

Chapter 2 Streets

(Revised August 2024)

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A. Definitions

AASHTO

American Association of State Highway and Transportation Officials.

Curb

Structural element at the edge of an existing or proposed roadway, bikeway, or walkway. Curb may be flush with the surrounding grade (e.g., header curb) or used to create a vertical change in the ground surface.

Curb Return

Curved section of curb, which extends from the gutter flow line towards the street right-of-way line, sidewalk or sidewalk area.

Conventional Bike Lane

A bike lane designated as an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel and flows in the same direction as motor vehicle traffic.

Island, Channelization

The words “channelization island” refer to an area, generally between or adjacent to traffic lanes, delineated by curbs, pavement markings or other devices, for control of vehicular movements or for pedestrian refuge.

Median

Channelization island located, generally, along or near the middle of a street or between two roadways or driveways and which is intended to separate opposite directions of vehicular traffic flow.

Parking Space (On-Street)

Portion of roadway where a vehicle can legally park.

Plaza

Area between a pedestrian zone and a roadway, along which curbing is in place. In an urban setting, the plaza may be grassed, landscaped, or paved with brick paving blocks, concrete sidewalk, or some similar treatment.

Shoulder

Portion of a street, located between a pedestrian zone and a roadway, along which curb has not been installed.

Street

The entire width between right-of-way lines of any avenue, highway, lane, path, road, way, or other public place located within the City, when any part thereof is open to the use of the public, as a matter of right, for purposes of vehicular, bicycle or pedestrian traffic.

Street Segment

Length of a street between intersections or between points which define a change in street configuration.

Thoroughfare, Major

Primary traffic arteries of the city. The Federal-Aid Function Classification is “Arterial”. Their function is to move intracity and intercity through traffic. The streets which comprise the thoroughfare system may serve abutting property; however, their major function is to carry traffic. Parking is not normally permitted on major thoroughfares. NOTE: Where this Technical Standards and Specifications Manual refers to “Thoroughfare”, it is generally referring to Major Thoroughfares.

Thoroughfare, Minor

Large collector streets, having a dual role in between the local street (property access) and the major thoroughfares (through traffic).

Through-Street

A publicly dedicated, improved, and accepted street or street segment which provides at least two means of access to a collector street or street of higher classification.

Traffic Engineer

Refers to the City Traffic Engineer, or his or her designee, for those situations or locations within the jurisdiction of the City of Wilmington.

Traffic Impact Analysis (TIA)

A TIA is conducted by a traffic engineer and forecasts additional traffic associated with a proposed development, identifies potential problems that might influence traffic flow, and suggests ways to mitigate any negative effects.

Wilmington Urban Area Metropolitan Planning Organization (WMPO)

A federally mandated entity which is tasked with providing regional and cooperative transportation planning processes that serves as the basis for the expenditure of all federal transportation funds in the greater Wilmington area.



B. Preface

City Council has adopted a complete streets policy which states, *The City of Wilmington strives to accommodate and encourage alternative modes of travel including walking, bicycling, and use of public transportation.* Complete Streets are safe and convenient for pedestrians, bicyclists, public transit riders, and motor vehicle drivers. These standards will provide necessary design elements to meet the intent of the City’s Create Wilmington Comprehensive Plan and Complete Street policy.

Please note the standards described herein shall be considered minimum standards for normal topographic and development conditions. The standards may be increased in circumstances involving special topographic or development conditions (e.g., severe topographic or drainage conditions might require a wider street cross-section to ensure reliable access to all lots of a proposed residential subdivision). Any deviation from the Technical Standard will require approval from the City Engineer and/or Design Adjustment Committee (DAC) as permitted by city code. All waiver requests must provide evidence of hardship due to site constraints.

C. Functional Classification

1. Non-Arterial Streets (Non-Thoroughfare)

Minimum street standards for Non-Residential, Residential Collector, Residential Standard, and Alleys in residential areas and subdivisions are shown in Table 2.1.

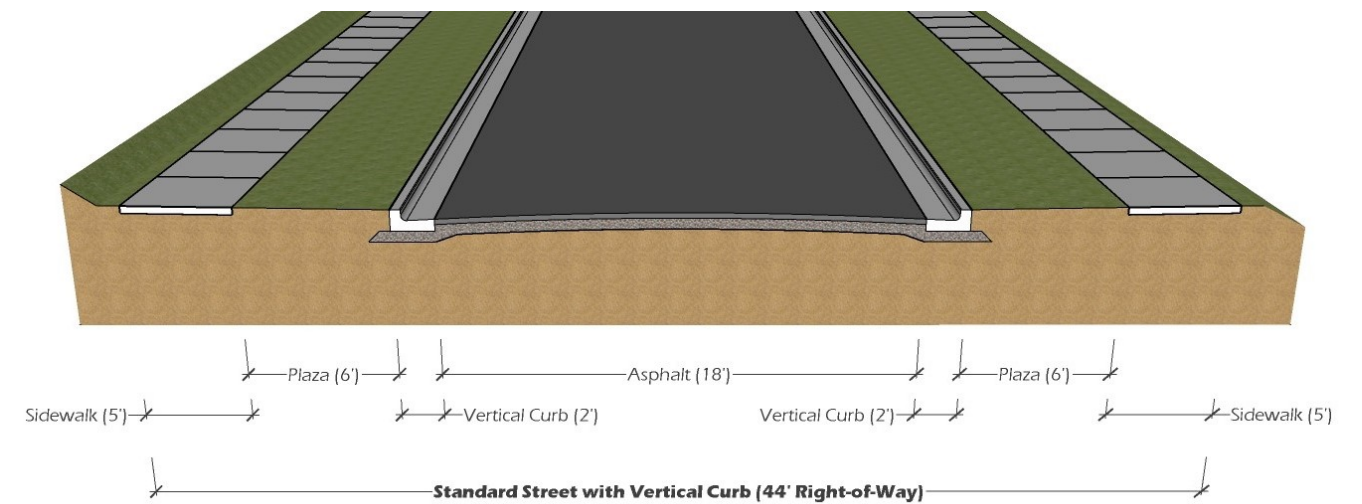
TABLE 2.1: Minimum Dimensions for Non-Arterial Streets

Functional Classification	Right-of-Way	Curb (each side)	Asphalt	Plaza (each side)	Sidewalk (each side)	City Standard Detail
Non-Residential	50 ft	2 ft	24 ft	6 ft	5 ft	02-01.01
Residential Collector	48 ft	2 ft	22 ft	6 ft	5 ft	02-01.02
Residential Standard	44 ft	2 ft	18 ft	6 ft	5 ft	02-01.03a 02-01.03b
Alley	20 ft 20 ft	Valley 2 ft Header 1 ft	16 ft 16 ft	N/A 1 ft	N/A N/A	02.01.04

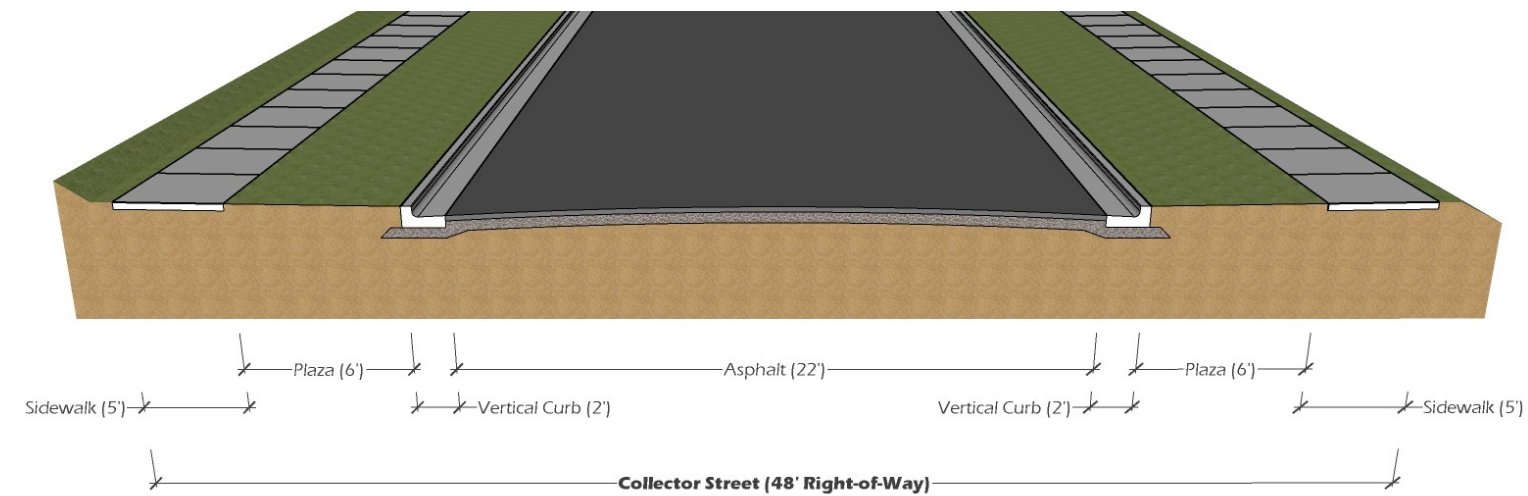
- a. A Collector Street shall be provided when serving 150 or more residential units.
- b. The number of dwelling units served by a street segment includes all units having frontage on other segments of that street or other streets which contribute to the traffic volume of that segment.
- c. When more than one route of access is available to a dwelling unit, that unit shall be counted as served by the street segments most likely to provide the primary access point for that unit determined by likely logical driving behavior.
- d. When subdivisions interconnect via collector streets, the first approved subdivision will provide the cross-section standard which must be maintained until a logical terminus (e.g. intersection).

* Where feasible, it is good practice to limit the number of driveways along a Residential Collector.

Residential Standard



Residential Collector



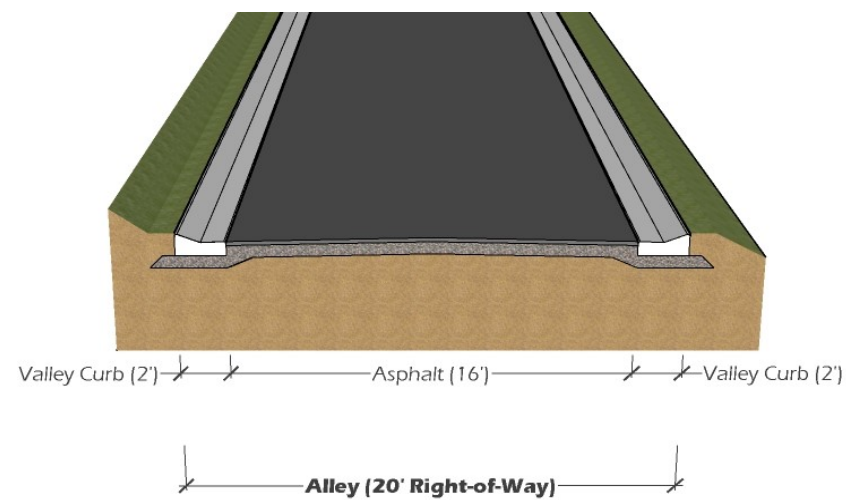
Non-Residential Street



2. Alley

- a. Alleys are primarily intended to serve as vehicular service access to the rear or side of a property otherwise fronting on a street of higher classification. In the Central Business District, some may be designated as "service alleys" which primarily function to support adjacent properties.
- b. An additional easement may be required for utilities.
- c. An inverted crown pavement profile may be used for alleys with header curb.
- d. The use of vertical curbing is not permitted, design must follow standard detail SD 02.01.04.

Alley



3. Private Access Easement

TABLE 2.2: Minimum Dimensions for Private Access Easement

Access Easement	Asphalt	Edge Buffer (each side)	City Standard Detail
34 ft	20 ft	7 ft	02-01.05

- a. Private access easements may be reduced to 12 feet of paved surface, with no min. lot width or frontage, if the easement serves no more than 1 dwelling unit.
- b. 400' maximum length to lot from public street.
- c. If the total length of the private access easement exceeds 150 feet, an emergency services turnaround must be installed per city standards or as approved by the City Engineer. The turnaround must be included within the easement area.
- d. The combined length of an access easement and cul-de-sac cannot be greater than 650' maximum.
- e. Total width of easement can be reduced by the City Engineer from 34 feet to a minimum of 20 feet if the construction plans demonstrate that the full width is not necessary to accommodate drainage and utilities. A minimum 2-foot shoulder must be provided on each side.
- f. No more than four (4) residential units shall use a private access easement as a sole means of access.
- g. A private access easement cannot be used for commercial use.
- h. For easements which serve two (2) or more units, the width of the paved surface may be reduced to 16' if permitted by NC Fire Code.
- i. A minimum vertical clearance of 13'- 6" must be provided and maintained over the paved surface.
- j. Horizontal alignment must meet minimum geometric street design standards outlined within Table 2.3 below, if standard can not be met the city will accept auto turn analysis demonstrating a fire truck (46' ladder) can safely navigate the site within the easement area.

Private Access Easement



D. General

1. Building Access

Any principal building and/or structure shall be no further than 500' away from a public or private street. This requirement excludes residential single dwelling and duplex units.

2. One-Way Traffic

- a. One lane, one-way street: 14 feet face-to-face minimum without parking; 22 feet face-to-face min. with parallel parking on one side.
- b. One-way alley: 14 feet (includes header curb).
- c. Additional fire access may be required to meet Fire Code.



Note: Two-way alley is 16 feet of pavement with 1-foot header or 2' valley curb on both sides.

3. Monumentation

Survey control monumentation shall be placed on the centerline at points of curvature and at all points of tangency of curves that are to be dedicated for street purposes. Monumentation is subject to provisions of Section 18-501 of the Land Development Code and shall be installed per standard details SD 02-02.04 & SD 02-02.05. The City Engineer and/or City Surveyor can provide relief to the number of monuments if deemed monumentation has been adequately met.

4. Cul-de-Sac

All Streets must terminate in either a city standard cul-de-sac or turnaround. Dead-end streets are not permitted. Sidewalks are not required on the bulb portion of cul-de-sacs; however, they may be requested on a case-by-case basis by the City Engineer and/or Technical Review Committee (TRC) to facilitate connectivity. A center landscape island shall meet dimensional requirements provided within detail SD 02-01.07.

5. Median Standard

- a. Vertical curbing is required to protect median function and landscaping. Medians are reserved for landscaping only; no decorative structures, monument signs, etc. are permitted.
- b. Residential Standard Streets: 10' minimum median width face-to-face.
- c. Non-Residential & Residential Collector Streets: 13' minimum median width face-to-face, to provide for possible left turns, access cuts, etc.
- d. Sight Distance triangle standards apply based on a case-by-case basis review using ASSHTO stopping distance information for the rated speed of the street.
- e. The minimum length of median shall be 100'.
- f. Traffic calming features may vary from these standards and must be approved by appropriate city staff on a case-by-case basis.
- g. A smaller 6' minimum median may be used for reverse angled parking, see On-Street Parking Section.

6. Non-Municipal Utility Easement

A non-municipal utility easement of 10-feet in width shall be provided on both sides of all streets and alleys. The easement may be reduced, by the City Engineer, if the designer can demonstrate the easement provided can accommodate the installation of electric, telephone, fiber, and cable TV lines.

The designer shall coordinate street scape requirements between the City Planning Department & non-municipal utility providers.

7. Conventional Bike Lane

When required, a minimum of 4 feet of pavement shall be provided adjacent to street edge or longitudinal joint to provide adequate room for bicyclist passing. Additional recommendations and guidelines are provided by the Wilmington Urban Area Metropolitan Planning Organization (WMPO) and can be found within the Wilmington Pedestrian Plan and Wilmington – New Hanover County Comprehensive Greenway Plan.

8. Design Vehicle

Street design should accommodate the appropriate design vehicle within designated travel lanes. Configurations should accommodate larger vehicles, using available pavement, where such vehicles may reasonably be expected to pass on an infrequent basis. Standard Streets should be designed so that a large semi-trailer (WB-50) can navigate through a neighborhood without damaging the roadway.

9. Street Trees

Street Trees shall be provided by developers in the plazas of public and/or private rights-of-ways (except alleys); root bridging, shielding, and/or flexible porous pavement may be required to be installed along with the trees to prevent any problems associated with tree roots (e.g. pavement or sidewalk movement, penetration of sewer lines, etc.). Any vegetation planted within the right-of-way shall be subject to review by Parks & Recreation, Downtown Services Department, and along with other appropriate Technical Review Committee staff. See Landscape Chapter for type, size, species, and spacing requirements.

10. Non-Standard Design

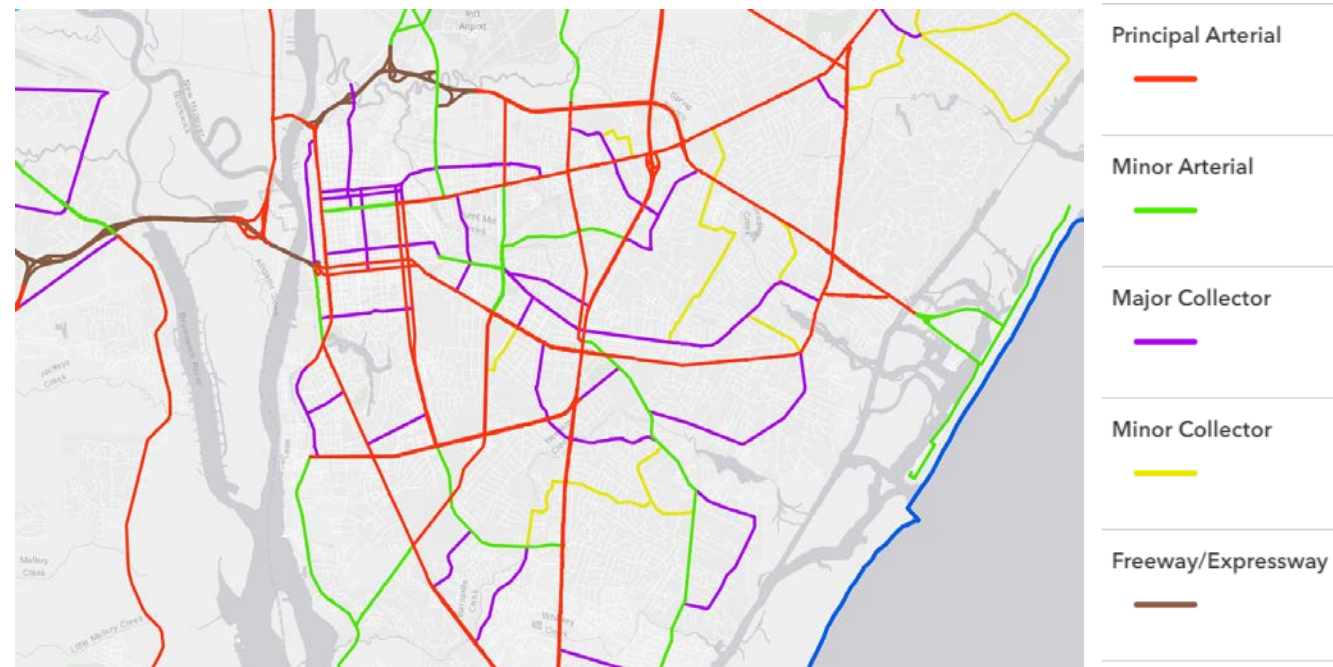
Roadways designated by the Wilmington Urban Area Metropolitan Planning Organization (WMPO) as Principal Arterial shall be considered Thoroughfares. Design modifications to roadways designated as Principal Arterial, Minor Arterial, or Freeway/Expressway will be reviewed on a case-by-case basis. Design standards for Thoroughfares are typically regulated by the State (NCDOT) and/or Federal agencies.

Any deviation from Non-Arterial Cross Sections described in this chapter shall require a waiver from the Design Adjustment Committee (DAC). All proposed improvements for these primary corridors must consider Growth Strategies, Community Transportation Plans, and Corridor Plans as described within the Transportation Planning website.

Please note many designated thoroughfares, within city limits, are under NCDOT jurisdiction and will require additional permitting and coordination. Any design parameters approved by NCDOT may supersede cross section requirements described herein.

11. WMPO Functional Classification

WMPO Functional Classification is the process by which streets & highways are grouped into classes according to the type of service they provide or will provide. All Federal funding is based on a roadway's functional classification.



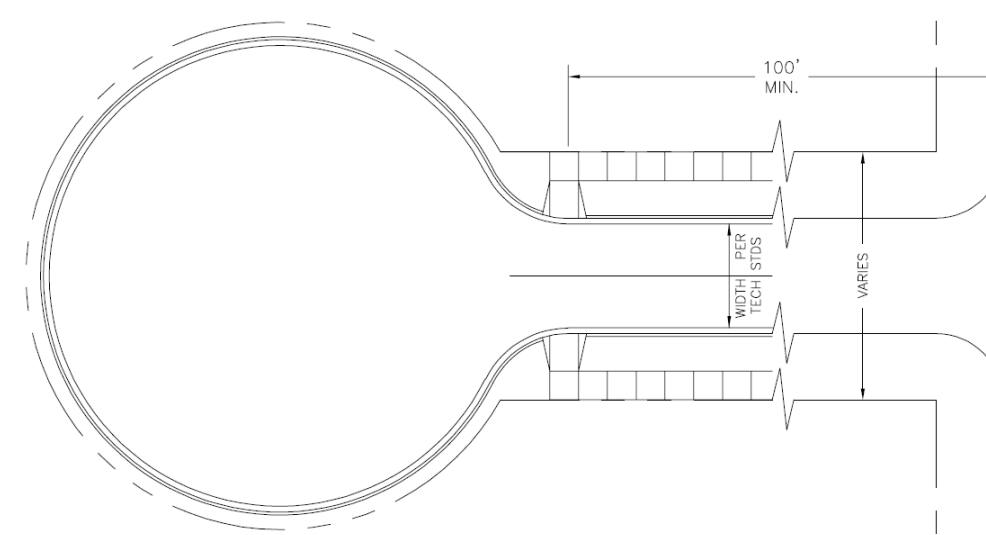
E. Geometric Design

1. Street Design Criteria

TABLE 2.3: Street Design Standards

Design Criteria	Minimum	Maximum
Angle of intersection between any two or more streets	75 degrees	-
Offset between centerlines of intersections on opposite sides of street (dog-leg)	200 feet	-
Distance b/w centerlines of intersections – Collector / Non-Residential	400 feet	
Distance b/w centerlines of intersections – Standard Residential	200 feet	
Length of cul-de-sac * See Figure 1 Below	100 feet	500 feet
Radius of roadway edge at corners – Collector / Non-Residential (Measured from Face of Curb or Edge of Pavement)	35 feet	-
Radius of roadway edge at corners – Standard Residential (Measured from Face of Curb or Edge of Pavement)	25 feet	
Tangent length between horizontal curves – Collector	100 feet	-
Tangent length between horizontal curves – Standard Residential	100 feet	-
Horizontal centerline radius – Collector	200 feet	-
Horizontal centerline radius – Standard Residential	100 feet	-
Longitudinal grade	-	7%

Figure 1: Minimum Length of Cul-de-Sac



2. Horizontal Curves

The following information shall be provided for horizontal curves on each plan sheet which has some portion of the curve shown. For horizontal alignments, bearings should be labeled between curves:

PI Station	Tangent
PC Station	Radius
PT Station	Length of Curve

3. Vertical Curves

The following information shall be provided for vertical curves on each plan and profile sheet which has some portion of the curve. For vertical alignments, slopes should be labeled between curves:

VPI Station	Low/High Point Station	Curve Length
VPI Elevation	Low/High Point Elevation	A, Algebraic Difference in Grades
K, Horizontal Distance for 1% Change in Gradient		

4. Roundabouts

- a. Design shall be in accordance with the latest edition of the NCDOT Roadway Design Manual.
- b. Shall meet signage requirements of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- c. Roundabouts shall not be used to negate Horizontal Centerline Radius requirements and only be used at three-leg intersections or greater.
- d. See Standard Detail 02-03.05 for truck apron design standards.

5. Added Lanes and Tapers (Under Construction / Internal Review with Traffic Engineering)

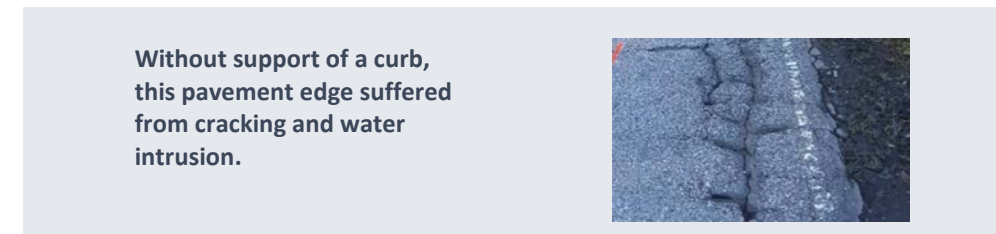
Turn lanes and tapers, or acceleration and deceleration lanes may be required where it is anticipated by the City that the volume of traffic using the proposed driveway(s) may significantly interfere with the flow of traffic on the abutting public street. These turn lanes shall have a minimum of 150 feet of storage for left turning movements and 100 feet of storage for right turning movements or as required by TIA. The length of taper shall be determined using the formula $WS/3$ where W is the width of lateral shift (width of turn bay) in feet and S is the posted speed limit in miles per hour. Where necessary, additional side clearances to accommodate such turn lanes and tapers may also be required. When widening the roadway is required for the addition of turn bays, NCDOT's geometric guidelines for turn lanes shall be followed. Requests for turn (deceleration) lanes and transition tapers shall be considered as part of the driveway permit and must be shown on the site plan with the driveway.

F. Curb

1. Function

Curb may serve the following purposes, depending on the type and application:

- Support the pavement edge, minimizing raveling and increasing pavement longevity
- Redirect errant vehicles moving at low speeds back to the travel lane
- Improve pedestrian safety
- Streetscape aesthetic enhancement
- Collect and convey stormwater to curb inlets
- Facilitate maintenance of the stormwater system with a street sweeper



2. Curb Design

- a. Curb and gutter installed per SD 02-02.01 is required on all new streets.
- b. Curb and gutter is required to be installed on existing public streets when street improvements are required per Article 6 of City Code. The City Engineer may authorize the use of the alternative ditch section per SD 02-02.06.
- c. The type of curb on new streets shall be specified in Table 2.4 and installed per City Standards.
- d. The type of curb on existing streets shall match the adjacent curb unless otherwise directed by the City Engineer. Granite curb is required within the CBD unless otherwise directed by the City Engineer.

TABLE 2.4: Curb Installation Matrix

	Header Curb	Vertical Curb & Gutter	Valley Curb & Gutter
Non-Residential	✗	✓	✗
Residential Collector	✗	✓	✗
Residential Standard	✗	✓	✓
Alley	✓	✗	✓
✓ = Permitted		✗ = Not Permitted	

G. Street Lighting (Under Construction / Internal Review with Traffic Engineering)

1. Streetlight Fixtures

The “standard streetlight fixture” shall be a high-pressure sodium vapor, Type III enclosed cutoff fixture that is attached to an arm bracket to a wooden or fiberglass pole and is leased from Duke Energy. “Nonstandard streetlight fixture” shall be a high-pressure sodium vapor, Type V or a Type III “shoebox” fixture or equivalent LED leased from Duke Energy. These fixtures are typically mounted on top of a 14-foot (minimum height) post.

2. General

- a. Street lighting shall be installed in all new subdivisions.
- b. Requests for street lighting shall be submitted with plans that shall show landscaping types and locations.
- c. Streetlights should be located at adjoining property lines and at street intersections.
- d. Streetlight locations shall be designed to minimize potential hazards to traffic, and obstructions to visibility.
- e. Trees shall be planted at a minimum distance from a streetlight equal to one-half the recommended street tree spacing or 15’ whichever is greater.
- f. Streetlights are recommended for Public Access Easements but are not a requirement.

3. Privately-Maintained Streets

In subdivisions where the streets are platted as private, the homeowners’ association, property owners’ association or developer must enter into an agreement with Duke Energy to provide street lighting as required under Rate Schedule ALS set forth by the North Carolina Utilities Commission (NCUC).

4. Nonstandard Fixtures Along Dedicated Public Streets

Request for nonstandard street lighting shall be submitted in letterform. The incorporated homeowners’ or property owners’ association shall enter into an agreement with Duke Energy and the City of Wilmington.

H. On-Street Parking

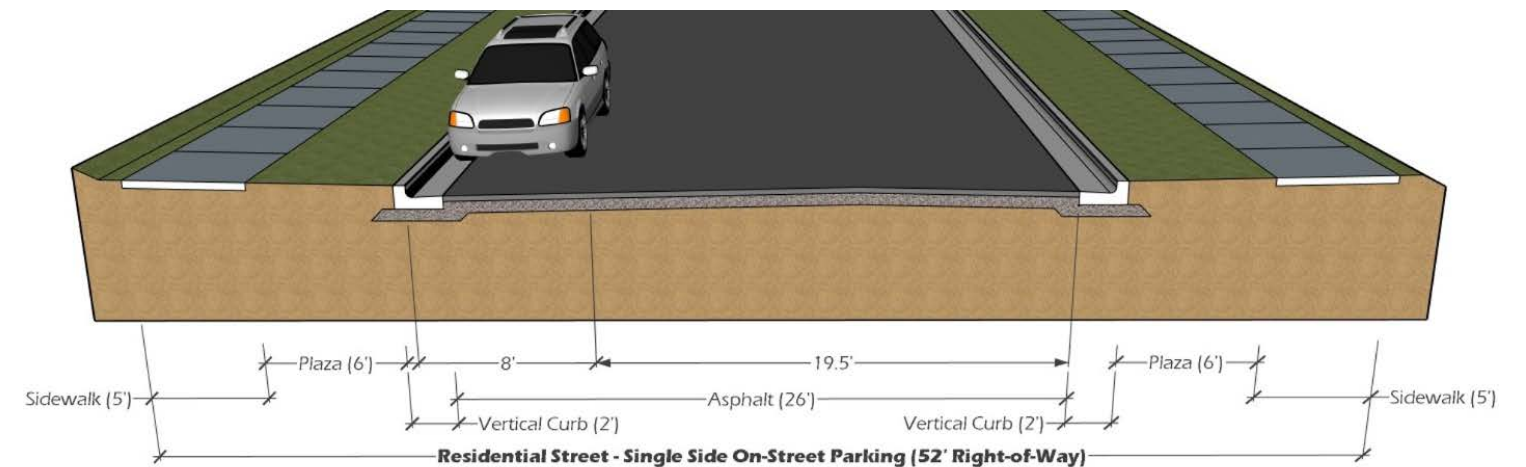
1. General

- a. The minimum width of a parallel parking lane, measured from the face of curb, shall be 8 feet and follow cross section guidance provided within.
- b. The standard length of an on-street parking space is 23 feet, measured parallel with the edge of roadway.
- c. Parking other than parallel or reverse angle is prohibited on public streets.
- d. Parking other than parallel or reverse angle on private streets can be approved by City Engineer on a case-by-case basis.
- e. On-Street Parking must be a minimum of 20 feet from any ground-mounted traffic signal, stop or yield sign.
- f. On-street Parking design must accommodate curb side trash pick-up.

2. Residential Street – Single Side On-Street Parking

TABLE 2.5: Minimum Dimensions for Single Side Parallel Parking

Functional Classification	Right-of-Way	Curb (each side)	Asphalt	Plaza (each side)	Sidewalk (each side)
Residential Collector	56 ft	2 ft	30 ft	6 ft	5 ft
Residential Standard	52 ft	2 ft	26 ft	6 ft	5 ft



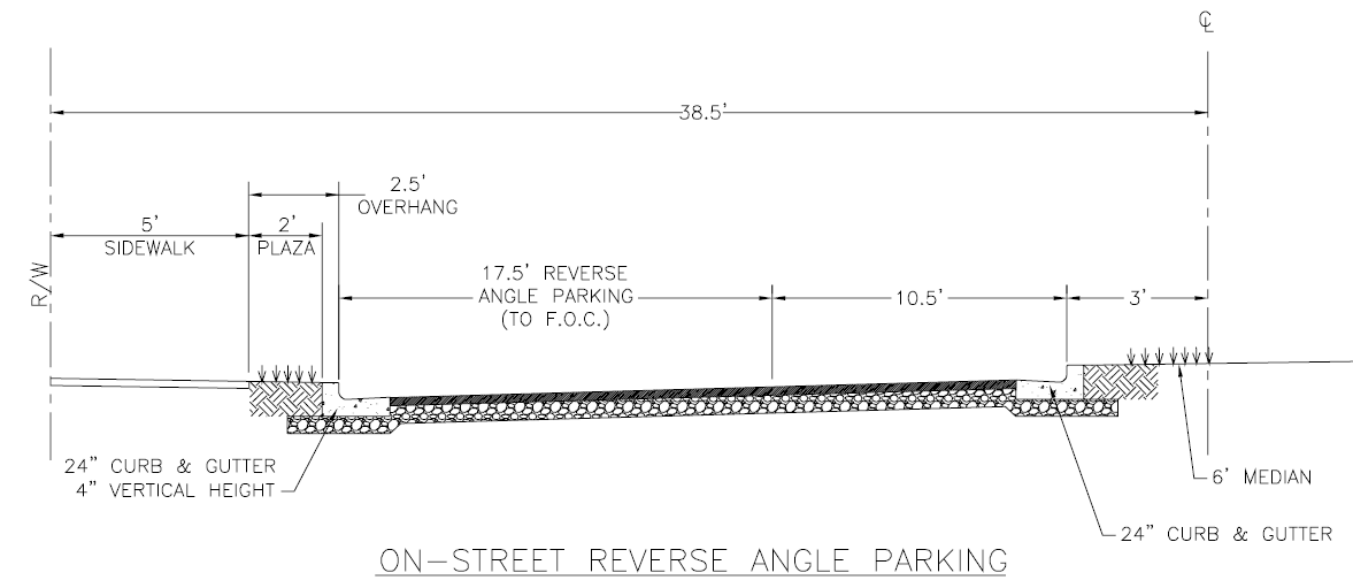
3. Residential Street – Dual Side On-Street Parking

TABLE 2.6: Minimum Dimensions for Dual Side Parallel Parking

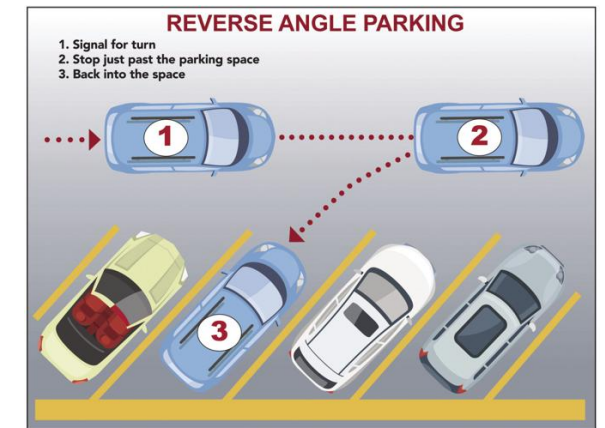
Functional Classification	Right-of-Way	Curb (each side)	Asphalt	Plaza (each side)	Sidewalk (each side)
Residential Collector	64 ft	2 ft	38 ft	6 ft	5 ft
Residential Standard	60 ft	2 ft	34 ft	6 ft	5 ft



4. Reverse Angled Parking



- Plaza can be grass, stamped concrete, or scored concrete at 2' from the back of curb, to differentiate between vehicle overhang and sidewalk.
- A large street tree must be provided every 10-parking spacing and be located within an appropriately sized landscape island as described in the Landscaping Chapter.
- Parking must be adequately signed to notify drivers of intended use.
- Exhibit above is dimensions based on a 60-degree angled parking design. 60-degree reverse angled parking is the recommended standard.
- May only be used adjacent to one-way traffic or two-way traffic separated by a median.



I. Public Transportation

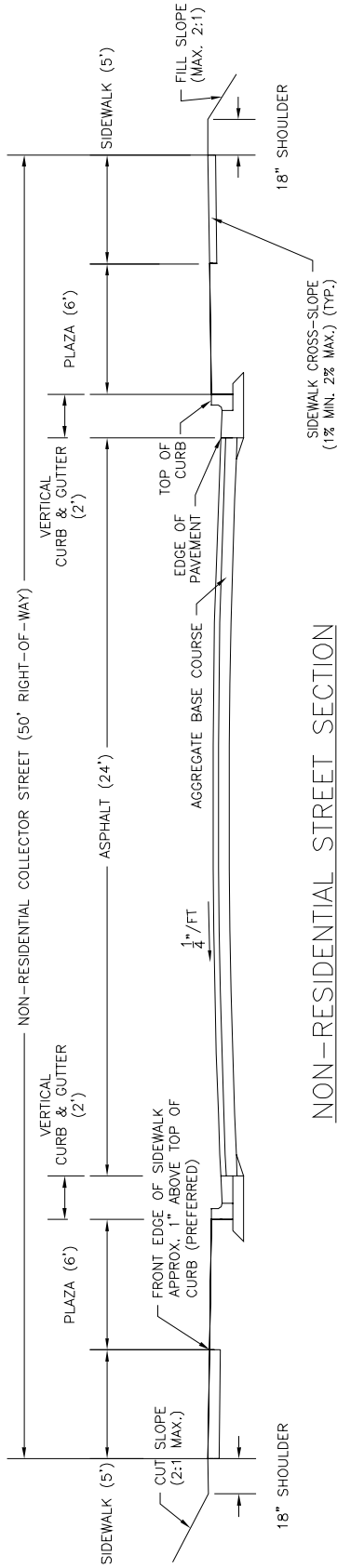
The metro area of Wilmington utilizes public bus and shuttle services which are governed by The Cape Fear Public Transportation Authority, operating as Wave Transit. All design and improvements shall be coordinated through the Wilmington Urban Area Metropolitan Planning Organization (WMPO) and Wave Transit and in accordance with each agency's currently adopted plans and standards.

Chapter 2: Appendix

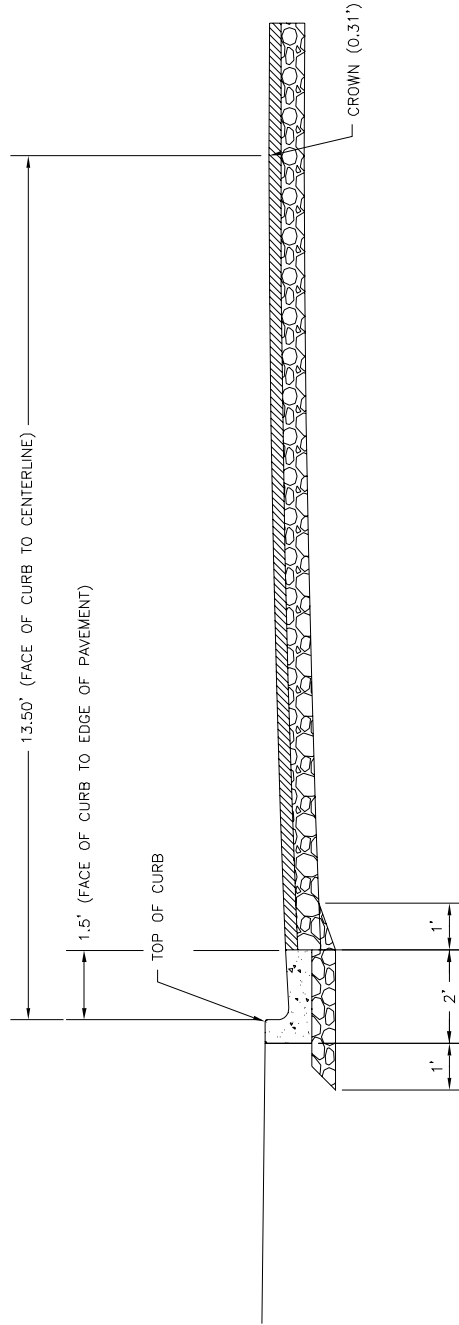
Standard Details

GEOMETRICS (02-01)	
02-01.01	Non-Residential Street
02-01.02	Residential Collector Street
Standard Street	
02-01.03a	Vertical Curb
02-01.03b	Valley Curb
02-01.04	Alley – Header Curb
02-01.05	Private Access Easement
02-01.06	Alternate Ditch Section
02-01.07	Residential Cul-de-Sac
02-01.08	Turnarounds
02-01.09	Utility Locations
STREET ELEMENTS (02-02)	
02-02.01	Curb
02-02.02a	Street Light
02-02.02b	Street Light Base
02-02.03	Parking Meter Installation
02-02.04	Monument Casting Detail
02-02.05	Monument Base
PAVEMENT (02-03)	
02-03.01	Asphalt Paving Section
02-03.02	Brick Street
02-03.03	Pavement Widening
02-03.04	Pavement Restoration
02-03.05	Roundabout Truck Apron Section





NON-RESIDENTIAL STREET SECTION



NON-RESIDENTIAL STREET CROWN

NOTES:

1. A NON-MUNICIPAL UTILITY EASEMENT OF 10' IN WIDTH SHALL BE PROVIDED ON BOTH SIDES OF THE STREET, FOR INSTALLATION OF ELECTRIC, TELEPHONE, FIBER AND CABLE TV LINES.
2. STREET SECTION SHALL PROVIDE STANDARD 24" VERTICAL CURB AND GUTTER ONLY.

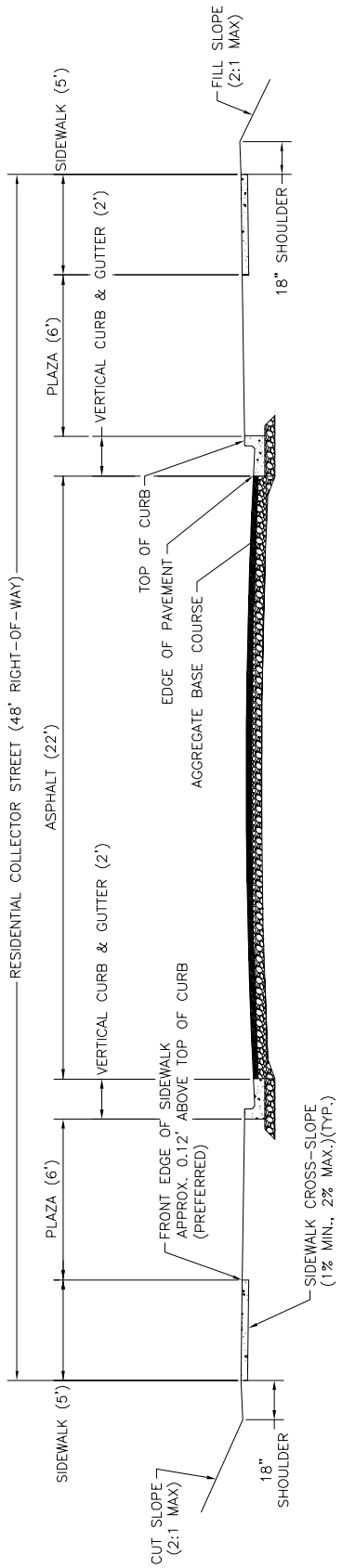
STANDARD DETAIL

NON-RESIDENTIAL STREET
(SECTION AND CROWN)

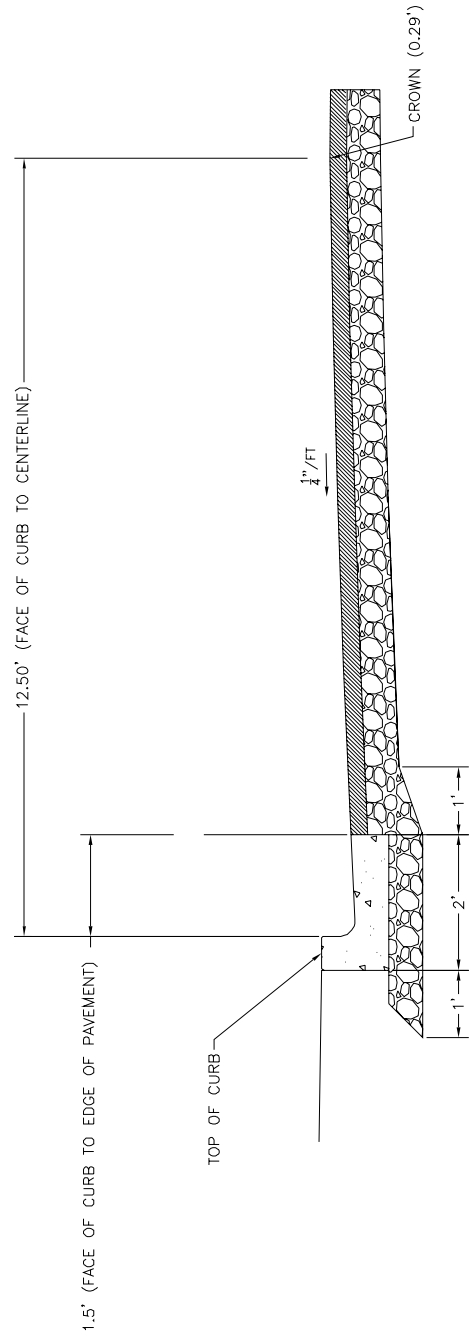
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 NORTH CAROLINA
 CITY OF WILMINGTON ENGINEERING
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 (910) 341-7807

SD 02-01.01



RESIDENTIAL COLLECTOR STREET SECTION



RESIDENTIAL COLLECTOR STREET CROWN

- NOTES:
1. A NON-MUNICIPAL UTILITY EASEMENT OF 10' IN WIDTH SHALL BE PROVIDED ON BOTH SIDES OF THE STREET, FOR INSTALLATION OF ELECTRIC, TELEPHONE, FIBER AND CABLE TV LINES.
 2. STREET SECTION SHALL PROVIDE STANDARD 24" VERTICAL CURB AND GUTTER ONLY.

STANDARD DETAIL

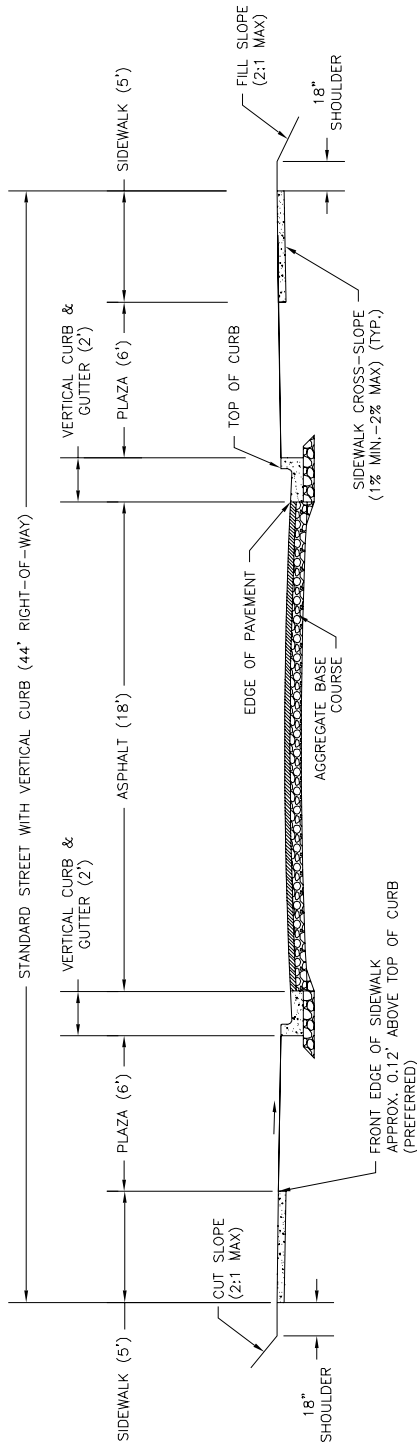
RESIDENTIAL COLLECTOR STREET
(SECTION AND CROWN)

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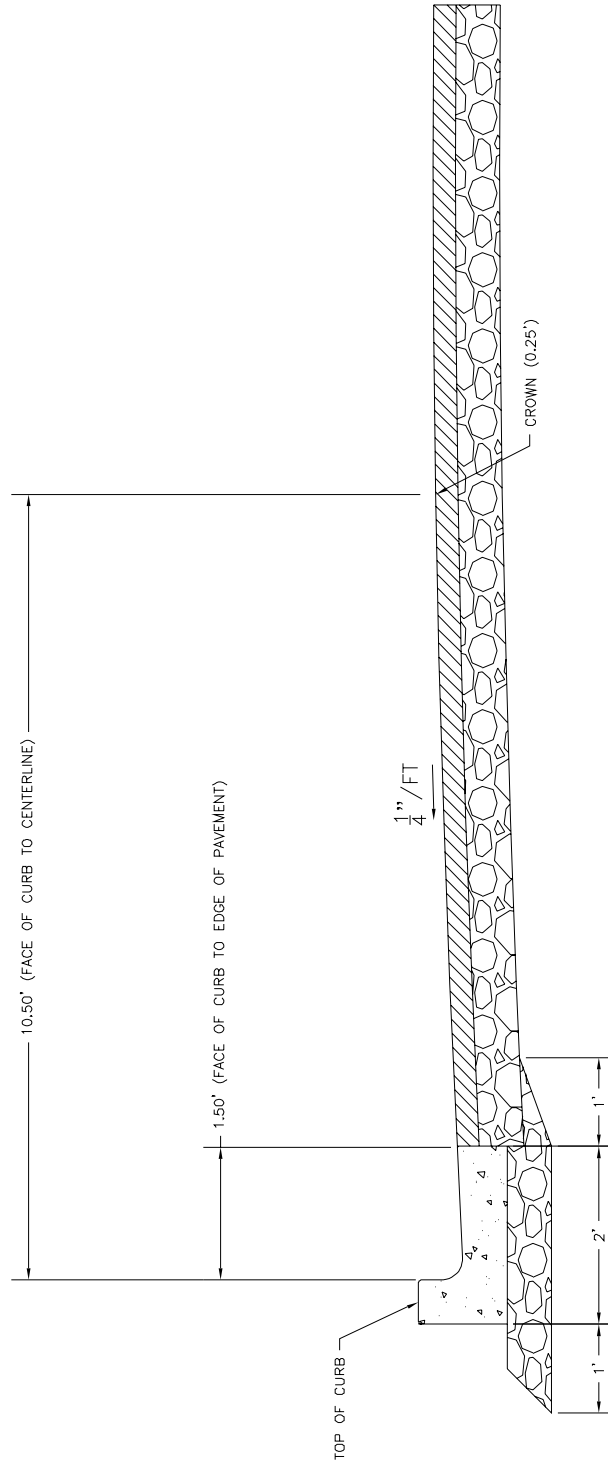
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SD 02-01.02



STANDARD STREET WITH VERTICAL CURB SECTION



STANDARD STREET WITH VERTICAL CURB CROWN

NOTE:
 A NON-MUNICIPAL UTILITY EASEMENT OF 10' IN WIDTH SHALL BE PROVIDED ON BOTH SIDES OF THE STREET, FOR INSTALLATION OF ELECTRIC, TELEPHONE, FIBER AND CABLE TV LINES.

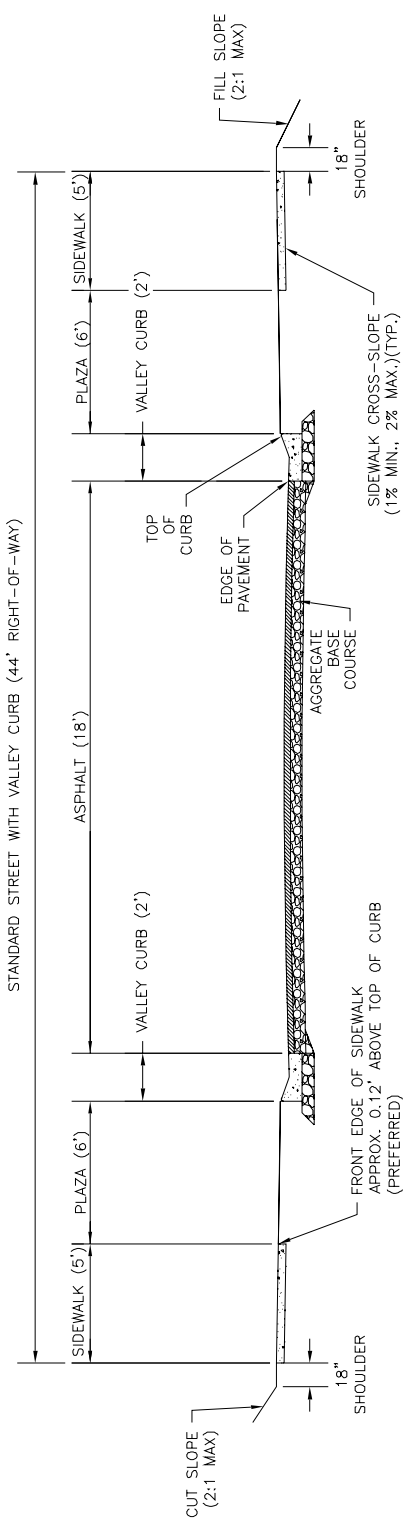
STANDARD DETAIL

STANDARD STREET WITH VERTICAL CURB (SECTION AND CROWN)

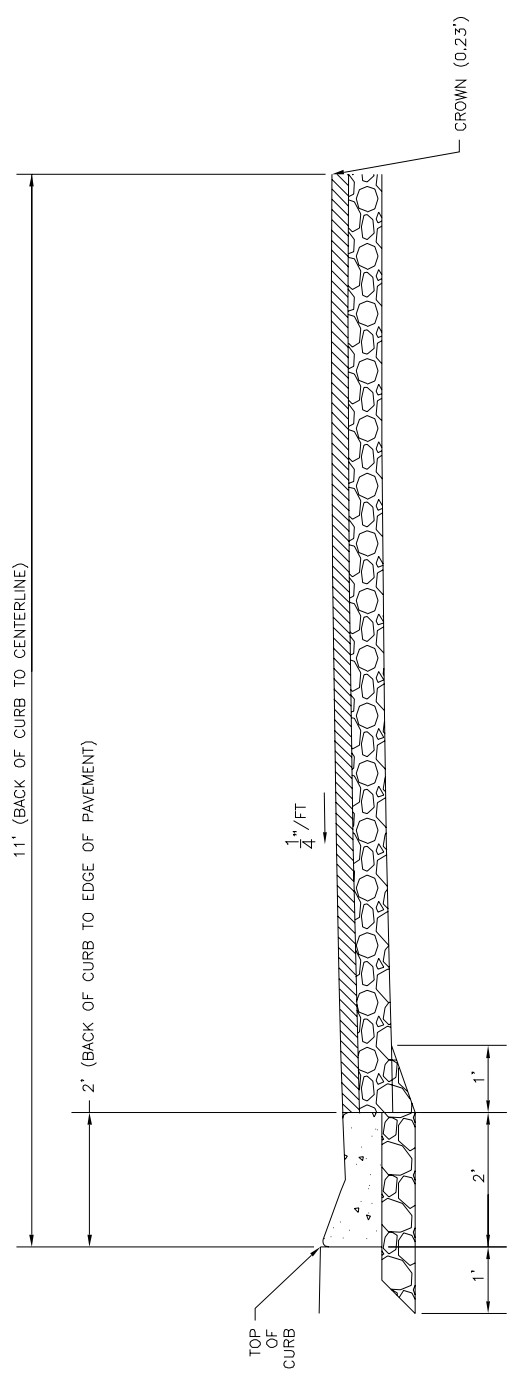
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SD 02-01.03a



STANDARD STREET WITH VALLEY CURB--SECTION



STANDARD STREET WITH VALLEY CURB--CROWN

NOTE:
 A NON-MUNICIPAL UTILITY EASEMENT OF 10' IN WIDTH SHALL BE PROVIDED ON BOTH SIDES OF THE STREET, FOR INSTALLATION OF ELECTRIC, TELEPHONE, FIBER AND CABLE TV LINES.

STANDARD DETAIL

STANDARD STREET WITH VALLEY CURB (SECTION AND CROWN)

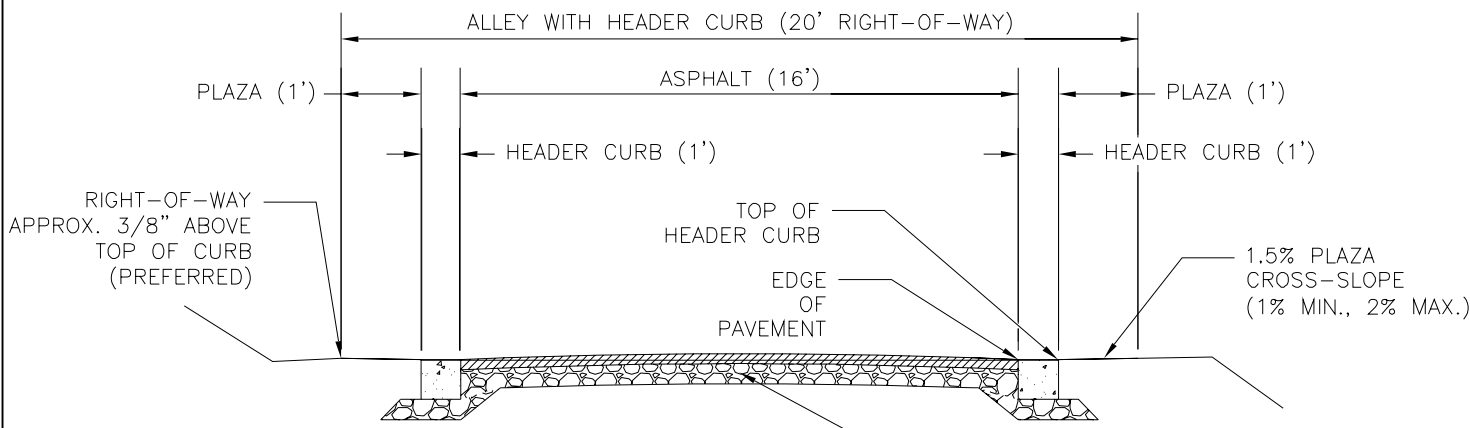
DATE:	JULY, 2024
DRAWN BY	JSR
CHECKED BY	D.E.C., P.E.
SCALE	NOT TO SCALE



CITY OF WILMINGTON ENGINEERING
 PO BOX 1810
 WILMINGTON N.C. 28402
 (910) 341-7807

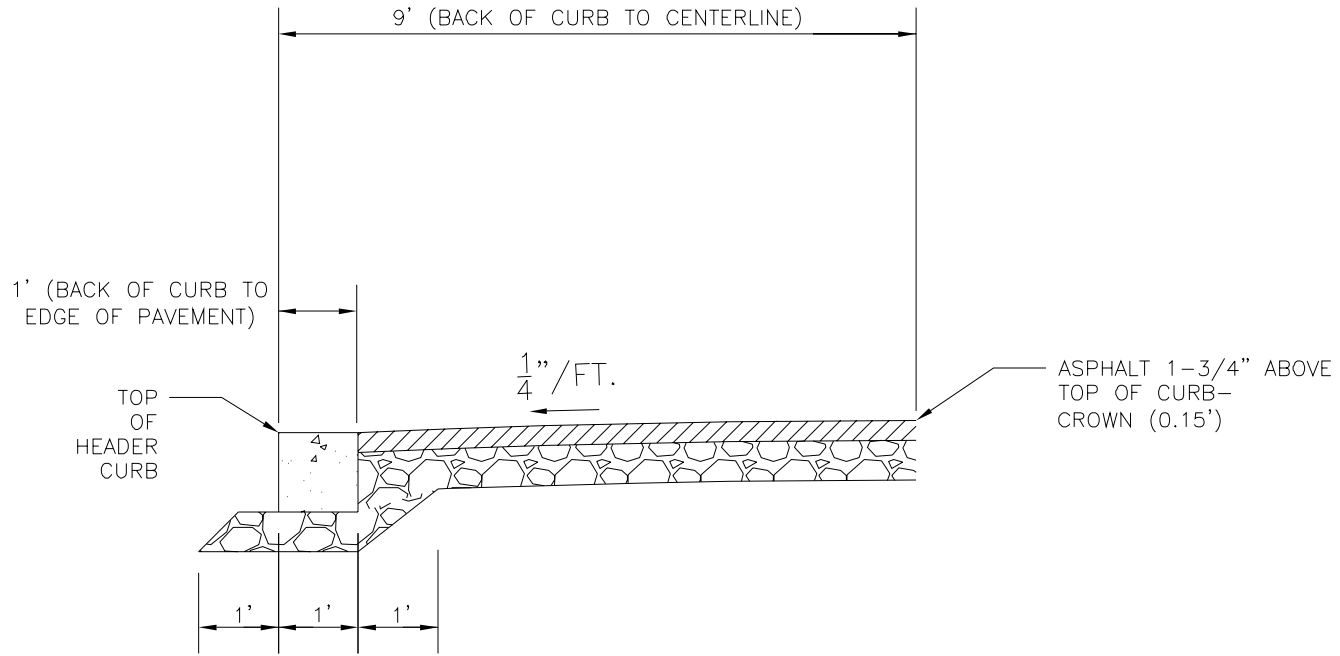
SD 02-01.03b

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- NOTES:
 1. ADDITIONAL UTILITY EASEMENTS MAY BE REQUIRED.
 2. INVERTED CROWN OR SUPERELEVATED SECTION MAY BE APPROVED BY CITY ENGINEER.

ALLEY WITH HEADER CURB (SECTION)

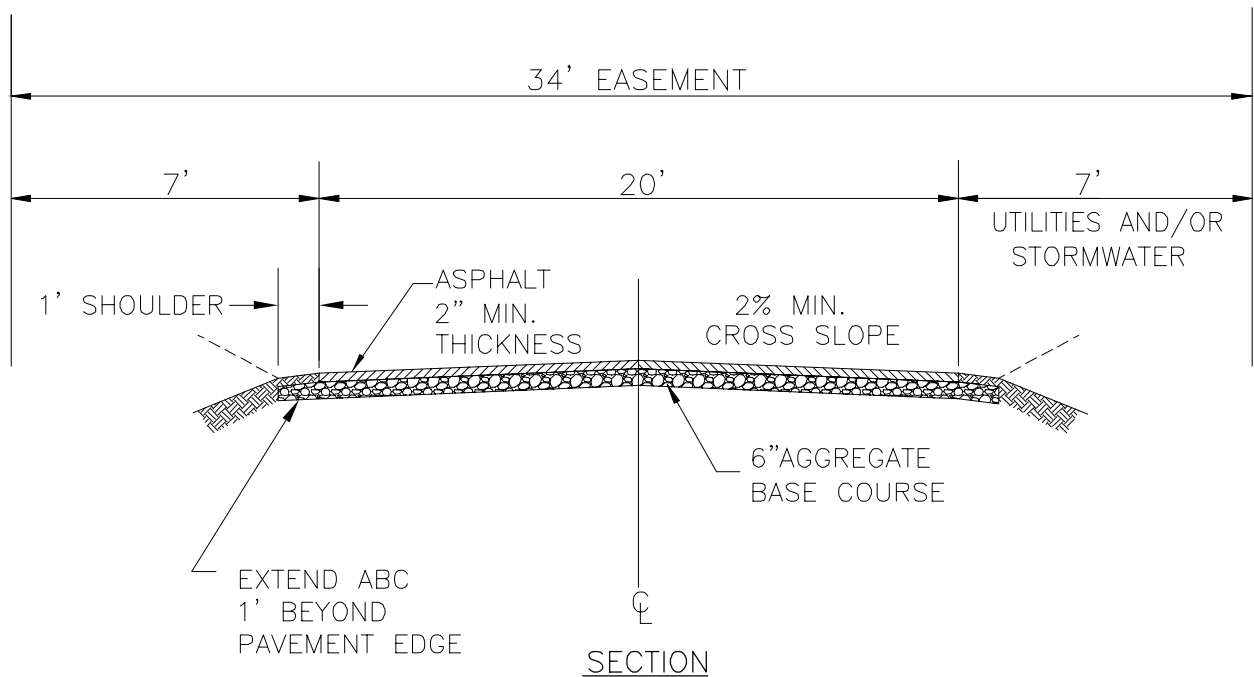


ALLEY WITH HEADER CURB (CROWN)

STANDARD DETAIL		 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON N.C. 28402 (910) 341-7807
DATE:	AUGUST, 2024	
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SCALE	NOT TO SCALE	SD 02-01.04

ALLEY WITH HEADER CURB
(SECTION AND CROWN)

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NOTES:

1. 400' MAXIMUM LENGTH TO FURTHEST LOT FROM PUBLIC STREET.
2. IF THE TOTAL LENGTH OF THE PRIVATE ACCESS EASEMENT EXCEEDS 150 FEET, AN EMERGENCY SERVICES TURNAROUND MUST BE INSTALLED PER CITY STANDARDS OR AS APPROVED BY THE CITY ENGINEER. THE TURNAROUND MUST BE INCLUDED WITHIN THE EASEMENT AREA.
3. TOTAL WIDTH OF EASEMENT CAN BE REDUCED BY THE CITY ENGINEER FROM 34 FEET TO A MINIMUM OF 20 FEET IF THE CONSTRUCTION PLANS DEMONSTRATE THAT THE FULL WIDTH IS NOT NECESSARY TO ACCOMMODATE DRAINAGE AND UTILITIES. A MINIMUM 2' SHOULDER MUST BE PROVIDED ON EACH SIDE.
4. NO MORE THAN FOUR (4) RESIDENTIAL UNITS SHALL USE A PRIVATE ACCESS EASEMENT AS A SOLE MEANS OF ACCESS, UNLESS LOT FRONTAGE IS PROVIDED ON A DIFFERENT STREET. NOT FOR COMMERCIAL USE.
5. WIDTH OF PAVED SURFACE CAN BE REDUCED TO 12 FEET IF THE EASEMENT SERVES NO MORE THAN ONE DWELLING UNIT.
6. FOR EASEMENTS THAT SERVE TWO (2) OR MORE UNITS, THE WIDTH OF THE PAVED SURFACE MAY BE REDUCED TO 16' IF PERMITTED BY NC FIRE CODE (SECTION 503).
7. PAVEMENT WIDENING IS REQUIRED IF EASEMENT IS ACCESSED FROM A COLLECTOR STREET OR MAJOR THOROUGHFARE AND PAVED WIDTH IS LESS THAN 20'. SEE PAGE 2 OF THIS DETAIL.
8. INVERTED CROWN OR SUPERELEVATED SECTION MAY BE APPROVED BY CITY ENGINEER.
9. A MINIMUM VERTICAL CLEARANCE OF 13 FT 6IN MUST BE PROVIDED AND MAINTAINED OVER THE PAVED SURFACE OF THE EASEMENT.

STANDARD DETAIL

**PRIVATE ACCESS
EASEMENT**

DATE: JULY, 2024

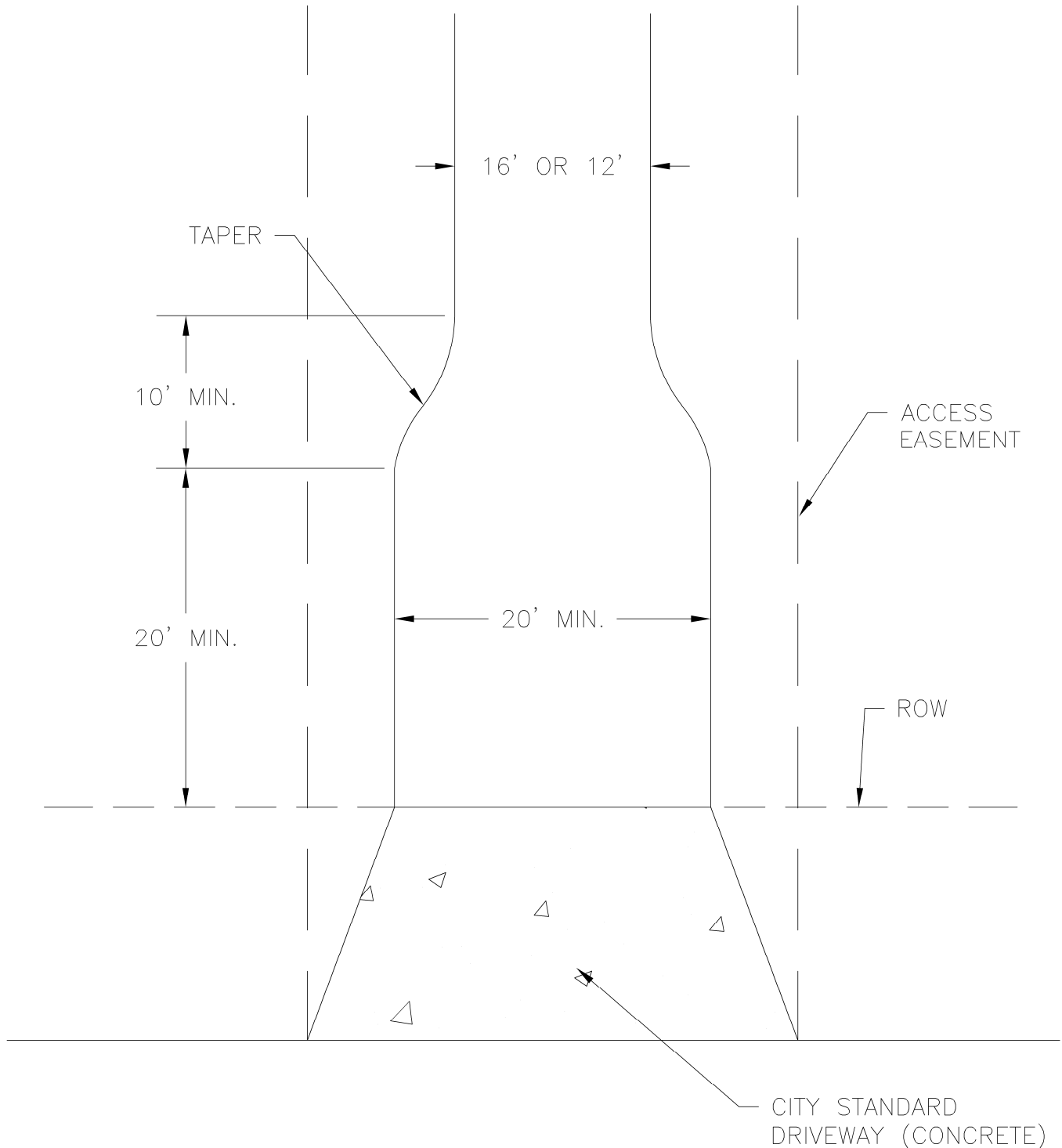
DRAWN BY JSR

CHECKED BY D.E.C., P.E.

SCALE NOT TO SCALE

WILMINGTON
CITY OF
NORTH CAROLINA

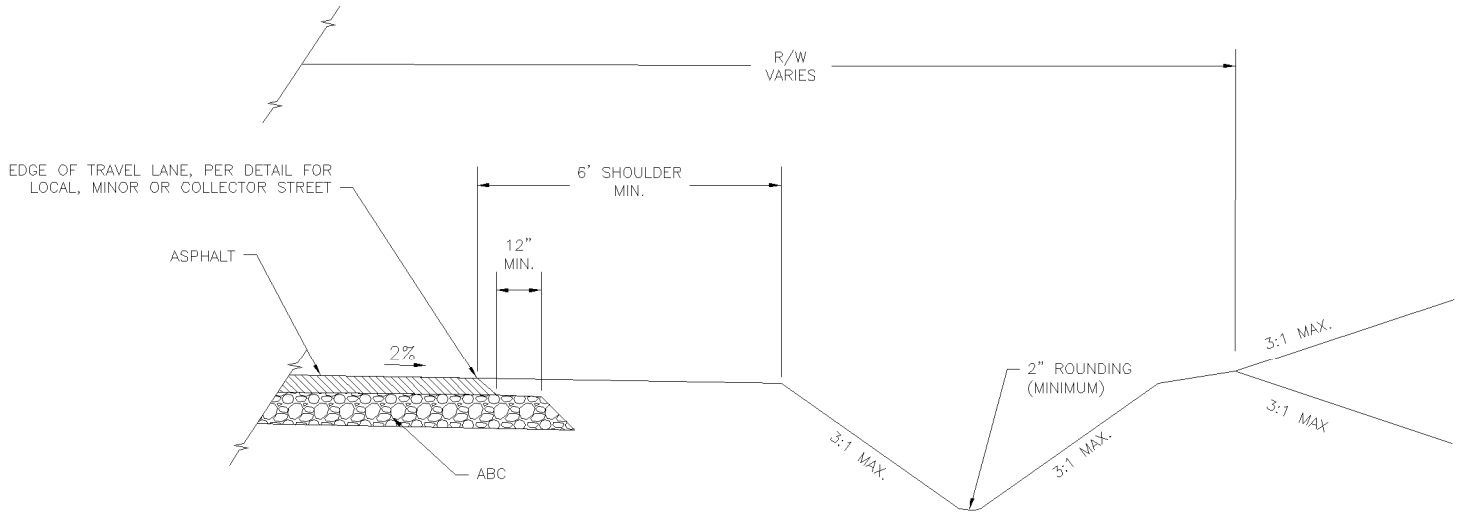
CITY OF WILMINGTON ENGINEERING
PO BOX 1810
WILMINGTON, NC 28402
(910) 341-7807



PAVEMENT WIDENING
(IF REQUIRED BY NOTE #7 ON PAGE 1 OF THIS DETAIL)

		STANDARD DETAIL	
DATE: FEBRUARY, 2024		PRIVATE ACCESS EASEMENT	
DRAWN BY JSR			
CHECKED BY D.E.C., P.E.			
SCALE NOT TO SCALE			
		 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	
		SHEET 2 OF 2	
		SD 02-1.05	

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NOTES

1. THIS SECTION MAY ONLY BE USED WHEN DESIGNATED TO BE WITHOUT CURB AND GUTTER ON APPROVED PLANS.
2. ALTERNATE DITCH SECTION SHALL ONLY BE APPROVED THROUGH CITY ENGINEER.
3. RIGHT OF WAY WIDTH TO BE PROVIDED AS NEEDED TO LOCATE ENTIRE DITCH WITHIN R/W.
4. THIS ALTERNATE DITCH SECTION DOES NOT NEGATE PUBLIC SIDEWALK/MUP REQUIREMENTS. DESIGN MUST BE PROVIDED TO INCORPORATE ADDITIONAL INFRASTRUCTURE. PEDESTRIAN ACCESS EASEMENTS MAY BE PROVIDED IF R/W WIDTH IS NOT ADEQUATE.

STANDARD DETAIL

DITCH SECTION ALTERNATIVE

DATE: JUNE, 2024

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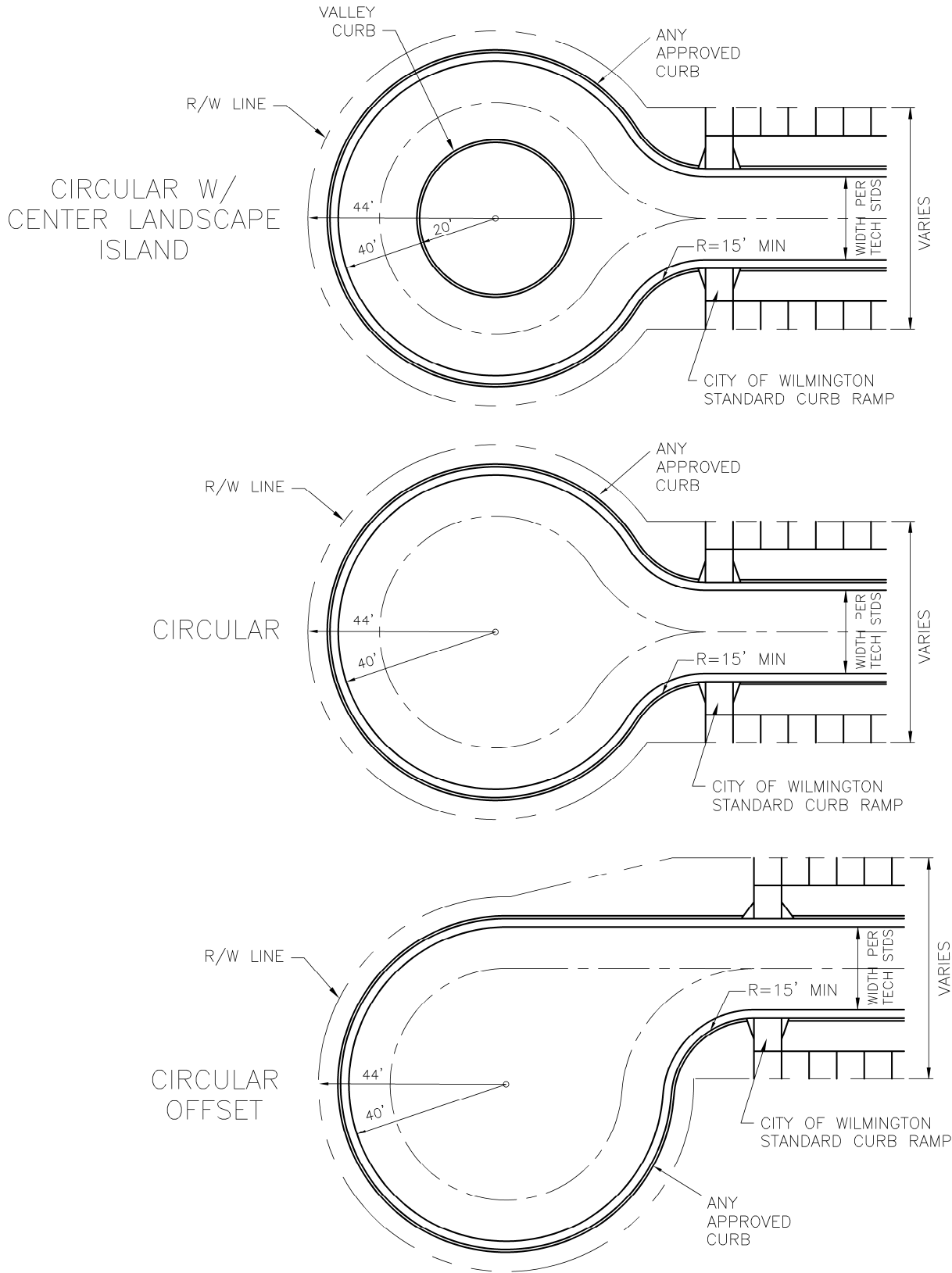
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STANDARD DETAIL

DATE: AUGUST, 2024

DRAWN: EAS/JSR

CHECKED: DEC

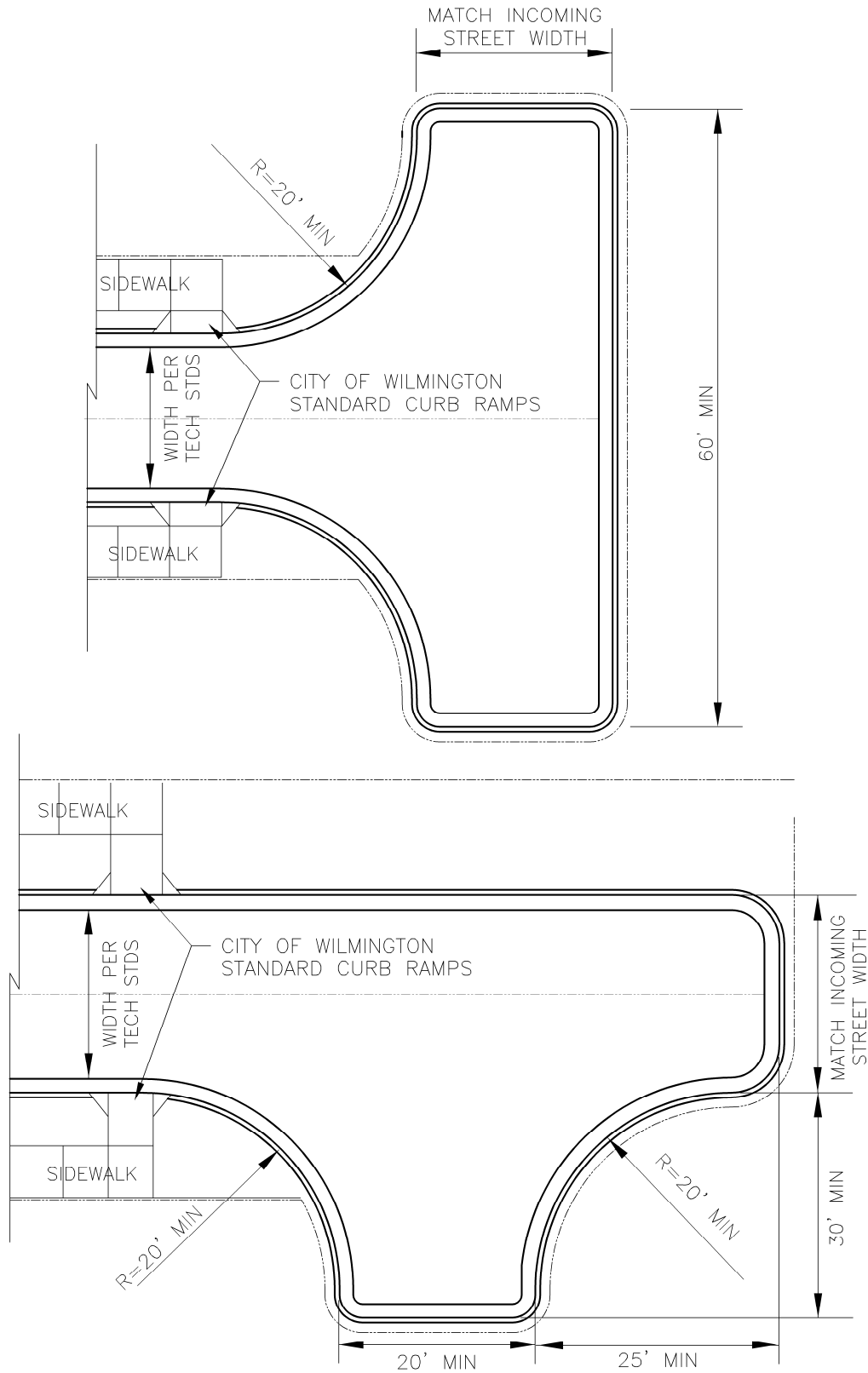
SCALE: NOT TO SCALE

RESIDENTIAL
CUL-DE-SAC



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SD 02-01.07



STANDARD DETAIL

DATE: JULY, 2024

DRAWN: PB/JSR

CHECKED: DEC

SCALE: NOT TO SCALE

TURNAROUNDS

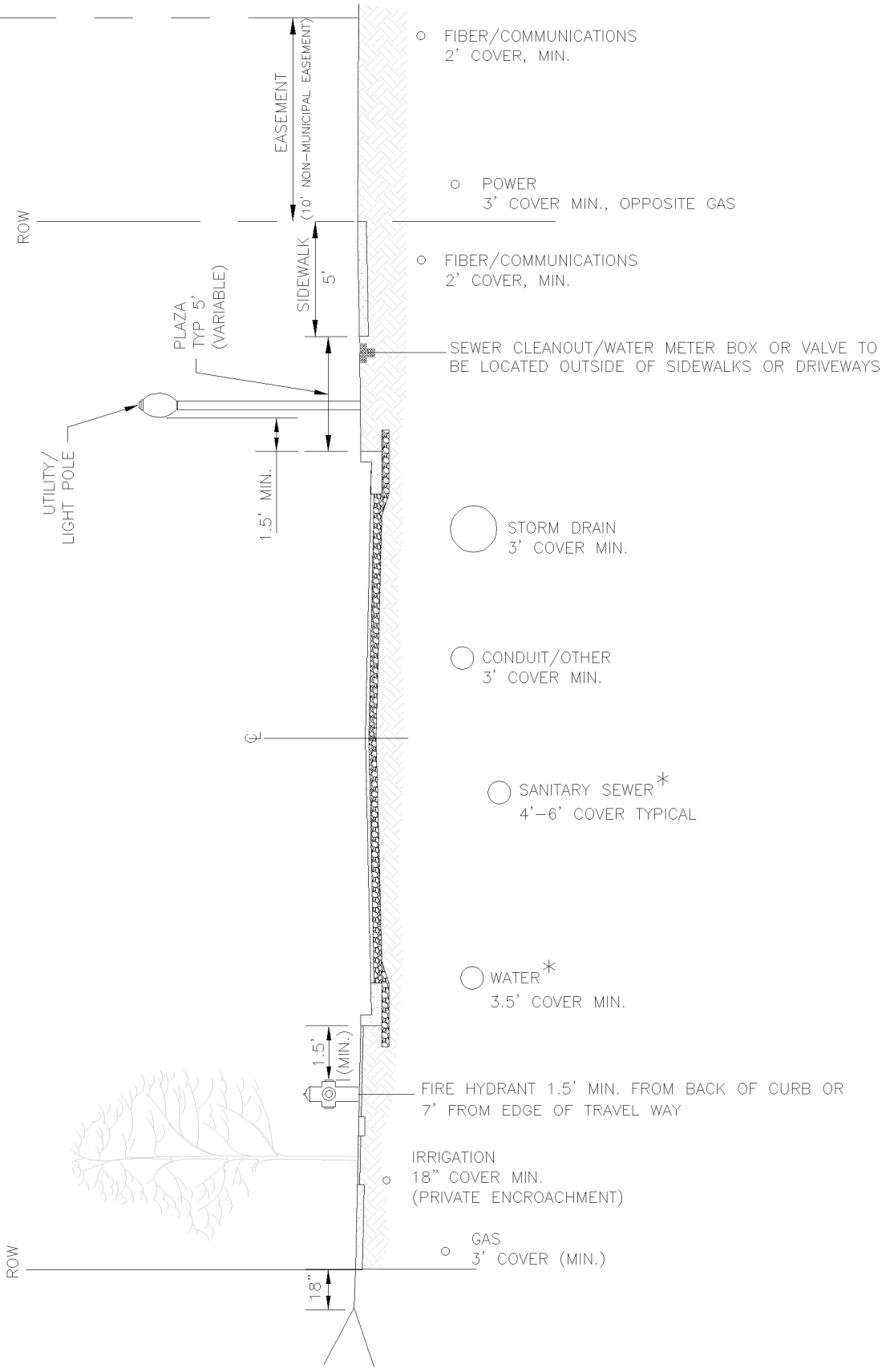


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SD 02-01.08

NOTES:

1. DEPICTION OF UTILITY TYPES, DEPTHS AND LATERAL POSITION IN THE ROADWAY OR PLAZA AREAS IS FOR REFERENCE AND CAN VARY FOR INSTALLATIONS OCCURRING IN NEW ROW, EASEMENTS OR WITHIN EXISTING ROW.
2. DEPTH OF BURY SHALL REQUIRE THE MINIMUM COVER AND THE LATERAL LOCATIONS WILL DEPEND ON CONSTRUCTION STANDARDS FOR OFFSETS FROM OTHER UTILITIES, STRUCTURES AND STREETSCAPING.
3. LOCATION OF RELATED AT-GRADE AND ABOVE GROUND COMPONENTS TO BE LOCATED OUTSIDE OF TREE AREAS, SIDEWALKS, PATHS, OR DRIVEWAYS AND FOLLOW ALL OTHER CITY STANDARDS.
4. FIBER/COMMUNICATION LINES SHALL GENERALLY BE PLACED AT THE BACK EDGE OF THE ROW OR EASEMENT.
5. *LOCATION OF WATER AND SEWER MAINS SHALL BE DIRECTED BY CFPWA, BUT MAY NOT BE LOCATED WITHIN PLAZA AREA UNLESS SPECIFICALLY APPROVED BY THE CITY OF WILMINGTON.



DATE:	MAY, 2024
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STANDARD DETAIL

**TYPICAL
UTILITY LOCATION
IN R.O.W.**

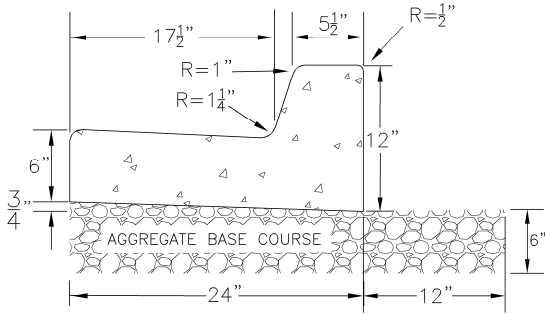
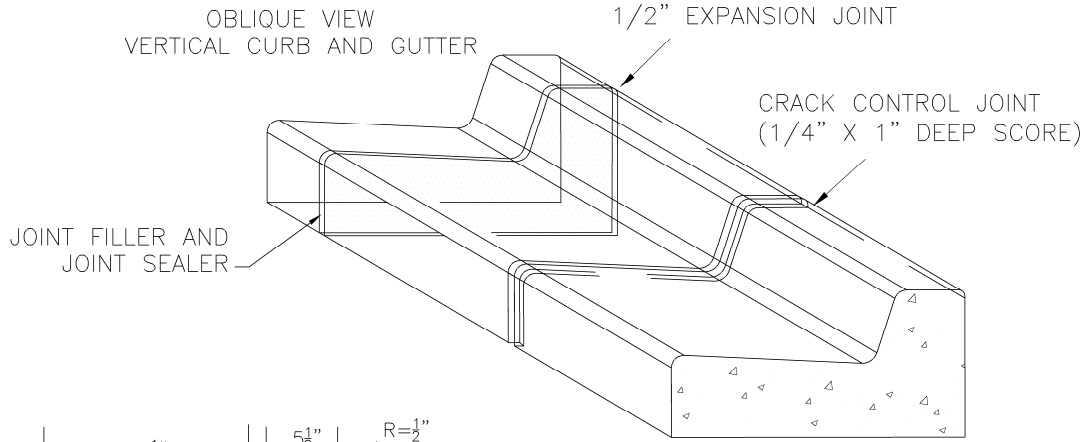


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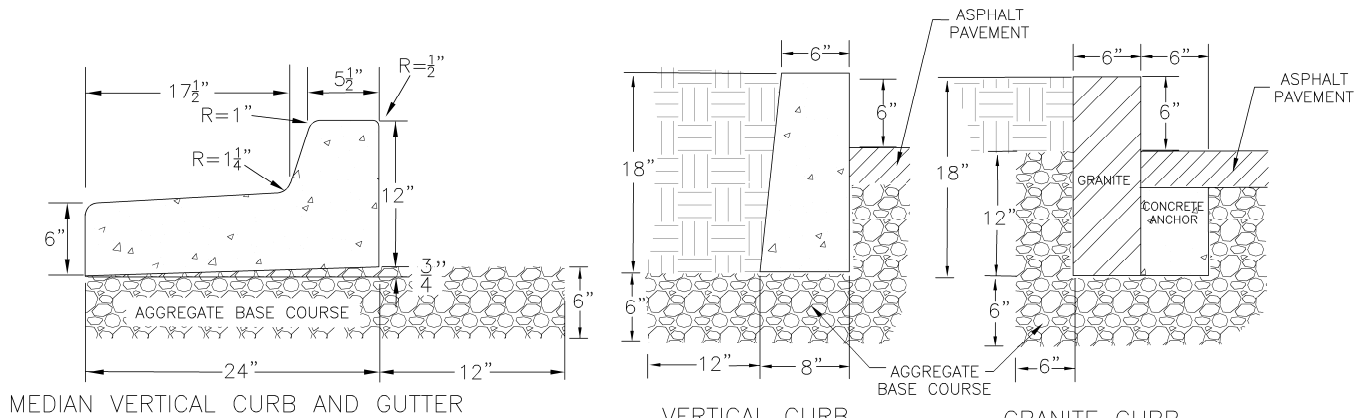
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OBLIQUE VIEW
VERTICAL CURB AND GUTTER



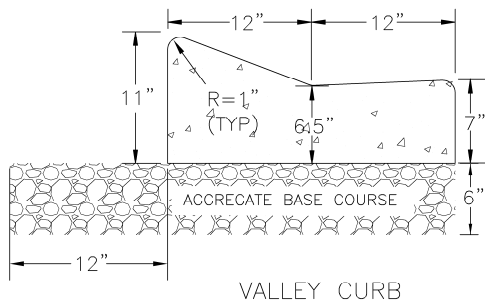
VERTICAL CURB AND GUTTER



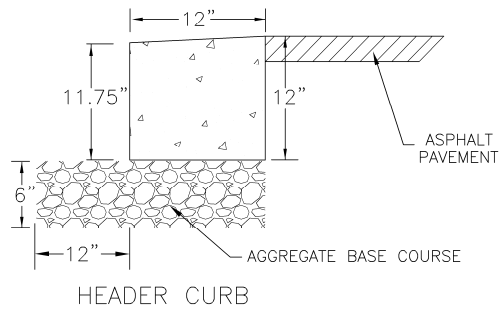
MEDIAN VERTICAL CURB AND GUTTER

VERTICAL CURB

GRANITE CURB



VALLEY CURB



HEADER CURB

- NOTES: 1. EXPANSION JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS
2. 50' MAX EXPANSION JOINT SPACING, 10' MAX CRACK CONTROL JOINT SPACING
3. MINIMUM INSTALLATION LENGTH IS 5 FT.

STANDARD DETAIL

DATE: MARCH, 2024

DRAWN: PB/JSR

CHECKED: DEC

SCALE NOT TO SCALE

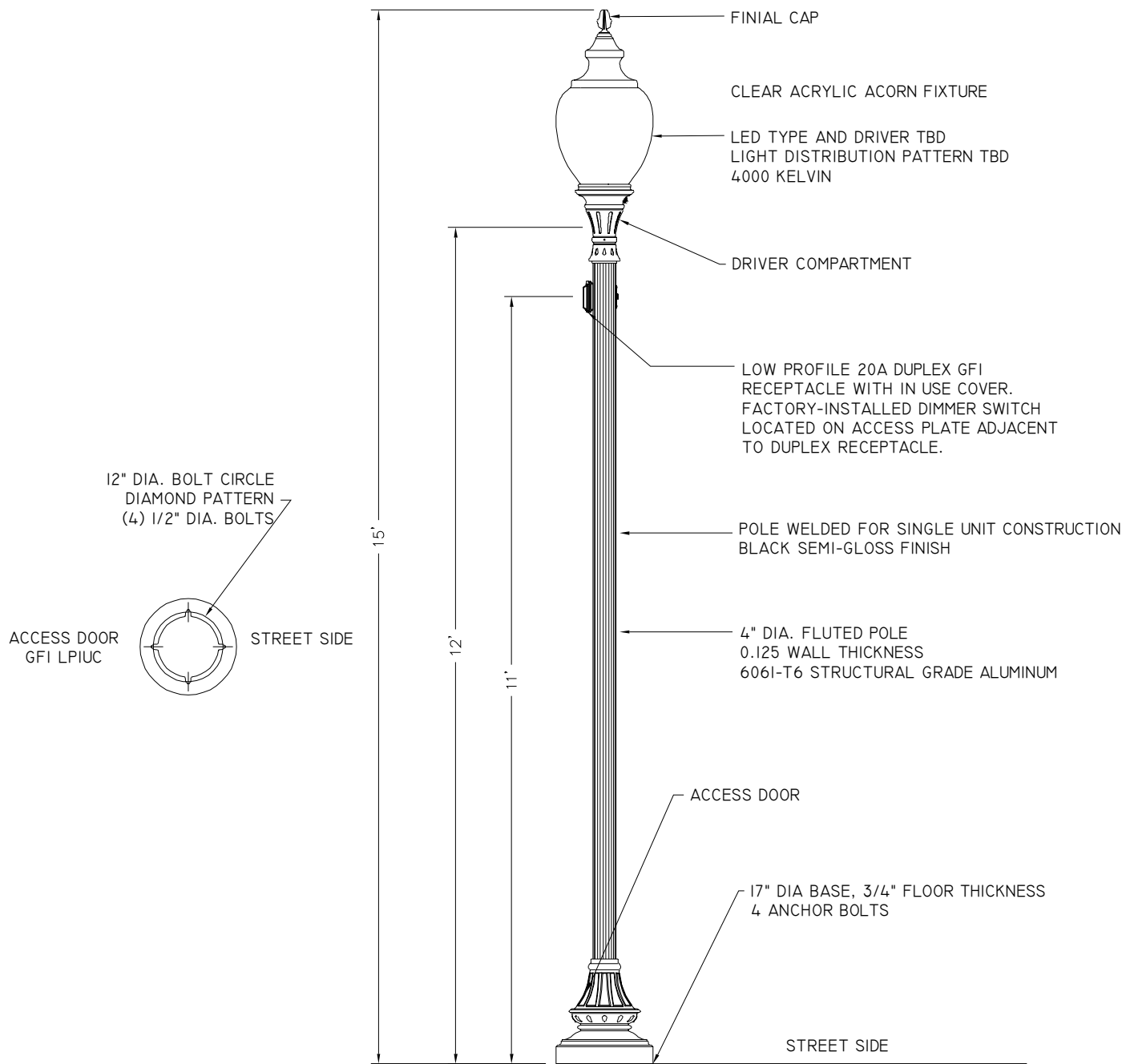
CURB



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NOTES:

MUNICIPALLY MAINTAINED LIGHTING TO CONFORM TO CITY LIGHTING STANDARDS. CONTRACTOR SHALL SUBMIT SHOP DRAWING OF ENTIRE POLE FIXTURE (POLE, SHAFT, FIXTURE, FITTER, DRIVER, LED, TYPE, ETC.) TO THE CITY FOR APPROVAL PRIOR TO FURNISHING.

ELECTRICAL LOAD CAPACITY CALCULATIONS FOR CIRCUITS TO BE PERFORMED BY AN ENGINEER. PRIMARY CONDUCTOR WIRE SIZE AND CONDUIT SIZE TO BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO FURNISHING.

FIXTURE AND GFI RECEPTACLE POWERED INDEPENDENTLY AND CONTROLLED BY SEPARATE PHOTOCELLS AT THE PANEL.

STANDARD DETAIL

TYPICAL STREET LIGHT

DATE: JULY, 2024

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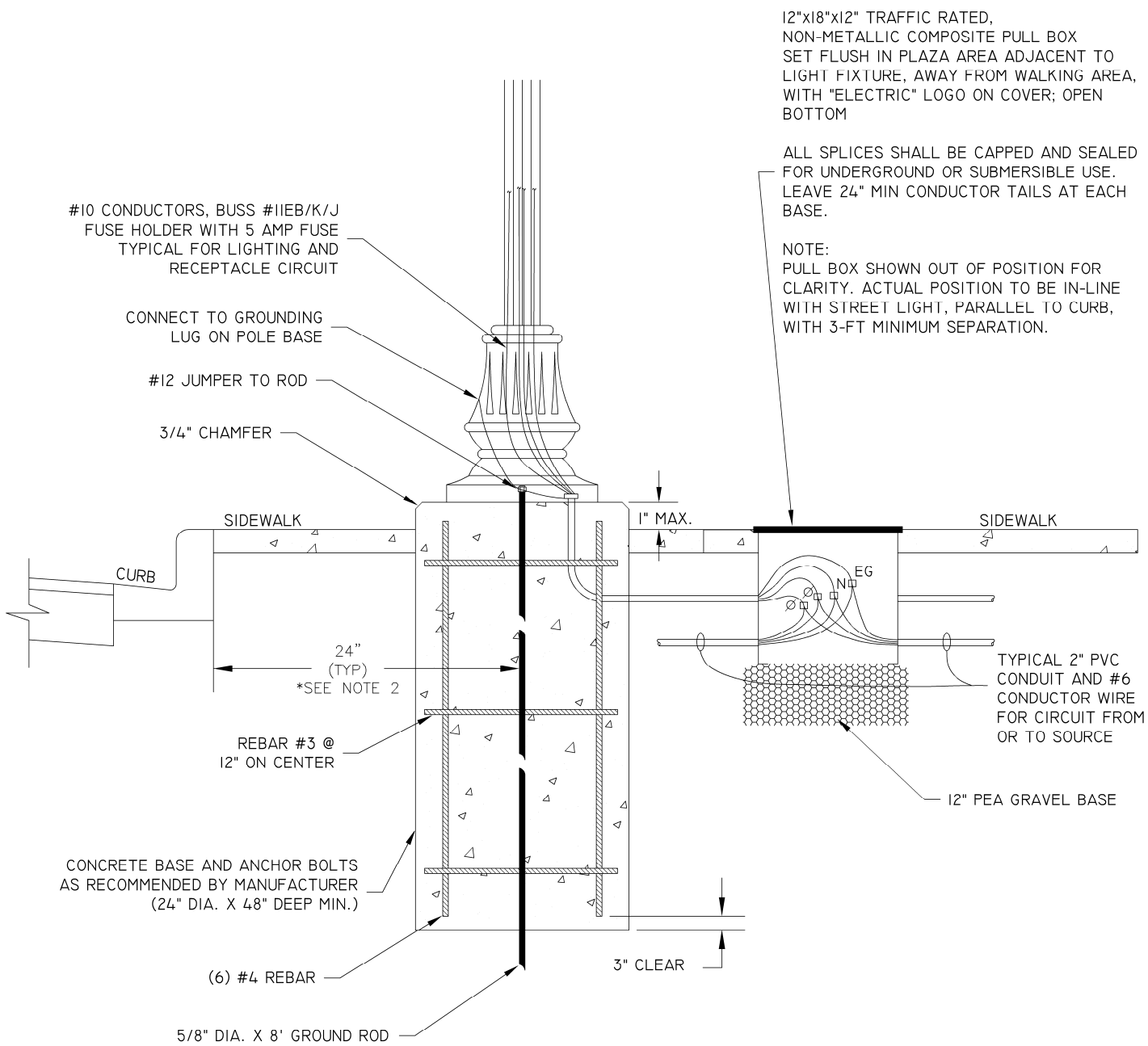
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SD 02-02.02a



12"x18"x12" TRAFFIC RATED, NON-METALLIC COMPOSITE PULL BOX SET FLUSH IN PLAZA AREA ADJACENT TO LIGHT FIXTURE, AWAY FROM WALKING AREA, WITH "ELECTRIC" LOGO ON COVER; OPEN BOTTOM

ALL SPLICES SHALL BE CAPPED AND SEALED FOR UNDERGROUND OR SUBMERSIBLE USE. LEAVE 24" MIN CONDUCTOR TAILS AT EACH BASE.

NOTE: PULL BOX SHOWN OUT OF POSITION FOR CLARITY. ACTUAL POSITION TO BE IN-LINE WITH STREET LIGHT, PARALLEL TO CURB, WITH 3-FT MINIMUM SEPARATION.

NOTES:

1. ELECTRICAL LOAD CAPACITY CALCULATIONS FOR CIRCUITS TO BE PERFORMED BY AN ENGINEER. PRIMARY CONDUCTOR WIRE SIZE AND CONDUIT SIZE TO BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO FURNISHING.
2. ENGINEER TO VERIFY OFFSET FROM BACK OF CURB.

STANDARD DETAIL

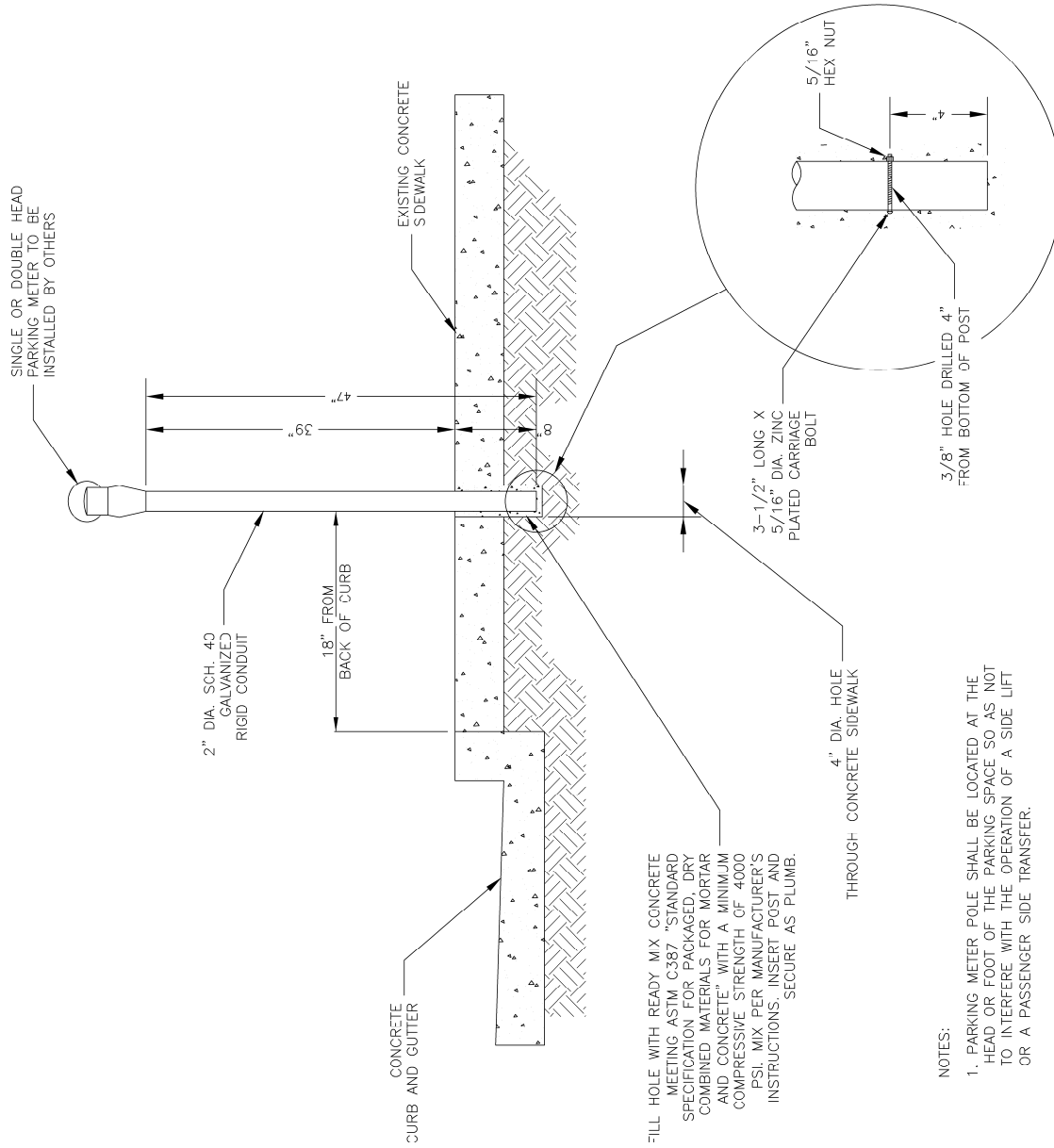
STREET LIGHT BASE



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SD 02.02-02b



NOTES:

1. PARKING METER POLE SHALL BE LOCATED AT THE HEAD OR FOOT OF THE PARKING SPACE SO AS NOT TO INTERFERE WITH THE OPERATION OF A SIDE LIFT OR A PASSENGER SIDE TRANSFER.

STANDARD DETAIL

PARKING METER INSTALLATION



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SD 02-02.03

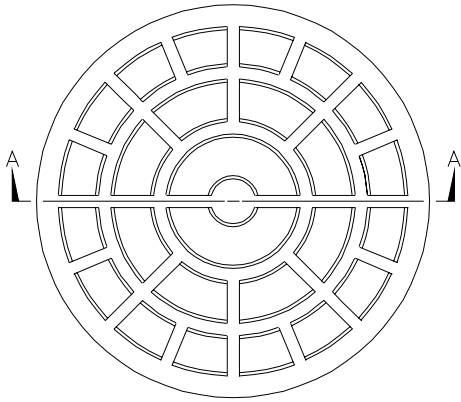
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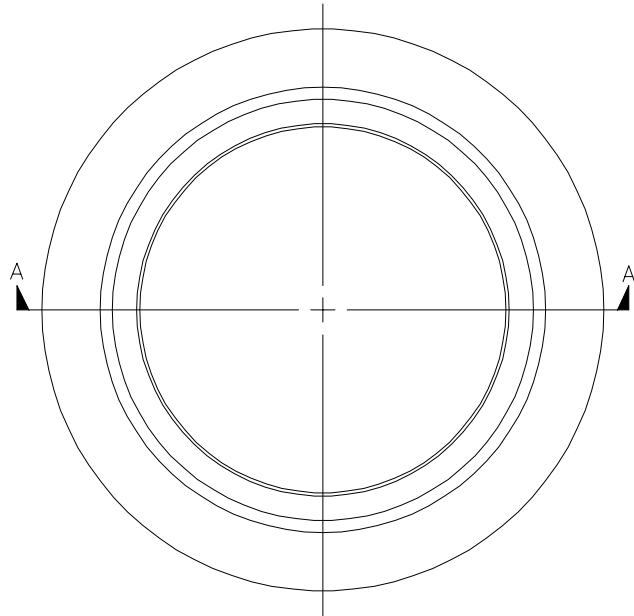
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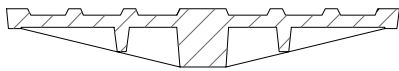
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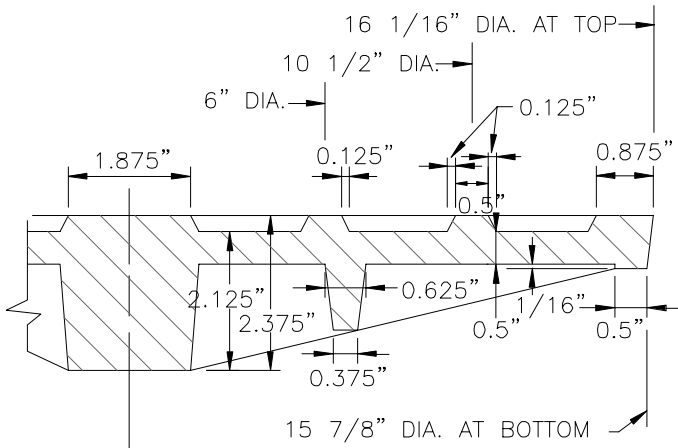
COVER PLAN VIEW
(TOP)



RING PLAN VIEW

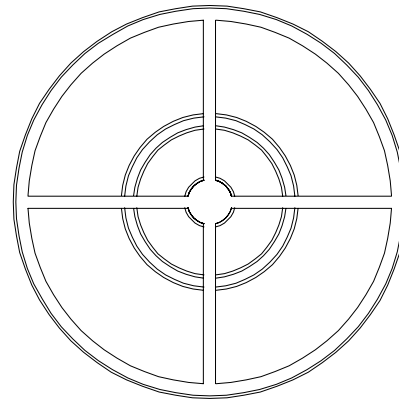


SECTION 'B-B'

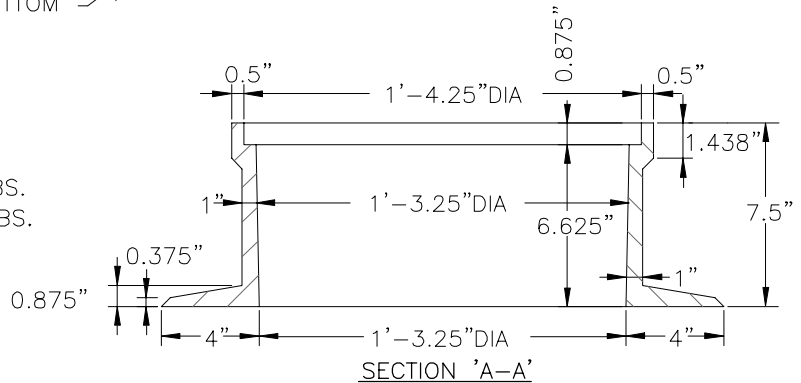


PART OF SECTION
ENLARGED

MINIMUM AVERAGE WEIGHT: RING 120 LBS.
COVER 40 LBS.



COVER PLAN VIEW
(BOTTOM)



SECTION 'A-A'

STANDARD DETAIL

MONUMENT
CASTING DETAIL

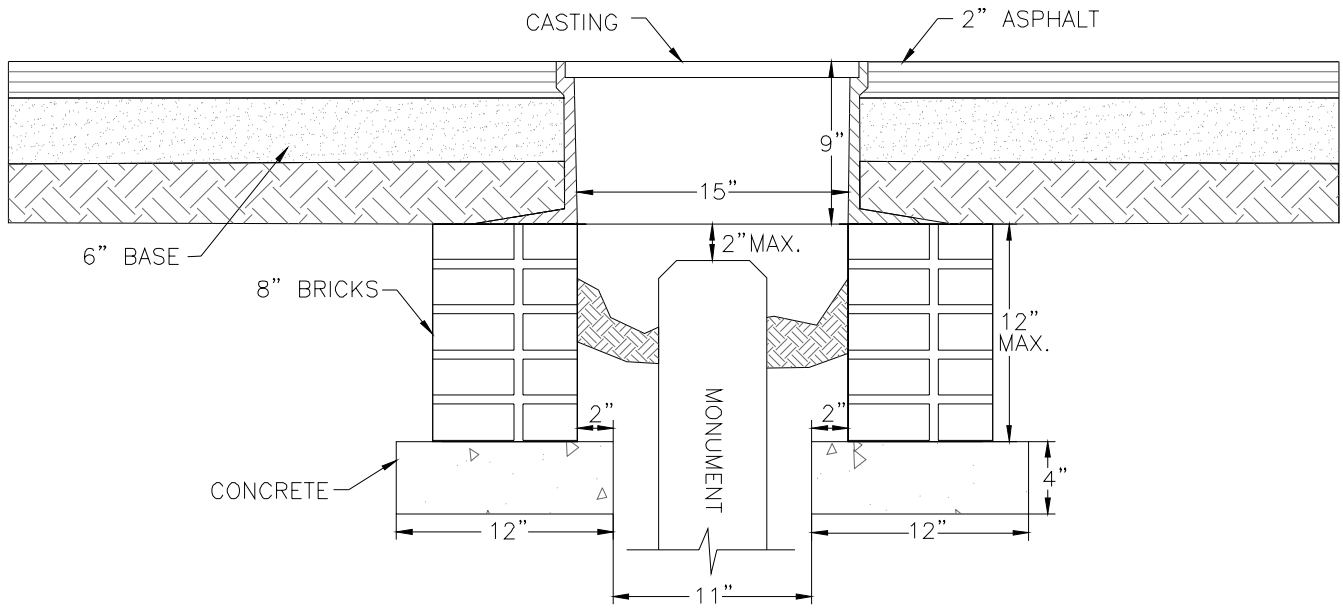


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STANDARD DETAIL

MONUMENT BASE

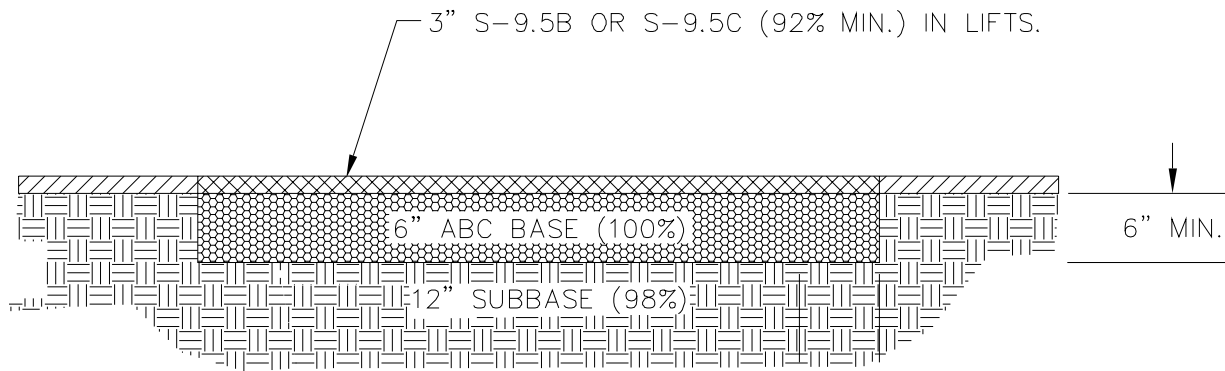
DATE: JULY, 2024
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NOTES:

1. ASPHALT MIX SHALL CONTAIN NO RECYCLED SHINGLES.
2. ASPHALT MIX SHALL CONTAIN NO MORE THAN 20% RECYCLED ASPHALT.
3. ASPHALT MIX DESIGN SHALL COMPLY WITH THE LATEST NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES MANUAL. NOTES #1 AND #2 ABOVE ARE EXCEPTIONS TO THIS REQUIREMENT.
4. FILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
5. APPROVED SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION.
6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
7. COMPACT MATERIALS TO MINIMUM % DENSITY SHOWN IN DIAGRAM AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D-698-A FOR SOILS; AND ASTM D-698-C FOR ABC STONE; AND BY NUCLEAR GAUGE OR CORE SAMPLE FOR ASPHALT.
8. MINIMUM ASPHALT LIFT THICKNESS OF 1.5"
9. RECYCLED SHINGLE AND LESS THAN 20% RAP REQUIREMENT IS ONLY FOR SURFACE COURSE, AND CAN BE USED AS SUBSTITUTE FOR ABC.

STANDARD DETAIL

ASPHALT PAVING SECTION

DATE: JULY, 2024

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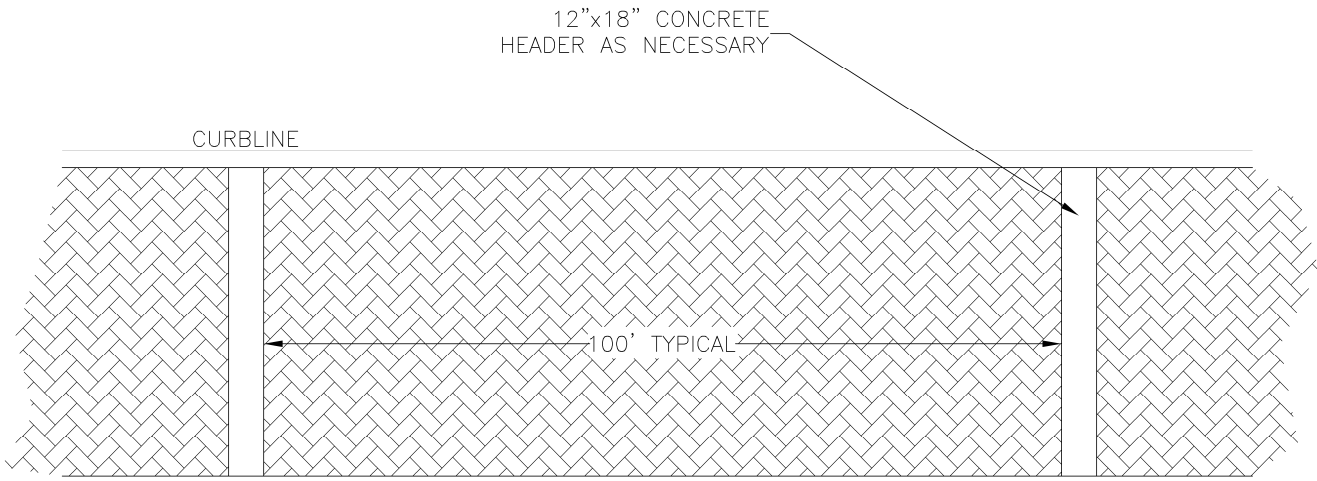
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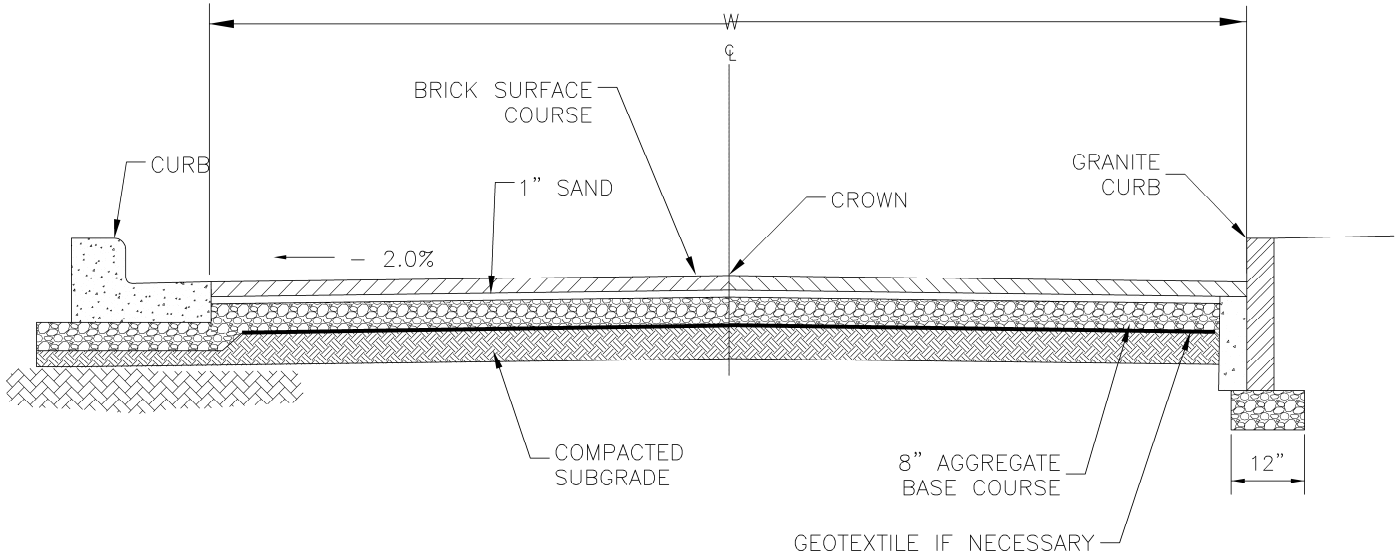
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PLAN
NOT TO SCALE



TYPICAL SECTION
NOT TO SCALE

1. BRICK TYPE, SIZE AND PATTERN SHALL BE COORDINATED WITH CITY OF WILMINGTON. TYPICAL BRICK PAVER 4"x8"x2-3/4" HERRINGBONE PATTERN. RUMBLED COURTYARD, FULL RANGE COLOR, BRICK BY PINE HALL.
2. PAVERS SHALL MEET OR EXCEED ASTM C1272, TYPE F STANDARD SPECIFICATION FOR HEAVY VEHICULAR PAVING BRICK.
3. FINAL DESIGN OF BASE, SETTINGS BEDS AND EDGE RESTRAINTS SHALL BE DEPENDENT ON THE SOIL CONDITIONS AND APPLICATION.
4. CONCRETE HEADER TO BE 3000 PSI, BROOM FINISH, 1/2" RADIUS ON EDGES AND FLUSH WITH ASPHALT AND PAVERS. CONTROL JOINTS AT ±5' O.C. (EQUAL SPACING). CONCRETE TO BE POURED AFTER COMPACTION OF STONE SUB-BASE. DRIVEWAYS AND GRADE CROSSINGS SHALL UTILIZE AN EDGE RESTRAINT HEADER, TYPICALLY WITH THE SAME MATERIAL AS THE EXISTING CURB TYPE.

STANDARD DETAIL

BRICK STREET
TYPICAL SECTION



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414 CHESTNUT STREET
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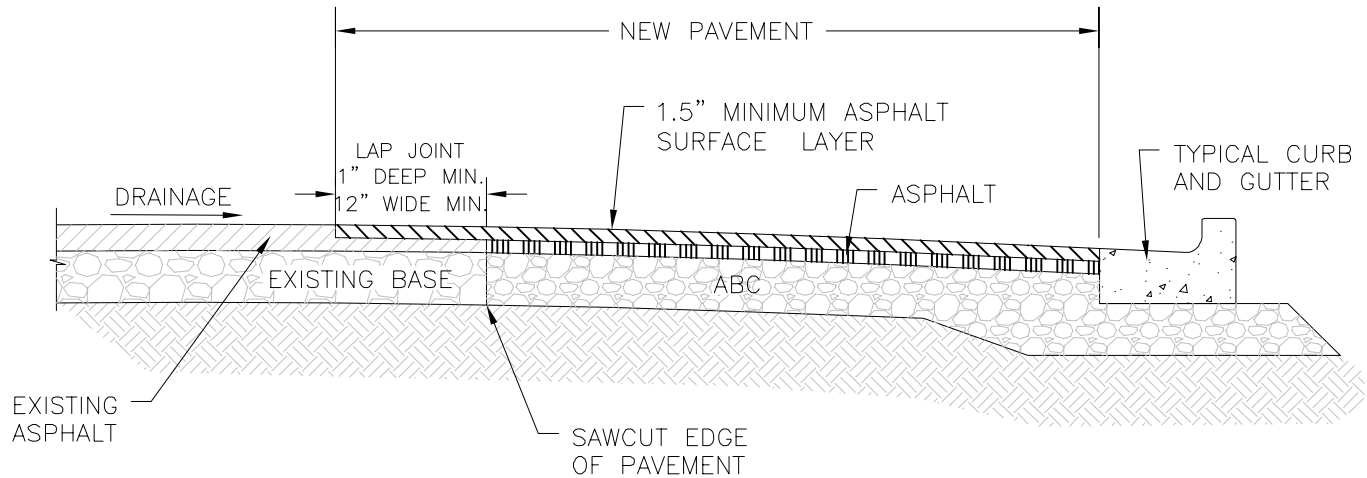
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DATE: MARCH, 2024

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SCALE NOT TO SCALE



NOTES:

1. NEW PAVEMENT WIDENING SECTIONS SHALL BE THE GREATER OF 3" ASPHALT (9.5 B OR C) WITH 6" ABC STONE OR MATCHING EXISTING PAVEMENT AS DETERMINED BY THE ENGINEER.
2. ALL NEW PAVEMENT WIDENING JOINTS SHALL BE 12" MINIMUM LAP JOINTS. BUTT JOINTS SHALL NOT BE ALLOWED.
3. A STRAIGHT-LINE SAW CUT SHALL BE MADE ALONG THE EDGE OF EXISTING PAVEMENT AT LEAST 6" FROM ANY DISTRESSED OR LOOSE PAVEMENT.
4. CONTRACTOR SHALL MILL OR REMOVE ASPHALT FROM ADJACENT PAVEMENT AREAS AND PREPARE ASPHALT TO INSTALL LAP JOINT ACROSS THE SURFACE LAYER.
5. LAP JOINTS MAY BE COMBINED WITH RESURFACING WORK ON ADJACENT PAVEMENTS AS NEEDED TO ENSURE POSITIVE DRAINAGE FROM NEAREST CROWN IN ROAD.
6. PAVEMENT WIDENING SHALL HAVE CONTINUOUS GRADE AND CROSS-SLOPE UNIFORMITY TO THE NEW EDGE OR GUTTER AS DESIGNED BY ENGINEER.
7. ALL NEW PAVEMENT JOINTS SHALL BE LOCATED OUT OF THE WHEEL PATH OR BIKE LANE.
8. ANY TIE IN POINT OF A TAPERED LANE ON A SHOULDER SECTION SHALL BE A MINIMUM 24" WIDE.
9. ALL NEW OR DECONSTRUCTED PAVEMENT MARKINGS SHALL BE RESTORED OR IMPROVED TO CURRENT NCDOT STANDARD SPECIFICATIONS OR CITY STANDARDS.

STANDARD DETAIL

PAVEMENT WIDENING

DATE: JULY, 2024

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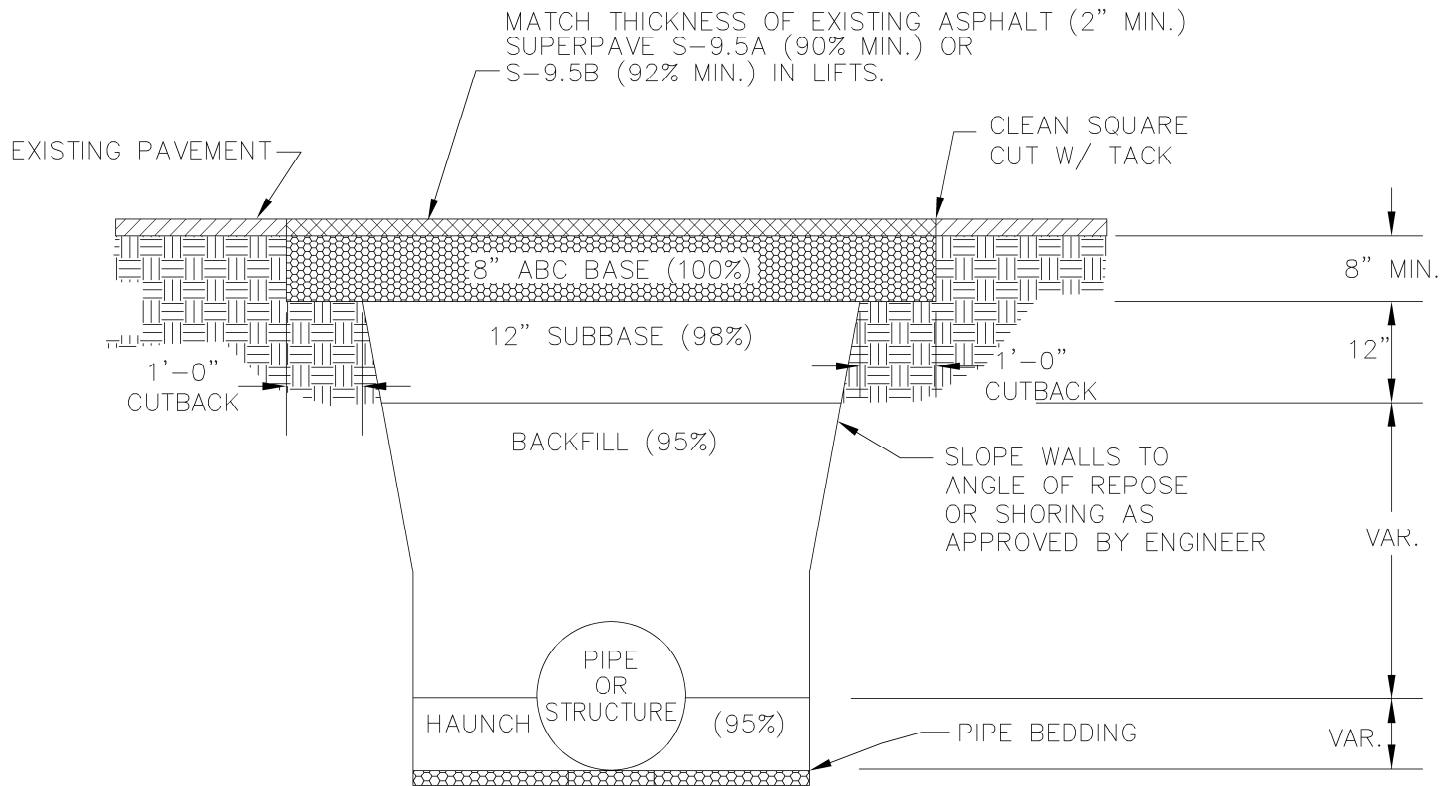
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SD 02-03.03



NOTES:

1. CONTRACTOR SHALL ENSURE BOTTOM OF TRENCH IS SUITABLE FOR INSTALLATION AND DOES NOT REQUIRE FOUNDATION CONDITIONING STONE.
2. FILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
3. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION.
4. SOIL SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED BY A MECHANIZED TAMPER (I.E JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
5. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
6. COMPACT MATERIALS TO MINIMUM % DENSITY SHOWN IN DIAGRAM AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D-698-A FOR SOILS; AND ASTM D-698-C FOR ABC STONE; AND BY NUCLEAR GAUGE OR CORE SAMPLE FOR ASPHALT.
7. CUTBACKS OF ASPHALT SHALL BE PREPARED ON EDGE OF EXCAVATION OVER TOP OF UNDISTURBED SOIL.

STANDARD DETAIL

PAVEMENT REPAIR



CITY OF WILMINGTON
ENGINEERING OFFICE
212 OPERATIONS CENTER DRIVE
WILMINGTON N.C. 28412
(910) 341-7807

SD 02-03.04

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