLE CURB RAMP (I.E., A DIAGONAL CURB RAMP) IS PERMITTED TO SERVE BOTH PEDESTRIAN CROSSINGS.

TURNING SPACE AND CLEAR SPACE NOTES:

26. WHERE A CHANGE IN DIRECTION IS REQUIRED TO UTILIZE A CURB RAMP, A TURNING SPACE SHALL BE PROVIDED AT THE BASE OR THE TOP OF CURB RAMP, AS APPLICABLE. TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.

27. WHERE THERE ARE NO VERTICAL CONSTRAINTS AT THE BACK OF SIDEWALK, (E.G., VERTICAL CURBS, BUILDINGS, FENCES) THE TURNING SPACE DIMENSIONS SHALL BE 4'-0" x 4'-0" MINIMUM. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4'-0" X 5'-0" MINIMUM. THE 5'-0" DIMENSION SHALL BE IN THE DIRECTION OF THE RAMP RUN.

28. TURNING SPACES SHALL NOT BE DESIGNED WITH A SLOPE GREATER THAN 1.5% IN ANY DIRECTION, WHILE PROVIDING POSITIVE DRAINAGE. THE MAXIMUM SLOPE FOR WORK ACCEPTANCE IS 2.0%.

29. BELOW THE BOTTOM GRADE BREAK OF A CURB RAMP, A CLEAR SPACE OF 4'-0" x 4'-0" MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK, AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. THE CLEAR SPACE MAY OVERLAP TURNING SPACES, DETECTABLE WARNING SURFACES, AND DROP CURBS.

DETECTABLE WARNING NOTES:

30. DETECTABLE WARNING SURFACES (DWS) SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS ON PEDESTRIAN ACCESS ROUTES:

   A. CURB RAMPS AND BLENDED TRANSITIONS AT PEDESTRIAN STREET CROSSINGS.

   B. PEDESTRIAN REFUGE ISLANDS (WHERE THE LENGTH OF THE PEDESTRIAN ACCESS ROUTE ACROSS THE REFUGE ISLAND IS GREATER THAN OR EQUAL TO 6').

   C. PEDESTRIAN AT-GRADE RAIL CROSSINGS NOT LOCATED WITHIN A STREET OR HIGHWAY.

31. DETECTABLE WARNING SURFACES SHALL BE PROVIDED WHERE THE PEDESTRIAN ACCESS ROUTE CROSSES DRIVEWAYS WITH SIGNAL, YIELD OR STOP CONTROL. DETECTABLE WARNING SURFACES SHALL NOT BE PROVIDED AT CROSSINGS OF UNCONTROLLED DRIVEWAYS.

32. WITH THE EXCEPTION OF THE DETECTABLE WARNING SURFACE TRUNCATED DOME DETAILS ON SHEET 2 OF 12, DETECTABLE WARNING DOMES ARE NOT DEPICTED TO SCALE ON THESE SHEETS.

33. DETECTABLE WARNING FIELDS SHALL EXTEND 24" MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL ACROSS THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, EXCLUDING ANY FLARED SIDES.

34. SOME DETECTABLE WARNING PRODUCTS REQUIRE A CONCRETE BORDER FOR PROPER INSTALLATION. IF REQUIRED, THE BORDER SHALL NOT EXCEED 2". WHERE THE BACK OF THE CURB EDGE IS TOOLED TO PROVIDE A RADIUS, THE BORDER DIMENSION SHALL BE MEASURED FROM THE INSIDE EDGE OF THE CURB RADIUS. BORDERS CANNOT BE INCLUDED AS PART OF THE 24" MINIMUM DIMENSION DESCRIBED IN NOTE 33.

35. WHERE CURB IS NOT USED, THE EDGE OF PAVEMENT SHALL BE SUBSTITUTED FOR THE BACK OF CURB FOR PLACEMENT OF DETECTABLE WARNINGS.

36. ON SLOPES OF 5% OR GREATER, THE ROWS OF DOMES SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE LOWER GRADE BREAK ON THE RAMP RUN. WHERE DOMES ARE ARRAYED RADIALLY, THEY MAY DIFFER IN DIAMETER AND CENTER-TO-CENTER SPACING WITHIN THE RANGES SPECIFIED ON SHEET 2 OF 12. DOME ALIGNMENT THAT IS PERPENDICULAR OR RADIAL TO THE LOWER GRADE BREAK IS NOT REQUIRED ON SLOPES OF LESS THAN 5%.

37. THE DETECTABLE WARNING FIELD SHALL BE THE COLOR SPECIFIED IN THE CONTRACT DOCUMENTS OR MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT GUTTER, STREET OR HIGHWAY, OR PEDESTRIAN ACCESS ROUTE SURFACE, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

DEFINITION OF TERMS:

ACCESSIBLE ROUTE. SEE "PEDESTRIAN ACCESS ROUTE", BELOW.

CLEAR SPACE. AN UNOBSTRUCTED FLOOR OR GROUND SPACE THAT WILL ACCOMODATE A SINGLE, STATIONARY WHEELCHAIR AND OCCUPANT.

CROSS SLOPE. THE GRADE THAT IS PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.

PARALLEL CURB RAMP. A CURB RAMP WITH THE RAMP SLOPE ORIENTED PARALLEL TO THE CURB OR EDGE OF PAVEMENT.

PEDESTRIAN ACCESS ROUTE (PAR). A CONTINUOUS AND UNOBSTRUCTED PATH OF TRAVEL PROVIDED FOR PEDESTRIANS WITH DISABILITIES WITHIN OR COINCIDING WITH A PEDESTRIAN CIRCULATION PATH.

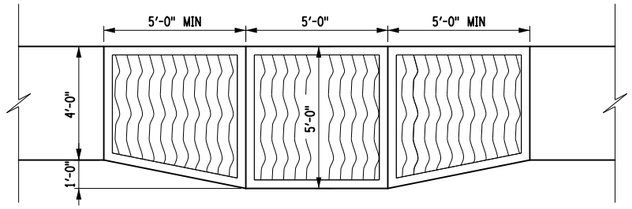
PEDESTRIAN CIRCULATION PATH. A PREPARED EXTERIOR OR INTERIOR SURFACE PROVIDED FOR PEDESTRIAN TRAVEL IN THE PUBLIC RIGHT-OFWAY.

PERPENDICULAR CURB RAMP. A CURB RAMP WITH THE RAMP SLOPE ORIENTED PERPENDICULAR TO THE CURB OR EDGE OF PAVEMENT.

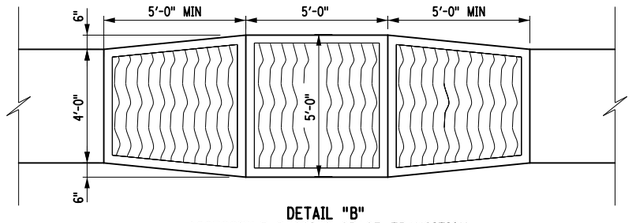
RUNNING SLOPE. THE GRADE THAT IS PARALLEL TO THE DIRECTION OF PEDESTRIAN TRAVEL.

STOP- OR YIELD-CONTROLLED LOCATION. AN INTERSECTION, DRIVEWAY OR PEDESTRIAN CROSSING WHERE VEHICULAR TRAFFIC IS CONTROLLED BY A YIELD SIGN, A STOP SIGN, OR A TRAFFIC SIGNAL THAT FLASHES RED. VEHICULAR TRAFFIC DOES NOT PASS THROUGH A STOP- OR YIELD-CONTROLLED LOCATION WITHOUT STOPPING OR SLOWING.

TURNING SPACE. A RELATIVELY LEVEL SPACE PROVIDED WHERE A TURNING MANUEVER IS REQUIRED FOR A PEDESTRIAN TO ORIENT TO A CURB RAMP OR STREET CROSSING.



DETAIL "A"
ACCESSIBLE PASSING SPACE TRANSITION
ONE SIDE TAPERS



DETAIL "B"
ACCESSIBLE PASSING SPACE TRANSITION
BOTH SIDES TAPER

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 1 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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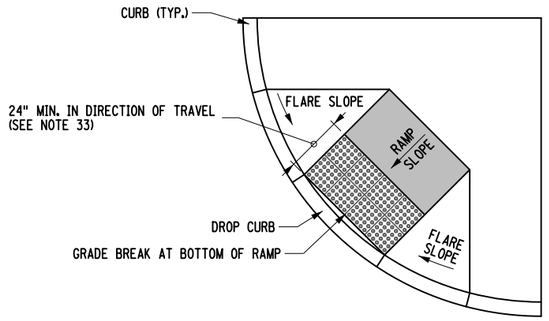
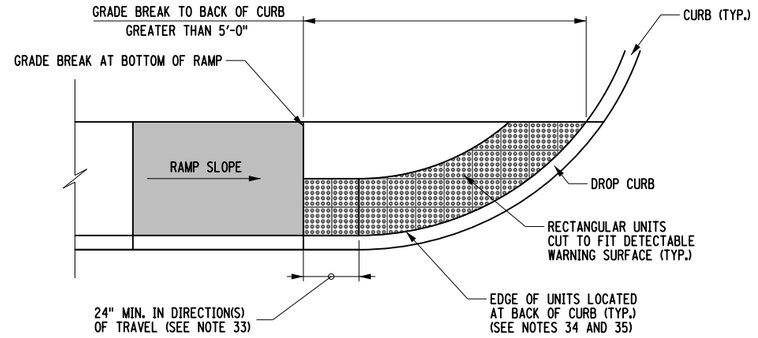
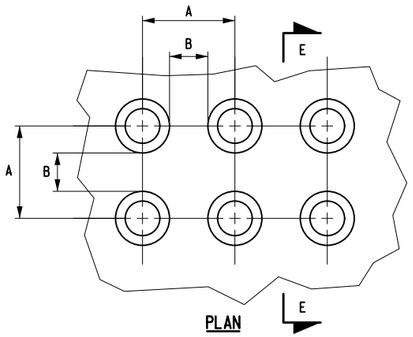


DETECTABLE WARNING SURFACE PLACEMENT - OPTION 1

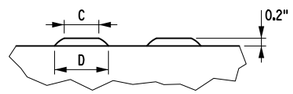


DETECTABLE WARNING SURFACE PLACEMENT - OPTION 4



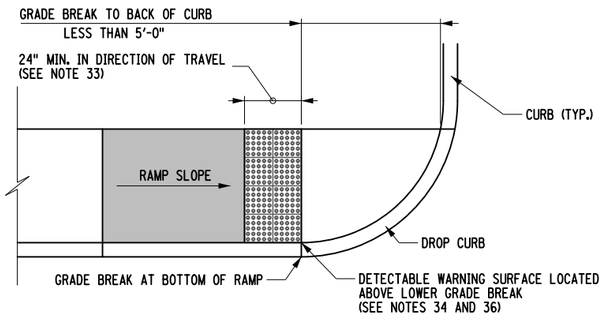
PLAN

TRUNCATED DOME DIMENSIONS		
DIM.	MIN. (IN)	MAX. (IN)
A	1.6"	2.4"
B	0.65"	1.5"
C	50% - 65% OF D DIM.	
D	0.9"	1.4"

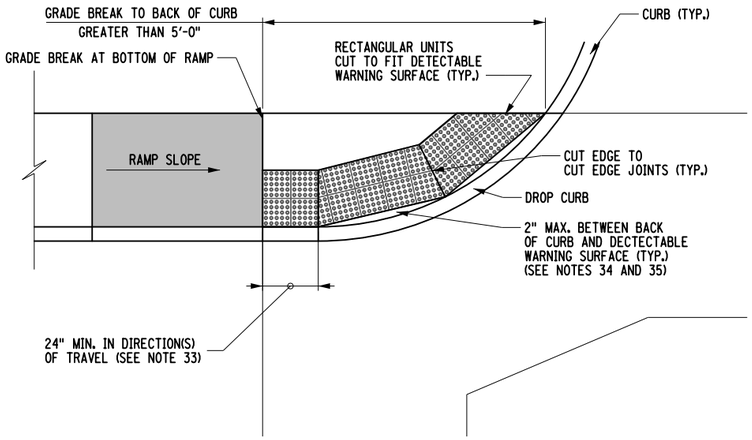


SECTION E-E

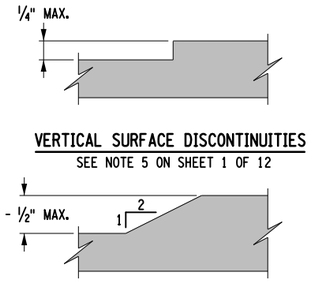
DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAILS



DETECTABLE WARNING SURFACE PALCEMENT - OPTION 2

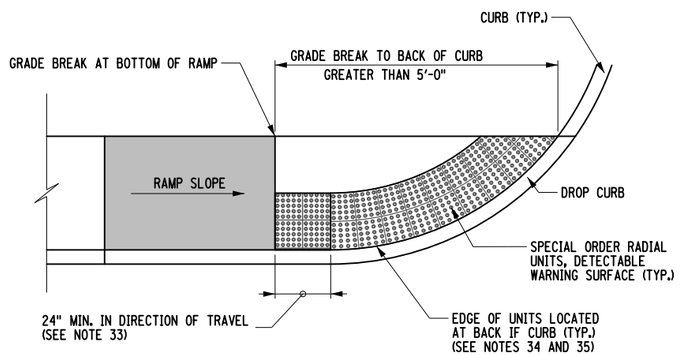


DETECTABLE WARNING SURFACE PLACEMENT - OPTION 5



VERTICAL SURFACE DISCONTINUITIES

SEE NOTE 5 ON SHEET 1 OF 12



DETECTABLE WARNING SURFACE PLACEMENT - OPTION 3

DETECTABLE WARNING SURFACE (DWS) PLACEMENT OPTION DETAILS

NOTES:

1. ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.
2. A COMBINATION OF RAMP SIDE CONFIGURATIONS CAN BE USED.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 2 OF 12)

APPROVED FEBRUARY 05, 2020
/S/ RICHARD WILDER, P.E.
DEPUTY CHIEF ENGINEER
(DESIGN)

ISSUED UNDER EI 20-005

608-01

FILE NAME = 608_0102_050120.dgn
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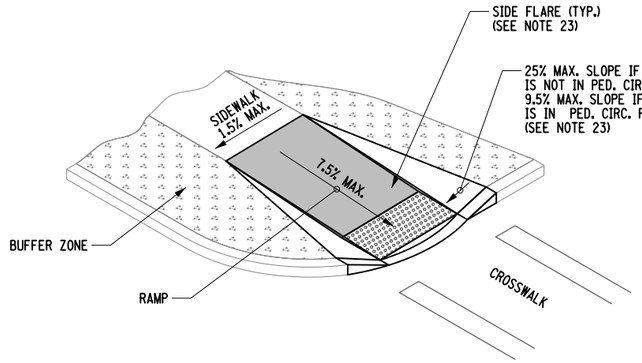
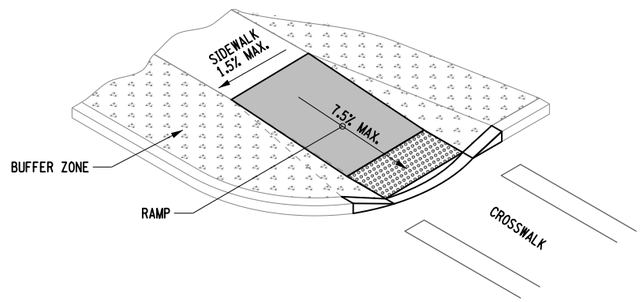
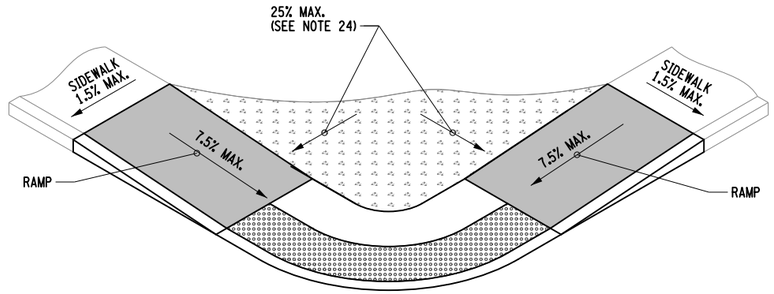


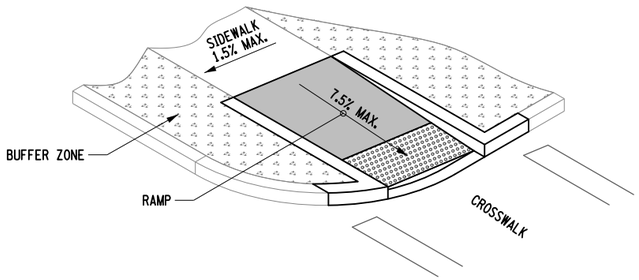
RAMP SIDE OPTION A: FLARED CONCRETE



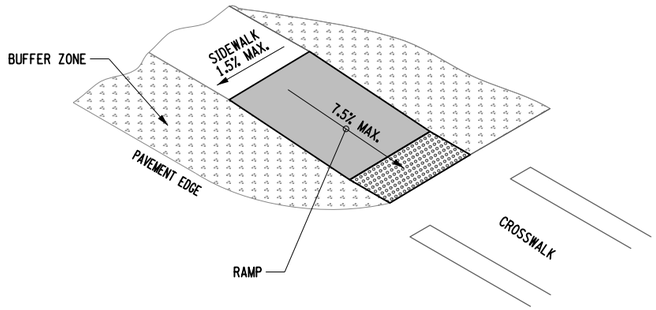
RAMP SIDE OPTION B: GRADED EARTH



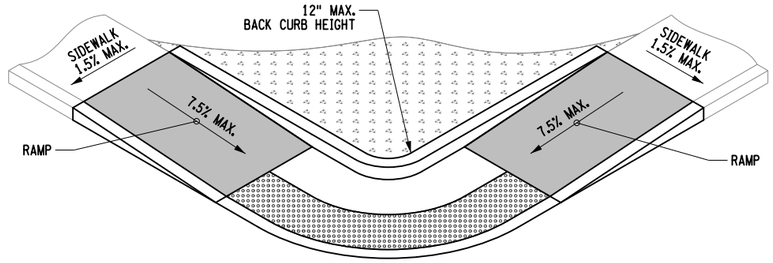
RAMP BACK OPTION A: GRADED EARTH AND TURF



RAMP SIDE OPTION C: RETURN CURB



RAMP SIDE OPTION D: UNCURBED INTERSECTION



RAMP BACK OPTION B: BACK CURB

PARALLEL RAMP BACK TREATMENTS

RAMP SIDE CONFIGURATIONS

NOTES:

1. ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.
2. A COMBINATION OF RAMP SIDE CONFIGURATIONS CAN BE USED.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 3 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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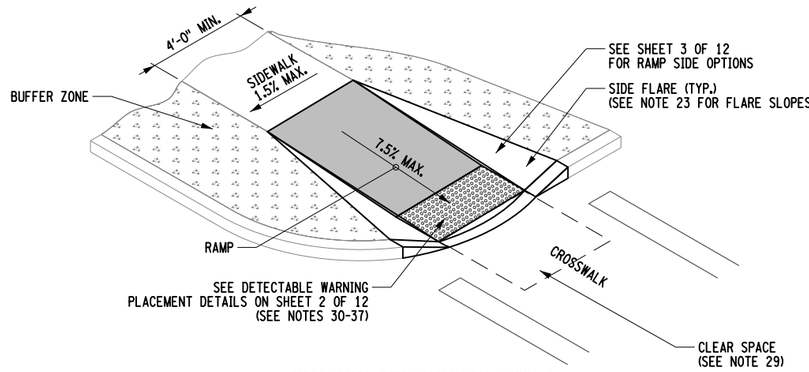
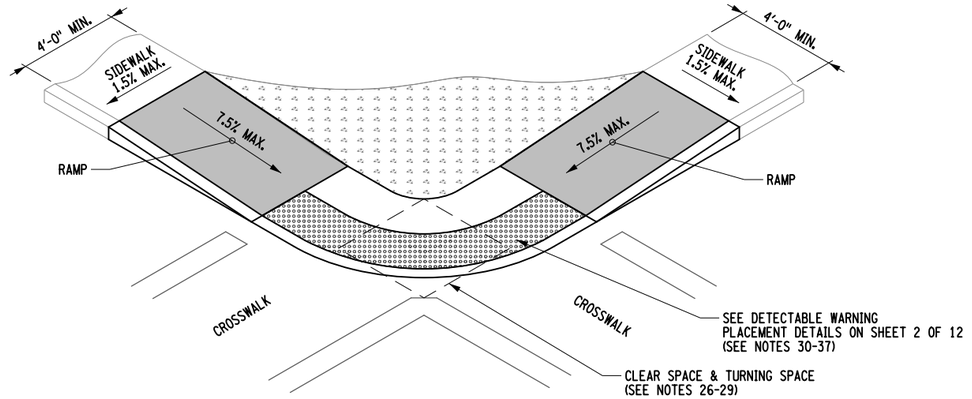
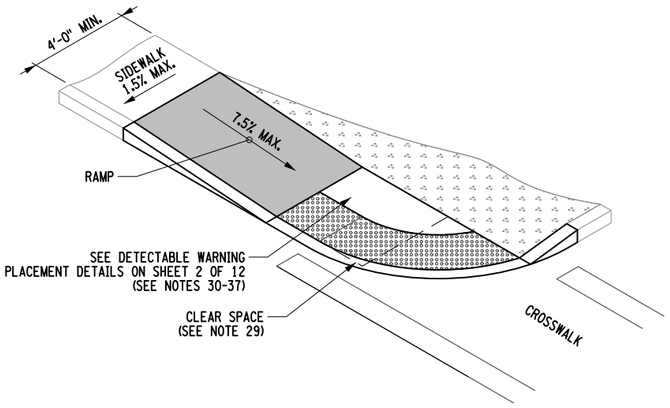


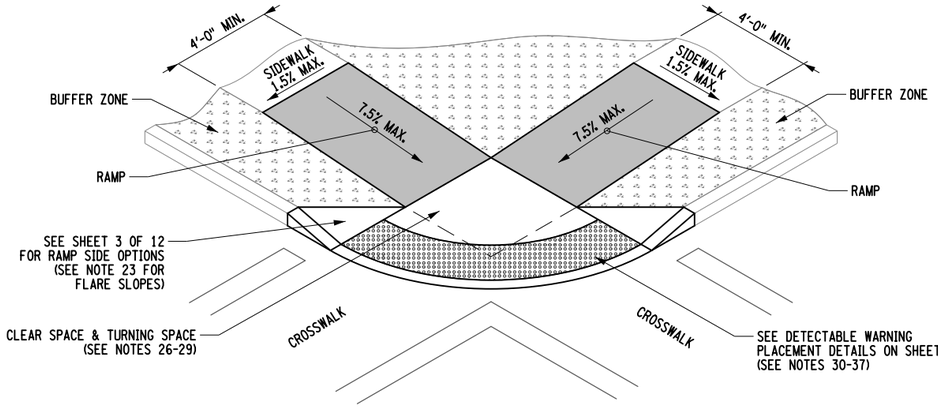
CURB RAMP CONFIGURATION: TYPE 1



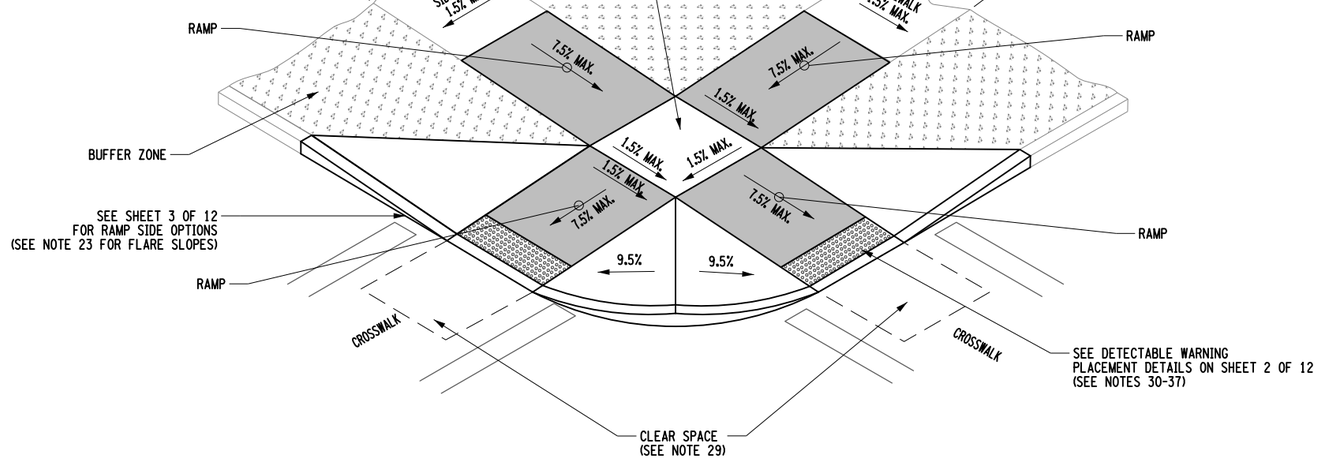
CURB RAMP CONFIGURATION: TYPE 4



CURB RAMP CONFIGURATION: TYPE 2



CURB RAMP CONFIGURATION: TYPE 3



CURB RAMP CONFIGURATION: TYPE 5

NOTE:

ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 4 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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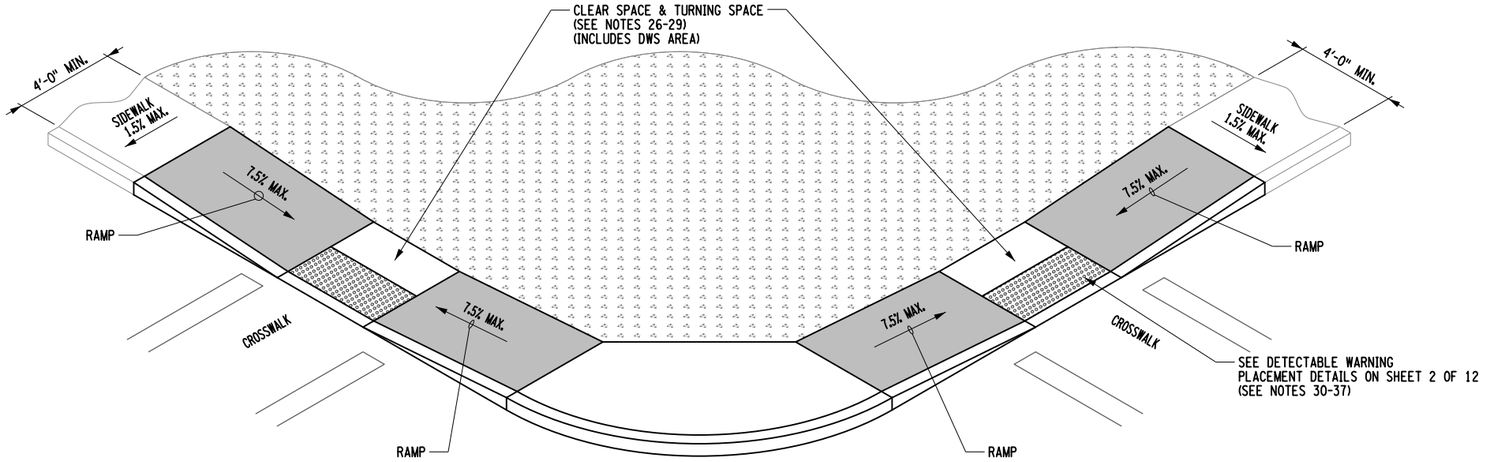
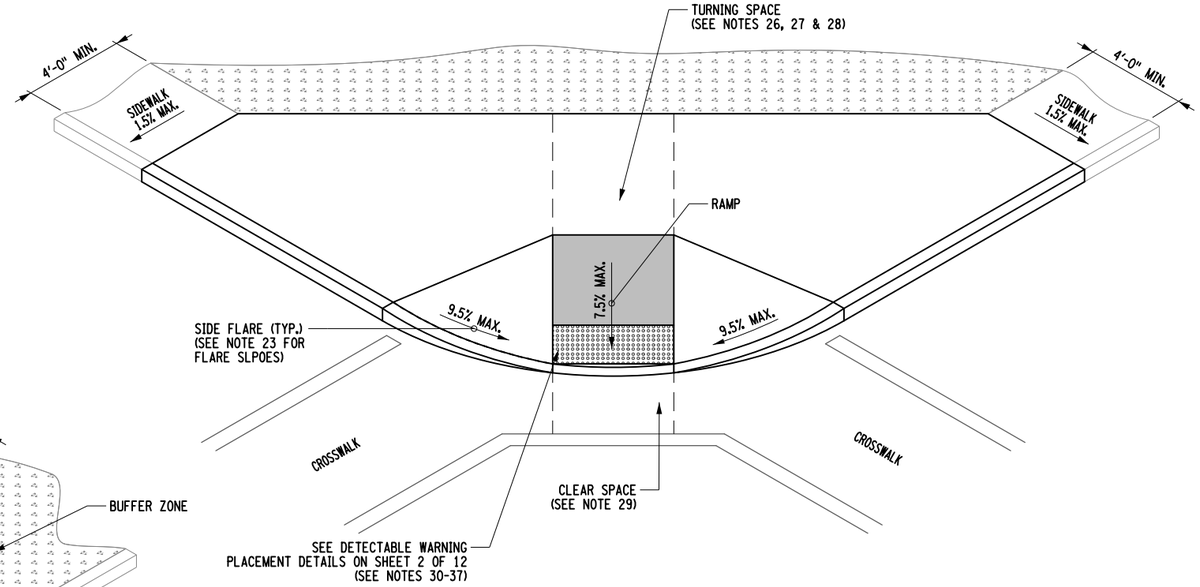
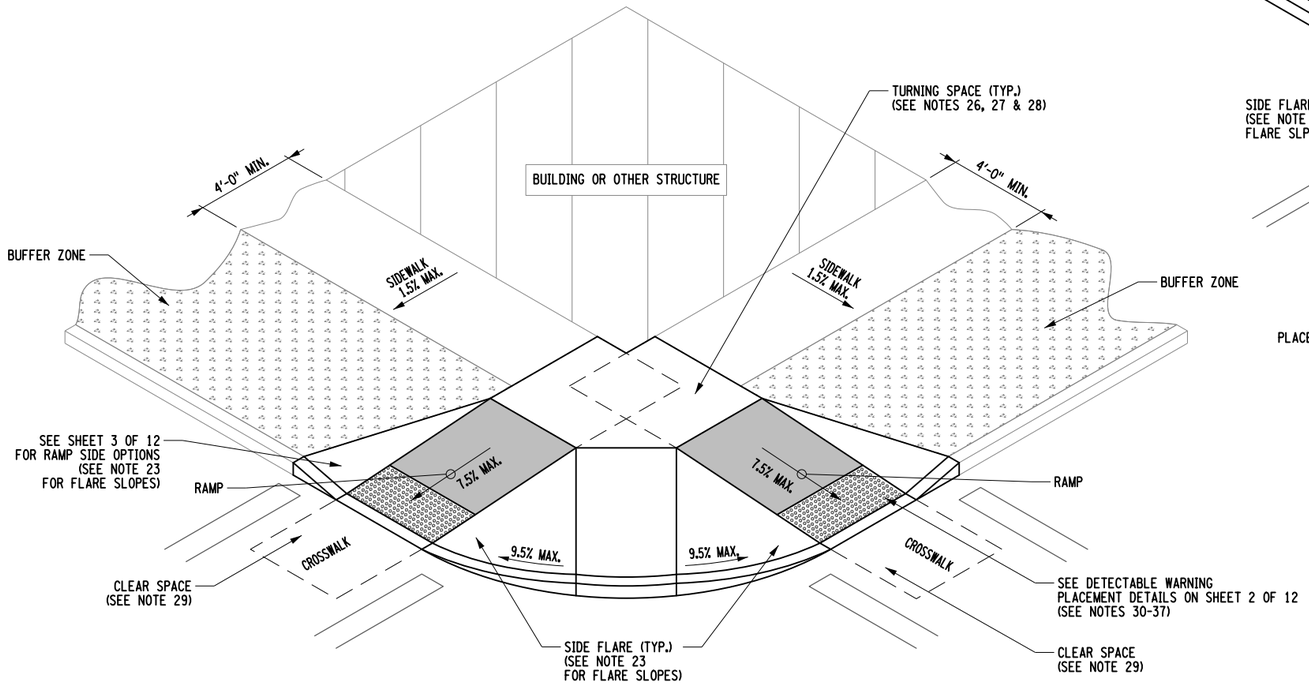


CURB RAMP CONFIGURATION: TYPE 6



CURB RAMP CONFIGURATION: TYPE 8



CURB RAMP CONFIGURATION: TYPE 7

NOTE:

ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 5 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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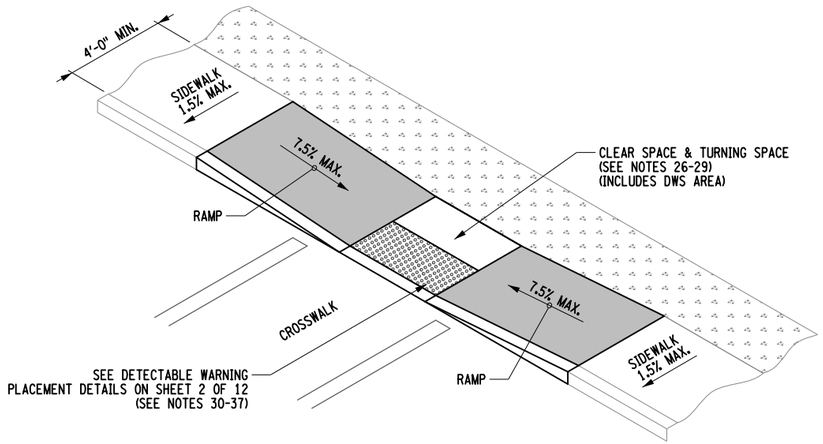
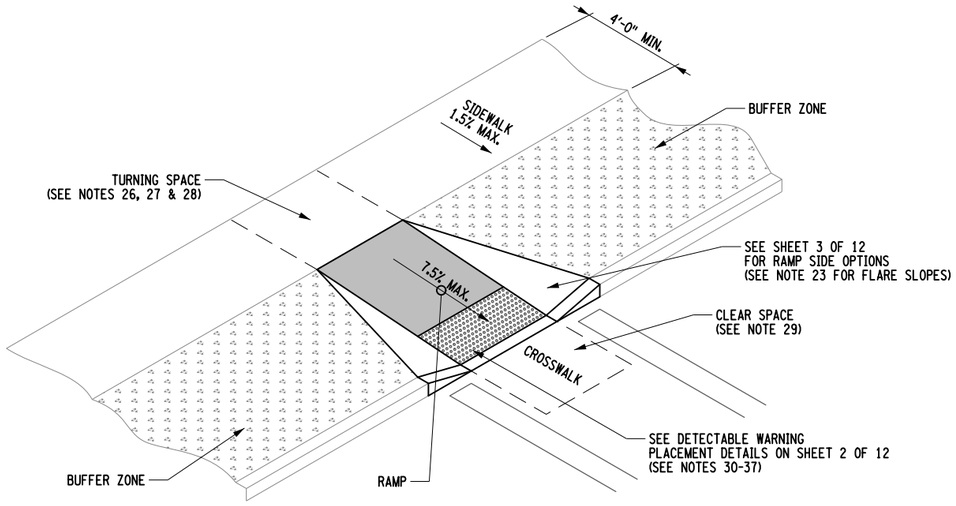
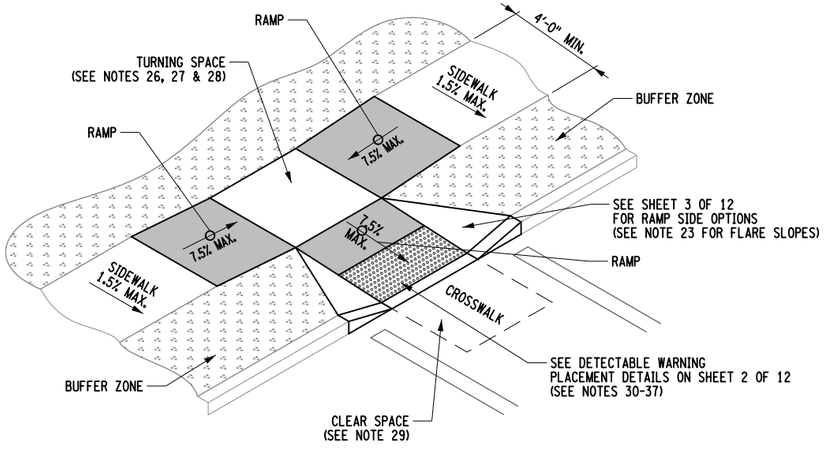


CURB RAMP CONFIGURATION: TYPE 9 MID BLOCK CROSSING OR T INTERSECTION



CURB RAMP CONFIGURATION: TYPE 11 MID BLOCK CROSSING OR T INTERSECTION



CURB RAMP CONFIGURATION: TYPE 10 MID BLOCK CROSSING OR T INTERSECTION

NOTE:

ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 6 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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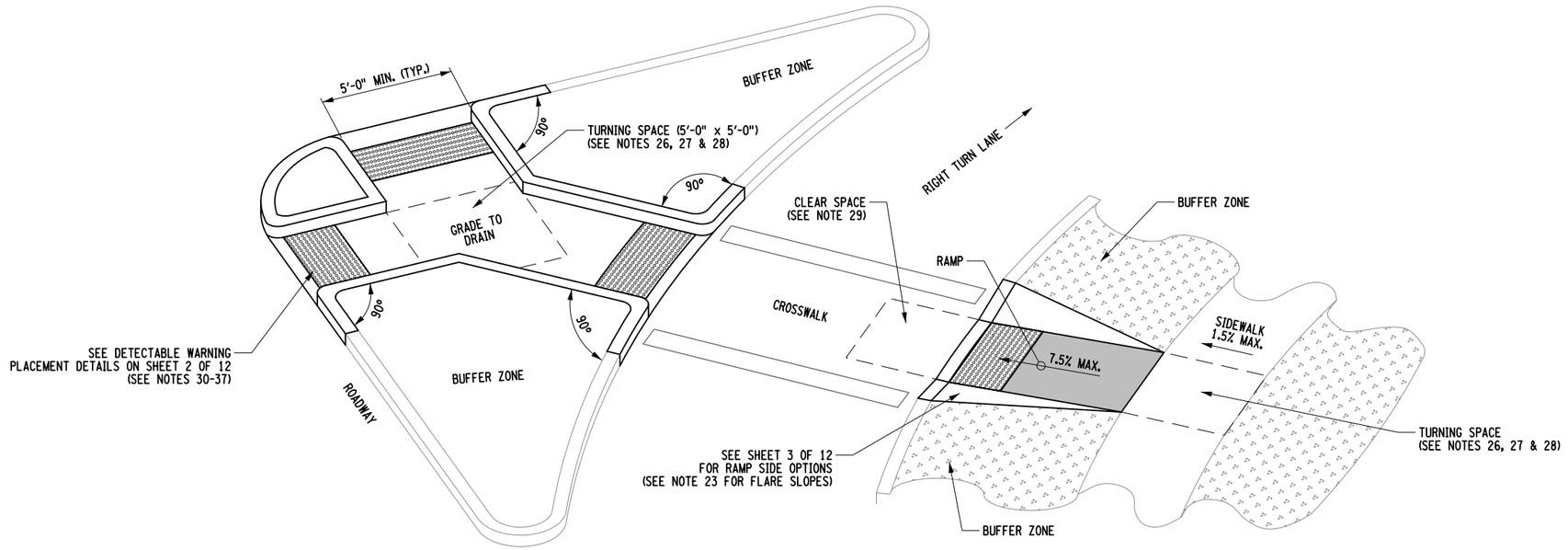
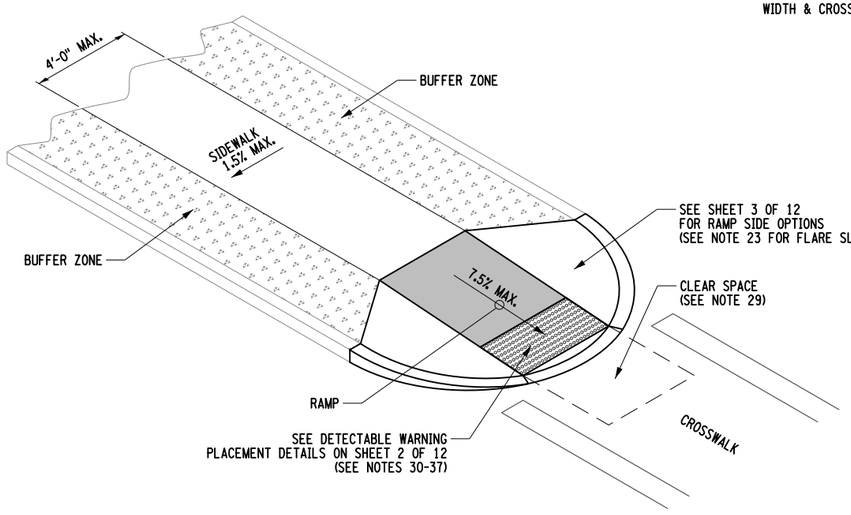
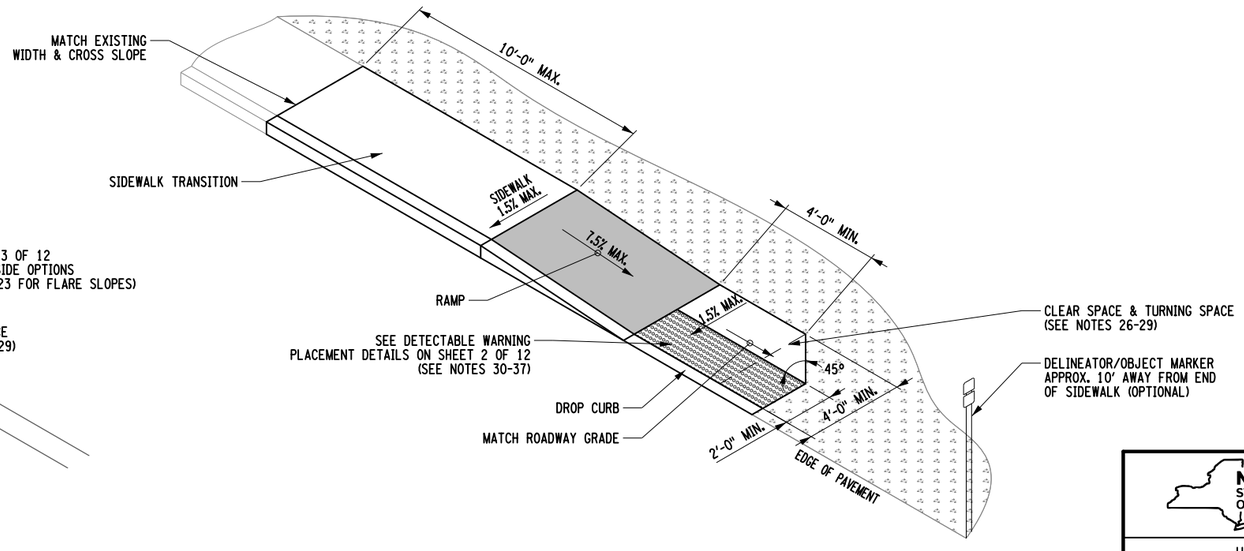


CURB RAMP CONFIGURATION: TYPE 12 RIGHT TURN ISLAND CUT THROUGH



CURB RAMP CONFIGURATION: TYPE 13 ACCESS ISLAND CURB RAMP



CURB RAMP CONFIGURATION: TYPE 14 SHOULDER TO SIDEWALK TRANSITION

NOTE:

ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 7 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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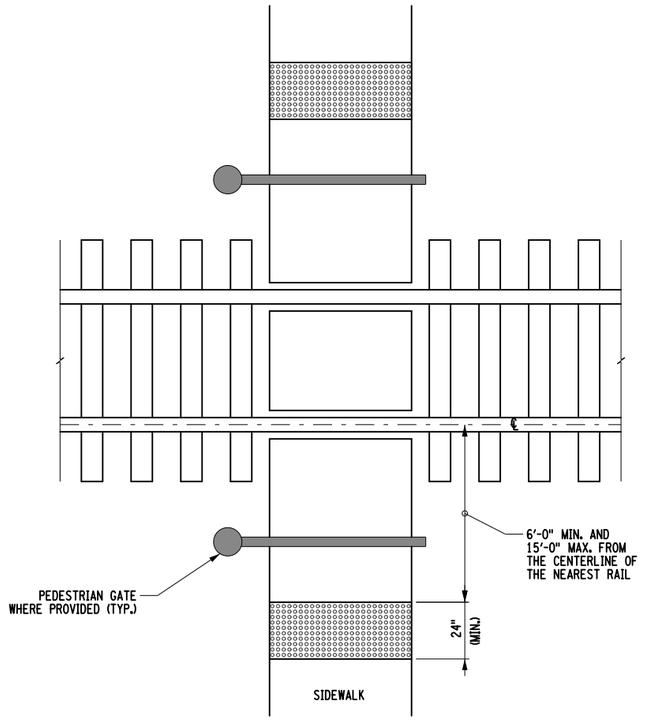
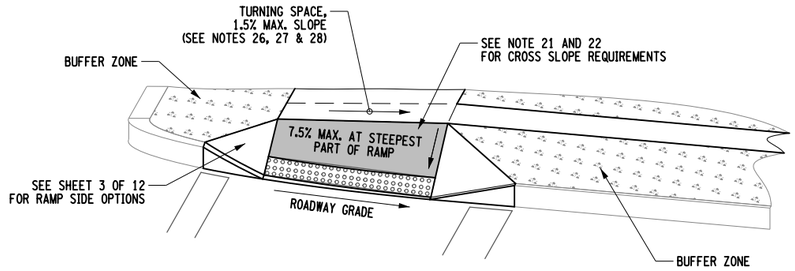
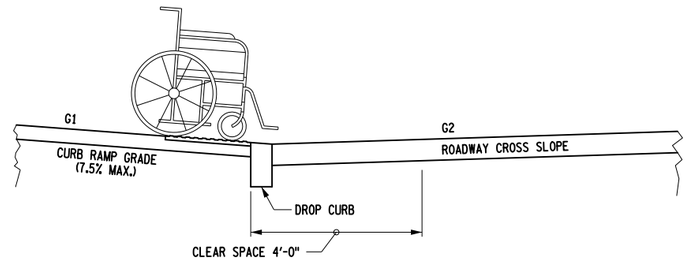


DETECTABLE WARNINGS AT RAILROAD CROSSING



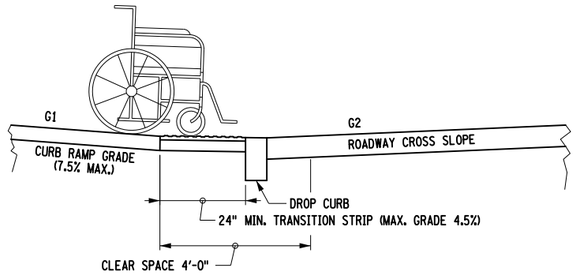
CURB RAMP CROSS SLOPE TRANSITION



COUNTER SLOPE CONDITION 1

A = G2 - G1

ALGEBRAIC DIFFERENCE BETWEEN ROADWAY CROSS SLOPE
AND CURB RAMP GRADE IS LESS THAN 12.5%.

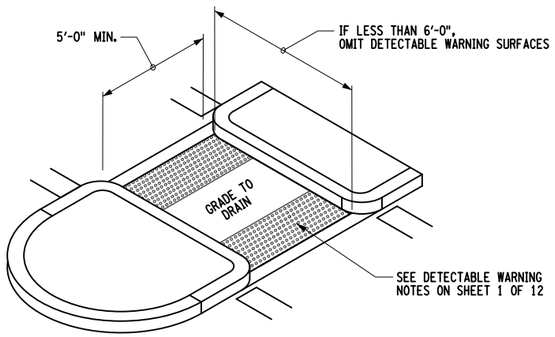


COUNTER SLOPE CONDITION 2

A = G2 - G1

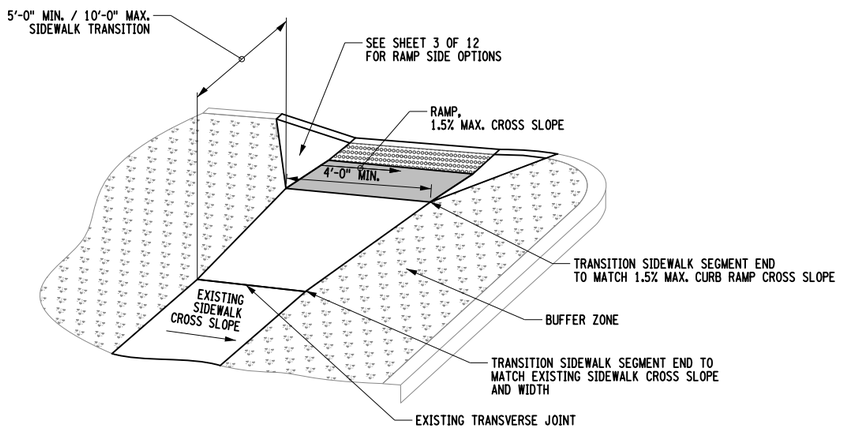
ALGEBRAIC DIFFERENCE BETWEEN ROADWAY SLOPE
AND CURB RAMP GRADE IS GREATER THAN 12.5%.
TRANSITION STRIP REQUIRED (MAX. GRADE 4.5%)

COUNTER SLOPE CONDITIONS



DETECTABLE WARNINGS AT PEDESTRIAN REFUGE ISLANDS

NON-ELEVATED CROSSING



TRANSITION BETWEEN CURB RAMP AND EXISTING SIDEWALK

USE FOR CROSS SLOPE AND WIDTH TRANSITIONS

NOTE:

ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 8 OF 12)

APPROVED FEBRUARY 05, 2020	ISSUED UNDER EI 20-005
/S/ RICHARD WILDER, P.E. DEPUTY CHIEF ENGINEER (DESIGN)	608-01

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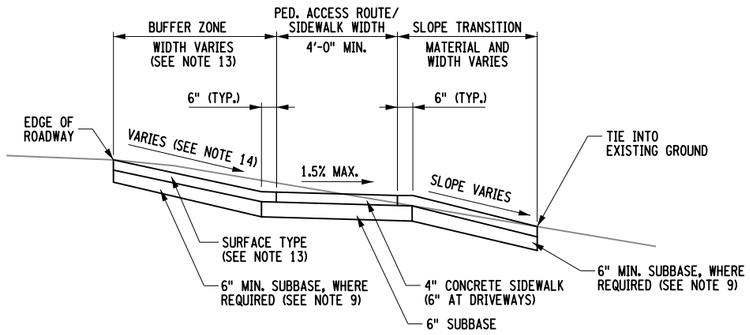
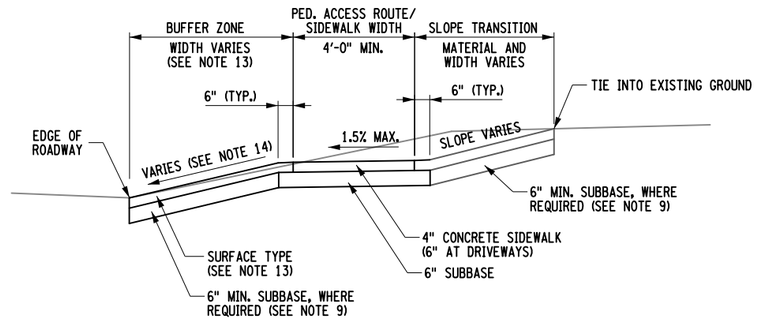
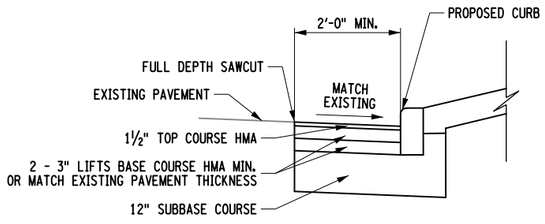


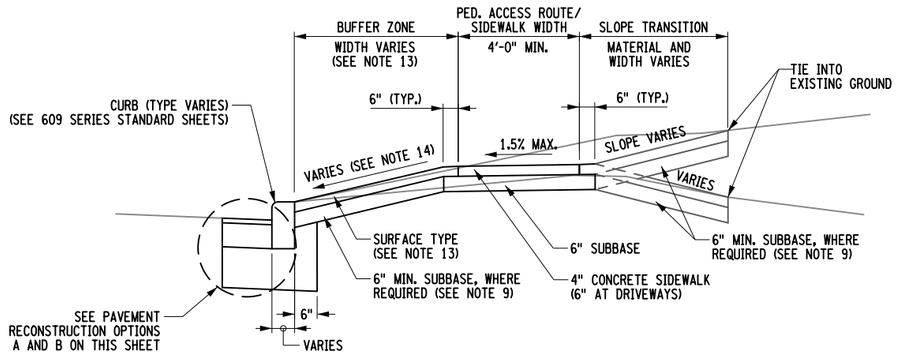
TYPICAL SIDEWALK CROSS SECTION NO CURB WITH BUFFER ZONE IN A FILL SECTION



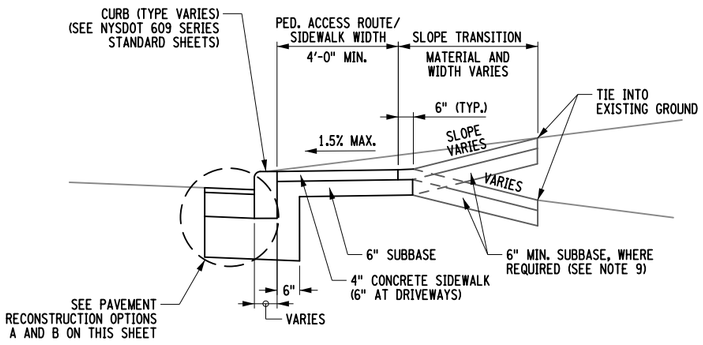
TYPICAL SIDEWALK CROSS SECTION NO CURB WITH BUFFER ZONE IN A CUT SECTION



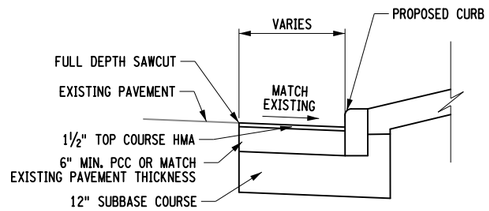
PAVEMENT RECONSTRUCTION OPTION A: HOT MIX ASPHALT
SEE NOTE 17



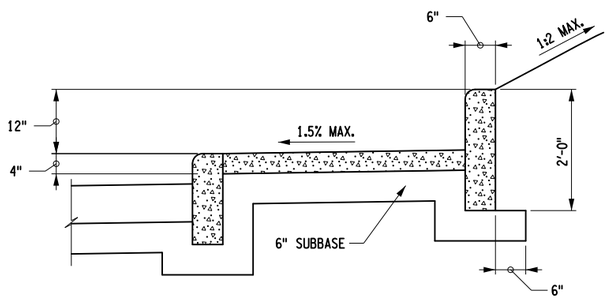
TYPICAL SIDEWALK CROSS SECTION CURBED WITH BUFFER ZONE



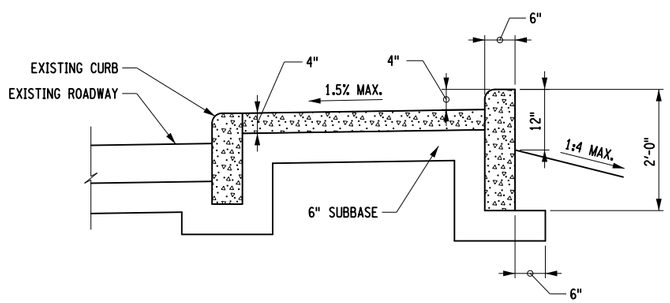
TYPICAL SIDEWALK CROSS SECTION CURBED WITHOUT BUFFER ZONE



PAVEMENT RECONSTRUCTION OPTION B: PORTLAND CEMENT CONCRETE
SEE NOTE 17



BACK OF CURB DETAIL USE IN CUT SECTIONS WITH LIMITED RIGHT-OF WAY OR STEEP SLOPES



BACK OF CURB DETAIL USE ON FILL SECTIONS WITH LIMITED RIGHT-OF-WAY

NOTE:

ALL NOTES REFERENCED ON THIS SHEET CAN BE FOUND ON STANDARD SHEET 608-01, SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 9 OF 12)

APPROVED FEBRUARY 05, 2020

/S/ RICHARD WILDER, P.E.
DEPUTY CHIEF ENGINEER
(DESIGN)

ISSUED UNDER EI 20-005

608-01

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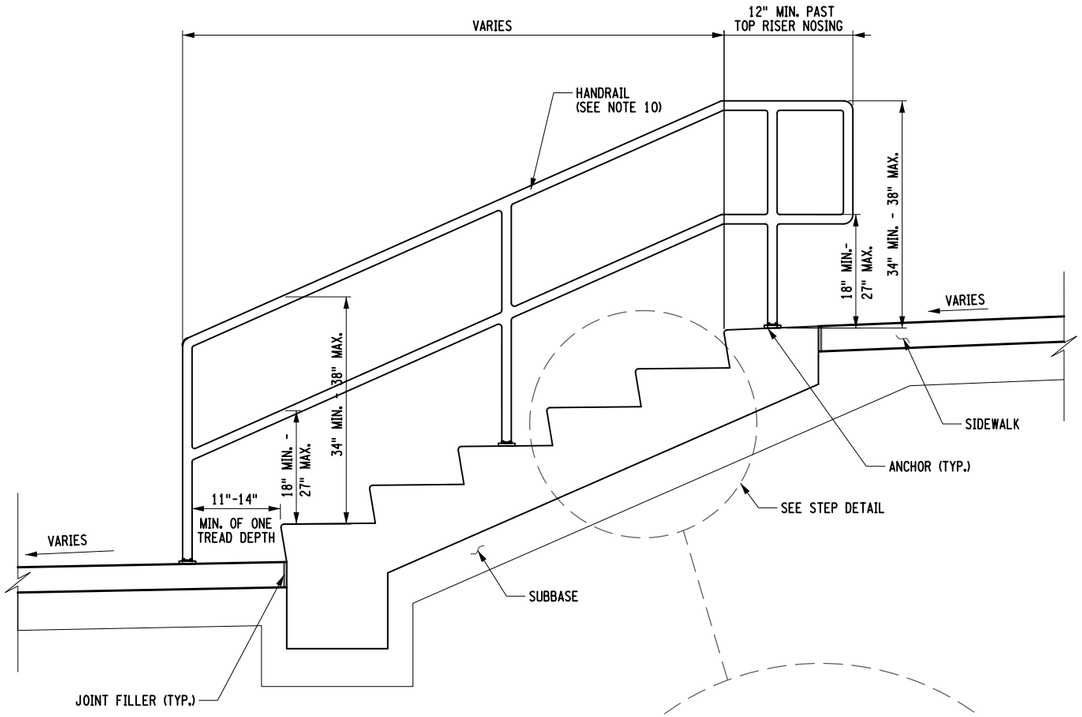
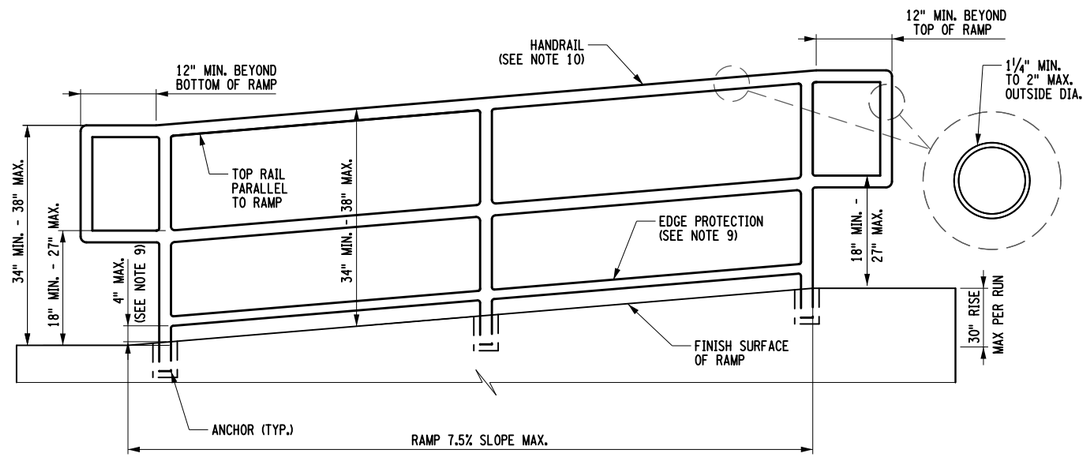


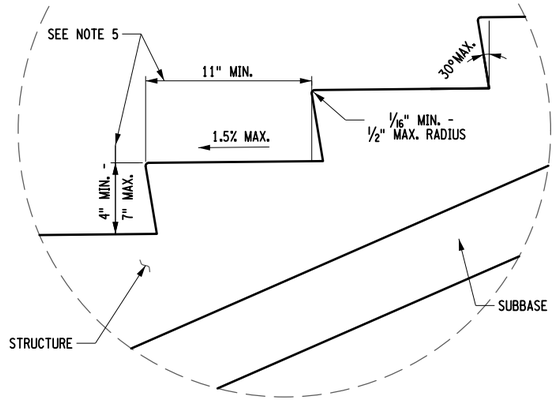
STANDARD STAIR DIMENSIONS DETAIL
NOT TO SCALE

NOTES:

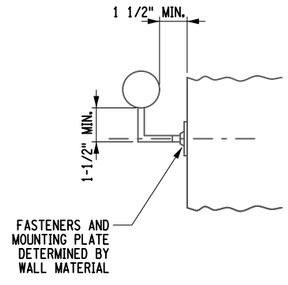
1. A HANDRAIL IS A RAIL PROVIDED FOR GRASPING WITH THE HAND FOR SUPPORT. A GUARD IS A BARRIER PLACED TO DISCOURAGE OR PREVENT MOVEMENT IN A CERTAIN DIRECTION, TYPICALLY WHERE THERE IS A DROP-OFF ADJACENT TO A PEDESTRIAN FACILITY. SEE NOTE 10. HANDRAILS AND GUARDS MAY BE INTEGRATED.
2. STAIRWAYS OR RAMP RUNS WITH A RISE GREATER THAN 6" SHALL HAVE HANDRAILS.
3. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS OR RAMPS ON PEDESTRIAN CIRCULATION PATHS; THEY ARE ONLY REQUIRED ON RAMPS ALONG PEDESTRAIN ACCESS ROUTES.
4. HANDRAILS, WHERE PROVIDED, SHALL BE PROVIDED ON BOTH SIDES OF THE RAMP OR STAIRWAY.
5. ALL STEPS ON A FLIGHT OF STAIRS MUST HAVE UNIFORM RISER HEIGHTS AND UNIFORM TREAD DEPTHS. OPEN RISERS ARE PROHIBITED.
6. A MINIMUM 48" CLEAR WIDTH MUST BE PROVIDED BETWEEN HANDRAILS.
7. STAIRWAY HANDRAILS SHALL BE LOCATED IN SUCH A MANNER THAT ALL PORTIONS OF THE STAIRWAY ARE WITHIN 30" OF A HANDRAIL. AN INTERMEDIATE HANDRAIL SHALL BE USED, IF NECESSARY.
8. HANDRAILS SHALL BE GROUND SMOOTH, WITH NO PROTRUSIONS.
9. EDGE PROTECTION SHALL BE PROVIDED ON BOTH SIDES OF A RAMP AND AT EACH SIDE OF A RAMP LANDING. EDGE PROTECTION MAY CONSIST OF:
   A. A WALL OR CURB WITH A MINIMUM HEIGHT OF 4".
   B. A BARRIER THAT PREVENTS A SPHERE WITH A DIAMETER OF 4" FROM PASSING BETWEEN THE BOTTOM OF THE BARRIER AND THE FINISH SURFACE.
   C. A RAMP SURFACE THAT EXTENDS A MINIMUM OF 12" BEYOND THE INSIDE FACE OF THE HANDRAIL.
10. GUARDS FOR DROPOFF PROTECTION ARE REQUIRED FOR OPEN-SIDED STAIRS, RAMPS, AND LANDINGS THAT ARE LOCATED MORE THAN 30" (MEASURED VERTICALLY) TO THE FLOOR OR GRADE BELOW, AT ANY POINT WITHIN 36" HORIZONTALLY TO THE EDGE OF THE OPEN SIDE. GUARDS MUST COMPLY WITH THE REQUIREMENTS OF THE NYS BUILDING CODE.



STANDARD HANDRAIL DIMENSIONS DETAIL FOR RAMPS
NOT TO SCALE



STANDARD RISER/TREAD DIMENSIONS DETAIL
NOT TO SCALE



STANDARD HANDRAIL WALL MOUNTING DIMENSIONS DETAIL
NOT TO SCALE

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITES
(SHEET 10 OF 12)

APPROVED FEBRUARY 05, 2020
/S/ RICHARD WILDER, P.E.
DEPUTY CHIEF ENGINEER
(DESIGN)

ISSUED UNDER EI 20-005

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GENERAL NOTES FOR PEDESTRIAN FACILITIES

1. PEDESTRIAN FACILITIES MUST MEET THE VALUES SHOWN ON THE APPLICABLE TABLE, OR BE JUSTIFIED AS NONSTANDARD FEATURES USING EXHIBIT 2-15A FROM THE NYSDOT HIGHWAY DESIGN MANUAL, CHAPTER 2.

CURB RAMPS TO REMAIN ON 1R PROJECTS:

2. ON 1R PROJECTS, CURB RAMPS BUILT PRIOR TO MARCH 15, 2012 DO NOT NEED TO BE REPLACED OR MODIFIED TO MEET CURRENT (PROWAG) STANDARDS IF THEY COMPLY WITH THE CURB RAMP REQUIREMENTS IN THE 1991 ADAAG STANDARDS, SHOWN ON TABLE 1.

3. THE MAX. CROSS SLOPE FOR ANY PART OF AN ACCESSIBLE ROUTE IN THE 1991 ADAAG STANDARDS IS 2%. HOWEVER, CURB RAMP CROSS SLOPES AT INTERSECTIONS WITHOUT YIELD OR STOP CONTROL CAN MATCH THE HIGHWAY GRADE.

4. AS DETAILED IN THE "SUPPLEMENT TO THE 2013 DOJ/DOT JOINT TECHNICAL ASSISTANCE ON THE TITLE II OF THE ADA REQUIREMENTS TO PROVIDE CURB RAMPS WHEN STREETS, ROADS, OR HIGHWAYS ARE ALTERED THROUGH RESURFACING", DETECTABLE WARNINGS ARE REQUIRED ON CURB RAMPS BUILT OR ALTERED DURING THE FOLLOWING PERIODS:
   JULY 26, 1991 - MAY 12, 1994
   JULY 26, 1998 - DECEMBER 23, 1998
   JULY 26, 2001 - MARCH 15, 2012
   IF A CURB RAMP WAS BUILT OR LAST ALTERED DURING THE PERIODS ABOVE, OR IF THE DATE OF CONSTRUCTION OR LAST ALTERATION CANNOT BE DETERMINED, THE RAMP REQUIRES A DETECTABLE WARNING.

5. REQUIREMENTS FOR DETECTABLE WARNING DIMENSIONS AND PLACEMENT ARE TO BE EVALUATED BY CURRENT (PROWAG) STANDARDS AS DETAILED ON SHEET 2 OF 12

6. FOR CROSSWALK REQUIREMENTS ON 1R PROJECTS, REFER TO VALUES ON TABLE 2, SHEET 12 OF 12, FOR NEW AND REPLACEMENT FACILITIES.

NOTES ON NEW AND REPLACEMENT PEDESTRIAN FACILITIES:

7. IF A SIDEWALK OR OTHER PEDESTRIAN PATH IS WIDER THAN 48 IN., ONLY THE MINIMUM CONTINUOUS ACCESSIBLE CLEAR WIDTH OF 48 IN. (WITH PASSING SPACES AS NEEDED) IS REQUIRED TO MEET THE SURFACE AND SLOPE REQUIREMENTS SHOWN ON TABLE 2, SHEET 12 OF 12.

8. REQUIREMENTS FOR HEIGHT AND OPENINGS ON GUARDS DO NOT APPLY TO HIGHWAY SEGMENTS, HIGHWAY RAMPS, OR HIGHWAY BRIDGES WITH BRIDGE OR HIGHWAY BARRIERS.

NOTES ON INSPECTION METHODS (MEASUREMENT):

9. GRADE (RUNNING SLOPE) IS TO BE MEASURED AS AN AVERAGE OF AT LEAST 3 DIGITAL LEVEL MEASUREMENTS USING A 4-FOOT STRAIGHT EDGE, ALONG THE CENTERLINE (DIRECTION OF TRAVEL), AND OFFSET AT LEAST 18" TO EACH SIDE OF THE CENTERLINE OF THE RAMP, ROADWAY, CURB RAMP, ETC. ACCEPTANCE IS BASED ON GRADES LESS THAN OR EQUAL TO THE LIMIT SHOWN IN THE TABLE.

10. CROSS SLOPE IS TO BE MEASURED AS AN AVERAGE OF AT LEAST 2 DIGITAL LEVEL MEASUREMENTS, MADE PERPENDICULAR TO THE CENTERLINE (DIRECTION OF TRAVEL) OF THE SIDEWALK, TAKEN (WHEN LENGTH ALLOWS) AT 5' TO 10' INTERVALS. FOR FLARES, USE AN AVERAGE OF AT LEAST 2 DIGITAL LEVEL MEASUREMENTS TAKEN WITHIN THE PEDESTRIAN CIRCULATION PATH AND PARALLEL TO THE CURB LINE. ACCEPTANCE IS BASED ON SLOPES LESS THAN OR EQUAL TO THE LIMIT SHOWN IN THE TABLE.

11. AREA SLOPE IS TO BE MEASURED BY TAKING GRADE (RUNNING SLOPE) AND CROSS SLOPE MEASUREMENTS, AS DESCRIBED IN NOTES 9 AND 10. ACCEPTANCE IS BASED ON SLOPES LESS THAN OR EQUAL TO THE LIMIT SHOWN IN THE TABLE.

12. WIDTHS AND OFFSETS ARE TO BE MEASURED AS AN AVERAGE OF AT LEAST TWO (2) TAPE MEASUREMENTS TAKEN PERPENDICULAR TO THE CENTERLINE (DIRECTION OF TRAVEL) OF THE PEDESTRIAN ROUTE OR PATH, AT EITHER THE RESTRICTION POINT OR (WHEN LENGTH ALLOWS) 10' INTERVALS. ACCEPTANCE IS BASED ON WIDTHS GREATER TO OR EQUAL TO THE LIMIT SHOWN IN THE TABLE.

13. LENGTH IS TO BE MEASURED AS AN AVERAGE OF AT LEAST TWO (2) TAPE, WHEEL, OR REEL MEASUREMENTS TAKEN WITHIN A FOOT OF THE CENTERLINE (DIRECTION OF TRAVEL) OR RAILING, RAMP, SIDEWALK, ETC., WITH THE MEASUREMENT ALONG THE GRADE OF THE RAILING, SIDEWALK, RAMP, CURB RAMP, ETC. (I.E., NOT A HORIZONTAL MEASUREMENT FOR SLOPED SURFACES). ACCEPTANCE IS BASED ON LENGTHS GREATER THAN OR EQUAL TO THE LIMIT SHOWN IN THE TABLE.

14. RISE OR VERTICAL DISTANCE IS TO BE MEASURED AS AN AVERAGE OF AT LEAST TWO (2) VERTICAL MEASUREMENTS. FOR LANDINGS OR STEP RISERS, TAKE MEASUREMENTS AT LEAST ONE (1) FOOT APART. FOR LANDINGS, AVERAGE AT LEAST TWO (2) MEASUREMENTS USING A SURVEY ROD AND LEVEL AT THE NOSE/EDGE OF THE LANDING AND THE BASE OF RAMP OR STAIRS. ACCEPTANCE IS BASED ON RISES OR VERTICAL DISTANCES LESS THAN OR EQUAL TO THE LIMIT SHOWN IN THE TABLE.

15. OPENING LIMITATIONS ARE ACCEPTABLE IF THE OPENING CANNOT PASS A SPHERE OF THE GIVEN DIAMETER. ELONGATED OPENINGS ON WALL SURFACES, SHALL BE ORIENTED WITH LONG DIMENSION PERPENDICULAR TO DIRECTION OF PEDESTRIAN TRAVEL.

16. DIAMETER, PERIMETER, AND ALL OTHER MEASUREMENTS ARE TO BE MEASURED AS DIRECTED BY ITEM SPECIFICATION.

17. PEDESTRIAN PUSHBUTTON HEIGHT IS TO BE MEASURED AS A SINGLE MEASUREMENT FROM THE CENTER OF THE PUSHBUTTON TO THE POINT DIRECTLY BELOW IT ON THE CLEAR SPACE. ACCEPTANCE IS BASED ON A MEASUREMENT WITHIN THE ACCEPTABLE RANGE OF HEIGHTS SHOWN IN TABLE 2.

TABLE 1 - CRITICAL ELEMENTS FOR THE DESIGN, LAYOUT AND ACCEPTANCE OF PEDESTRIAN FACILITIES.
EXISTING CURB RAMPS TO REMAIN ON 1R PROJECTS
(1991 ADAAG STANDARDS)

ELEMENT	LIMITS REQUIRED TO RETAIN EXISTING CURB RAMP (SEE NOTE 1)	INSPECTION METHODS (NOTE NO.)
CURB RAMPS		
CLEAR WIDTH	36" MIN.	12
FLARE SLOPE FOR RAMP WITHIN A PEDESTIAN CIRCULATION PATH	10% MAX.	10
FLARE SLOPE/EDGE FOR RAMP OUTSIDE A PEDESTRIAN CIRCULATION PATH	NO MAX. SLOPE; MAY BE CURBED	-
CROSS SLOPE AT INTERSECTION CROSSING WITH YIELD OR STOP CONTROL	2% MAX.	10
CROSS SLOPE AT INTERSECTION CROSSING WITHOUT YIELD OR STOP CONTROL (INCLUDING ANY SIGNAL BUT FLASHING RED)	HIGHWAY GRADE IS MAX. (SEE NOTE 3)	10
GRADE (RUNNING SLOPE)	8.33% MAX.	9
GRADE (RUNNING SLOPE), IF SPACE IS LIMITED	10% FOR 6" RISE	9
CLEAR SPACE FOR DIAGONAL RAMPS	48" x 48" MIN.	12, 13
GRATING SPACES (IN WALKING SURFACE)	0.5" MAX.	15
VERTICAL CHANGES	0.5" MAX., WITH 1:2 MAX. BEVEL BETWEEN 0.25" AND 0.5" HIGH	14

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 11 OF 12)

APPROVED FEBRUARY 05, 2020
/S/ RICHARD WILDER, P.E.
DEPUTY CHIEF ENGINEER
(DESIGN)

ISSUED UNDER EI 20-005

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TABLE 2 - SELECT CRITICAL ELEMENTS FOR THE DESIGN, LAYOUT AND ACCEPTANCE OF PEDESTRIAN FACILITIES. NEW OR REPLACEMENT FACILITIES (2011 PROWAG STANDARDS)

ELEMENT	LIMITS FOR DESIGN AND LAYOUT	LIMITS FOR WORK ACCEPTANCE	INSPECTION METHODS (NOTE NO.)
CURB RAMPS/BLENDED TRANSITIONS			
CLEAR WIDTH	48" MIN.	48" MIN.	12
SLOPE OF FLARED SIDES, WITHIN PEDESTRIAN CIRCULATION PATH	9.5% MAX.	10% MAX.	10
SLOPE OF FLARED SIDES, OUTSIDE PEDESTRIAN CIRCULATION PATH	NO MAX. SLOPE, MAY BE CURBED	NO MAX. SLOPE, MAY BE CURBED	10
GRADE (RUNNING SLOPE) FOR CURB RAMP	7.5% MAX.	8.3% MAX.	9
GRADE (RUNNING SLOPE) FOR BLENDED TRANSITION	4.5% MAX.	5% MAX.	9
CROSS SLOPE (AT CROSSING WITH YIELD OR STOP CONTROL)	1.5% MAX.	2% MAX.	10
CROSS SLOPE (AT CROSSING WITHOUT YIELD OR STOP CONTROL, INCLUDING ANY SIGNAL BUT FLASHING RED)	HIGHWAY GRADE IS MAX.	HIGHWAY GRADE IS MAX.	10
LENGTH OF CURB RAMP, IF MAXIMUM ALLOWABLE SLOPE WILL NOT "CATCH UP" TO GRADE.	DOES NOT NEED TO EXCEED 15'-1"	DOES NOT NEED TO EXCEED 15'	13
TURNING SPACE, WITH NO CONSTRAINTS	48"X48" MIN.	48"X48" MIN.	12, 13
TURNING SPACE, WITH CONSTRAINTS AT BACK OF SIDEWALK	48"X60" MIN.	48"X60" MIN.	12, 13
TURNING SPACE, WITH CONSTRAINTS ON TWO SIDES	48"X60" MIN.	48"X60" MIN.	12, 13
SLOPE OF TURNING SPACE, IN ANY DIRECTION	1.5% MAX.	2% MAX.	11
COUNTER SLOPE AT BOTTOM OF RAMP	4.5% MAX.	5% MAX.	9
CLEAR SPACE (BEYOND BOTTOM GRADE BREAK, OUTSIDE OF PARALLEL VEHICLE PATH: CAN INCLUDE DROP CURB)	48"X48" MIN.	48"X48" MIN.	12, 13
DETECTABLE WARNINGS			
DOME DIMENSIONS AND SPACING	ON DOT APPROVED LIST	ON DOT APPROVED LIST	-
CONTRAST OF WARNING DEVICE	LIGHT ON DARK OR DARK ON LIGHT	LIGHT ON DARK OR DARK ON LIGHT	-
ALIGNMENT ON SLOPES > 5%	PERPENDICULAR TO GRADE BREAK BETWEEN RAMP RUN AND STREET	PERPENDICULAR TO GRADE BREAK BETWEEN RAMP RUN AND STREET	-
WIDTH	FULL WIDTH OF RAMP OR PAR (2" BORDER ALLOWED)	FULL WIDTH OF RAMP OR PAR (2" BORDER ALLOWED)	12
LENGTH (DEPTH)	24" MIN. IN DIRECTION OF PEDESTRIAN TRAVEL ACROSS FULL WIDTH OF RAMP OR P.A.R.	24" MIN. IN DIRECTION OF PEDESTRIAN TRAVEL ACROSS FULL WIDTH OF SIDEWALK RAMP OR P.A.R.	13
SIDEWALK (SEE NOTE 7)			
CLEAR WIDTH OF PED. ACCESS ROUTE (EXCLUDING CURB)	48" MIN.	48" MIN.	12
GRADE (RUNNING SLOPE) WHERE HWY. GRADE IS 5% OR LESS	4.5% MAX.	5% MAX.	9
GRADE (RUNNING SLOPE) WHERE HWY. GRADE IS > 5%	HWY. EDGE OF PVMT. GRADE IS MAX.	HWY. EDGE OF PVMT. GRADE IS MAX.	9
CROSS SLOPE	1.5% MAX.	2% MAX.	10
PASSING SPACE INTERVAL (IF PED. ACCESS ROUTE IS LESS THAN 60" WIDE)	200' MAX.	200' MAX.	13
PASSING SPACE DIMENSIONS	60"X60" MIN.	60"X60" MIN.	12, 13
SURFACES			
MATERIAL	FIRM, STABLE, AND SLIP RESISTANT	FIRM, STABLE, AND SLIP RESISTANT	-
HORIZONTAL OPENINGS (SUCH AS GRATINGS AND JOINTS)	0.5" MAX.	0.5" MAX.	13, 15
VERTICAL DISCONTINUITIES	0.25" MAX.	0.5" MAX. WITH 1:2 MAX. BEVEL BETWEEN 0.25" AND 0.5" HIGH	14

ELEMENT	LIMITS FOR DESIGN AND LAYOUT	LIMITS FOR WORK ACCEPTANCE	INSPECTION METHODS (NOTE NO.)
CROSSWALKS			
WIDTH	72" MIN.	48" MIN.	12
CROSS SLOPE AT INTERSECTION WITH YIELD OR STOP CONTROL	1.5% MAX.	2% MAX.	10
CROSS SLOPE AT INTERSECTION WITHOUT YIELD OR STOP CONTROL (INCLUDING ANY SIGNAL BUT FLASHING RED)	4.5% MAX.	5% MAX.	10
CROSS SLOPE, MIDBLOCK	HIGHWAY GRADE IS MAX.	HIGHWAY GRADE IS MAX.	-
GRADE (RUNNING SLOPE), I.E., HIGHWAY CROSS SLOPE	4.5% MAX.	5% MAX.	9
MARKINGS	TYPE L, S, LS, DIAGONAL, OR OTHER	TYPE L, S, LS, DIAGONAL, OR OTHER	-
CLEAR WIDTH WITHIN MEDIAN OR PEDESTRIAN REFUGE ISLAND	60" MIN.	60" MIN.	12
PEDESTRIAN RAMPS (ALL RAMPS EXCEPT CURB RAMPS)			
CLEAR WIDTH	36" MIN.	36" MIN.	12
CROSS SLOPE	1.5% MAX.	2% MAX.	10
GRADE (RUNNING SLOPE)	7.5% MAX.	8.3% MAX.	9
VERTICAL RISE, BETWEEN LANDINGS	30" MAX.	30" MAX.	14
LANDING WIDTH, WITH NO CHANGE OF PED. DIRECTION	WIDTH OF WIDEST RAMP LEADING TO LANDING	WIDTH OF WIDEST RAMP LEADING TO LANDING	12
LANDING WIDTH, WITH A CHANGE OF PED. DIRECTION	60" MIN.	60" MIN.	12
LANDING LENGTH	60" MIN.	60" MIN.	13
LANDING SLOPE, IN ANY DIRECTION	1.5% MAX.	2% MAX.	12
RAILINGS AND GUARDS FOR PEDESTRIAN RAMPS, STAIRS AND ELEVATED SURFACES			
RAMP (WITH A RISE OF OVER 6") OR STAIRS	HANDRAIL REQ. ON BOTH SIDES	HANDRAIL REQ. ON BOTH SIDES	-
HEIGHT OF HANDRAIL (FROM WALKING SURFACE OR STAIR NOSING TO TOP OF GRIPPING SURFACE)	34" MIN. - 38" MAX.	34" MIN. - 38" MAX.	14
HEIGHT OF GUARDS, FOR VERTICAL DROPS > 30" (SEE NOTE 3, THIS SHEET)	42" MIN.	42" MIN.	14
OPENING LIMITATIONS FOR GUARDS (SEE NOTE 3, THIS SHEET)	4" MAX. (4⅜" ALLOWED FROM A HEIGHT OF 36" TO 42")	4" MAX. (4⅜" ALLOWED FROM A HEIGHT OF 36" TO 42")	15
DISTANCE BETWEEN BOTTOM OF GUARD AND WALKING SURFACE ON RAMP	4" MAX.	4" MAX.	15
DISTANCE BETWEEN BOTTOM OF GUARD AND WALKING SURFACE ON STAIRS	TRIANGLE FORMED BY RISER, TREAD, AND BOTTOM RAIL CANNOT ALLOW PASSAGE OF 6" SPHERE	TRIANGLE FORMED BY RISER, TREAD, AND BOTTOM RAIL CANNOT ALLOW PASSAGE OF 6" SPHERE	15
HANDRAIL CLEARANCE (BETWEEN GRIPPING SURFACE AND WALL)	1.5" MIN.	1.5" MIN.	12
OUTSIDE DIAMETER OF CIRCULAR HANDRAIL	1.25" MIN. - 2" MAX.	1.25" MIN. - 2" MAX.	16
OUTSIDE PERIMETER OF NON-CIRCULAR HANDRAIL	4" MIN. - 6.25" MAX.	4" MIN. - 6.25" MAX.	16
CROSS-SECTION DIMENSION OF NON-CIRCULAR HANDRAIL	2.25" MAX.	2.25" MAX.	16
HANDRAIL PLACEMENT ON STAIRS	WITHIN 30" OF ANY POINT ON TREAD	WITHIN 30" OF ANY POINT ON TREAD	12
HANDRAIL EXTENSION AT TOP OR BOTTOM OF RAMP	12" MIN. PAST RAMP RUN	12" MIN. PAST RAMP RUN	13
HANDRAIL EXTENSION AT TOP OF STAIRS	12" MIN. PAST FIRST RISER NOSING	12" MIN. PAST FIRST RISER NOSING	13
HANDRAIL EXTENSION AT BOTTOM OF STAIRS	MIN. OF ONE TREAD DEPTH PAST BOTTOM RISER	MIN. OF ONE TREAD DEPTH PAST BOTTOM RISER	13

ELEMENT	LIMITS FOR DESIGN AND LAYOUT	LIMITS FOR WORK ACCEPTANCE	INSPECTION METHODS (NOTE NO.)
STAIRS			
RISER HEIGHT (MUST BE UNIFORM ON FLIGHT)	4" MIN. - 7" MAX.	4" MIN. - 7" MAX.	14
CLEAR WIDTH OF STAIRS	48" MIN.	44" MIN.	12
DEPTH OF TREAD (MUST BE UNIFORM ON FLIGHT)	11" MIN.	11" MIN.	13
TREAD SURFACE SLOPE	LEVEL TO 1.5% MAX.	LEVEL TO 2% MAX.	11
TREAD NOSING	0.5" MAX. RADIUS ON LEADING EDGE, 1.25" MAX. EXTENSION OVER TREAD BELOW	0.5" MAX. RADIUS ON LEADING EDGE, 1.25" MAX. EXTENSION OVER TREAD BELOW	13
CLOSED RISER	YES	YES	-
RISE BETWEEN LANDINGS	144" MAX.	144" MAX.	14
LANDING	REQ. AT TOP AND BOTTOM OF STAIRS	REQ. AT TOP AND BOTTOM OF STAIRS	-
LANDING WIDTH	MIN. WIDTH EQUAL TO STAIRWAY WIDTH	MIN. WIDTH EQUAL TO STAIRWAY WIDTH	12
LANDING LENGTH	MIN. LENGTH EQUAL TO STAIRWAY WIDTH, UP TO 48"	MIN. LENGTH EQUAL TO STAIRWAY WIDTH, UP TO 48"	13
LANDING SLOPE, IN ANY DIRECTION	1.5% MAX.	2% MAX.	11
DRAINAGE			
ADEQUATE DRAINAGE	NO LOW SPOTS THAT WILL POND WATER WITHIN PED. ACCESS ROUTE	NO LOW SPOTS THAT WILL POND WATER WITHIN PED. ACCESS ROUTE	-
PEDESTRIAN SIGNALS			
PUSH BUTTON HEIGHT	36" MIN. - 42" MAX.	36" MIN. - 42" MAX.	17
PUSH BUTTON DISTANCE FROM PEDESTRIAN ACCESS ROUTE	9" MAX.	10" MAX.	12
DIMENSIONS OF CLEAR SPACE ADJACENT TO PUSH BUTTON	30"X48" MIN.	30"X48" MIN.	12, 13
GRADE (RUNNING SLOPE) OF CLEAR SPACE ADJACENT TO PUSH BUTTON	MATCH GRADE OF ADJACENT PED. ACCESS ROUTE	MATCH GRADE OF ADJACENT PED. ACCESS ROUTE	9
CROSS SLOPE OF CLEAR SPACE ADJACENT TO PUSH BUTTON	1.5% MAX.	2% MAX.	10
CLEARANCE TIMING	3.5 FT/S MAX. WALKING SPEED	3.5 FT/S MAX. WALKING SPEED	-

1. NOTES REFERENCED ON THIS SHEET ARE FOUND ON SHEET 11 OF 12.
2. MORE CRITICAL ELEMENTS FOR PEDESTRIAN FACILITIES CAN BE FOUND ON THE "CRITICAL ELEMENTS FOR THE DESIGN, LAYOUT AND ACCEPTANCE OF PEDESTRIAN FACILITIES", REFERENCED IN HIGHWAY DESIGN MANUAL CHAPTER 18.
3. DOES NOT APPLY TO HIGHWAY SEGMENTS, HIGHWAY RAMPS, OR HIGHWAY BRIDGES WITH BRIDGE OR HIGHWAY BARRIERS.
4. PEDESTRIAN ACCESS ROUTE (P.A.R.) IS DEFINED ON SHEET 1 OF 12.

NEW YORK STATE OF OPPORTUNITY. **Department of Transportation**

U.S. CUSTOMARY STANDARD SHEET

PEDESTRIAN FACILITIES
(SHEET 12 OF 12)

APPROVED FEBRUARY 05, 2020
/S/ RICHARD WILDER, P.E.
DEPUTY CHIEF ENGINEER (DESIGN)

ISSUED UNDER EI 20-005

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GENERAL NOTES

1. THE TYPICAL DETAILS DEPICTED ON THE STANDARD SHEETS AND IN THE MUTCD, REFLECT THE MINIMUM REQUIREMENTS.

2. THE CONTRACTOR MUST SUBMIT TO THE ENGINEER, IN WRITING, PROPOSED REVISIONS TO THE TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE FIVE (5) WORK DAYS PRIOR TO THE PLANNED IMPLEMENTATION OF SUCH PROPOSED REVISIONS, EXCEPT FOR CHANGES THAT ALTER THE SCOPE OF THE TRAFFIC CONTROL PLAN. SUCH CHANGES IN SCOPE MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE THIRTY (30) WORKING DAYS PRIOR TO IMPLEMENTATION OF SUCH REVISIONS.

3. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, IN WRITING, WITH THE NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF STAFF WHO ARE AUTHORIZED TO SECURE LABOR, MATERIALS, AND EQUIPMENT FOR EMERGENCY REPAIRS OUTSIDE NORMAL WORKING HOURS. THE ENGINEER WILL PROVIDE THE SUBMITTED INFORMATION TO REGIONAL MANAGEMENT, THE NEW YORK STATE POLICE, THE RESIDENT ENGINEER, AND THE LOCAL POLICE.

ACTIVITY AREA

1. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 500' LONGITUDINAL DISTANCE BETWEEN CONSTRUCTION OPERATIONS ON ALTERNATE SIDES OF THE ROADWAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

2. WHEN TWO OR MORE AREAS ARE ADJACENT, OVERLAP, OR ARE IN CLOSE PROXIMITY, THE CONTRACTOR SHALL ENSURE THERE ARE NO CONFLICTING SIGNS AND THAT LANE CONTINUITY IS MAINTAINED THROUGHOUT ALL WORK AREAS.

SIGNS

1. THE LOCATIONS OF THE SIGNS SHOWN ON THE WORK ZONE TRAFFIC CONTROL PLANS AND DETAILS MAY BE ADJUSTED BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS. THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.

2. ANY EXISTING SIGNS, INCLUDING OVERHEAD SIGNS, WHICH CONFLICT WITH THE TEMPORARY TRAFFIC CONTROL SIGN LAYOUT SHALL BE COVERED, REMOVED, STORED OR RESET, AS APPROVED BY THE ENGINEER. ALL APPROPRIATE EXISTING SIGNS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR LOCATION UNLESS OTHERWISE REPLACED IN THIS CONTRACT.

3. SIGNS AT OR NEAR INTERSECTIONS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT A MOTORIST'S LINE OF SIGHT.

4. ALL WARNING AND REGULATORY SIGNS SHALL BE POSTED ON BOTH SIDES OF MULTI-LANE DIVIDED HIGHWAYS, MULTI-LANE RAMPS, AND ONE-WAY STREETS. IN CASES WHERE LANE RESTRICTIONS REDUCE THE TRAVEL LANE TO ONE LANE, SIGNS SHALL BE POSTED ON THE RIGHT SIDE OF THE ACTIVE TRAVEL LANE, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

5. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET. LAYING THE SIGN DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.

6. THE DIMENSIONS OF WORK ZONE TRAFFIC CONTROL SIGNS ARE DESCRIBED IN THE MUTCD. ANY CHANGES TO THE DIMENSIONS SHALL BE APPROVED BY THE REGIONAL DIRECTOR OR BY HIS/HER DESIGNEE.

7. NYR9-12 MAY BE USED IN PLACE OF NYR9-11.

CHANNELIZING DEVICES

1. WHERE POSSIBLE ALL CHANNELIZING AND GUIDING DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM 2' LATERAL CLEARANCE TO THE TRAVELED WAY.

PUBLIC ACCESS

1. PROPERTY OWNERS WHOSE DRIVEWAYS WILL BE MADE INACCESSIBLE SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 24 HOURS PRIOR TO RESTRICTING USE OF THE DRIVEWAY. FOR MULTIPLE ACCESS PROPERTIES, AT LEAST ONE DRIVEWAY SHALL BE OPEN AT ALL TIMES. ACCESS SHALL BE RESTORED TO ALL DRIVEWAYS AS SOON AS POSSIBLE.

2. SUITABLE RAMPS SHALL BE INSTALLED TO MAINTAIN SMOOTH TRANSITIONS FROM RESIDENTIAL AND COMMERCIAL DRIVEWAYS TO AND FROM THE WORK AREA.

LANE CLOSURES

1. THE CONTRACTOR SHALL LOCATE LANE CLOSURES TO PROVIDE OPTIMUM VISIBILITY, I.E. BEFORE CURVES AND CRESTS, TO THE EXTENT CONDITIONS PERMIT.

2. THE ENGINEER MAY REQUIRE THAT ALL LANES BE RE-OPENED AT ANY TIME IF THE ROUTE IS NEEDED FOR EMERGENCY PURPOSES. THIS COULD INCLUDE INCIDENTS AT LOCATIONS OUTSIDE THE CONTRACT LIMITS.

LANE WIDTHS

1. UNLESS AUTHORIZED BY THE ENGINEER, THE MINIMUM LANE WIDTHS FOR WORK ZONE TRAVEL LANES SHALL BE AS FOLLOWS: FREEWAYS AND/OR EXPRESSWAYS IS 11'. THE MINIMUM LANE WIDTH FOR ALL OTHER TYPES OF ROADWAYS IS 10'.

2. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE ENGINEER, A MINIMUM OF 21 CALENDAR DAYS IN ADVANCE OF PERFORMING ANY WORK THAT RESULTS IN THE REDUCED WIDTH OF AN EXISTING ROADWAY, SO THAT THE ENGINEER MAY NOTIFY THE REGIONAL PERMIT ENGINEER IN A TIMELY MANNER.

BARRIER/SHADOW VEHICLES

1. BARRIER AND SHADOW VEHICLES SHALL BE REQUIRED AS PER STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES".

2. NO WORK ACTIVITY, EQUIPMENT, VEHICLES AND/OR MATERIALS SHALL BE LOCATED BETWEEN THE BARRIER OR SHADOW VEHICLE AND THE ACTIVE WORK AREA (ROLL AHEAD DISTANCE).

3. THE CONTRACTOR MAY BE REQUIRED TO PROVIDE A BARRIER VEHICLE IN CONJUNCTION WITH POLICE PRESENCE IN THE WORK ZONE, TO BE INCLUDED IN THE UNIT BID PRICE FOR BASIC WORK ZONE TRAFFIC CONTROL.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY STANDARD SHEET

WORK ZONE TRAFFIC CONTROL GENERAL NOTES

APPROVED SEPTEMBER 18, 2008

/S/ DAVID J. CLEMENTS, P.E.
DIRECTOR, OFFICE OF
TRAFFIC SAFETY AND MOBILITY

ISSUED UNDER EB 08-036

619-10

EFFECTIVE DATE: 01/08/09

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TABLE NY1-A
BARRIER VEHICLE USE REQUIREMENTS
(LONG TERM, INTERMEDIATE TERM, AND SHORT TERM STATIONARY CLOSURES)

CLOSURE TYPE	EXPOSURE CONDITION [1]	USE REQUIREMENTS [4,5]			
		FREEWAY	NON-FREEWAY (PRECONSTRUCTION POSTED SPEED LIMIT)		
			≥ 45 MPH	35-40 MPH	≤ 30 MPH
LANE CLOSURE	WORKERS ON FOOT OR IN VEHICLES EXPOSED TO TRAFFIC	REQUIRED [3]	REQUIRED [3]	REQUIRED [3]	OPTIONAL [2]
	NON-TRAVERSABLE HAZARD (IE. EQUIPMENT, MATERIALS, EXCAVATION) ONLY NO WORKERS EXPOSED	REQUIRED [3]	REQUIRED [3]	OPTIONAL [2]	OPTIONAL [2]
SHOULDER CLOSURE	WORKERS ON FOOT OR IN VEHICLES EXPOSED TO TRAFFIC	REQUIRED [3]	REQUIRED [3]	OPTIONAL [2]	OPTIONAL [2]
	NON-TRAVERSABLE HAZARD (IE. EQUIPMENT, MATERIALS, EXCAVATION) ONLY NO WORKERS EXPOSED	REQUIRED [3]	OPTIONAL [2]	OPTIONAL [2]	OPTIONAL [2]

1. THE EXPOSURE CONDITIONS DESCRIBED IN TABLE NY1-A ASSUMES THERE IS NO POSITIVE PROTECTION (TEMPORARY TRAFFIC BARRIER) PRESENT. WHERE WORKERS OR HAZARDS ARE PROTECTED BY A TEMPORARY TRAFFIC BARRIER, BARRIER VEHICLES ARE NOT REQUIRED.
2. WHERE THE REQUIREMENT IS "OPTIONAL", EITHER A BARRIER VEHICLE OR THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.
3. REQUIREMENTS SHALL INCLUDE PROVIDING A SEPARATE BARRIER VEHICLE FOR EACH CLOSED LANE AND EACH CLOSED PAVED SHOULDER 8' OR GREATER IN WIDTH. IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE BARRIER VEHICLE SHALL BE REPOSITIONED ACCORDINGLY. BARRIER VEHICLES PROTECTING NON-TRANSVERSABLE HAZARDS SHALL REMAIN IN PLACE DURING BOTH WORKING AND NON-WORKING HOURS UNTIL THE HAZARD NO LONGER EXISTS. EXCEPTIONS TO THESE REQUIREMENTS MAY BE MADE, AS APPROVED BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE WHERE BARRIER VEHICLE PLACEMENT WOULD BE INEFFECTIVE OR WOULD INTERFERE WITH THE SAFE OPERATION OF TRAFFIC.
4. BARRIER VEHICLES ARE NOT REQUIRED FOR MILLING AND/OR PAVING OPERATIONS, BUT THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.
5. BARRIER VEHICLES ARE NOT REQUIRED FOR FLAGGING OPERATIONS, BUT THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE6C-2) SHALL BE PROVIDED.

TABLE NY1-B
SHADOW VEHICLE USE REQUIREMENTS
(MOBILE CLOSURES)

CLOSURE TYPE	EXPOSURE CONDITION	USE REQUIREMENTS			
		FREEWAY	NON-FREEWAY (PRECONSTRUCTION POSTED SPEED LIMIT)		
			≥ 45 MPH	35-40 MPH	≤ 30 MPH
LANE CLOSURE	WHEN ANY WORKER, VEHICLE, OR OTHER HAZARD IS EXPOSED TO TRAFFIC	REQUIRED [2,4]	REQUIRED [2,4]	REQUIRED [2,4]	REQUIRED [2,4]
SHOULDER CLOSURE	WHEN ANY WORKER, VEHICLE, OR OTHER HAZARD IS EXPOSED TO TRAFFIC	REQUIRED [2,4]	REQUIRED [2,4]	REQUIRED [2,4]	REQUIRED [2,4]

1. A MOBILE CLOSURE SHALL BE USED FOR ANY WORK ACTIVITY THAT MOVES CONTINUOUSLY OR INTERMITTENTLY ALONG THE TRAVELED WAY OR SHOULDER SLOWER THAN THE PREVAILING SPEED OF TRAFFIC. CHANNELIZING DEVICES ARE NOT USED FOR MOBILE CLOSURES.
2. SHADOW VEHICLES SHALL BE EQUIPPED WITH AN APPROVED REAR MOUNTED ATTENUATOR (TRUCK MOUNTED OR TRAILER MOUNTED) FOR THE FOLLOWING MOBILE CLOSURES: LANE CLOSURES ON FREEWAYS, LANE CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION POSTED SPEED LIMIT OF 35 MPH OR MORE, SHOULDER CLOSURES ON FREEWAYS, AND SHOULDER CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE.
3. FOR MOBILE LANE CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION POSTED SPEED LIMIT OF 30 MPH OR LESS AND MOBILE SHOULDER CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION SPEED LIMIT OF 40 MPH OR LESS, SHADOW VEHICLES ARE NOT REQUIRED TO BE EQUIPPED WITH A REAR MOUNTED ATTENUATOR.
4. A SHADOW VEHICLE IS USED TO PROTECT EXPOSED WORKERS (ON FOOT OR IN A VEHICLE) AND SHALL BE REQUIRED FOR ALL MOBILE CLOSURES. SHADOW VEHICLE REQUIREMENTS SHALL INCLUDE PROVIDING A SEPARATE SHADOW VEHICLE FOR EACH CLOSED LANE AND EACH CLOSED PAVED SHOULDER 8' OR GREATER IN WIDTH. ADDITIONAL SHADOW VEHICLES MAY BE REQUIRED TO PROMOTE THE SAFE OPERATION OF TRAFFIC AND THE INCREASED PROTECTION OF EXPOSED WORKERS, AS DIRECTED BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE.

TABLE 6H-4 FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S) (MPH)	TAPER LENGTH (L) (FT.)
(40 MPH) OR LESS	$L = WS^2/60$
(45 MPH) OR MORE	$L = WS$

L = TAPER LENGTH
W = WIDTH OF OFFSET (FT.)
S = PRECONSTRUCTION POSTED SPEED LIMIT (MPH)

STANDARD TAPER LENGTHS

LATERAL SHIFT OF TRAFFIC FLOW PATH	TEMPORARY TRAFFIC CONTROL ZONE POSTED SPEED LIMIT									
	(25 MPH)	(30 MPH)	(35 MPH)	(40 MPH)	(45 MPH)	(50 MPH)	(55 MPH)	(60 MPH)	(65 MPH)	(70 MPH)
4	45	60	85	110	180	200	220	240	260	280
5	55	75	105	135	225	250	275	300	325	350
6	65	90	125	160	270	300	330	360	390	420
7	75	105	145	190	315	350	385	420	455	490
8	85	120	165	215	360	400	440	480	520	560
9	95	135	185	240	405	450	495	540	585	630
10	105	150	205	270	450	500	550	600	650	700
11	115	165	225	295	495	550	605	660	715	770
12	125	180	245	320	540	600	660	720	780	840

TABLE 6C-2
LONGITUDINAL BUFFER SPACE

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	DISTANCE
25	155 FT.
30	200 FT.
35	250 FT.
40	305 FT.
45	360 FT.
50	425 FT.
55	495 FT.
60	570 FT.
65	645 FT.

TABLE NY2-A
PLACEMENT DISTANCE FOR BARRIER VEHICLES

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	PLACEMENT DISTANCE (FT.) BARRIER VEHICLES•			
	(18000 LBS.)		(24000 LBS.)	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
> 55	100 FT.	200 FT.	100 FT.	200 FT.
45 - 55	100 FT.	200 FT.	85 FT.	165 FT.
< 45	85 FT.	165 FT.	50 FT.	100 FT.

• AS DEFINED IN NYSDOT STANDARD SPECIFICATION 619:

BARRIER VEHICLE - VEHICLE USED FOR STATIONARY SHOULDER CLOSURES, LANE CLOSURES, AND OTHER STATIONARY WORK ZONES.

MINIMUM DISTANCE SHOWN REFLECTS THE ACTUAL ROLL AHEAD DISTANCE FROM MANUFACTURER.

TABLE NY2-B
PLACEMENT DISTANCE FOR SHADOW VEHICLES

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	PLACEMENT DISTANCE (FT.) SHADOW VEHICLES••			
	(18000 LBS.)		(24000 LBS.)	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
> 55	230 FT.	330 FT.	180 FT.	280 FT.
45 - 55	180 FT.	280 FT.	150 FT.	250 FT.
< 45	100 FT.	200 FT.	100 FT.	200 FT.

• AS DEFINED IN NYSDOT STANDARD SPECIFICATION 619:

SHADOW VEHICLE - VEHICLE USED FOR MOBILE OR SHORT DURATION WORK OPERATIONS.

MINIMUM DISTANCE SHOWN REFLECTS THE ACTUAL ROLL AHEAD DISTANCE FROM MANUFACTURER.

TABLE 6C-3
TAPER LENGTH FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)
MERGING TAPER	L
SHIFTING TAPER	L/2
SHOULDER TAPER	L/3
ONE-LANE, TWO-WAY TRAFFIC TAPER	100 FT. MAXIMUM
DOWNSTREAM TAPER	100 FT. PER LANE

TABLE 619-4
FLARE RATES FOR POSITIVE BARRIER

TYPE OF POSITIVE BARRIER	POSTED SPEED LIMIT				
	30 MPH	40 MPH	50 MPH	55 MPH	65 MPH
TEMPORARY CONCRETE BARRIER	8:1	11:1	14:1	16:1	20:1
BOX BEAM OR HEAVY POST CORRUGATED BEAM	7:1	9:1	11:1	12:1	15:1

TABLE NY6H-3
ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS			SIGN LEGEND	
	A (FT.)	B (FT.)	C (FT.)	XX	YY
URBAN (≤ 30 MPH•)	100	100	100	AHEAD	AHEAD
URBAN (35-40 MPH•)	200	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH•)	350	350	350	1000 FT.	AHEAD
RURAL	500	500	500	1500 FT.	1000 FT.
EXPRESSWAY / FREEWAY	1000	1500	2640	1 MILE	½ MILE

• PRECONSTRUCTION POSTED SPEED LIMIT

URBAN: (MEETS MORE THAN 1 OF THE FOLLOWING CRITERIA) SIDEWALKS, BICYCLE USAGE, CURBING, CLOSED DRAINAGE SYSTEMS, DRIVEWAY DENSITIES GREATER THAN 24 DRIVEWAYS PER MILE, MINOR COMMERCIAL DRIVEWAY DENSITIES OF 10 DRIVEWAYS PER MILE OR GREATER, MAJOR COMMERCIAL DRIVEWAYS, NUMEROUS RIGHT OF WAY CONSTRAINTS, HIGH DENSITY OF CROSS STREETS, 85TH PERCENTILE SPEEDS OF 45 MPH OR LESS.

RURAL: ANY AREA NOT EXHIBITING MORE THAN ONE OF THE ABOVE CHARACTERISTICS.

EXPRESSWAY: DIVIDED HIGHWAYS FOR TRAFFIC WITH FULL OR PARTIAL CONTROL OF ACCESS AND GENERALLY WITH GRADE SEPARATIONS AT MAJOR CROSSROADS.

FREEWAYS/INTERSTATE: LOCAL OR INTER REGIONAL HIGH-SPEED, DIVIDED, HIGH-VOLUME FACILITIES WITH FULL OR PARTIAL CONTROL OF ACCESS.

WORK DURATION DEFINITIONS

LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 CONSECUTIVE DAYS.

INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.

SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.

SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.

MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

WORK ZONE TRAFFIC CONTROL LEGEND

SYMBOL	DESCRIPTION
	ARROW PANEL
	ARROW PANEL, CAUTION MODE
	ARROW PANEL TRAILER OR SUPPORT
	CHANGEABLE MESSAGE SIGN (PVMS)
	CHANNELIZING DEVICE
	CRASH CUSHION/TEMPORARY IMPACT ATTENUATOR
	DIRECTION OF TEMPORARY TRAFFIC DETOUR
	DIRECTION OF TRAFFIC
	FLAGGER
	FLAG TREE
	LUMINAIRE
	PAVEMENT MARKINGS THAT SHALL BE REMOVED FOR A LONG TERM PROJECT
	SIGN, TEMPORARY
	TEMPORARY BARRIER
	TEMPORARY BARRIER WITH WARNING LIGHTS
	TRAFFIC OR PEDESTRIAN SIGNAL
	TYPE III BARRICADE
	WARNING LIGHTS
	WORK SPACE
	WORK VEHICLE
	WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY STANDARD SHEET

WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES

APPROVED SEPTEMBER 18, 2008

/S/ DAVID J. CLEMENTS, P.E.
DIRECTOR, OFFICE OF TRAFFIC SAFETY AND MOBILITY

ISSUED UNDER EB 08-036

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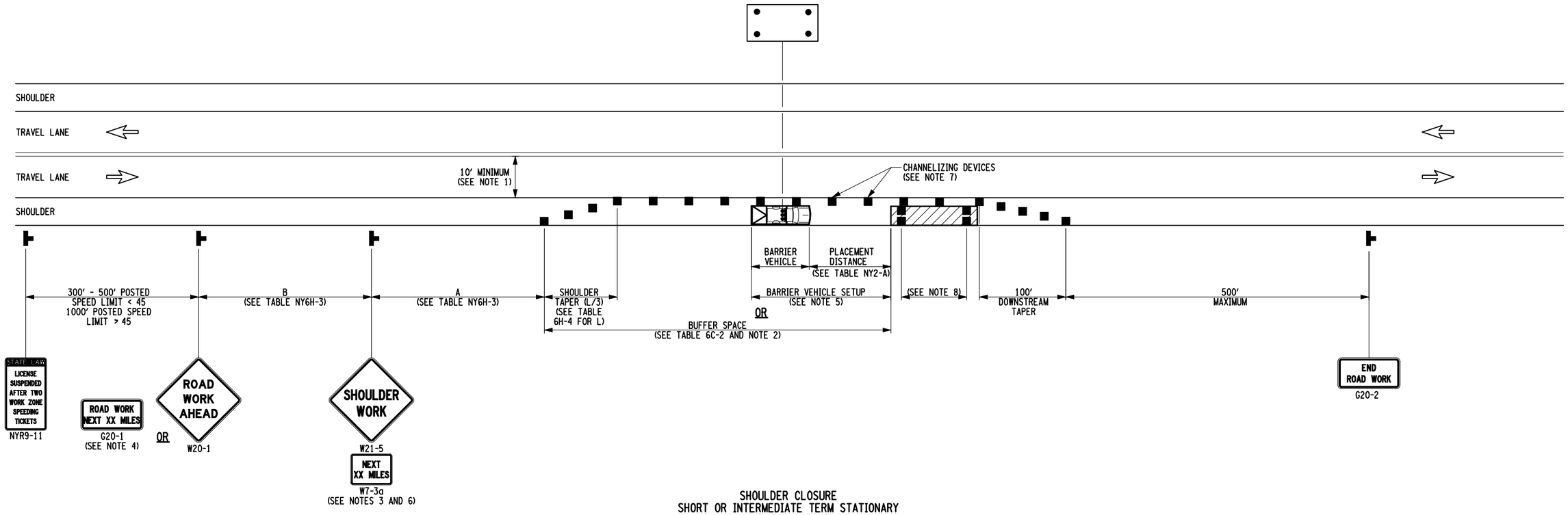

SHOULDER CLOSURE
SHORT OR INTERMEDIATE TERM STATIONARY
2-LANE 2-WAY ROADWAY
(NOT TO SCALE)

NOTES:

1. WHEN THE MINIMUM LANE WIDTH OF 10′ CANNOT BE MAINTAINED DUE TO A SHOULDER CLOSURE, USE THE DETAIL FOR SHORT OR INTERMEDIATE TERM STATIONARY FLAGGING OPERATION.
2. NO WORK ACTIVITY OR STORAGE OF EQUIPMENT, VEHICLES, OR MATERIAL SHOULD OCCUR WITHIN A BUFFER SPACE.
3. WHEN THE DISTANCE BETWEEN THE ADVANCE WARNING SIGNS AND WORK IS 2 MILES TO 5 MILES, A SUPPLEMENTAL DISTANCE PLAQUE (W7-3a) SHOULD BE USED WITH THE SHOULDER WORK SIGN (W21-5).
4. THE ROAD WORK NEXT XX MILES SIGN (G20-1) MAY BE USED INSTEAD OF THE ROAD WORK AHEAD SIGN (W20-1) IF WORK LOCATIONS OCCUR OVER A DISTANCE OF MORE THAN 2 MILES.
5. FOR BARRIER VEHICLE USE REQUIREMENTS SEE TABLES NY1-A AND NY2-A ON THE STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES".
6. IN THOSE SITUATIONS WHERE MULTIPLE WORK LOCATIONS EXIST WITHIN A LIMITED DISTANCE MAKE IT PRACTICAL TO PLACE STATIONARY SIGNS, THE DISTANCE BETWEEN THE ADVANCE WARNING SIGN AND WORK SHALL NOT EXCEED 5 MILES.
7. CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 40′ IN THE ACTIVE WORK SPACE.
8. TRANSVERSE DEVICES SHALL BE REQUIRED (AS PER 619 STANDARD SPECIFICATIONS) WHEN A PAVED SHOULDER HAVING A WIDTH OF 8′ OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 1500′.

NOTE: SEE STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES" FOR LEGEND OF SYMBOLS AND/OR LETTER CODES USED IN THIS DRAWING.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY STANDARD SHEET

SHOULDER CLOSURE
2-LANE 2-WAY ROADWAY

APPROVED SEPTEMBER 15, 2009

/S/ DAVID J. CLEMENTS, P.E.
DIRECTOR, OFFICE OF
TRAFFIC SAFETY AND MOBILITY

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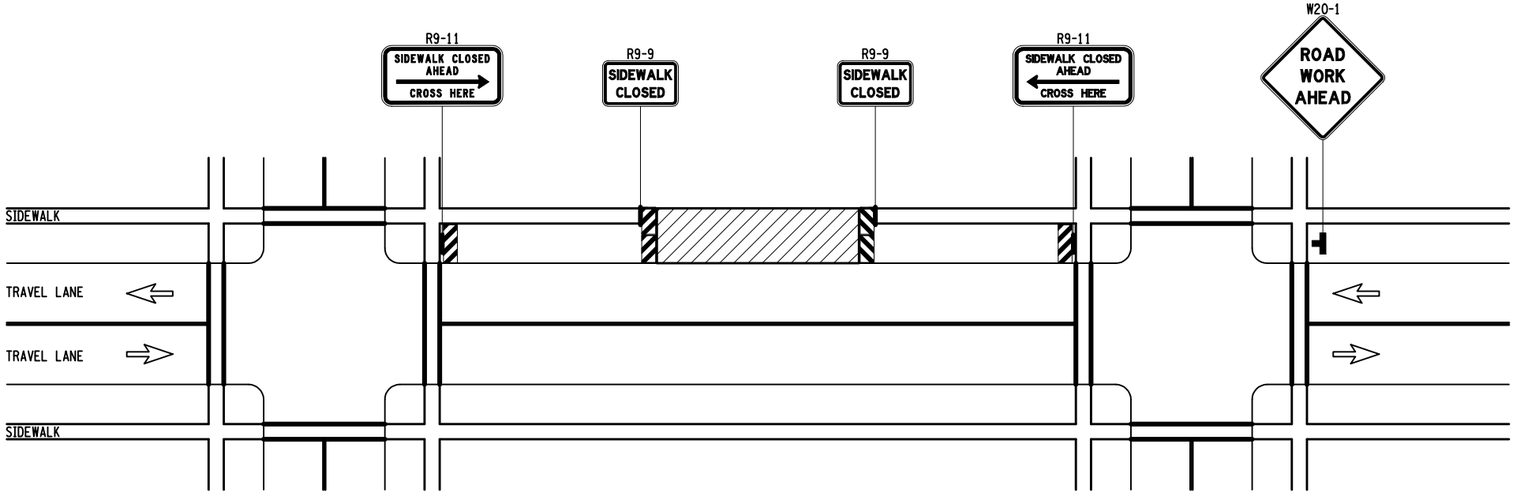
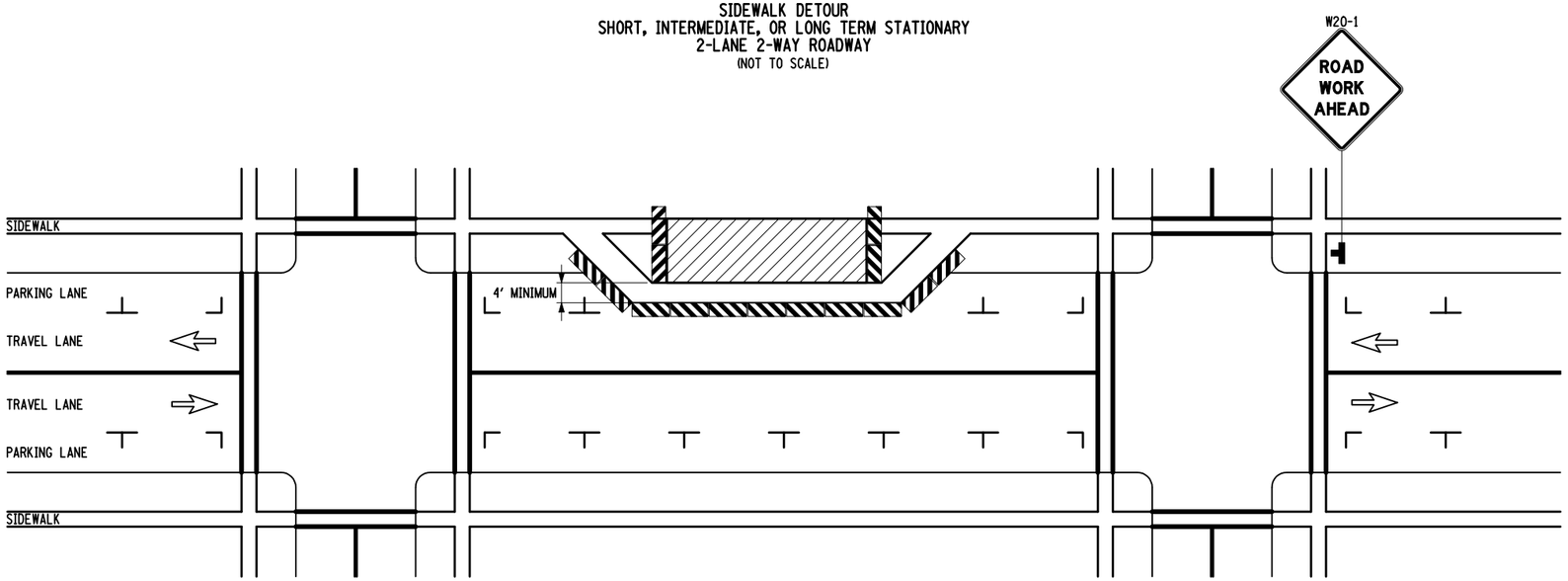


SIDEWALK DETOUR
SHORT, INTERMEDIATE, OR LONG TERM STATIONARY
2-LANE 2-WAY ROADWAY
(NOT TO SCALE)



SIDEWALK DIVERSION
SHORT, INTERMEDIATE, OR LONG TERM STATIONARY
2-LANE 2-WAY ROADWAY
(NOT TO SCALE)

NOTES:

1. WHEN CROSSWALKS OR OTHER PEDESTRIAN FACILITIES ARE CLOSED OR RELOCATED, TEMPORARY FACILITIES SHALL BE DETECTABLE AND SHALL INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING FACILITY.
2. WHERE HIGH SPEEDS ARE ANTICIPATED, A TEMPORARY TRAFFIC BARRIER AND TEMPORARY IMPACT ATTENUATOR SHOULD BE USED TO SEPARATE THE TEMPORARY SIDEWALKS FROM VEHICULAR TRAFFIC.
3. ONLY THE WORK ZONE TRAFFIC CONTROL DEVICES RELATED TO PEDESTRIANS ARE SHOWN. OTHER DEVICES, SUCH AS LANE CLOSURE SIGNING OR ROAD NARROWS SIGNS (W5-4), MAY BE USED TO CONTROL VEHICULAR TRAFFIC.
4. FOR NIGHTTIME CLOSURES, FLASHING WARNING LIGHTS SHALL BE USED ON BARRICADES SUPPORTING SIGNS AND CLOSING SIDEWALKS.
5. SIGNS SUCH AS KEEP RIGHT (LEFT) SHALL BE PLACED ALONG A TEMPORARY SIDEWALK, WHERE APPLICABLE AND ACCORDING TO AMERICAN WITH DISABILITIES STANDARDS, TO GUIDE OR DIRECT PEDESTRIANS.
6. TYPE II BARRICADES MAY BE SUBSTITUTED FOR TYPE III BARRICADES AS PER 619 STANDARD SPECIFICATIONS.

NOTE: SEE STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES" FOR LEGEND OF SYMBOLS AND/OR LETTER CODES USED IN THIS DRAWING.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY STANDARD SHEET

SIDEWALK DETOUR OR DIVERSION

APPROVED SEPTEMBER 15, 2009
/S/ DAVID J. CLEMENTS, P.E.
DIRECTOR, OFFICE OF TRAFFIC SAFETY AND MOBILITY

ISSUED UNDER EB 09-025

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Appendix C
Referenced Specifications

MIL-S-17726C
12 December 1980
SUPERSEDING
MIL-S-17726B(YD)
20 November 1969

MILITARY SPECIFICATION

SAND SANDBLAST

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers sand for the removal of scale, paint, sand which adheres to castings, and corrosion from metal surface. For use in a sand blaster machine.

1.2 Classification. The sand shall be of the following grades and classes, as specified (see 6.2):

Grade A (95 percent Silicon, SiO_2)

Class 1
Class 2
Class 3
Class 4
Class 5

Grade B (80 percent Silicon, SiO_2)

Class 1
Class 2
Class 3
Class 4
Class 5

1.3 Part number. The specification part number for items described in this specification will be identified as shown in 6.2.2. This number is a definitive part number which corresponds to the grade and class of sand covered by this specification and defines the options presented herein. The specification number, and the grade and class code identifier are combined to form the definitive specification part number as follows:

M17726 - XX
Specification Number
Grade and Class Identifier (see 6.2.2)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, CA 93043, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 5350

2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATION

FEDERAL

UU-S-48 - Sacks, Shipping, Paper.

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.
MIL-STD-147 - Palletized Unit Loads.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific acquisition functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

C136-76 - Sieve or Screen Analysis of Fine and Coarse Aggregates, Test for.
C146-72 - Chemical Analysis of Glass Sand.
C169-75 - Chemical Analysis of Soda-Lime and Borosilicate Glass.
C575-70 (1976) - Chemical Analysis of Silica Refractories.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19102.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.

3. REQUIREMENTS

3.1 Material. The sand shall consist of siliceous grains free of dirt, clay, caustic and corrosive substances, and water soluble materials, except calcium chloride or sodium chloride content shall not exceed .03 percent. The sand shall be tested as specified in 4.4.1 thru 4.4.4.

3.1.1 Grade A. Grade A sand shall contain a minimum of 95 percent silicon dioxide (SiO_2). Unless otherwise specified (see 6.2), the loss upon ignition shall not exceed 1.0 percent, and the moisture content shall not exceed 0.5 percent at the point of shipment.

3.1.2 Grade B. Grade B sand shall contain a minimum of 80 percent SiO_2. Unless otherwise specified (see 6.2), the loss upon ignition shall not exceed 1.0 percent, and the moisture content shall not exceed 0.5 percent at the point of shipment.

3.2 Grain shape. Grains shall be angular to rounded in shape.

3.3 Sieve analysis. The sieve analysis of the sands shall be in accordance with Table I.

TABLE I. Sieve analysis (Grade A and B).

U.S. Sieve number standard	Percent retained				
	Class 1	Class 2	Class 3	Class 4	Class 5
4	-	-	-	-	0
6	-	-	-	0	0-5
8	-	-	-	0-5	20-50
10	-	-	0	0-20	30-75
12	-	-	0-5	10-30	75-95
16	-	0	0-20	60-90	95-100
20	0	0-5	10-50	80-100	Trace
30	0-10	5-65	30-90	95-100	-
40	15-60	30-95	80-100	Trace	-
50	75-100	70-95	95-100	-	-
70	90-100	95-100	Trace	-	-
100	95-100	Trace	-	-	-
Pan	Trace	Trace	-	-	-

3.4 Workmanship. The quality of workmanship shall meet the standards prevalent among manufacturers who normally produce sand of the class specified herein.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance. Unless otherwise specified (see 6.2), the contractor shall furnish a certificate with each shipment or lot stating that the material is in compliance with the requirements specified. The Government reserves the right to test the items of the shipment or lot to determine the validity of the certification.

4.1.2 Exemption. When specified in the contract and approved by the contracting officer, a certificate of compliance will be accepted as evidence that the sand meets the requirements of this specification. The certificate must be applicable to sand comparable to that offered to fill the contract. The certificate shall be from a recognized independent laboratory and shall not be dated more than 4 years prior to delivery of the sand (see 6.2).

4.2 Sampling. The sample size for levels of inspection and the acceptable quality levels shall be in accordance with MIL-STD-105.

4.2.1 Lot. A lot shall consist of all containers of sand of the same grade and class submitted for inspection at the same time.

4.2.2 Sampling for testing. Sampling for testing shall be in accordance with level S-2 of MIL-STD-105.

4.3 Testing of the end item. For each lot presented for inspection the end item shall be tested for the applicable characteristics indicated in 4.4.1 thru 4.4.4. The lot size shall be expressed in units of shipping containers. The sample unit shall be 5 pounds (lb) of sand with only one unit selected from a sample container. The sample units shall be composited for testing. All tests shall be performed on the composite sample at the site where the shipment originates. When specified (see 6.2), duplicate determinations shall be performed on the composite. Failure to meet the requirements of Section 3 and the tests of 4.4.1 thru 4.4.4 shall be cause for rejection.

4.4 Test procedures.

4.4.1 Sieve analysis. A sieve analysis test shall be conducted on a portion the sample(s) following the procedures of ASTM C136. The percentages retained shall be in accordance with Table I for the particular class analyzed.

4.4.2 Silica percentage. A portion of the sample(s) shall be tested by the Single Dehydration Method of ASTM C146 and ASTM C169 to determine the percentage of silica. The percentage shall meet the minimum requirements of 3.1.1 and 3.1.2 for the particular grade tested.

4.4.3 Moisture content. A portion of the sample(s) shall be tested in accordance with ASTM C575 to determine moisture content. The moisture content shall not exceed the limit specified in 3.1.1 and 3.1.2.

4.4.4 Ignition loss. A portion of the sample(s) shall be tested in accordance with ASTM C146 for ignition loss to determine compliance with 3.1.1 and 3.1.2.

4.5 Packaging inspection. The packing and marking of the sand shall be inspected to verify conformance to the requirements of Section 5.

5. PACKAGING

5.1 Packing. Packing shall be level A, B, or Commercial as specified (see 6.2).

5.1.1 Levels A and B. Unless otherwise specified (see 6.2), 100 lb of sand shall be packed in sacks as specified in UU-S-48 for dry sand.

5.1.2 Commerical. Unless otherwise specified (see 6.2), sand shall be packed in commercial waterproof containers, in a manner to assure protection against damage and contamination. The containers shall conform to Uniform Freight Classification rules or National Motor Freight Classification rules.

5.2 Palletization. When specified (see 6.2), the containers of sand shall be palletized in accordance with load type XV of MIL-STD-147.

5.3 Marking. In addition to any special marking required by the contract or order, shipping containers and palletized unit loads shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The sand covered by this specification is intended for use in the blast cleaning of castings and metal surfaces in the shop. It is not intended to preclude the procurement of locally available natural sand for field use that would be suitable for the specific application.

6.2 Ordering data. Acquisition documents should specify the following:

(a) Number, title, and date of this specification.
(b) Grade and class of sand required (see 1.2).
(c) When loss on ignition and moisture content is to be other than specified (see 3.1.1 and 3.1.2).
(d) When certificate of compliance requirements are different (see 4.1.1 and 4.1.2).
(e) When duplicate determination shall be made (see 4.3).
(f) Level of packing required (see 5.1).
(g) If packing is other than specified (see 5.1.1 and 5.1.2).
(h) When palletization is required (see 5.2).

6.2.2 Definitive part number. The grade and class of sand (see 3.1.1, 3.1.2, and 3.3) is identified by a three character (1-alpha and 2-numeric) code identifier (see Table II).

TABLE II Grade and class part number.

Grade A	Code ID	Grade B	Code ID
Class 1	A01	Class 1	B06
Class 2	A02	Class 2	B07
Class 3	A03	Class 3	B08
Class 4	A04	Class 4	B09
Class 5	A05	Class 5	B10

Example: The part number for Grade B, Class 4 sand is; M17726-B09.

6.3 Contract data requirements. When this specification is used in a acquisition which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the Defense Acquisition Regulations (DAR), the data requirements will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of DAR 7-104.9(n) are not invoked, the data shall be delivered in accordance with the contract requirements.

6.4 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:

Army - MR
Navy - YD
Air Force - 99

Review activities:

Army - AR, MI

Preparing activity:

Navy - YD

Project No. 5350-N054

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/ vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE
MIL-S-17726C - SAND, SANDBLAST

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A
☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?
   A. GIVE PARAGRAPH NUMBER AND WORDING.

   B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?
   ☐ YES ☐ NO *(If "Yes", in what way?)*

4. REMARKS

SUBMITTED BY *(Printed or typed name and address - Optional)*

TELEPHONE NO.

DATE

DD FORM 1 JAN 72 1426

REPLACES EDITION OF 1 JAN 66 WHICH MAY BE USED

S/N 0102-014-1802