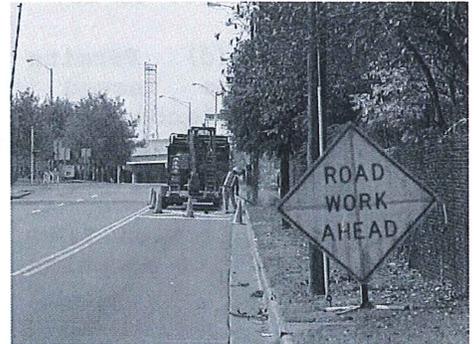




City of NORFOLK

Right-of-Way Excavation & Restoration Manual

(Ordinance No. 40,778, Adopted by Council July 16, 2002)



Department of Public Works
Right-of-Way Division

AMENDED: December 1, 2011

APPROVED: _____

John M. Keef 12/1/11
Director of Public Works Date

Form and Correctness Approved:

MHP

Contents Approved:

JS

By Martha P. McEann
Office of the City Attorney

By *John W. King*
DEPT.

NORFOLK, VIRGINIA

ORDINANCE No. 40,778

R-4

AN ORDINANCE TO AMEND AND REORDAIN SECTION 42-18 OF THE NORFOLK CITY CODE, 1979, TO ADD SUBSECTION (d) SO AS TO ADOPT A RIGHT-OF-WAY EXCAVATION & RESTORATION MANUAL

- - -

BE IT ORDAINED by the Council of the City of Norfolk:

Section 1:- That Section 42-18 of the Norfolk City Code, 1979, is hereby amended and reordained to add a new subsection to adopt a Right-of-Way Excavation & Restoration Manual, said subsection numbered and reading as follows:

Sec. 42-18. Excavations - Permit and deposit.

(d) Permits for excavation of the public ways shall be issued in accordance with the policies and standards set forth in the City's Right-of-Way Excavation & Restoration Manual dated July 1, 2002, which may be amended from time to time.

Section 2:- That this ordinance shall be in effect from and after its adoption.

Adopted by Council July 16, 2002
Effective July 16, 2002

TRUE COPY
TESTE:

R. BRECKENRIDGE DAUGHTREY, CITY CLERK

BY: _____
DEPUTY CITY CLERK



Right-of-Way Excavation & Restoration Manual

POLICY:

- It is the policy of the City of Norfolk to improve and encourage the coordination of utility excavation work in the public right-of-way, in order to minimize the disruption of traffic flow, limit the inconvenience to Norfolk residents, businesses, and visitors, and provide for the public safety, health and well being.
- Under this policy a more comprehensive permit process is created to regulate excavations in the public right-of-way by both Franchise and Public Utilities.
- The excavation permitting process should minimize the impact of construction on neighborhood residents and businesses by enforcing cleanliness and safety standards for construction sites, imposing strict timelines for construction, and requiring a durable restoration of the right-of-way with a uniform visual appearance.
- The right-of-way permitting process must allow the City to properly enforce violations of this policy through the imposition of civil or administrative penalties.
- This policy details a process for reviewing, denying, approving and conditionally approving permits.
- This policy is intended to minimize disruption to the public by improving the coordination of excavation work, which will help to ease traffic congestion and limit inconvenience to residents of and visitors to Norfolk.
- This policy will enhance public awareness by requiring that Public and Franchise utilities, and their subcontractors, give advanced notice to area residents and businesses of excavation plans or excavation permits.
- This policy provides for the establishment of regulations for the control of excavation sites that include protection of trenches and excavated material, prompt removal of excavated materials, and procedures for the treatment and remediation of hazardous material. It also requires that utility facilities that are visible in the public right-of-way be marked with the owner's identity.
- Prompt restoration of the public right-of-way is an essential element of this policy and will be strictly enforced.
- In an effort to minimize disruption caused by construction in the public right-of-way, all work within the public right-of-way shall be coordinated through the City's Right-of-Way Permit Office located at 810 Union Street, Room 200 City Hall Building (ph. 757-664-7306). This office will be responsible for permitting and coordinating excavations and utility cuts.



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1. GENERAL PROVISIONS.

1.1 EXCAVATION IN THE PUBLIC RIGHT-OF-WAY.

This section governs excavations in the Public Right-of-Way within the City that are under the jurisdiction and control of the Department of Public Works. The Director of Public Works is responsible for managing the Public Right-of-Way.

1.2 PERMITS REQUIRED TO EXCAVATE.

- (a) In accordance with the applicable sections of Chapter 42 of the Norfolk City Code, it is unlawful for any Person to make any excavation in any Public Right-of-Way which is under the jurisdiction of the Department of Public Works, without first obtaining from the Department a permit authorizing such excavation.
- (b) The Department will issue a permit to excavate only if the Applicant has the legal authority to occupy and use the Public Right-of-Way for the purposes identified in the application for the permit.
- (c) Permit requirements pertaining to emergency excavation are addressed in Section 3.5 of this manual.
- (d) In accordance with the provisions of Chapter 45 of the Norfolk City Code, it is unlawful for any Person to excavate within the drip-line (crown-spread) of any tree, shrub, or other vegetation greater than 24" in height, without first obtaining a tree work permit from the Division of Parks & Urban Forestry.

1.3 ORDINANCES AND REGULATIONS.

In addition to the requirements set forth in this policy, the City may adopt such ordinances, regulations, or policies, as it deems necessary in order to preserve and maintain the public health, safety, welfare, and convenience. Each excavation in the Public Right-of-Way pursuant to this manual shall be performed in accordance with:



- (a) The applicable sections of Chapter 42, Streets and Sidewalks, of the Norfolk City Code.
- (b) The applicable sections of Chapter 45, Trees and Other Vegetation, of the Norfolk City Code.
- (c) The latest edition and applicable sections of the Virginia Department of Transportation Road and Bridge Specifications.
- (d) The latest edition of the Manual for Uniform Traffic Control Devices (MUTCD).
- (e) The latest edition of the Virginia Work Area Protection Manual.
- (f) The policies and regulations of the Department of Public Works.
- (g) The requirements set forth in the City's "Policy Pertaining to Certain Telecommunications and Cable Television Facilities" dated April 18, 2000, (Attachment 1).
- (h) The Virginia Underground Utility Damage Prevention Act.

1.4 DEFINITIONS.

For purpose of this policy, the following terms shall have the following meanings:

- (a) **"Applicant"** shall mean any Owner, Person, or company, who has submitted an application for a permit to excavate.
- (b) **"Block"** shall mean that part of the Public Right-of-Way that includes the street area from the property line to the parallel and/or opposite property line in width and extending from the centerline of an intersecting street to the nearest property line or to the centerline of the next intersecting street in length.
- (c) **"City"** shall mean the City of Norfolk.
- (d) **"Department"** shall mean the Department of Public Works.
- (e) **"Deposit"** shall mean any bond, cash deposit, or other security provided by the Applicant in accordance with their permit or franchise agreement.
- (f) **"Director"** shall mean the Director of the Department of Public Works or designee.
- (g) **"Excavation"** shall mean any work in the surface or subsurface of the Public Right-of-Way, including, but not limited to, opening the Public Right-of-Way; installing, servicing, repairing or modifying any Facility (ies) above or below the surface or subsurface of the Public Right-of-Way; and restoring the surface and subsurface of the Public Right-of-Way.
- (h) **"Facility"** or **"Facilities"** shall include but not be limited to, any and all cables, cabinets, ducts, conduits, converters, equipment, drains, handholds, manholes, pipes, pedestals,



splice boxes, surface location markers, tracks, tunnels, utilities, vaults and other appurtenances or tangible things owned, leased, operated, or licensed by a Person or company, that are located or are proposed to be located in the Public Right-of-Way.

- (i) **"Major Project"** shall mean any reasonably foreseeable excavation that will physically affect the Public Right-of-Way for more than 15 consecutive calendar days.
- (j) **"Public Utility"** shall mean any agency, board, commission, or department of the City that owns, installs, or maintains any Facility or Facilities that are in the Public Right-of-Way.
- (k) **"Owner"** shall mean any Person, including the City, who owns any Facility or Facilities that are or are proposed to be installed or maintained in the Public Right-of-Way.
- (l) **"Permittee"** shall mean the Applicant to whom a permit to excavate or otherwise work in the public rights-of-way has been granted by the Department of Public Works.
- (m) **"Person"** shall mean any individual, firm, owner, sole proprietorship, partnership, corporation, unincorporated association, governmental body, Commonwealth of Virginia, Federal Government, municipal corporation, executor, administrator, trustee, guardian, agent, occupant, or other legal entity.
- (n) **"Franchise Utility"** shall mean any Person or Owner whose Facility or Facilities are located in the Public Right-of-Way in accordance with a franchise agreement granted by the City, and are used to provide electricity, natural gas, information services, sewer services, steam, chilled water, telecommunications, transit service, cable television, video, or other services to customers regardless of whether such Person or Owner is deemed a public service corporation by the Virginia Corporation Commission.
- (o) **"Public Right-of-Way"** shall mean the area across, along, beneath, in, on, over, under, upon, and within the dedicated public alleys, boulevards, courts, lanes, roads, sidewalk, spaces, streets, and ways which are or will be under the permitting jurisdiction of the Department of Public Works.

2. APPLICATIONS FOR PERMITS TO PERFORM AN EXCAVATION.

2.1 APPLICATIONS.

Applications must be submitted in format and manner specified by the Department of Public Works (Attachment 2) and shall contain:



- (a) The name, address, telephone, and facsimile number of the Applicant. When an Applicant is not the owner of the Facility to be installed, maintained, or repaired in the Public Right-of-Way the application also shall include the name, address, telephone, and facsimile number of the Owner.
- (b) A copy of the franchise, easement, encroachment agreement, or other legal instrument that authorizes the Applicant or Owner to use or occupy the Public Right-of-Way for the purpose described in the application. When the Applicant is not the owner of the Facility or Facilities to be installed, maintained, or repaired in the Public Right-of-Way, the Applicant must demonstrate, in a form and manner specified by the Department, that the Applicant is authorized to act on behalf of the owner.
- (c) A description of the location, purpose, method of excavation, and surface and subsurface area of the proposed excavation.
- (d) A scaled detailed drawing showing the proposed location, dimensions of the excavation, the nearest cross street, the right-of-way property line, a North arrow, other underground or overhead facilities in the vicinity of the proposed excavation, City trees and landscaping, and the facilities to be installed, maintained, or repaired in connection with the excavation, and any other details as the Department may require.
- (e) The proposed start date of excavation.
- (f) The proposed duration of the excavation, which shall include the duration of the restoration of the Public Right-of-Way physically disturbed by the excavation.
- (g) A detailed traffic control plan if required to accomplish the excavation.
- (h) Any proposed attachments to bridges require the submittal of a detailed site plan and specifications with the permit application for approval by the City Engineer.
- (i) The Miss Utility of Virginia ticket number.
- (j) A copy of the approved tree work permit, if applicable.
- (k) A valid signature of the Applicant acknowledging the terms and conditions of the policy and permit application.
- (l) Applicable permit fee(s) by bank draft made payable to the City of Norfolk. Alternatively, the Permittee may request that an account be established with the Department. If the account request is approved, the Permittee will be invoiced on a monthly basis for permits issued during the preceding thirty- (30) day period.



- (m) Any other information that may reasonably be required by the Department of Public Works.

2.2 INSURANCE

- (a) Permittee must secure and maintain in force insurance, including malicious mischief and vandalism, with minimum acceptable amounts described below, naming the City as additional insured, while working in the Public Right-of-Way.

(i)	Worker's Compensation :	Statutory
	Employer's Liability:	\$100,000 per accident injury
(ii)	Commercial General Liability:	
	Bodily Injury:	\$500,000 per person
		\$1,000,000 per occurrence
		\$1,000,000 aggregate
	Property Damage:	\$500,000 per occurrence
		\$1,000,000 aggregate

- (b) The Commercial General Liability Insurance required above shall also include the following extensions of coverage:

- (i) The coverage shall be provided under a Comprehensive form of policy or similar thereto.
- (ii) X.C.U. Coverage - If the work in the Public Right-of-Way requires any work procedures involving blasting, excavating, tunneling or other underground work, the liability coverage shall include Standard Blasting or Explosion Coverage, Standard Collapse Coverage and Standard Underground Coverage, commonly referred to as XCU liability coverage with limits of \$500,000 each occurrence and \$1,000,000 aggregate.
- (iii) The property damage coverage shall include a Broad Form Property Damage Endorsement.



- (iv) Contractual Liability coverage shall be included.
 - (v) Protective Liability coverage shall be included to protect the Permittee against claims arising out of operations performed by its subcontractors.
 - (vi) Product Liability and/or Completed Operations coverage shall be included.
- (c) Comprehensive Automobile Liability including owned, non-owned and hired vehicles:
- | | |
|------------------|----------------------------|
| Bodily Injury: | \$500,000 per person |
| | \$1,000,000 per occurrence |
| | \$1,000,000 aggregate |
| Property Damage: | \$500,000 per occurrence |
| | \$1,000,000 aggregate |
- (d) Environmental Impairment Liability Insurance. If applicable, as determined by the City, the Permittee shall procure and maintain during the life of the contract Environmental Impairment Liability Insurance, which shall protect against all claims and costs including but not limited to bodily injury or property damage claims (including clean-up costs) caused by pollution conditions, as herein defined, arising from the permitted work. Pollution conditions means the discharge, dispersal, release or escape of smoke, vapor, soot, fumes, acids, alkalis, toxic chemicals, liquids, gases, waste materials or other irritants, contaminants, or pollutants into or upon land, the atmosphere or any watercourse or body of water, which results in bodily injury or property damage. The policy limits shall be \$1,000,000 per occurrence.
- (e) All insurance policies required hereunder shall contain an expressed provision therein, or endorsement attached thereto, worded substantially as follows:

“The policy herein referred to is not to be cancelled or become subject to reduction of coverage prior to thirty days after the City has received written notice mailed to the address noted hereinbefore, as evidenced by return receipt of registered letter.”



- (f) All insurance certificates and/or policies shall designate the City of Norfolk, its employees, and its agents as "additional insured" regarding the permitted work.
- (g) Certificates of Insurance issued by companies licensed within the Commonwealth of Virginia shall provide the designated insurance.
- (h) Subcontractor's Insurance. The Permittee shall require all subcontractors to secure and maintain in force insurance containing the same coverage and amounts as described in Paragraph 2.2.

2.3 GUARANTEE FEES; IRREVOCABLE LETTER OF CREDIT; SURETY BOND.

Unless otherwise provided for in a franchise agreement, a guarantee fee, irrevocable letter of credit or surety bond will be required on all permits issued.

- (a) Guarantee fees - A guarantee fee is a cash amount paid by the Permittee in advance of permit issuance to cover the performance of work within the Public Right-of-Way. When work covered by the Permittee is completed to the satisfaction of the Director, the guarantee fee is refunded in its entirety to the Permittee. The guarantee fee may be paid by personal check, cashier check, certified check, or money order. Should the Permittee fail to complete the work to the satisfaction of the Director, then all or whatever portion of the guarantee fee that is required to complete work covered by permit or restore the Public Right-of-Way to its original condition will be retained by the Department. Refunds of guarantee fees are processed by the Department upon notification by the Director that the work has been completed. Normally, six to eight weeks should be allowed for return of the guarantee fee once notice has been received by the Right-of-Way Permit Office.
- (b) Irrevocable letter of credit - An irrevocable letter of credit may be used in lieu of a guarantee fee or performance bond. This letter of credit is furnished by a bank and is used to verify a line of credit that will be set aside to provide for coverage of work performed by the Permittee or his agent in accordance with the approved permit.
 - (i) The City has the right to withdraw funds from the irrevocable letter of credit for the Permittee's failure to complete the work in the Public Right-of-Way,



including restoration, in an amount up to the City's actual costs, including overhead costs.

- (c) Continuing bonds and performance bonds - All bonds shall indicate what permit the bond is for and define what type of work the bond covers, giving the permit number, and whether it is a continuous bond or a performance bond.
 - (i) Continuing bond - They are required on all permits covering installations within the Public Right-of-Way that are of a continuous nature. The estimated amount of the bond is the amount the Director anticipates it will take the City, or the City's subcontractor, to complete or restore the work should the Permittee fail to complete it. The purpose of this type of bond is to ensure proper maintenance of the installation; to ensure the removal or relocation of the installations when deemed necessary for the safety of the traveling public; also for improvements or reconstruction of the Public Right of Way. The bond must remain in full force as long as the work covered under the permit remains within the Public Right-of-Way.
 - (ii) Performance bond - They are for the actual performance of the work covered by the permit. The estimated amount of the bond is the amount the Director anticipates it will take the City, or the City's subcontractor, to complete or restore the work should the Permittee fail to complete it. Once the work has been completed to the satisfaction of the Director, the performance bond will be cancelled upon receipt of a warranty bond in an amount equal to ten (10) percent of the performance bond. Responsibility for the work covered by the permit will not be eliminated until such time as a completion notice has been released by the Director, and coverage under the warranty bond will remain in effect until the bond has been cancelled by the Right-of-Way Permit Office after the two (2) year warranty period has ended.

2.4 STREET, LANE, OR SIDEWALK CLOSURE PERMIT.



Any work within the Public Right-of-Way, which closes or prevents access to the roadway, driveway entrances, sidewalk, or blocks any lanes of traffic for more than fifteen (15) minutes, requires a street, lane or sidewalk permit (Attachment 3). This work may include, but is not limited to, utility main and/or lateral replacement and repair; valve replacement and repair; installation of new underground mains or laterals, structures or accessories; splices, buried drops (under pavement or sidewalks); pole replacement (auto accident or other); changes in height; cathodic protection; ground water monitoring wells; boxes and vault installations; test holes and core samples; open cuts, jacking or boring under the Public Right-of-Way where disturbance within the Public Right-of-Way may occur. The City Transportation Engineer or designee must approve traffic detours and/or lane closures. Pedestrians and/or motorist may not be detoured on or through private property.

2.5 LIGHT RAIL PERMITTING.

- (a) Any construction within ten (10) feet of the light rail guide way requires track access certification and a permit issued by Hampton Roads Transit (HRT) in addition to a City of Norfolk right-of-way permit. Contact HRT Rail Transportation for training and permitting. Every effort will be made to maintain the light rail schedule. Permittee must be prepared to work during non-operating hours.
- (b) Any excavation on or adjacent to the light rail guide way may require an engineered plan prior to issuing a right-of-way permit. See the LRT Utility Trench Excavation Criteria (Attachment 11) for requirements.

2.6 COORDINATION OF EXCAVATION.

Whenever Franchise and/or Public Utilities propose Major Projects in the same Block within a five (5) year period, permits for such work shall be conditioned in a manner that maximizes coordination and minimizes the total period of construction.

3 PERMITS TO PERFORM EXCAVATION; RIGHT-OF-WAY AND STREET CONSTRUCTION



3.1 ACTION ON APPLICATIONS FOR PERMITS TO EXCAVATE.

- (a) After receipt of an application for a right-of-way or street construction permit, the Right-of-Way Permit Office, within two (2) business days, shall determine whether an application has been properly completed.
- (b) If the application is deemed to be incomplete, the Right-of-Way Permit Office will advise the Applicant of the reasons for rejecting the application as incomplete.
- (c) If the application is deemed to be complete, the Right-of-Way Permit Office, in its discretion, may deny, approve, or conditionally approve the application within fourteen (14) calendar days.
 - (i) If the application is approved or conditionally approved, the Right-of-Way Permit Office will issue a permit to the Applicant. The Right-of-Way Permit Office may condition a permit with specified requirements that preserve and maintain the public health, safety, welfare, and convenience.
 - (ii) If the application is denied, the Right-of-Way Permit Office will advise the Applicant in a written, electronic, or facsimile communication of the basis for denial.

3.2 TERMS AND LIMITATIONS.

The permit will specify the location, extent, and method of the excavation, the start date and duration of the excavation, the Permittee to whom the permit is issued, and any conditions placed on the permit.

3.3 EXPIRATION OF PERMIT.

Permits are void if the excavation as specified in the permit has not started within the start date and end date specified in the permit. If the excavation, including restoration, has not been completed within the time specified in the permit, the Director may issue a “Stop Work Order,” and/or withhold future permits or cause such work to be completed by other contractors at the



Permittee's sole expense; provided, however, that the Director may issue extensions to the start date, or time of completion, or both, upon written request from the Permittee stating the reasons for the extension.

3.4 NON-TRANSFERABILITY OF PERMITS.

Permits are not transferable from Owner to Owner.

3.5 EMERGENCY EXCAVATION.

Nothing contained in this policy shall be construed to prevent any Person from taking any action necessary for the preservation of life or property when such necessity arises anytime when the Department is closed. In the event that any Person takes any action to excavate or cause to be excavated the Public Right-of-Way pursuant to this Section; such Person must apply for an emergency permit within four hours after the Department's offices are first opened. The Applicant for an emergency permit must submit a written statement of the basis of the emergency action and describe the excavation performed and any work remaining to be performed.

3.6 LIABILITY UPON PERMITTEE.

Each Permittee is wholly responsible for the quality of the excavation performed in the Public Right-of-Way and is liable for all consequences of any condition of such excavation and any Facilities installed in the Public Right-of-Way. Permittee agrees and binds itself to indemnify, keep and hold the City, its officers, agents, and employees free and harmless from any and all claims, causes of action, damages or any liability on account of any injury or damage of any type to any persons or property growing out of, or directly or indirectly resulting from, any act or omission of Permittee, including but not limited to: (a) Permittee's use of the public ways or other areas of the City; (b) the acquisition, construction, reconstruction, erection, installation, operation, maintenance, repair or extension of Permittee's facilities; (c) the failure, refusal or neglect of Permittee to perform any duty imposed upon or assumed by Permittee by or under their permit. In the event that any suit or proceeding is brought against the City at law or in equity, either independently or jointly with Permittee on account thereof, Permittee, upon notice given to it by the City, must defend the City in any such action or other proceeding at the cost of the Permittee. In the event of any settlement or final judgment being awarded against the City, either



independently or jointly with Permittee, then Permittee will pay any such settlement or judgment or will comply with such decree, pay all costs and expenses of whatsoever nature and hold the City, its officers, agents, and employees free and harmless therefrom. The issuance of any permit, inspection, repair, or suggestion, approval or acquiescence of any person affiliated with the Department does not excuse the Permittee from such responsibility or liability.

3.7 PERMIT TO BE AVAILABLE AT EXCAVATION SITE.

The permit or a photo duplicate must be available for review at the site of the excavation for the duration of the excavation and must be shown, upon request, to any police officer or any other employee of a City agency or department with jurisdictional responsibility over activities in the Public Right-of-Way. Failure to have a valid copy of any required permits on-site may cause a "Stop Work Order" to be issued. All additional costs incurred, as result of the issuance of a "Stop Work Order," will be the Permittee's responsibility. The Permittee must call the assigned Right-of-Way Inspector prior to starting work and after the work has been completed for a final inspection.

3.8 FEES AND DEPOSITS.

Permittee must remit to the City the applicable fees and deposits as required by the applicable sections of the Norfolk City Code and this Manual. Contact the Right-of-Way Permit Office for current permit fee(s) and deposit information.

4. EXCAVATIONS.

4.1 NOTICES.

Any Permittee who makes an excavation in the Public Right-of-Way shall provide notice as follows:

- (a) At least twenty-four (24) hours prior to the commencement of work, the Permittee shall fax or deliver a work location(s) sheet (Attachment 4) to the Right-of-Way Permit Office (Fax 757-664-4696). Failure to fax or deliver the work location(s) sheet within the prescribed time may result in the issuance of a "Stop Work Order" by the Director of Public Works.



All additional costs incurred, as a result of the issuance of a "Stop Work Order," will be the Permittee's responsibility.

(b) Notice for Major Projects.

- (i) At least fourteen (14) calendar days prior to starting the excavation, the Permittee shall provide written notice, delivered by United States mail, to each property owner on the Block(s) affected by the excavation. Neighborhood Civic League and/or merchant organizations that will be affected shall also be notified. The notice shall include at a minimum, the anticipated construction schedule, maintenance of traffic plan and any impacts, permanent or temporary, to the adjacent properties. The notice must provide contact information including the name, address, and 24-hour telephone number of the Permittee, project manager, or inspector who will be available to provide information to and receive complaints from any member of the public concerning the excavation.
- (ii) The Permittee shall post and maintain notice at the site of the excavation at least forty-eight (48) hours prior to commencement of the excavation in the same manner and with the same information as required for posted notice pursuant to Subsection (i). In accordance with Chapter 45 of the Norfolk City Code, it is unlawful to post or affix by any means any notices, signs, or other objects of any kind to a tree on City property. At least forty-eight (48) hours prior to commencement of the excavation, the Permittee also shall deliver a written notice, door hanger or equivalent, to each dwelling unit and property owner on the Block(s) affected by the excavation. This written notice shall include the same information that is required for the written notice pursuant to this Subsection (i).
- (iii) Before commencement of construction, the Permittee shall post and maintain excavation project signs at the site of the excavation that describe the excavation being done and bear the name, address, and 24-hour telephone number of a contact person for the owner and Permittee. Said excavation project signs must be in format, quantity, and size specified by the Department.



- (c) Notice for emergency excavation. For emergency excavation, the Permittee, or the Applicant if a permit has not been issued, shall post and maintain a notice at the site of the excavation during the construction period. The notice shall include the name, telephone number, and address of the owner and Permittee, a description of the excavation to be performed, and the duration of the excavation. The notice shall be posted at least every 100' along any Block where the excavation is to take place. The Permittee or Applicant shall also notify, as soon as possible, the Department, or if after normal business hours, the Police non-emergency number (757-441-5610) and advise of the emergency excavation and any potential impacts on traffic flow or traffic or pedestrian safety.

4.2 NOTICE FOR MARKING OF SUBSURFACE FACILITIES.

- (a) In accordance with State law, any Person excavating in the Public Right-of-Way must comply with the requirements of the Virginia “Underground Utility Damage Prevention Act” regarding notification of excavation and marking of subsurface Facilities.
- (b) Franchise Utility companies and Public Utilities must use low impact marking practices including but not limited to flags, stakes, and water based biodegradable marking paint or marking chalk.

4.3 LIMITS UPON EXCAVATION IN THE PUBLIC RIGHT-OF-WAY.

- (a) Scope. It is unlawful for any Permittee to make, to cause, or permit to be made, any excavation in the Public Right-of-Way outside the boundaries, times, and description set forth in the permit.
- (b) Single excavation maximum of 250 feet. No single excavation site will be longer than two hundred fifty (250) feet in length at any time except with the prior written approval of the Director.
- (c) No work will be permitted (except for emergencies) on certain streets during special City events, or other events so designated by the Director.



- (d) In accordance with the provisions of Chapter 45 of the Norfolk City Code, it is unlawful for any Person to excavate within the drip-line (crown-spread) of any tree, shrub, or other vegetation greater than 24" in height, without first obtaining a tree work permit form the Bureau of Parks & Forestry.

4.4 REGULATIONS CONCERNING EXCAVATION SITES.

Each owner and Permittee will be subject to requirements for excavation sites that are set forth herein and shall include, but not be limited to, the following measures:

- (a) Steel Plates, protection of excavation. Each Permittee shall cover an open excavation with properly designed and load rated steel plates ramped to the elevation of the contiguous street, pavement, or other Public Right-of-Way, or otherwise protected in accordance with guidelines prescribed by the Department. Steel plates must be properly secured so that it does not slip, must be skid resistant, and must not deflect from traffic loads. Steel plates must extend at least one foot on all sides of the excavation and must be firmly anchored with pins.
- (i) Temporary steel plates installed on roadways open to vehicular traffic should be marked with a durable and highly reflective white pavement marking tape no less than 4 inches in width. The marking pattern used should, at a minimum, include all four corners of the plate, similar to the pattern shown in Figure ES-1. The marking tape dimensions should not be less than those shown in Figure ES-1. The 3-inch distance from the plate's edge to the tape may be varied depending on the conditions.

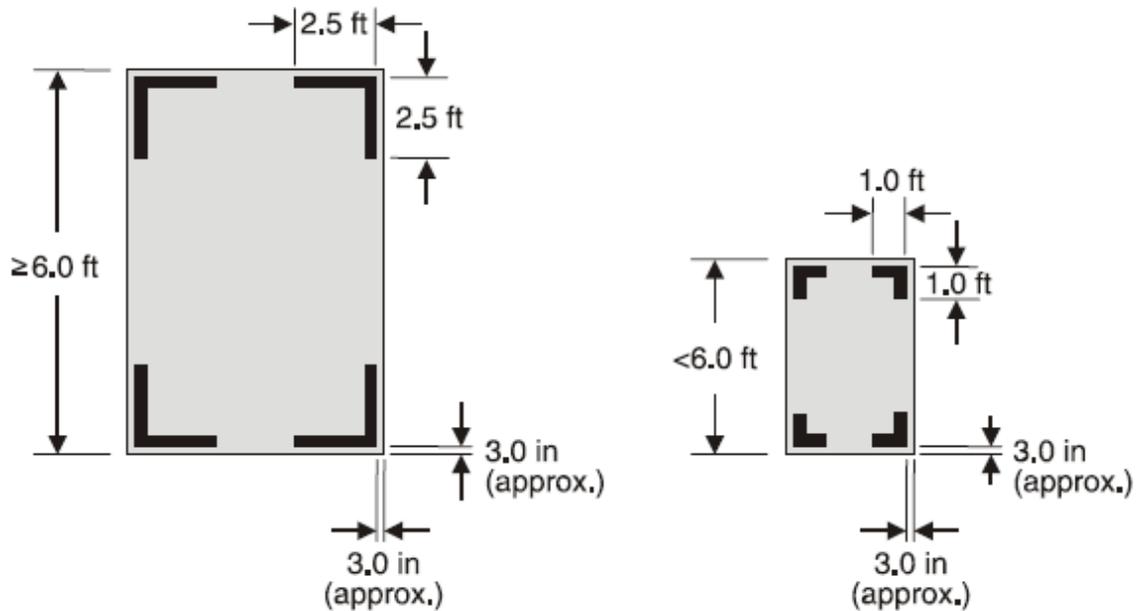


Figure ES-1. Recommended Steel Plate Marking. *Left: Steel plates greater than or equal to 6 feet in length; right: steel plates less than 6 feet in length.*

- (ii) Warning signs must be placed in advance of all temporary steel plates used on roadways open to vehicular traffic to advise motorists that they may encounter plates. The advance or warning sign shall contain the message “STEEL PLATES.” The warning sign and markings must be maintained in a condition that will satisfy their intended purpose.
- (b) Housekeeping and removal of excavated material. Each Permittee must keep the area surrounding the excavation clean and free of loose dirt or other debris in a manner deemed satisfactory to the Right-of-Way Inspector. In addition, the Permittee shall remove all excavated material from the site of the excavation no later than the end of each workday. The spreading of mud and debris upon the roadway is prohibited. The Permittee shall clean and sweep the roadway of all dirt and debris at the end of each work day.
- (c) Hazardous material. Each Permittee is subject to hazardous material guidelines for data collection; disposal, handling, release, and treatment of hazardous material; site remediation; and worker safety and training. The Permittee must comply with all federal,



state, and local laws regarding hazardous material. For purposes of this Subsection, hazardous material shall mean any gas, material, substance, or waste which, because of its quantity, concentration, or physical or chemical characteristics, is deemed by any federal, state, or local governmental authority to pose a present or potential hazard to human health or safety or to the environment.

- (d) Temporary Traffic Control. All temporary traffic control devices and provisions around construction sites must be installed and maintained in accordance with the "Manual for Uniform Traffic Control Devices" (MUTCD) and the "Virginia Work Area Protection Manual," subject to modification for specific locations by the Director.
- (i) Keep temporary traffic control devices in the correct position, properly directed, clearly visible and clean, at all times. Ensure that all traffic control devices meet acceptable standards as outlined in American Traffic Safety Services Association (ATSSA's) "Quality Standards for Work Zone Traffic Control Devices". Immediately repair, replace or clean damaged, defaced or dirty devices.
- (ii) All temporary traffic control devices placed in arterials and collectors shall be removed from the roadway at the end of each day unless otherwise provided for in the permit.
- (e) Erosion and Sediment Control. Erosion and sediment control around work sites shall be in accordance with the "Virginia State Erosion & Sediment Control Handbook" (current edition) and the Norfolk City Code. Inlet protection should be provided at curb inlets and yard drains. Under no circumstances shall material be allowed to enter the storm drain system. Excess material/sediment shall be allowed to dry and then removed by vacuum sweeper or shoveling and hauled away. Street washing shall be allowed only after sediment is removed in this manner. Effluent from dewatering operations must be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect adjacent property.



- (f) Tree, shrub, or landscape protection and preservation requirements shall be in accordance with Chapter 45 of the Norfolk City Code and any conditions or restrictions referenced in a tree work permit.
- (g) Job-site parking. No job-site parking on sidewalks or landscaping is permitted. Parked vehicles and equipment must not restrict private property access nor hinder sight distances for traffic. It is unlawful to park or place vehicles, equipment construction supplies or materials, excavated or fill soil, construction spoils or debris, chemicals (fuel, oil, adjuvant, etc) within the drip-line (crown-spread) of any tree on City property.
- (h) Pedestrian Access. The Permittee must provide pedestrian access and/or pedestrian detours to adjacent properties or the Public Right-of-Way in a safe manner. Pedestrian detours must be submitted to the Right-of-Way Permit Office for approval. Protective barricades, fencing, handrails and bridges, together with warning guidance devices and signs must be utilized so that the passageway for pedestrians is safe and well defined. Installation of a fixed pedestrian walkway of the fence-and-canopy type to protect and control pedestrians may be required where hazardous work conditions exist overhead. The walk area shall comply with OSHA standards, local building codes, ADA Guidelines and any additional requirements set forth by the Department.
 - (i) Walkways in construction areas shall be maintained at least five (5) feet in width and free from abrupt changes in grade. (Maximum allowable grade is 1" rise in 12" of run.) Obstructions within the walkway shall be illuminated during hours of darkness. Minimum vertical clearance to any obstruction within the walkway shall be at least seven feet.
 - (ii) Where sidewalks are closed or damaged by construction, an alternate walkway must be provided. When necessary to divert pedestrians into the parking lane of a street, approved barricading or delineation must be provided to separate the pedestrian walkway from the adjacent traffic lane. At no time will pedestrians be diverted into a portion of the street used for vehicular traffic. This includes and prohibits the closure of a sidewalk midblock, unless a properly signed and marked temporary (mid-block) crosswalk has been provided.



- (iii) At locations where alternate walkways cannot be provided, appropriate signs and barricades must be installed at the nearest crosswalk or intersection to divert pedestrians across the street. The Permittee must submit a special plan on the pedestrian route and signage for this type of closure.

- (i) Construction Staging Area: The Permittee is responsible for selecting his staging and lay-down areas and any needed storage yard in the vicinity of the project. Areas used by the Permittee within the public right-of-way require the prior approval of the Department. Lay-down areas in arterials and collectors will not be permitted. All costs associated with the use, maintenance, and final restoration of areas needed, are at the sole expense of the Permittee. In addition, the Permittee shall do the following:
 - (i) Arrange for and maintain the staging area at his expense.
 - (ii) Locate trailers and equipment as far as possible from nearby occupied dwellings.
 - (iii) Keep the site neat and orderly so that debris will not be transported to neighboring properties by wind or other means.
 - (iv) Start construction equipment only when necessary in the mornings.
 - (v) Do not leave construction equipment running needlessly.
 - (vi) Caution workmen to speak quietly and refrain from using profanity or language that would offend residents or visitors in the area.
 - (vii) Locate portable sanitary facilities on a secluded or concealed portion of the site.
 - (viii) Where appropriate, provide lighting and/or fencing to restrict access to the site during non-working hours.



- (ix) When storing construction materials ensure that they do not have a tendency to become unstable.
- (x) Where dust may become a nuisance, provide means for dust control.
- (xi) Backfill adjacent to and behind sidewalk and curb and gutter immediately after stripping forms.
- (xii) Access to all properties must be maintained by the Permittee.

4.5 WORK WITHIN THE STREETS.

- (a) **Arterial Streets:** These are streets functionally classified by VDOT as principal arterials or minor arterials (Attachment 5). No work will be permitted on arterial streets during the peak traffic hours of 6:00 a.m. to 9:00 a.m. and from 3:00 p.m. to 6:00 p.m. (Monday through Friday only), except emergency work to restore services, or such times as authorized by the Director. Lane closures will be restricted to the working lane only and two-way traffic must be maintained at all times, unless otherwise authorized by the Director.
 - (i) Arterials must be opened to traffic each night unless otherwise provided for in the permit. Before leaving the work site all utility cuts must be backfilled and covered with temporary asphalt. Steel plates may be used and must be installed according to VDOT standards. The permanent asphalt patch must be placed the same day the work is completed for minor projects and within thirty (30) calendar days of completion for Major Projects, unless otherwise directed by the Department. When notified by the Department of an unsafe opening, the Permittee must respond and repair such opening within four (4) hours.
 - (ii) The Department reserves the right to effect any and all required repairs, necessitated by emergency conditions, and warrant for the collection of all associated costs from the Permittee.



- (b) **Collector Streets:** These are streets functionally classified by VDOT as urban collectors (Attachment 6). No work will be permitted on collector streets during the peak traffic hours, 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. (Monday through Friday only), except emergency work to restore services, or such times as authorized by the Director. Two-way traffic must be maintained at all times, unless otherwise authorized by the Director.
- (i) Collectors must be opened to traffic each night unless otherwise provided for in the permit. Before leaving the work site all utility cuts must be backfilled and covered with temporary asphalt. Steel plates may be used and must be installed according to VDOT standards. The permanent asphalt patch must be placed as soon as possible but no later than five (5) days after work completion for minor projects, and within thirty (30) calendar days for Major Projects, unless otherwise directed by the Department. When notified by the City of an unsafe opening, the Permittee must respond and repair such opening within four (4) hours.
 - (ii) The Department reserves the right to effect any and all required repairs, necessitated by emergency conditions, and warrant for the collection of all associated costs from the Permittee.
- (c) **Residential Streets:** These are streets and cul-de-sacs, which provide direct access to adjacent property or individual homes. Residential streets are functionally classified by VDOT as local streets. No work will be permitted on residential streets before 8:00 a.m. or after 5:00 p.m. (Monday through Friday only), except emergency work to restore services. Work on Saturday and Sunday will be permitted only at such times as authorized by the Director. At least a single lane must be provided for two-way traffic with a flagman available for control, unless otherwise authorized by the Director.
- (i) Excavations in residential streets must be protected each night. This may be achieved by steel plating, cold mix or plant mix to grade, or lighted barricades and fencing. The permanent asphalt repair must be made as soon as possible but no later than five (5) days after work completion for minor projects and within thirty (30) calendar days for Major Projects, unless otherwise directed by the Department.



When notified by the Department of an unsafe opening, the Permittee must respond and repair such opening within four (4) hours.

- (ii) The City reserves the right to effect any and all required repairs, necessitated by emergency conditions, and warrant for the collection of all associated cost from the Permittee.
- (d) **Signalized Intersections:** If the excavation and work-zone is in or near a signalized intersection, the Permittee is required to obtain the services of off-duty Police Officer (s), at the Permittee's sole expense, to control the flow of traffic to ensure the safety of pedestrians, motorists and workers.

4.6 WORK OUTSIDE THE PAVEMENT.

- (a) All work areas outside the pavement must be restored to their original condition after work completion. All pits/trenches remaining open overnight must be barricaded or fenced on all sides to ensure pedestrian and motorist safety.
- (b) When the work area is interrupted in excess of one week, temporary repairs must be made, including back-filling the excavation and placing a temporary asphalt patch. Crush and run is not acceptable for use as temporary patch. No work area outside of the pavement will be left in a disturbed condition over ten (10) days. When the Permittee is notified of a failure in the work area (i.e. cave-in), the Permittee must respond and repair the work area within 24 hours.
- (c) The City reserves the right to effect any and all required repairs, and warrant for the collection for all associated costs from the Permittee, where necessitated by emergency conditions.

4.7 QUALITY ASSURANCE/QUALITY CONTROL INSPECTION.

The inspection process is the primary method by which the Department seeks to protect the City's investment in its Public Right-of-Way infrastructure. A uniform and responsive inspection process will ensure that the work is completed in accordance with the standards for reconstruction



and site restoration specified and referenced herein. The Department's inspection effort will also ensure that the City's infrastructure attains its maximum useful life and utility restoration callbacks are minimized.

- (a) The Department's quality assurance efforts complement the Permittee's quality control efforts. Quality assurance begins with the site plan review process for Public and Franchise Utility projects. City Right-of-Way Inspectors are responsible for the inspection of all permitted work within the Public Right-of-Way. The inspector serves as liaison with Permittee to advise on construction standards and practices and to coordinate activities between the City and other utility companies and to advise on the extent of restoration.
- (b) Quality control is the responsibility of the Permittee. The Permittee is expected to be familiar with the applicable standards referenced herein and to employ qualified and licensed subcontractors that will utilize these standards in the restoration of the Public Right-of-Way. Permittees and their subcontractors who fail to comply with these standards risk denial of permits for performing future work in the Public Right-of-Way.
- (c) Inspection services will be provided by the Department as necessary, and upon a request by the Permittee or their subcontractors. On some projects, due to scope, location, or duration of the work, it will be necessary to notify the inspector at least forty-eight (48) hours before beginning the work. This provision will usually be noted at the time the permit is issued.
- (d) The City's Right-of-Way Inspector will be focused on restoration of the Public Right-of-Way, backfill, compaction, hazard protection, repaving, and traffic control. Some inspections will be ongoing throughout the duration of a Permit, whereas other inspections will be made only after completion of the work. Factors that will be considered for ongoing inspections include location of work, duration of work, size of area being disturbed or other issues as determined by the Department.

5. RESTORATION STANDARDS / RESTORATION OF THE PUBLIC RIGHT-OF-WAY.

Each Permittee that excavates or is responsible for an excavation in the Public Right-of-Way is responsible to maintain, repair, or restore the site of the excavation to a condition acceptable to



the Director. All restoration shall result in a work site condition equal to or better than that, which existed prior to construction. All restoration work will be done at the Permittee's sole expense. The following provisions will serve as guidelines for work in the City of Norfolk:

5.1 PAVEMENT.

Pavement restoration shall match the existing street cross section and pavement type. The limits of restoration required to any pavement type will be dependent on the size and location of the excavation. Any variance of the limits of restoration required is at the discretion of the City Right-of-Way Inspector(s). In all cases the work site must be cleaned up each day.

1. Limits of Restoration:

(a) **Asphalt Pavement:**

- (i) Any excavation that extends six feet (6') or more across a travel or curb lane, will require the entire lane width (as marked, as traveled, or to centerline) to be re-paved.
- (ii) Multiple excavations located an average of twenty feet (20') from one another longitudinally; three excavations within 200' and within a lane; or 4 excavations within 200' in more than one lane will be considered and restored as a single patch from outside excavation to outside excavation or intersection to intersection which ever is greater..
- (iii) For any excavation that disturbs more than 30% of an intersection, the Department may require the restoration limits to be larger than the work area to insure a smooth, rideable surface.
- (iv) For excavations in streets that have been resurfaced within four (4) years or less, the Department requires repaving of the entire length of the excavation and the entire width of the street curb to curb and on streets with a raised median, the street shall be

resurfaced from the curb-line to the raised median. The minimum repaving width shall not be less than eight (8) feet wide. Any affected curb lanes are to be repaved back to the curb face or nose of the gutter pan.

(b) **Concrete Pavement:**

- (i) Any excavation in a concrete pavement will require a slab replacement from the nearest transverse joint longitudinally and the entire width of the lane. Alternative pavement treatments which provide equal or greater strength will be considered on a case by case basis and must be approved by the Director.

(c) **Asphalt on Concrete Pavement**

- (i) The Permittee will determine the depth of the existing pavement section by core sample or test pit. If the asphalt overlay is one (1) inch or more; and if the concrete base is five (5) inches or more and in good condition, the Permittee will dowel and re-establish the base section of concrete in accordance with Public Works Design Standard HS-302 (See Attachment 10) The depth of the asphalt overlay must match the existing pavement section, or as directed by the Right-of-Way Inspector.
- (ii) If the depth of the existing asphalt overlay is five (5) inches or more and if the concrete base is less than five (5) inches and it is in poor condition e.g. crumbled back to an aggregate condition, then an alternative pavement restoration treatment will be permitted. The alternative pavement treatment must match the total pavement thickness in full depth asphalt (no less than 12 inches of BM-2.5) to the surface. The BM-2.5 is to be placed in 3 equal lifts not to exceed 4 inches in compacted height each.



- (iii) The alternative pavement treatment described in 5-C-(ii) and the standard treatment described in 5-C-(i) are both to be over-milled one foot beyond the cut on all sides and a minimum of two (2) inches of SM-9.5D asphalt shall be applied for the surface course.
 - (d) **Miscellaneous Pavements (Brick, Cobblestone, Etc.)**
 - (i) Any brick or cobblestone and other special or decorative surfaces, including curbs and/or gutters, base and sub-base, shall be restored to match original construction conditions and appearance. This restoration may entail additional pavement removal as directed by the Right-of-Way Inspector.
- 2. **Backfilling and Compaction:**
 - (a) Select fill material shall be as defined in the current edition of the VDOT Road and Bridge Specifications. The Permittee may not use controlled density (flowable) fill in lieu of select fill without prior written approval. If approved, controlled density fill material must comply with City policy (SOP 1220) and may not be used as a riding surface. Stone may be substituted for select fill at the discretion of the City Right-of-Way Inspector. Stone shall be VDOT classified dense grade stone Class 21A. Each excavation shall be backfilled and fully compacted and permanently restored within seventy-two (72) hours.
 - (b) The Permittee shall use a moisture meter to test backfill moisture content (See Attachment 7 for procedure). Select fill material shall be placed in four-inch (4") lifts and compacted after each lift with appropriate compaction equipment. Compaction by backhoe bucket and/or vehicle tires is not acceptable. A minimum of twelve inches (12") of backfill should be placed over any utility pipe before compaction over the pipe. Written verification of compaction is required. The Permittee shall have a geotechnical technician examine the soils and pre-approve the

materials and methods. The use a Dynamic Cone Penetrometer (DCP), or comparable equipment, to test the compaction of the backfill is recommended. A density rate of 95% must be achieved for adequate compaction (See Attachment 8 for DCP procedure). The Permittee shall submit written compaction test results (See Attachment 9 for sample form) to the Right-of-Way Inspector. When controlled density fill type material is used, steel plates must be placed over the work area to allow sufficient time for the material to set properly. All material must "set" within 72 hours of placement.

3. **Permanent Patch:**

(a) Patches will be approved based on their general appearance as well as their "rideability." Rideability is defined as a leveling tolerance to within one-quarter inch (1/4") at any point across the patch as it relates to the surrounding street surface.

(b) **Asphalt Pavement:**

(i) New hot mix asphalt will be placed in lifts (3" maximum) and compacted using a vibratory plate compactor or a vibration roller. Asphalt depths will be governed by the existing cross section of the street. When it is necessary to use cold patch in an opening due to the unavailability of hot mix material, the cold patch will be applied in one lift, approximately 2 inches thick. The restoration will not be considered complete until the cold patch is removed and replaced with hot mix asphalt.

(c) **Concrete Pavement:**

(i) Once the compacted backfill has been placed, 1" dowel bars, a minimum of 15" long, must be installed 7.5" into the existing concrete slabs. The bars shall be placed on 12" centers and grouted with an approved adhesive or grout. Welded wire fabric



may be required. A "high early" strength (5,000-psi minimum strength within 7 days) concrete mix is required for concrete pavements and valley gutters. Place, finish, and protect new concrete with adequate protection during its curing period. Concrete is required to "set" within 4 hours of placement. Before the pavement is opened to traffic, joints must be cleaned and properly sealed.

- (ii) The Director of Public Works may approve the use of a full depth asphalt patch instead of concrete under certain conditions. The substitution must be approved by the Director prior to placement of asphalt. The repair extents will remain the same.

(d) **Asphalt Overlay over Concrete**

- (i) Concrete shall be replaced as outlined in (c) (i). The top grade of concrete should match the existing top grade of concrete. Under no circumstances shall the top grade of concrete match the top grade of asphalt. Once the concrete has cured, asphalt should be patched as outlined in (b) (i)

4. **Adjustments to Castings, Frames and Covers, Boxes, and Utility Vaults Etc.:**

- (a) In all directions around castings, frames and covers, boxes, utility vaults etc. the Permittee will be responsible to make adjustments to meet the finish grade of the existing or proposed pavement and/or gutter line. Prior to a paving course being placed, a string-line inspection of the adjustments will be conducted by the Right-of-Way Inspector.



5.2 TRANSPORTATION.

- (a) **Signalized Intersections:** The Permittee, or the Permittee's subcontractor, must not cut into the pavement of a signalized intersection without contacting the Public Works Traffic Operations Center (ph.757-823-1223) 48 hours in advance. Traffic Operations will attempt to locate and mark buried loop detection devices. Any Permittee, or Permittee's subcontractor, that damages a loop detector must replace the damaged loop detector within 48 hours of such damage.
- (b) **Pavement Markings:** Lane striping or other painted and affixed delineators, which are removed or damaged, must be replaced by the Permittee before restoration will be considered complete. Replacement materials for lane striping and other affixed delineators shall be furnished as specified and approved by the Division of Transportation.

5.3 SIDEWALKS.

Damaged sidewalks must be removed and replaced in full sections (nearest joint). Replacement sidewalk material shall match the existing sidewalk to the extent practicable. All concrete edges that are to be removed must be saw cut and formed from construction joint to joint. A section's size will be determined by the adjacent sections or by the City's Right-of-Way Inspector.

- (a) Any sections of sidewalk that have been undermined must be cut out and replaced. Suitable backfill must be installed and compacted prior to replacement.
- (b) At the end of each work day, the sidewalk must be open and safe for pedestrian use. If necessary, cold patch asphalt may be used as a temporary walking surface. "Crush and run" is not an acceptable walking surface and may not be used.
- (c) The Permittee, or the Permittee's subcontractors, must not park any vehicles and/or equipment on City sidewalks or beneath the drip-line (crown spread) of any tree, shrub, or within a landscaped bed on City property. Any damage observed after the work has been completed will be the Permittee's responsibility. The Permittee will be required to make the necessary repairs before the work will be accepted.



5.4 CURB RAMPS FOR PEOPLE WITH MOBILITY IMPAIRMENTS.

Any work which requires the disturbance of the curb, and/or sidewalk, touching the back of the curb located within a street intersection return, must be removed and replaced with a curb ramp, at the Permittee's sole expense. The ramp must be constructed in accordance with current Virginia Department of Transportation and City of Norfolk standards and specifications. Ramps located on arterial or collector street intersections must be installed perpendicularly (90°) to the street, and ramps located along residential streets may be installed at 45° to the intersection of the street. When any utility work disturbs an existing curb ramp, the ramp will be removed and replaced in its entirety and installed in accordance with current standards and specifications.

5.5 DRIVEWAY APRONS.

New and replacement driveway aprons and pads shall be installed in accordance with the Department's Design Standards and policies. Existing concrete driveway aprons that are cut or damaged as a result of any utility work shall be completely removed and replaced. In the event a replacement driveway apron can not be installed according to current Design Standards, the apron shall be replaced in-kind. The Permittee or the Permittee's subcontractor must notify the Right-of-Way Permit Office for an inspection of the forms before the driveway is poured. A final inspection is required once the work is complete. Water meter and sewer clean-out boxes shall not be located in the driveway apron. If the water meter and sewer clean-out boxes are located in an existing driveway apron that is to be replaced, it is the Permittee's responsibility to have the water meter and/or sewer boxes relocated to the adjacent right-of-way. All edges of concrete restoration shall be sawcut.

5.6 CURB AND GUTTER.

When curb and gutter are disturbed or damaged, they must be replaced in full ten-foot (10') sections and match existing curb and gutter materials to the extent practicable. Existing curb elevations must match and a constant grade ensured to provide positive drainage. Curb and gutter must be installed over 6" of compacted crush stone base that extends 12" past the back of curb and match the adjacent curb sections and materials (i.e., concrete, exposed aggregate). Expansion material must be used at all joints. If the work includes removal of a section which was finished



with a control joint, the Permittee must saw cut the joint prior to removing the existing section, or as directed by the City Right-of-Way inspector.

5.65 CROSSWALKS.

Damaged decorative crosswalks shall be repaired or replaced as directed by the Right-of-Way Inspector in accordance with the Department's Design Standards and policies.

There are several types of decorative crosswalks throughout the City and they must be repaired and /or replaced in accordance with the manufacturer's recommendations and depending upon the size of the removed and/or damaged section. Once repairs to the crosswalk have been completed see section 5.2 (b) for replacement of pavement markings, crosswalk bars, to be repaired and/or replaced as required.

1. Crosswalk Types:
 - (a) Street Print – re-stamping of asphalt of repaired or replaced section then full color recoating of entire crosswalk as per manufactures specifications.
 - (b) Imprint – if up to 50% is damaged or removed, then replace entire half to match existing color. If more than 50% is damaged or removed, then the entire crosswalk must be replaced to match the existing color in accordance with the manufacturer's specifications.
 - (c) Brick Pavers – repair and replacement shall be of adequate size to include the under slab replacement as directed by the Right-of-Way Inspector in accordance with Department's Design Standards and policies.

5.7 STREET/ROAD CROSSINGS.

- (a) The preferred method of crossing a street in the City of Norfolk will be by boring and jacking the new pipe, service line, conduit or system extension under the street crossed.



Horizontal Directional Drilling (HDD) may also be used within the Public Right-of-Way. The following conditions will apply.

- (i) HDD equipment operators must be trained, preferably by the equipment manufacturer, in the safe and proper operation of the equipment. Written proof of proper training shall be furnished to the City's Right-of-Way Inspector upon request. Failure to furnish training documentation could result in a Stop Work-Order being issued. All additional costs incurred by the Permittee, as result of the issuance of a "Stop Work Order," shall be the Permittee's responsibility.
- (ii) For all underground utility construction, the Permittee must thoroughly investigate the location of all known Public or Franchise Utilities paralleling or crossing the proposed path of the proposed utility facilities.
- (iii) All Public Utility Facilities which are to be located underground shall, after the effective date of this Manual, be installed to a minimum depth of twenty-four (24) inches below the surface of the Public Right-of-Way.
- (iv) The Permittee is encouraged to use observation pits (pot-holes) to verify the location of existing underground utility facilities.
- (v) HDD equipment shall have directional control of the boring tool and have an electronic boring tool location detection system. During operation the HDD equipment, the operator shall be able to determine the location of the boring tool both horizontally and vertically.
- (vi) The Permittee or the Permittee's subcontractor must be in direct charge and control of the HDD operation at all times.
- (vii) The City's Right-of-Way Inspector shall be notified 48 hours in advance of starting HDD operations. HDD operations must be performed in the presence of a City Right-of-Way Inspector unless otherwise directed by the Department.



- (b) A street may also be crossed with an open cut to the pavement if approved by the Department. The following conditions will apply.
 - (i) The use of steel road plating and a controlled density fill material will be required to ensure uniform compaction in order to reopen the street to traffic at the earliest possible time.
 - (ii) Concrete roadways will be repaired to the nearest expansion joint, and doweled (steel dowel rods) into the adjacent existing concrete.

5.8 UTILITY MARKING - REMOVAL.

It is the Permittee's responsibility to remove all utility markings associated with the Permittee's work-zone as soon as the work is complete. If the utility marks are not removed within ten (10) days after completion of the work, the City will consider the marks as graffiti. The City, in accordance with existing City ordinances, may remove graffiti, and the costs associated with such removal will be the responsibility of the Permittee. The City may also suspend issuing new permits to Permittee until the utility marks have been removed.

5.9 LANDSCAPING.

The Division of Parks & Urban Forestry is responsible for managing and maintaining trees, shrubbery, grass and other vegetation in the Public Right-of-Way and road median landscapes. All landscape restoration shall be performed as specified in the Permittee's tree work permit and in accordance with Chapter 45 of the Norfolk City Code. The Permittee is advised that violations of Chapter 45 of the Norfolk City Code could result in the issuance of a summons, which will be a class one misdemeanor.

6.0 VIOLATIONS.

- (a) The Director has the authority to enforce the regulations and standards specified in the Right-of-Way Excavation & Restoration Manual against violations thereof. Upon the Director's determination that a Person or Permittee has violated any provision of this



Manual, the standard details and specifications, notices, ordinances, or regulations of the Department; any term, condition, or limitation of any permit; or is subject to any outstanding fees, deposits, or other charges, the Director will serve notice on said Person or Permittee to promptly abate the violation. Any Person or Permittee whom the Director determines to be responsible for violating the provisions contained in this Manual may be subject to any or all of the enforcement mechanisms as hereinafter specified.

- (b) Violations by Public Utilities are not subject to the penalties and fines specified in Sections 6.4. The Director is empowered to abate violations by Public Utilities and may charge the cost of such abatement to the expense budget of the Public Utility, take other appropriate action against such agency within the Director's authority, or both.

6.1 STOP WORK ORDER, PERMIT MODIFICATION, AND PERMIT REVOCATION.

When the Director has determined that a Permittee has violated the provisions of this Manual or that an excavation poses a hazardous situation or constitutes a public nuisance, public emergency, or other threat to the public health, safety, or welfare, the Director is authorized to issue a Stop Work Order, to impose new conditions upon a permit, or to suspend or revoke a permit by notifying the Permittee of such action in a written, electronic, or facsimile communication.

6.2 SUBSURFACE OR PAVEMENT FAILURES - WARRANTY.

In the event that subsurface material or pavement over or immediately adjacent to any excavation should become depressed, broken, or fail in any way within two (2) years after the excavation has been completed and accepted by the City, the Permittee and the Permittee's subcontractor, that is responsible for the failure in the subsurface or surface of the Public Right-of-Way and must make the necessary repairs as directed by the Department. The Director will notify the Permittee or subcontractor of the condition, location, and the required remedy, and such Permittee or subcontractor must repair or restore, or cause to be repaired or restored, such condition to the satisfaction of the Director within seventy-two (72) hours of the notification. The Director may extend the time for the responsible party to repair or restore the affected Public Right-of-Way.



6.3 REPAIR BY THE DEPARTMENT.

- (a) In the event that any Permittee or subcontractor fails, neglects, or refuses to repair or restore any condition pursuant to the Director's notice as set forth in Section 6.2, the Director may repair or restore, or cause to be repaired or restored, such condition in such manner as the Director deems expedient and appropriate. The Permittee or subcontractor identified by the Director as the responsible party must compensate the Department for any costs associated with administration, construction, consultants, equipment, inspection, notification, remediation, repair, restoration, or any other actual costs incurred by the City that were made necessary by reason of the repair or restoration undertaken by the Department. The Director's determination as to the cost of the repair or restoration performed will be final. In addition, the responsible party may be subject to those enforcement actions as set forth in Sections 6.4 and 7.0.
- (b) Subject to the limitation set forth in Sections 6.2 and 7.0, repair or restoration by the Department in accordance with this Section does not relieve the Person(s) from liability for future pavement failures at the site of the repair or restoration.

6.4 PENALTIES AND FEES.

- (a) Any Person or Permittee occupying or using any of the public ways of any description of the City in a manner not permitted to the general public, without having first legally obtained the consent of the City in accordance with the requirements contained herein or occupying or using such public ways inconsistent with the requirements of this Manual, will be guilty of a Class 2 misdemeanor which provides for fines of up to \$1,000 (one thousand dollars). A separate and distinct offense will be deemed committed each day on which a violation occurs or continues.
- (b) Any Person or Permittee that fails to comply with the requirements as set forth in this Manual will not be allowed to continue to work in the Public Right-of-Way and all future permit requests will be denied.



7.0 EMERGENCY REMEDIATION BY THE DEPARTMENT.

- (a) If, in the judgment of the Director, the site of an excavation is considered hazardous or if it constitutes a public nuisance, public emergency, or other imminent threat to the public health, safety, or welfare that requires immediate action, the Director may order the condition remedied by a written, electronic, or facsimile communication to the Permittee or subcontractor responsible for remedying the condition.
- (b) If the Permittee or subcontractor responsible is inaccessible or fails, neglects, or refuses to take immediate action to remedy the condition as specified in said communication, the Director may remedy the condition or cause the condition to be remedied in such manner as the Director deems expedient and appropriate. The Permittee or subcontractor identified by the Director as the responsible party must compensate the Department for any reasonable costs associated with administration, construction, consultants, equipment, inspection, notification, remediation, repair, restoration, or any other actual costs incurred by the Department or other agencies, boards, commissions, or departments of the City that were made necessary by reason of the emergency remediation undertaken by the Department. In addition, the responsible party may be subject to those enforcement actions set forth in Section 6.4.
- (c) Subject to the limitation set forth in Section 6.2, remediation by the Department in accordance with this Section does not relieve the Permittee from liability for future pavement failures at the site of the remediation.

8.0 INTERPRETATION, DEVIATION, VARIANCE FROM MANUAL

In accordance with the City's Charter and Code of Ordinances, the Director has the authority to establish, interpret, and enforce the standards and policies referenced in the Right-of-Way Excavation & Restoration Manual. Any deviation or variance may be granted at the sole discretion of the Director. Any request for deviation or variance shall be submitted in writing to the Right-of-Way Administrator. The Right-of-Way Administrator will endeavor to act on the request for deviation or variance within thirty (30) days after the receipt of the request.

4/18/00

**CITY OF NORFOLK
POLICY PERTAINING TO CERTAIN TELECOMMUNICATION AND
CABLE TELEVISION FACILITIES**

Applicability: This policy governs the location and installation of all telecommunications, natural gas, and cable television facilities including but not limited to pedestals, power supplies, generators, etc. It does not apply to the replacement of existing facilities unless such facilities are enlarged or relocated.

Purpose: The anticipated increase in construction/installation of telecommunications and other facilities as the result of industry deregulation has given rise to legitimate aesthetic concerns and concerns about maintaining property values, as well as a need to manage public rights-of-way to avoid conflicts and protect the public safety and welfare.

Authority: All franchise agreements allow franchisees to place facilities in the public rights-of-way, but all are subject to the lawful exercise of the City's police powers.

Standards: All facilities subject to this policy shall comply with the following standards:

- (a) *Location.* In no event shall any such facility be located so as to impede pedestrian or vehicular movement or interfere with sight lines.

In no event shall any such facility be located in the City right-of-way between the curb or edge of pavement and the sidewalk without being underground and flush mounted.

Whenever easements are sought from private property owners for the purpose of installing facilities, the franchisee must advise the private property owner in writing of the following:

- that the private property owner is not obligated to provide an easement; and
- that the terms of any such easement agreement are strictly between the private property owner and the franchisee.

Facilities shall be shared with other utilities to avoid duplication wherever feasible.

Facilities shall be located according to the following siting priority, from highest to lowest. It shall be the responsibility of the applicant to demonstrate that a facility cannot be placed on a site having a higher priority:

ATTACHMENT - 1

1. Right-of-way adjacent to existing City property such as pump station sites, and school sites or the adjacent City property where no usable City right-of-way exists.
2. Existing utility easements in rear or side yards;
3. Easements obtained from a private property owner in a rear or side yard; and
4. City right-of-way adjoining rear or side lot lines with written concurrence of the immediate adjacent property owners.

If the Franchisee can prove hardship and has exercised every reasonable means to obtain the concurrence of the adjacent property owners the Director of Public Works may grant the permit without the concurrence of the adjacent property owners.

- (b) *Landscaping.* These landscaping requirements apply only to facilities larger than seven and one-half (7.5) cubic feet in size or taller than two (2) feet in height. The utility shall submit a typical landscaping plan designed by a registered landscape architect. This plan shall be approved by the City's Design Review Committee. Individual landscaping designs made by a registered landscape architect shall be submitted for any site where the typical landscape plan is unworkable. The utility shall submit landscape plans for all sites at one time, whenever possible. The proposed landscaping shall not result in plantings that will pose visibility or maintenance liabilities. The landscaping shall be perpetually maintained by the franchisee for as long as the facility exists and in accordance with maintenance management plans submitted by the franchisee and approved by the City as part of the permit application.
- (c) *Maintenance.* The facilities shall be well maintained including horizontal and vertical alignment. Repairs of vandalism or other damage shall be accomplished within 1 week. Graffiti shall be removed within 48 hours. The facilities will be painted every 7 years.
- (d) *Color.* All facilities shall be dark green (Federal Color 14062) to render them as visually unobtrusive as is reasonably possible.
- (e) *Noise.* All facilities shall comply with the City's noise ordinance.

Permits: No facilities shall be constructed until all required permits have been obtained. All permit plans must show the location of the equipment and the location of all existing Public Utilities and storm drains. Plans shall show the location of the nearest street and the nearest building.

Construction: All facilities subject to this policy shall be constructed in accordance with all applicable ordinances, specifications and standards of the City. Facilities larger than seven and one-half (7.5) cubic feet shall be constructed on grade. Propane facilities shall be prohibited except in locations where natural gas will be unavailable after the existing natural gas line has been extended 500 feet. Plans for propane facilities shall be approved by the Fire Marshall prior to issuance of a permit. The Franchisee agrees by acceptance of the permit, upon notice in

ATTACHMENT - 1

writing, to remove or relocate at its own expense any structure or installation placed in the right-of-way if such structure or installation interferes with the installation or maintenance of any public facility or use of the right-of-way. Clear zone requirements in accordance with the VDOT Road Design Manual shall apply on all streets where the speed limit is 35 mph or greater. Joint trenching should be used when more than one utility intends to construct new facilities within the same area. Newly installed or upgraded facilities shall be as small and unobtrusive as technology and business conditions allow.

Removal: The Franchisee agrees to remove at its own expense all facilities that are no longer used within 60 days of the end of their use. The Director of Public Works may grant an extension to this time period when he believes that circumstances warrant it.

Application: Application for permits shall be on forms prescribed by the Public Works Director or his designee. Such application shall also be accompanied by plans showing all information required by the Public Works Director or his designee and such other and further information as the Public Works Director or his designee may require in order to demonstrate compliance with the requirements set forth in this policy. A permit from the City Forester will be required for any work needed to be accomplished within the drip line of any public tree.

Other: The requirements of this Policy shall be in addition to, and not in lieu of, the provisions of any other applicable codes, franchise agreements, ordinances, regulations or requirements of federal, state or local law. The Director of Public Works may allow deviations from this policy when in his judgement the specific circumstances warrant such deviations.

Effective Date: This policy shall take effect upon execution by the City Manager.

4/19/00
Date


City Manager

**RIGHT OF WAY
PERMIT APPLICATION**

(Type or Print Clearly)



Miss Utility Ticket # _____ Norfolk Permit # _____

Applicant Name: _____ **Start Date:** ___/___/___ **End Date:** ___/___/___

Applicant Address: _____
(Street) (City) (State) (Zip)

Construction Contact Person: _____ **Fax #** _____ **Phone #** _____

Subcontractors Name: _____ **Phone #** _____

Worksite address: _____ **Planning District:** _____

Is the proposed work area located within a drip line any public tree? Yes No (if yes separate tree permit required)

Install: Gas line: Electric line: Sewer line: Water line: Storm Drain: Communication line: Test Holes:

Description of Work for Gas, Sewer, Water, or Storm Drain:

Install New: Renew: Repair: Retire: Relocate:
Main: _____ (feet) Service Lateral: _____ (feet) Valve: Cathodic Protection:

Description of Work for Electric or Communication Facilities – (list quantity and size):

Conduit: _____ (feet) Conduit size: _____ (in.) Number of conduits: _____ Coaxial Cable: _____ (feet)
Fiber Optic Cable: _____ (feet) Electric Cable/Conductor: _____ (feet) Communications Cable: _____ (feet)
Depth of Cover: _____ (in.) (24 inches min.)

Install Pole, Guy, Aerial Cable/Conductor:

Number of poles: New: _____ Renewed: _____ Removed: _____
Number of guy wires/anchors: New: _____ Renewed: _____ Removed: _____
Aerial Cable/Conductor: New: _____ (feet) Removed: _____ (feet) Renewed: _____ (feet)

Install Cabinets, Vaults, Manholes, Junction Boxes, Pedestals, Transformers, Switches, Meters, etc.:

Number of cabinets: _____ Number of Junction Boxes: _____ Number of pedestals: _____ Meters: _____
Number of Transformers: _____ Number of Switches: _____ Number of witness markers: _____
Number of Vaults: _____ Number of Manholes: _____ Number of Standby Power Supplies: _____
Does installation comply with the City's landscaping and site location policy? Yes: No: N/A:

Dirt Utility Cut(s) (list cut size, length x width) Note: If any cuts are in asphalt, concrete or brick, please use Street and Major Utility Construction Permit Application in addition to this application.

Quantity _____ Cut _____ x _____ Quantity _____ Cut _____ x _____ Quantity _____ Cut _____ x _____

Method of Construction:

Open Pavement Cut: _____ Direct Buried: _____ Jack & Bore: _____ Horizontal Directional Drilling (HDD): _____ Aerial: _____

A Permit will not be issued unless accompanied by a proper site plan of proposed work. Site plan shall show all requested work on the application including property line or city right of way, edge of pavement, curb & gutter, sidewalk, driveways, closest cross street, city trees and north arrow. Existing sewer and water lines and reference them to the edge of pavement. All work shall be done in accordance with this application or as amended by this office. Please submit application and site plan in duplicate (2 copies).

The Permittee, its agents, employees, officers and assign assume all responsibility and liability for any injury to persons or damage to public or private property, caused directly or indirectly, by the performance of permitted work under this permit. Furthermore, the Permittee, its agents, employees, officers and assignees agree to save and hold harmless the City of Norfolk, its agents, employees and officers from any and all claims, demands, actions, judgments, executions, damages or proceeding for any and all personal actions, judgments, executions, damages or proceedings for any and all personal injury, and injuries to property, real or personal, public or private caused by or arising out of directly or indirectly, from the performance of permitted work.

I certify that the above information is accurate, that proper permission from the pole owner has been obtained to perform the work, and that all work will be done in accordance with the City of Norfolk Right of Way Excavation and Restoration Manual, dated July 1, 2002 as amended.

PRINT NAME _____ **DATE** _____ **SIGNATURE** _____

Street and Major Utility Construction Permit Application

Construction Date(s):	From:	To:
General Contractor/Utility:		
Address:		
Phone:		
Fax:		
E-mail:		
Sub-Contractor:		
Worksite Address:		
Project/Work ID#:		
Excavation/Utility Cut Description(s): (list cut size, length x width for each pavement type) NOTE: If all cuts are in dirt, please use ROW Permit form instead.	Quantity: _____ Asphalt: _____ x _____ Concrete: _____ x _____ Brick: _____ x _____	
	Quantity: _____ Asphalt: _____ x _____ Concrete: _____ x _____ Brick: _____ x _____	
	Quantity: _____ Asphalt: _____ x _____ Concrete: _____ x _____ Brick: _____ x _____	
	Quantity: _____ Asphalt: _____ x _____ Concrete: _____ x _____ Brick: _____ x _____	
Method: (select all that apply)	Open Cut	HDD
		Bore
		Other _____
Restoration Type: (select all that apply)	Single Cut	Multiple Cuts
		Full Street Repave
Reason for work:		
Is the work being performed for the City of Norfolk?	No Yes, for _____	
Primary & Secondary Contacts (contractor performing the work):	Name:	Name:
	Work Phone:	Work Phone:
	Cell Phone:	Cell Phone:
	After Hours:	After Hours:
	E-mail:	E-mail:

The Permittee, its agents, employees, officers, and assign assume all responsibility and liability for any injury to persons or damage to public or private property caused directly or indirectly, by the performance or permitted work under this permit. Furthermore, the Permittee, its agents, employees, officers and assignees agree to save and hold harmless the City of Norfolk, its agents, employees and officers from any and all claims, demands, actions, judgments, executions, damages, or proceeding for any and all personal actions, judgments, executions, damages, or proceedings for any and all personal injury, and injuries to property, real or personal, public or private caused by or arising out of directly or indirectly, from the performance or permitted work. I certify the above information is correct.

I certify that the above information is accurate.

PRINT NAME _____ DATE _____ SIGNATURE _____

RETURN COMPLETED APPLICATION TO:
 RIGHT-OF-WAY PERMITS OFFICE, 810 UNION STREET, ROOM 200, CITY HALL BUILDING, NORFOLK, VA 23510
 PHONE: (757) 664-7306 FAX: (757) 664-4696 E-MAIL: <mailto:pwrow@norfolk.gov>



Street, Lane, Sidewalk Closure Permit Application

Closure Date(s):	From:	To:			
Closure Time(s):	From:	To:			
General Contractor/Utility:					
Address:					
Phone:					
Fax:					
E-mail:					
Sub-Contractor:					
Worksite Address:					
Closest Street(s):					
Lane Description: (select all that apply)	Left	Right	Shoulder	Center	Sidewalk
	Center Left		Center Right		Parking Lane
Direction: (select all that apply)	North	South	East	West	
Type: (select all that apply)	Single	Multiple	Mobile	Alternating	
		Flagger	Off-duty Police Officer		
Reason for closure:					
Primary & Secondary Contacts (contractor performing the work):	Name:	Name:			
	Work Phone:	Work Phone:			
	Cell Phone:	Cell Phone:			
	After Hours:	After Hours:			
	E-mail:	E-mail:			

1. Application must be submitted **seven (7)** business days in advance of the requested closure.
2. A permit will not be issued unless this application is accompanied by a traffic control plan for the requested closure.
3. The traffic control plan must show work zone, all traffic control devices, street, lane or sidewalk to be closed, closest street, and north arrow. All plans must comply with the latest version of the Virginia Work Area Protection Manual and the Manual for Uniform Traffic Control Devices.

The Permittee, its agents, employees, officers and assign assume all responsibility and liability for any injury to persons or damage to public or private property caused directly or indirectly, by the performance of permitted work under this permit. Furthermore, the Permittee, its agents, employees, officers and assignees agree to save and hold harmless the City of Norfolk, its agents, employees and officers from any and all claims, demands, actions, judgments, executions, damages or proceeding for any and all personal actions, judgments, executions, damages or proceedings for any and all personal injury, and injuries to property, real or personal, public or private caused by or arising out of directly or indirectly, from the performance of permitted work.

I certify that the above information is accurate.

PRINT NAME _____ DATE _____ SIGNATURE _____

RETURN COMPLETED APPLICATION TO:
 RIGHT-OF-WAY PERMITS OFFICE, 810 UNION STREET, ROOM 200, CITY HALL BUILDING, NORFOLK, VA 23510
 PHONE: (757) 664-7306 FAX: (757) 664-4696 E-MAIL: <mailto:pwrow@norfolk.gov>

NORFOLK ARTERIALS

4th View St
21st St (Hampton Blvd to Monticello Ave)
26th St (Hampton Blvd to Lafayette Blvd)
27th St (Hampton Blvd to Lafayette Blvd)
38th St (Hampton Blvd to Granby St)
Admiral Taussig Blvd (Hampton Blvd to I564)
Azalea Garden Rd (Virginia Beach Blvd to Little Creek Rd)
Bainbridge Blvd (South Main St to City Line)
Ballentine Blvd (Westminster Ave to Lafayette Blvd)
Bay Ave (Naval Gate to Granby St)
Bayview Blvd (Granby St to Capeview Ave)
Berkley Ave (Ligon St to Indian River Rd)
Berkley Ave Extended (Fauquier Ave to Campostella Rd)
Boush St
Brambleton Ave
Campostella Rd
Chesapeake Blvd(Ocean View Ave to Lafayette Blvd)
Church St (Wood St to Granby St)
City Hall Ave (Boush St to I264)
Colley Ave (53rd St to Brambleton Ave)
Cromwell Rd
Duke St (Brambleton Ave to Boush St)
Granby St (Church St to Ocean View Ave)
Hampton Blvd
Indian River Rd (Berkley Ave to City Line)
Ingleside Rd (Cromwell Rd to Virginia Beach Blvd)
Jamestown Cresc (Hampton Blvd to 53rd St)
Johnstons Rd (Sewells Point Rd to Little Creek Rd)
Kempsville Rd
Liberty St (State St to City Line)
Little Creek Rd
Llewellyn Ave
Main St
Military Hwy
Monticello Ave (City Hall Ave to Church St)
Newtown Rd (Kempsville Rd to North City Line)
Northampton Blvd
Norview Ave
Ocean Ave (Granby St to Bay Ave)
Ocean View Ave (Shore Dr to 4th View St)
Olney Rd (Duke St to Colley Ave)
Park Ave (Brambleton Ave to Princess Anne Rd)

Princess Anne Rd (Hampton Blvd to Military Hwy)

Robin Hood Rd (Chesapeake Blvd to Military Hwy)
Sewells Point Rd (Princess Anne Rd to Little Creek Rd)
Shore Dr
South Main St (Bainbridge Blvd to Berkley Ave)
St Paul's Blvd
State St
Terminal Blvd
Thole St
Tidewater Dr
Virginia Beach Blvd
Waterside Dr
Wesleyan Dr
Willow Wood Dr (Tidewater Dr to Granby St)
Wilson Rd

NORFOLK COLLECTORS

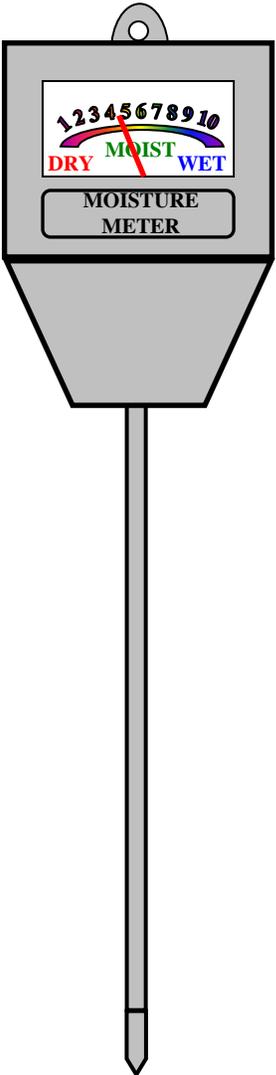
5th Bay St
35th St. (Granby St to Hampton Blvd)
38th St (LaVallette Ave to Granby St)
38th St (Hampton Blvd to Powhatan Ave)
43rd St. (Powhatan to Hampton Blvd)
49th St (Colley Ave to Hampton Blvd)
49th St (Bluestone Ave to Powhatan Ave)
Ballentine Blvd (I264 to Kimball Terr)
Bank St (Main St to City Hall Ave)
Beachview St
Berkley Ave Ext (Campostella Rd to City Line)
Bolling Ave (Jamestown Cresc to Powhatan Ave)
Capeview Ave
Charlotte St.; (Tidewater Dr to Fenchurch St.)
Chesapeake Blvd (Lafayette Blvd to Tait Terr)
Claremont Ave.
Colonial Ave (Olney Rd to New Hampshire Ave)
Columbus Ave (LaVallette Ave to 42nd St)
Corprew Ave; (Park Ave to Ballentine Blvd.)
Curlew Dr.
Delaware Ave
Diven St
Dominion Ave.
Fenchurch St
First View St
Fisherman's Rd; (Bayview Blvd to Chesapeake Blvd)
Glenrock Rd; (Va Beach Blvd to Poplar Hall Dr.)
Granby St.; (Bute St. to Church St.)
Halprin Dr.
Hedgewood La
Herbert St
Indian River Rd (Marsh St to State St)
Ingleside Rd; (Westminister Ave. to Va Beach Blvd.)
Johnston's Rd; (Chesapeake Blvd to Denison Ave.)
Kimball Terrace (Riviera St to Brambleton Ave)
Kingsley La (Granby St to Dead End)
LaVallette Ave (Granby St to Columbus Ave)
Leo St (25th St to 26th St)
Lindenwood Ave. (25th St to Tidewater Dr)
Lowery Rd. (Military Hwy to Kempsville Rd)
Main St E (St Pauls Blvd to Commercial Pl)
Main St E (Bank St to Boush St)
Maltby Ave (Rugby St to Princess Anne Rd)
Maple Ave. (First View St to Dead End)
Mayflower Dr (Delaware Ave to 41st St)
McKann Ave; (Chesapeake Blvd. to Tait Terrace)
Meadow Creek Dr.
Meadowlake Dr.
Merrimac Ave. (
Princess Anne Rd to Corprew Ave)
Mowbray Arch (Olney Rd to Olney Rd)
Muskogee Ave
New Hampshire Ave (Gosnold Ave to Mayflower Rd)
Newport Ave (Little Creek Rd to Kingsley La)
Newtown Rd (Susquehanna Dr to Kempsville Rd)
North Shore Rd (Blanford Cir to 0.74 ME Hampton Blvd)
Norway Place
Ocean View Ave (East City Line to Shore Dr)
Ocean View Ave (4th View St to West City Line)
Old Ocean View Rd
Olney Rd. (Monticello Ave to Boush St)
Park Ave.
Philpotts Rd.
Pleasant Ave.; (5th Bay St. to 30th Bay St.)
Plume St
Poplar Hall Dr. (0.64MW Military Hwy to Virginia Beach Blvd)
Powhatan Ave (38th St to Dead End)
Princess Anne Rd (Hampton Blvd to West Dead End)
Raby Rd.
Rugby St. (Tidewater Dr to Maltby Ave)
Sabre Rd.
Sedgefield Dr.
Sellger Dr.
Sheppard Ave. (Cape View Ave to Tidewater Dr)
South Main St. (Berkley Ave to Indian River Rd)
Springfield Ave
Springmeadow Blvd; (Military Hwy to Hunt Rd.)
Sturgis Rd.
Sturgis St.
Suburban Parkway
Village Ave.
Walter's Dr
Westminister Ave. (Sedgewick St to 0.17 ME Ballentine Blvd)
Windmere Ave (Sewells Point Rd to Herbert St)
Winshire St (WDE to Tidewater Dr)



Moisture Meter

- 1. Keeping the soil at the proper moisture content is the key factor in obtaining successful compaction.
- 2. While excavating use the moisture meter to measure the moisture content of the soil using the following steps:
- 3. **STEPS:**
 - A. Grasp a handful of excavated soil and squeeze it around the stem of the moisture meter.
 - B. Read the scale on the moisture meter and compare it to the chart below. Record the reading on the “**Compaction Inspection Form**”.

SOIL TYPE	PROPER MOISTURE RANGE
Sand	3 - 5
Rock & Sand (road base)	3 - 5
Clay	3 - 5
Sandy loam / Silty Sand	5 - 8
Loam / Silt	5 - 8

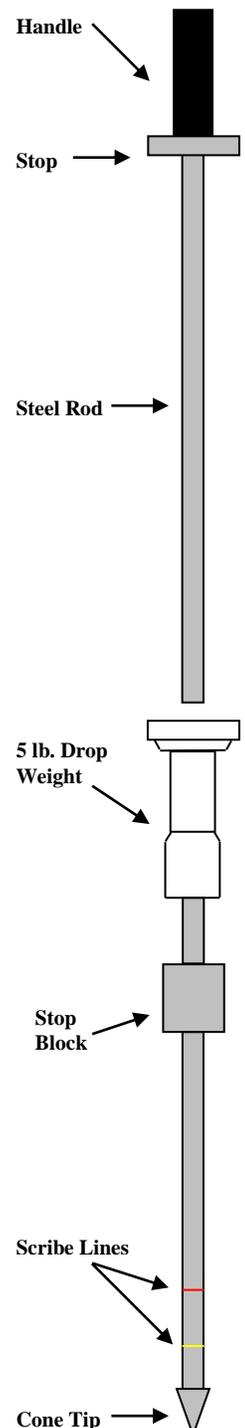


- C. If the soil is listed on the chart and the moisture reading **IS** within the range, no further action is necessary.
- D. If the soil is listed on the chart and the moisture reading is **NOT** within the range, haul off and replace with select backfill material.
- E. Proceed with the Penetrometer testing.



Dynamic Cone Penetrometer (DCP)

1. A minimum of 12 inches of soil should be the first lift over any Utility pipe. Otherwise, backfill area in **4 inch lifts** and compact after each lift.
2. At the **Mid-point** of backfilling, run the compaction test as follows:
3. **STEPS:**
 - A. See **STEP B.** if backfill material is **sand**. Otherwise, place the DCP on the surface, hold vertically and tap down until the top of the cone is flush with the surface. Go to **STEP C.**
 - B. When the backfill material is **sand**, push the cone tip into the sand until it stops. Place a mark on the DCP shaft at 3 1/4 inches above the top of the sand. Follow **STEPS C. - E.**
 - C. Raise the 5-lb. drop weight to the stop and allow it to free-fall.
 - D. Repeat **STEP C.** while counting the number of blows.
 - E. If the DCP penetrates the ground to the yellow line on the rod in **less than 11 blows, more compaction is required.** Compact and perform the Mid-Point compaction test again until the **11 blows** are achieved. Otherwise, record the information on the "**Compaction Inspection Form**".
 - F. Continue backfilling and compacting until **Final** grade is achieved. Repeat **STEPS A. - E.**
 - G. **NOTE: Pavement Cuts:** The number of tests performed is determined by the size of the excavated area. A minimum of two test (one in the center and one near the edge of the excavation) should be performed. If one test passed and one test failed, a third test should be performed in order to make a decision on how to proceed. **Bases:** The number of tests performed on a street base should be 1 per every 100 Sy and 1 per 20 Lf of sidewalk. Every test performed (regardless of



pass or fail status) shall be documented and verified by a Supervisor to assure quality work methods of crews.

 City of Norfolk Department of Public Works	Date: _____ Weather: _____		
COMPACTION INSPECTION FORM INSTRUCTIONS			
Inspector: _____		Neighborhood No.: _____	
Permit No.: _____			
Address: _____			
Utility Franchise: _____			
Contractor: _____			
Fill Material: _____		Sub-base Type: SAND CLAY	
Type of Compaction: _____			
Total No. of 4 inch Lifts: _____		Base Type: ROC CONC.	
Minimum Required No. of Blows = 11		Thickness: _____ inches	
Mid-Pt: YES NO			
Final: YES NO		Asphalt Thickness: _____ inches	
Moisture Meter Reading: _____			
Permittee's Signature: _____			

 City of Norfolk Department of Public Works	Date: _____ Weather: _____		
COMPACTION INSPECTION FORM INSTRUCTIONS			
Inspector: _____		Neighborhood No.: _____	
Permit No.: _____			
Address: _____			
Utility Franchise: _____			
Contractor: _____			
Fill Material: _____		Sub-base Type: SAND CLAY	
Type of Compaction: _____			
Total No. of 4 inch Lifts: _____		Base Type: ROC CONC.	
Minimum Required No. of Blows = 11		Thickness: _____ inches	
Mid-Pt: YES NO			
Final: YES NO		Asphalt Thickness: _____ inches	
Moisture Meter Reading: _____			
Permittee's Signature: _____			



DESIGN STANDARDS INDEX

City of Norfolk Department of Public Works
(Sheet 1 of 2)

NORFOLK DESIGN STANDARDS (NCS 2014.06)

Designation	Description
HS-101	NOT USED
HS-102	NOT USED
HS-103	STANDARD GRATE INLET
HS-104	STANDARD MANHOLE
HS-105	NOT USED
HS-106	FABRIC JOINT WRAP
HS-107	NOT USED
HS-201	NOT USED
HS-202	NOT USED
HS-202	7" CURB AND GUTTER
HS-203	METHOD OF SETTING GRANITE CURB
HS-204	NOT USED
HS-205	STANDARD VALLEY GUTTER
HS-206	NOT USED
HS-207	STANDARD RESIDENTIAL DRIVEWAY APRON
HS-208	ADA VARIATION OF DRIVEWAY APRON
HS-209	STANDARD RESIDENTIAL DRIVEWAY W/O CURB AND GUTTER
HS-210	COMMERCIAL BRICK DRIVEWAY
HS-211	NOT USED
HS-212	STANDARD COMMERCIAL DRIVEWAY APRON
HS-301	STANDARD PAVEMENT REPLACEMENT - ASPHALT OVER STONE
HS-302	STANDARD PAVEMENT REPLACEMENT - ASPHALT OVER CONCRETE
HS-303	STANDARD PAVEMENT REPLACEMENT CONCRETE
HS-304	CONCRETE PAVEMENT DOWELING DETAIL
HS-601	STANDARD GRASS PLANTING DETAIL
HS-602	STANDARD TREE PROTECTION DETAIL
HS-603	RECYCLED RUBBER WHEEL STOP
HS-604	STANDARD CITY CONSTRUCTION SIGN - SMALL
HS-605	CONSTRUCTION SIGN INSTALLATION - SMALL
HS-606	STANDARD CITY CONSTRUCTION SIGN - LARGE
HS-607	CONSTRUCTION SIGN INSTALLATION - LARGE



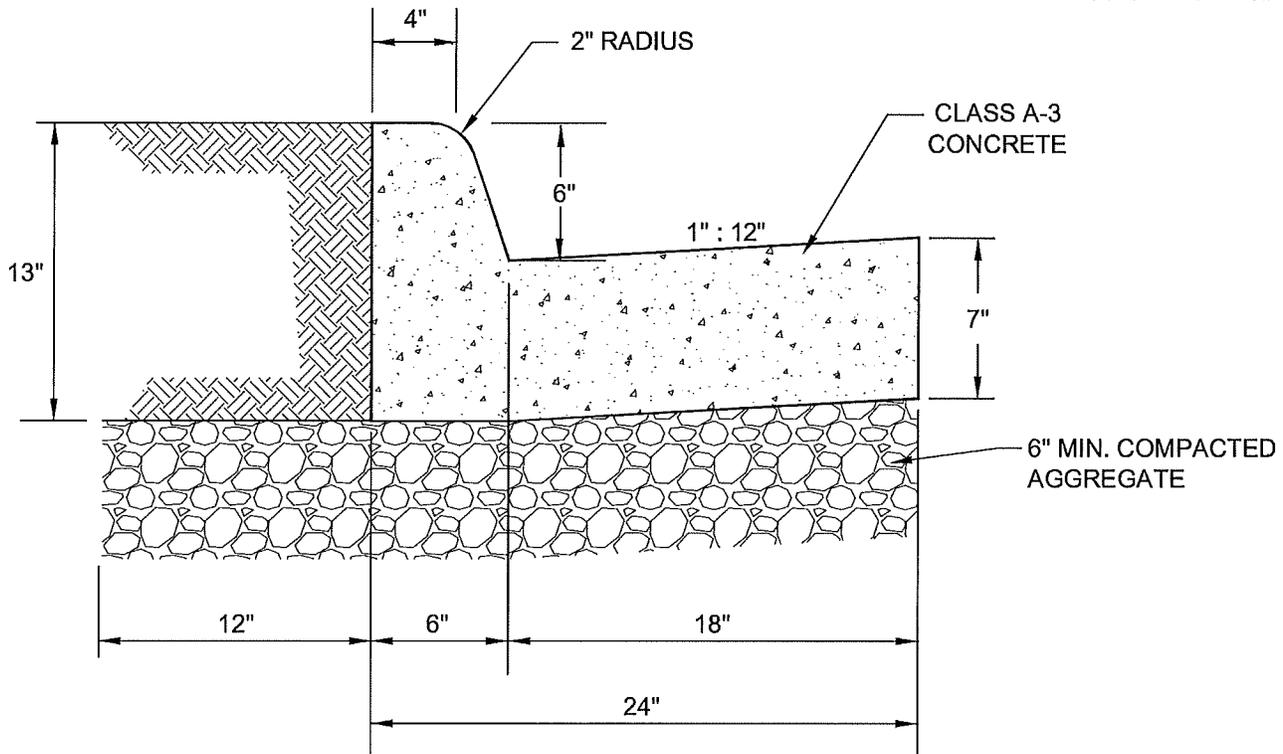
DESIGN STANDARDS INDEX

City of Norfolk Department of Public Works

(Sheet 2 of 2)

HRPDC REGIONAL CONSTRUCTION STANDARDS

Designation	Description
CI_01	24" CURB & GUTTER
CI_03	STANDARD MEDIAN CURB
CI_04	MOUNTABLE CURB
CI_09	SIDEWALK DETAIL WITH MINIMUM 5ft WIDTH
CI_10	ROLL TOP CURB AND CUTTER
DS_01	STORM DRAIN CASTING & COVER (30")
DS_03	CURB INLET/CATCH BASIN FRAME AND COVER
DS_04	CURB INLET/CATCH BASIN
EW_01	PIPE BEDDING DETAILS
EW_01_2	PIPE BEDDING DETAILS
EW_02_1	PAYMENT LIMITS TRENCH EXCAVATION AND BACKFILL
EW_02_2	PAYMENT LIMITS TRENCH EXCAVATION AND BACKFILL
EW_03_1	TRENCH WIDTH DETAIL FOR PAYMENT OF CONTINGENT ITEMS
EW_03_2	TRENCH WIDTH DETAIL FOR PAYMENT OF CONTINGENT ITEMS
EW_04_1	TYPICAL TRENCH DETAIL FOR HDPE (TYPE S) STORM DRAIN PIPE
EW_04_2	TYPICAL TRENCH DETAIL FOR HDPE (TYPE S) STORM DRAIN PIPE



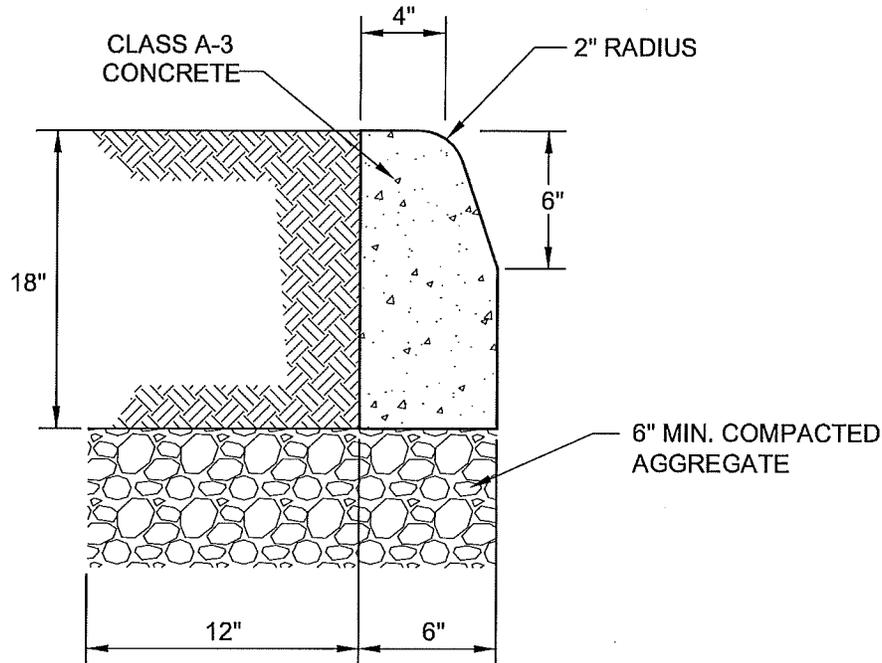
NOTES:

1. CRACK CONTROL JOINTS TO BE PROVIDED AT 10 FT. INTERVALS BY SAWING, SCORING, "LEAVE-IN" INSERTS, OR CUTTER PLATES TO 1-1/2 INCH DEPTH.
2. EXPANSION JOINTS TO BE INSTALLED PER SPECIFICATIONS SECTION 502.
3. AS SOON AS CONCRETE WILL NOT SLUMP, FACE FORMS ARE TO BE REMOVED, IRREGULARITIES REMOVED, A LIGHT BROOM FINISH GIVEN, AND LIQUID MEMBRANE SEAL OR OTHER APPROVED CURING MEDIUM APPLIED.
4. THE CONTRACTOR SHALL PREVENT THE TEMPERATURE AT THE SURFACE OF THE CONCRETE FROM FALLING BELOW 40°F DURING THE FIRST 72 HOURS IMMEDIATELY FOLLOWING CONCRETE PLACEMENT. PROTECTIVE MATERIAL SHALL BE LEFT IN PLACE FOR AN ADDITIONAL 48 HOURS IF FREEZING AIR TEMPERATURES ARE EXPECTED TO CONTINUE.

24" CURB & GUTTER

NOT TO SCALE

REFERENCE 200,502	CATEGORY CONCRETE ITEMS	DATE 12/10	SHEET No. 1 OF 1	DETAIL No. CI_01
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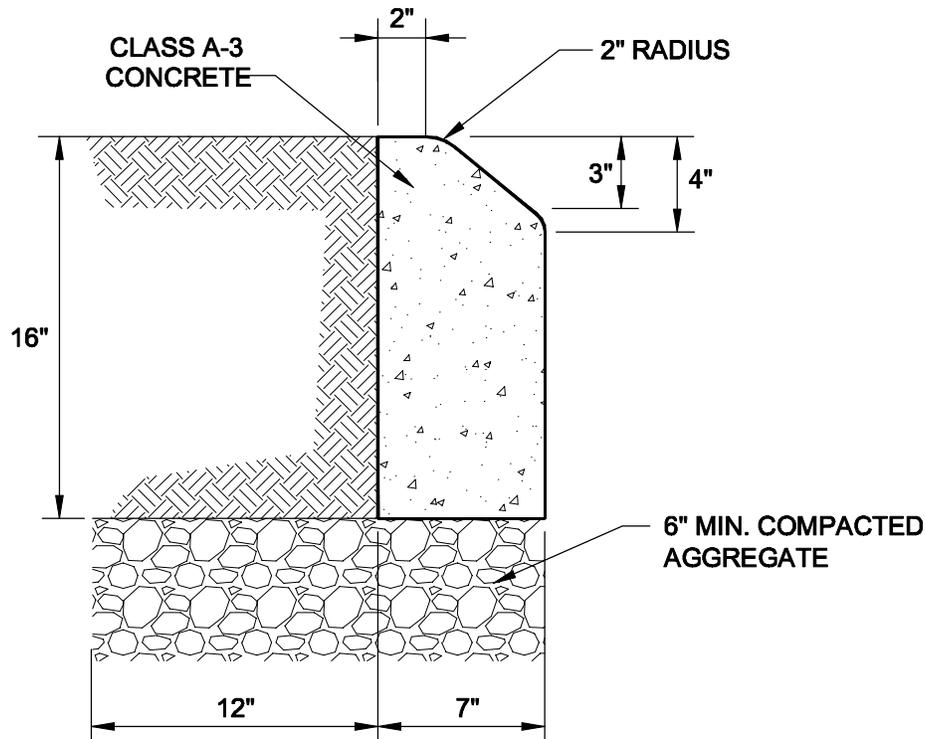
NOTES:

1. CRACK CONTROL JOINTS TO BE PROVIDED AT 10 FT. INTERVALS BY SAWING, SCORING, "LEAVE-IN" INSERTS, OR CUTTER PLATES TO 1-1/2 INCH DEPTH.
2. EXPANSION JOINTS TO BE INSTALLED PER SPECIFICATIONS SECTION 502.
3. AS SOON AS CONCRETE WILL NOT SLUMP, FACE FORMS ARE TO BE REMOVED, IRREGULARITIES REMOVED, A LIGHT BROOM FINISH GIVEN, AND LIQUID MEMBRANE SEAL OR OTHER APPROVED CURING MEDIUM APPLIED.
4. THE CONTRACTOR SHALL PREVENT THE TEMPERATURE AT THE SURFACE OF THE CONCRETE FROM FALLING BELOW 40°F DURING THE FIRST 72 HOURS IMMEDIATELY FOLLOWING CONCRETE PLACEMENT. PROTECTIVE MATERIAL SHALL BE LEFT IN PLACE FOR AN ADDITIONAL 48 HOURS IF FREEZING AIR TEMPERATURES ARE EXPECTED TO CONTINUE.

STANDARD MEDIAN CURB

NOT TO SCALE

REFERENCE	CATEGORY	DATE	SHEET No.	DETAIL No.
200,502	CONCRETE ITEMS	12/10	1 OF 1	CI_03



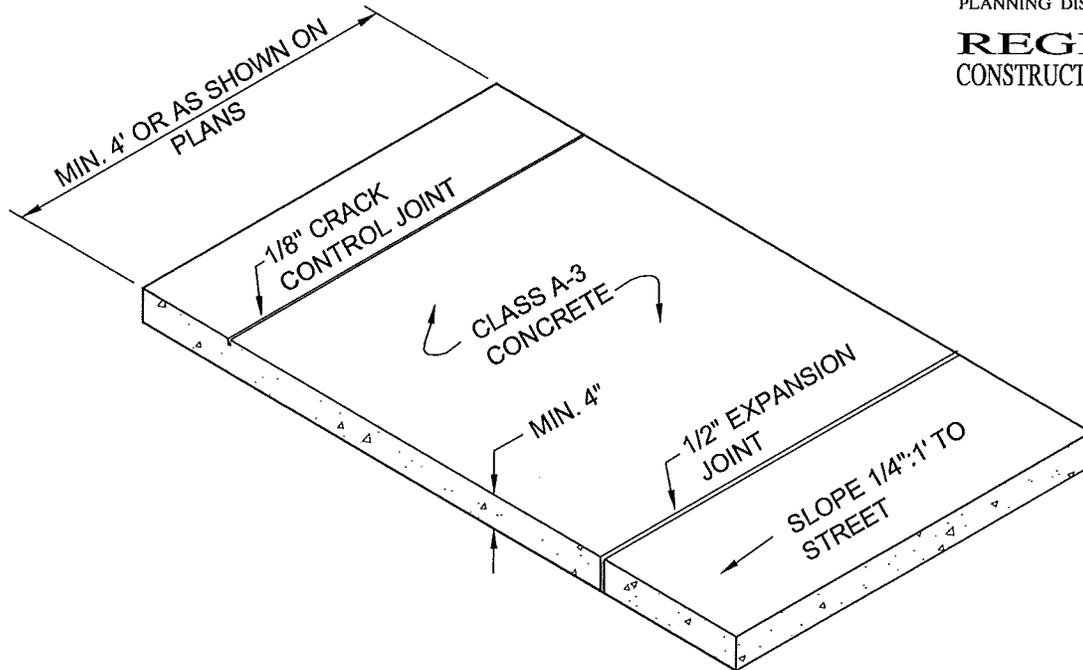
NOTES:

1. CRACK CONTROL JOINTS TO BE PROVIDED AT 10 FT. INTERVALS BY SAWING, SCORING, "LEAVE-IN" INSERTS, OR CUTTER PLATES TO 1-1/2 INCH DEPTH.
2. EXPANSION JOINTS TO BE INSTALLED PER SPECIFICATIONS SECTION 502.
3. AS SOON AS CONCRETE WILL NOT SLUMP, FACE FORMS ARE TO BE REMOVED, IRREGULARITIES REMOVED, A LIGHT BROOM FINISH GIVEN, AND LIQUID MEMBRANE SEAL OR OTHER APPROVED CURING MEDIUM APPLIED.
4. THE CONTRACTOR SHALL PREVENT THE TEMPERATURE AT THE SURFACE OF THE CONCRETE FROM FALLING BELOW 40°F DURING THE FIRST 72 HOURS IMMEDIATELY FOLLOWING CONCRETE PLACEMENT. PROTECTIVE MATERIAL SHALL BE LEFT IN PLACE FOR AN ADDITIONAL 48 HOURS IF FREEZING AIR TEMPERATURES ARE EXPECTED TO CONTINUE.

MOUNTABLE CURB

NOT TO SCALE

REFERENCE 200,502	CATEGORY CONCRETE ITEMS	DATE 12/10	SHEET No. 1 OF 1	DETAIL No. CI_04
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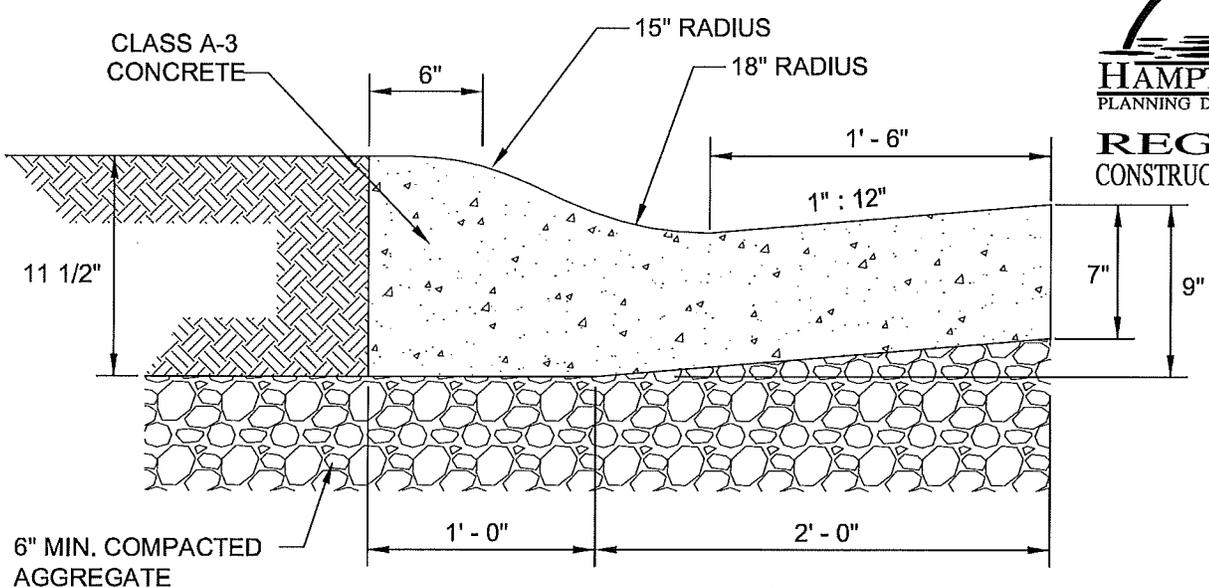
NOTES:

1. CRACK CONTROL JOINTS TO BE PROVIDED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK BY SAWING, SCORING, "LEAVE-IN" INSERTS, OR CUTTER PLATES AND SHALL EXTEND INTO THE CONCRETE TO 1/4 OF THE DEPTH.
2. EXPANSION JOINTS TO BE INSTALLED AT INTERVALS NOT EXCEEDING 50', AND AT JUNCTION POINTS OF CURBS AND ENTRANCES, AND ON BOTH SIDES OF ALL SIDEWALK SECTIONS CONTAINING UTILITIES. PREMOLDED, 1/2" JOINT FILLER IS TO BE USED EXTENDING FROM BOTTOM OF SLAB TO 1/4" OF ITS TOP SURFACE.
3. AS SOON AS CONCRETE WILL NOT SLUMP, FACE FORMS ARE TO BE REMOVED, IRREGULARITIES REMOVED, A LIGHT BROOM FINISH GIVEN, AND A LIQUID MEMBRANE SEAL OR OTHER APPROVED CURING MEDIUM APPLIED.
4. SIDEWALKS ACROSS ENTRANCES SHALL HAVE A DEPTH OF SEVEN INCHES (7") WITH A MAXIMUM SLOPE OF 1":12".
5. THE CONTRACTOR SHALL PREVENT THE TEMPERATURE AT THE SURFACE OF THE CONCRETE FROM FALLING BELOW 40°F DURING THE FIRST 72 HOURS IMMEDIATELY FOLLOWING CONCRETE PLACEMENT. PROTECTIVE MATERIAL SHALL BE LEFT IN PLACE FOR AN ADDITIONAL 48 HOURS IF FREEZING AIR TEMPERATURES ARE EXPECTED TO CONTINUE.

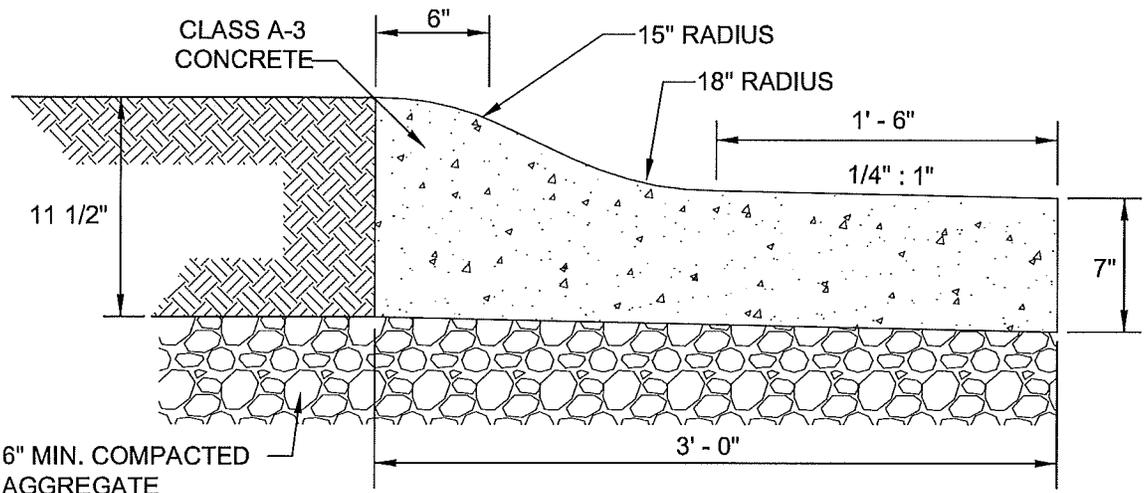
SIDEWALK DETAIL

NOT TO SCALE

REFERENCE 200,502	CATEGORY CONCRETE ITEMS	DATE 12/10	SHEET No. 1 OF 1	DETAIL No. CI_09
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STANDARD



REVERSE

NOTES:

1. CRACK CONTROL JOINTS TO BE PROVIDED AT 10 FT. INTERVALS BY SAWING, SCORING, "LEAVE-IN" INSERTS, OR CUTTER PLATES TO 1-1/2 INCH DEPTH.
2. EXPANSION JOINTS TO BE INSTALLED PER SPECIFICATIONS SECTION 502.
3. AS SOON AS CONCRETE WILL NOT SLUMP, FACE FORMS ARE TO BE REMOVED, IRREGULARITIES REMOVED, A LIGHT BROOM FINISH GIVEN, AND LIQUID MEMBRANE SEAL OR OTHER APPROVED CURING MEDIUM APPLIED.
4. THE CONTRACTOR SHALL PREVENT THE TEMPERATURE AT THE SURFACE OF THE CONCRETE FROM FALLING BELOW 40°F DURING THE FIRST 72 HOURS IMMEDIATELY FOLLOWING CONCRETE PLACEMENT. PROTECTIVE MATERIAL SHALL BE LEFT IN PLACE FOR AN ADDITIONAL 48 HOURS IF FREEZING AIR TEMPERATURES ARE EXPECTED TO CONTINUE.

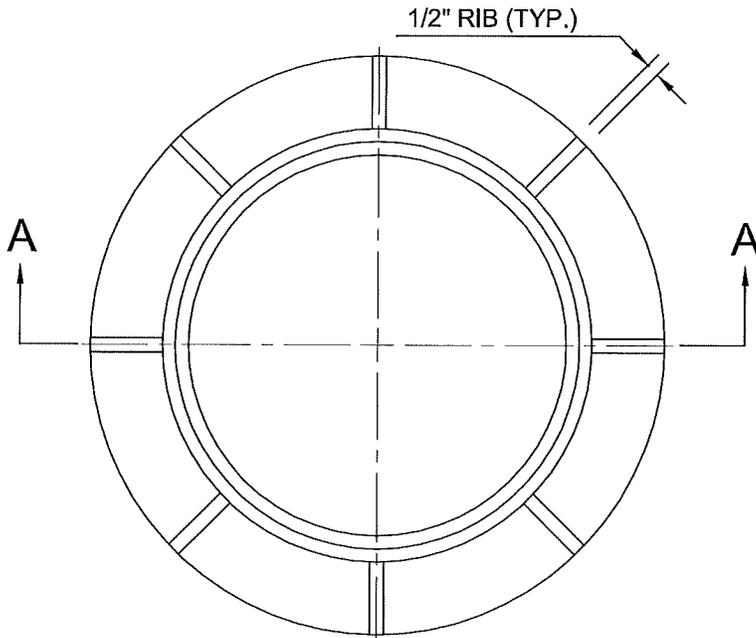
ROLL TOP CURB AND GUTTER

NOT TO SCALE

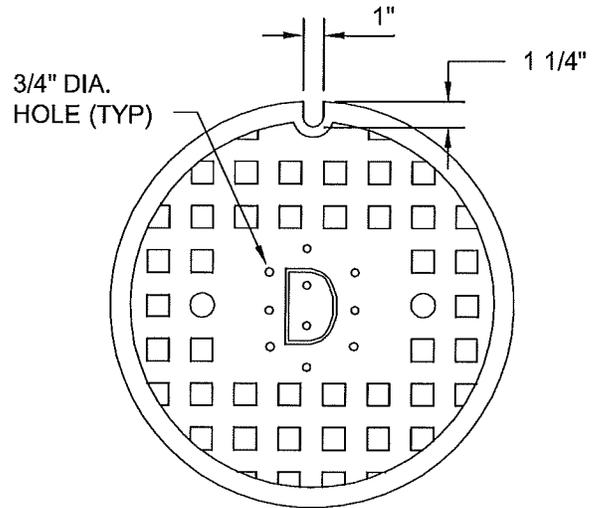
REFERENCE 200,502	CATEGORY CONCRETE ITEMS	DATE 12/10	SHEET No. 1 OF 1	DETAIL No. CI_10
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NOTES:

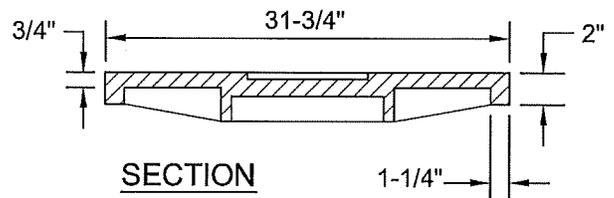
1. CASTING AND COVER TO BE SUPPLIED BY CAPITAL FOUNDRY OF VIRGINIA, INC. OR APPROVED EQUAL.
2. ALL GRAY IRON CASTINGS SHALL CONFORM TO LATEST EDITION OF ASTM A-48, CLASS 30 AND SHALL BE OF UNIFORM QUALITY.
3. ALL CASTING DIMENSIONS SHALL HAVE A TOLERANCE OF $1/8" \pm$.
4. ALL CASTINGS SHALL BE CLEANED BY SHOT BLASTING AND HAND CHIPPING UTILIZING STANDARD INDUSTRY PRACTICES PRIOR TO SHOP APPLICATION OF ASPHALTIC COATING, BY DIPPING.



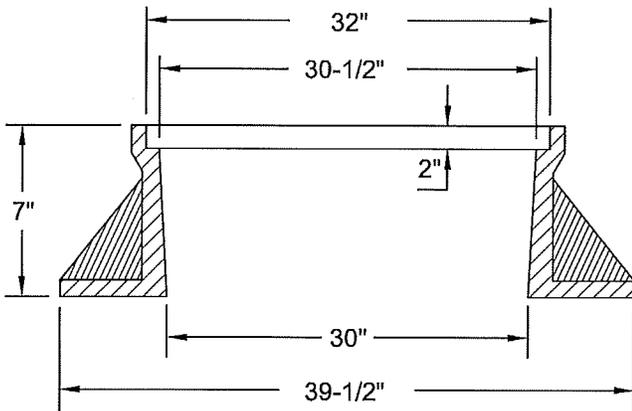
PLAN: CASTING



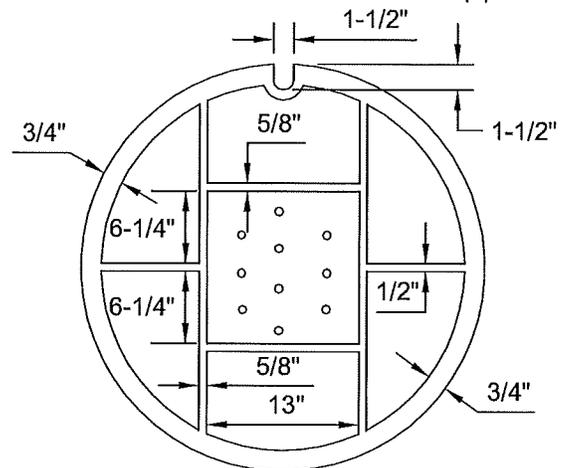
TOP VIEW: COVER



SECTION



SECTION A-A

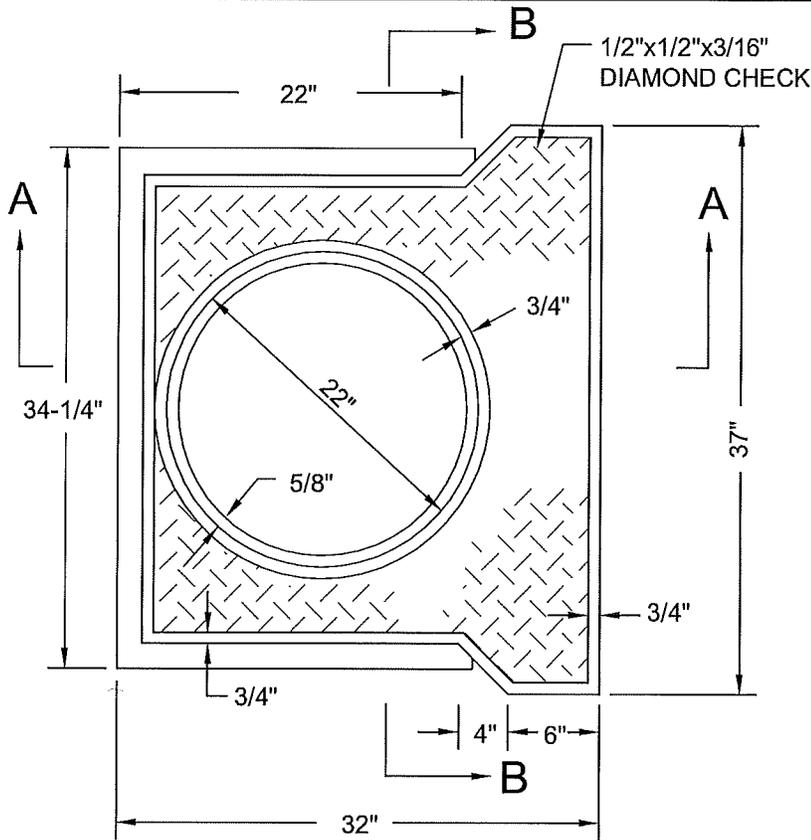


BOTTOM VIEW: COVER

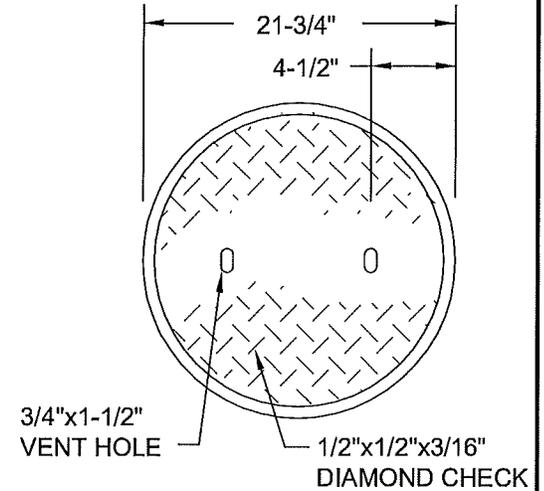
**STORM DRAIN
CASTING & COVER (30")**

NOT TO SCALE

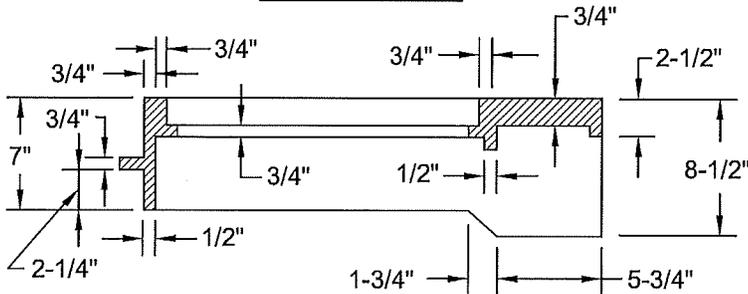
REFERENCE 200,302	CATEGORY DRAINAGE STRUCTURES	DATE 12/10	SHEET No. 1 OF 1	DETAIL No. DS_01
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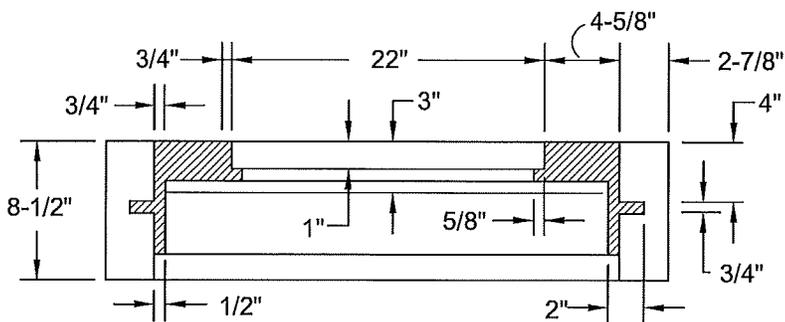
PLAN: FRAME



PLAN: COVER



SECTION A-A



SECTION B-B

CURB INLET/CATCH BASIN FRAME AND COVER

NOT TO SCALE

NOTES:

1. FRAME & COVER TO BE SUPPLIED BY CAPITAL FOUNDRY OF VIRGINIA, INC., OR APPROVED EQUAL.
2. ALL GRAY IRON CASTINGS SHALL CONFORM TO LATEST EDITION OF ASTM A-48, CLASS 30 AND SHALL BE OF UNIFORM QUALITY.
3. ALL CASTING DIMENSIONS SHALL HAVE A TOLERANCE OF 1/8"±.
4. ALL CASTINGS SHALL BE CLEANED BY SHOT BLASTING AND HAND CHIPPING UTILIZING STANDARD INDUSTRY PRACTICES PRIOR TO SHOP APPLICATION OF ASPHALTIC COATING, BY DIPPING.

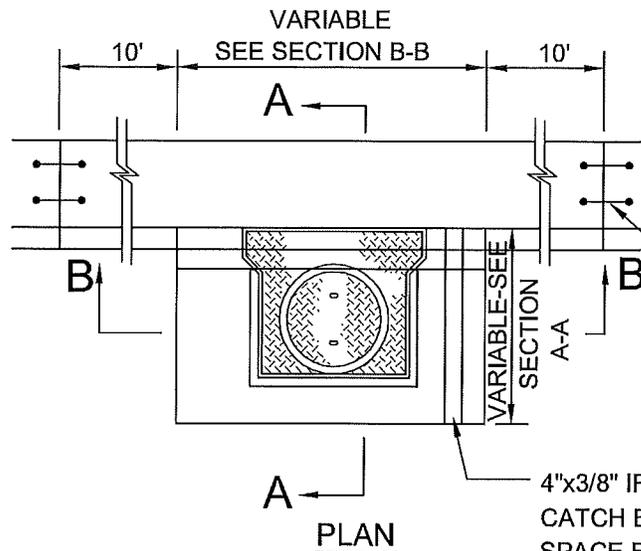
REFERENCE
200,302

CATEGORY
DRAINAGE STRUCTURES

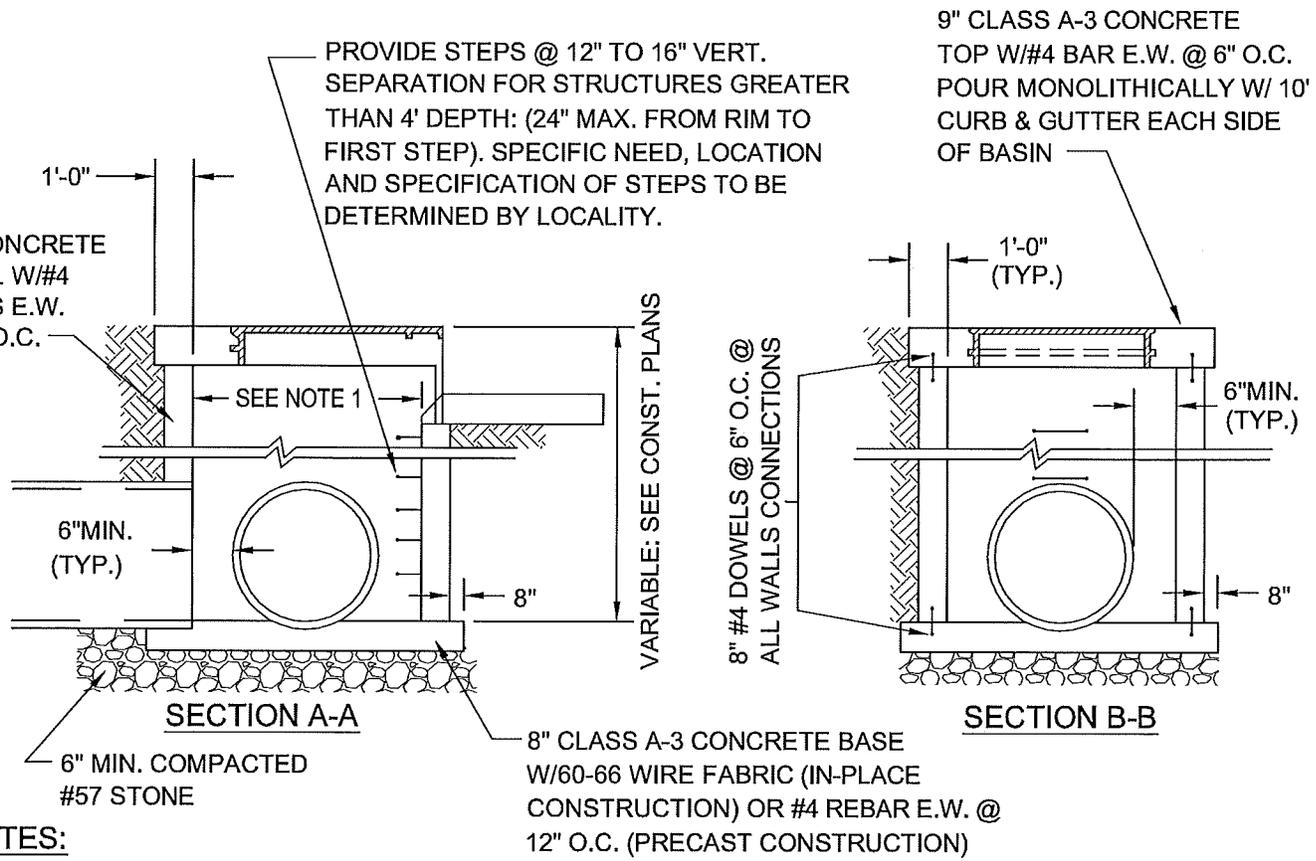
DATE
12/10

SHEET No.
1 OF 1

DETAIL No.
DS_03



(2)-24" #4 DOWELS, PLACED 2" ABOVE GUTTER BOTTOM AND CENTERED AT JOINT (TYP. EACH SIDE)



NOTES:

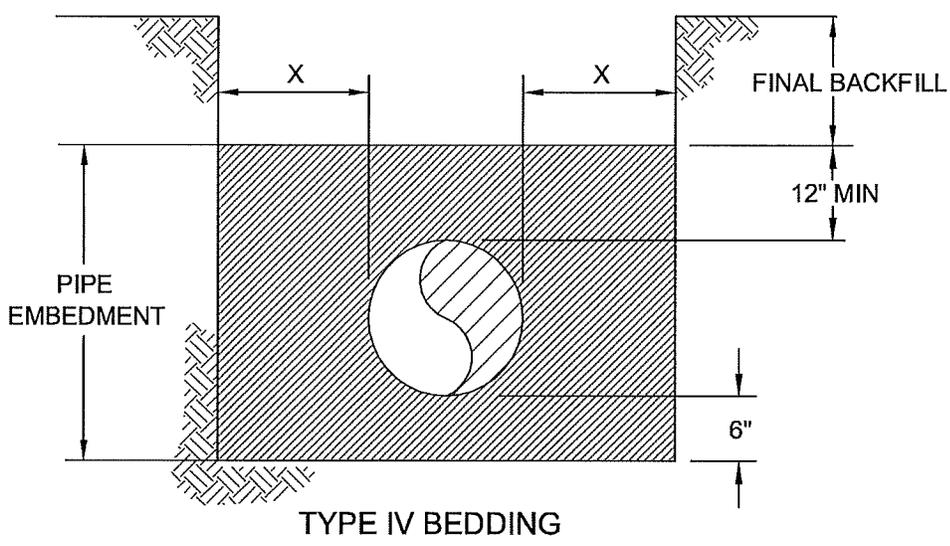
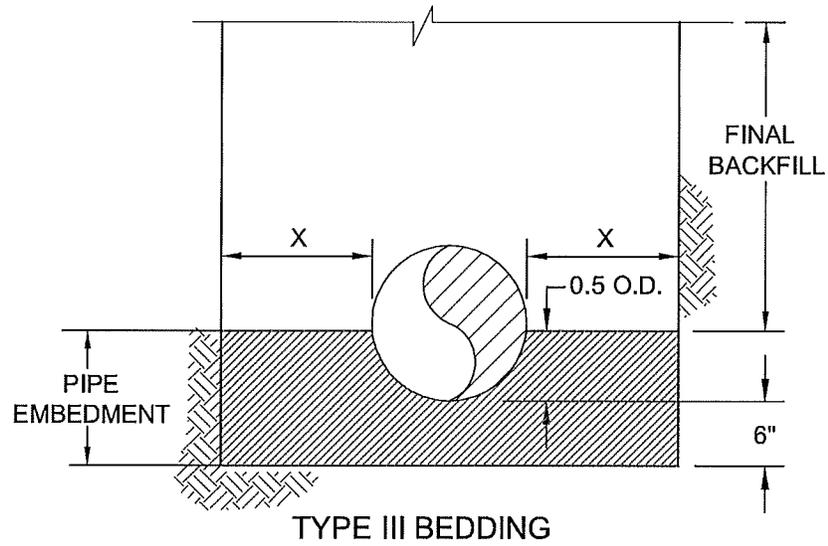
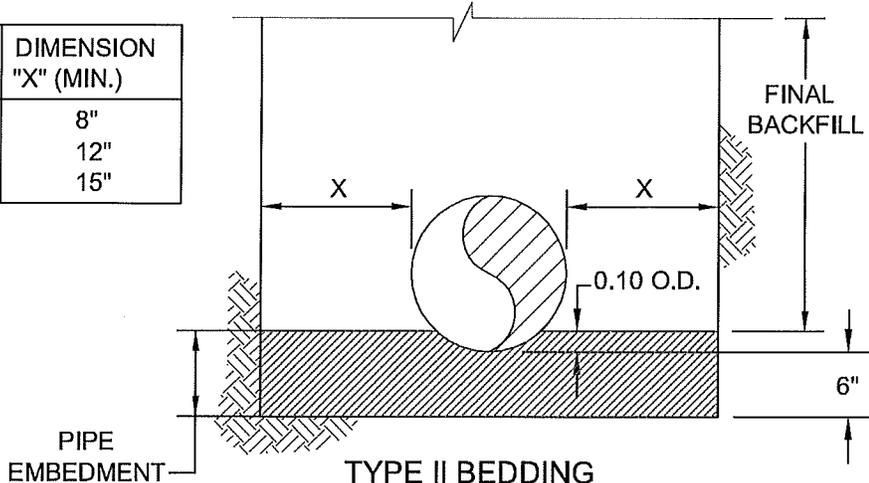
1. THE INTERIOR DIMENSIONS OF THE CATCH BASIN EQUAL 2'-6" FOR PIPE SIZES 12" THRU 18". WHERE THE PIPE SIZE IS 21" THRU 60", THE INTERIOR DIMENSIONS EQUAL 3'-0" OR THE O.D. OF THE PIPE, WHICHEVER IS GREATER, WHEN THE DEPTH DOES NOT EXCEED 4 FEET. IF THE DEPTH IS GREATER THAN 4 FEET, THE INTERIOR DIMENSIONS SHALL BE 4'-0" OR THE O.D. OF THE PIPE, WHICHEVER IS GREATER.
2. REFER TO THE VDOT ROAD AND BRIDGE STANDARDS, LATEST EDITION, - MANHOLE AND INLET SHAPING DETAIL.

CURB INLET/CATCH BASIN

NOT TO SCALE

REFERENCE	CATEGORY	DATE	SHEET No.	DETAIL No.
200,302	DRAINAGE STRUCTURES	12/10	1 OF 1	DS_04

PIPE SIZE	DIMENSION "X" (MIN.)
0"-24"	8"
27"-36"	12"
42"-72"	15"



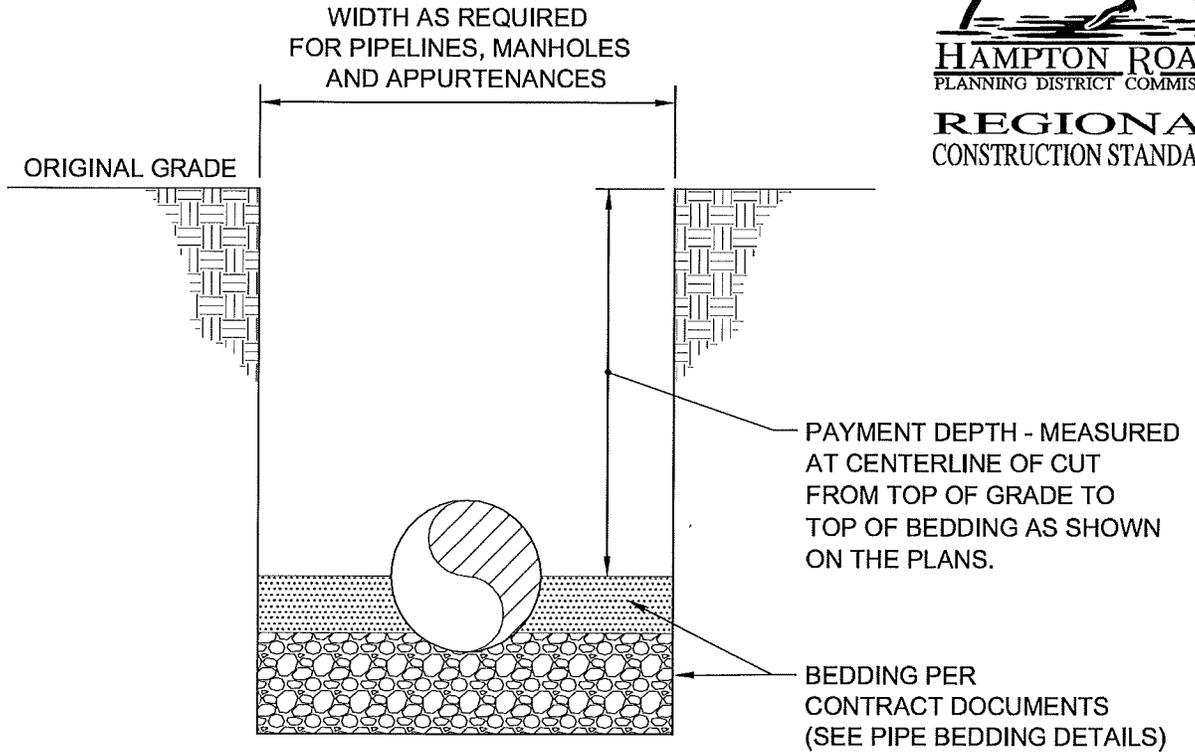
PIPE BEDDING DETAILS

NOT TO SCALE

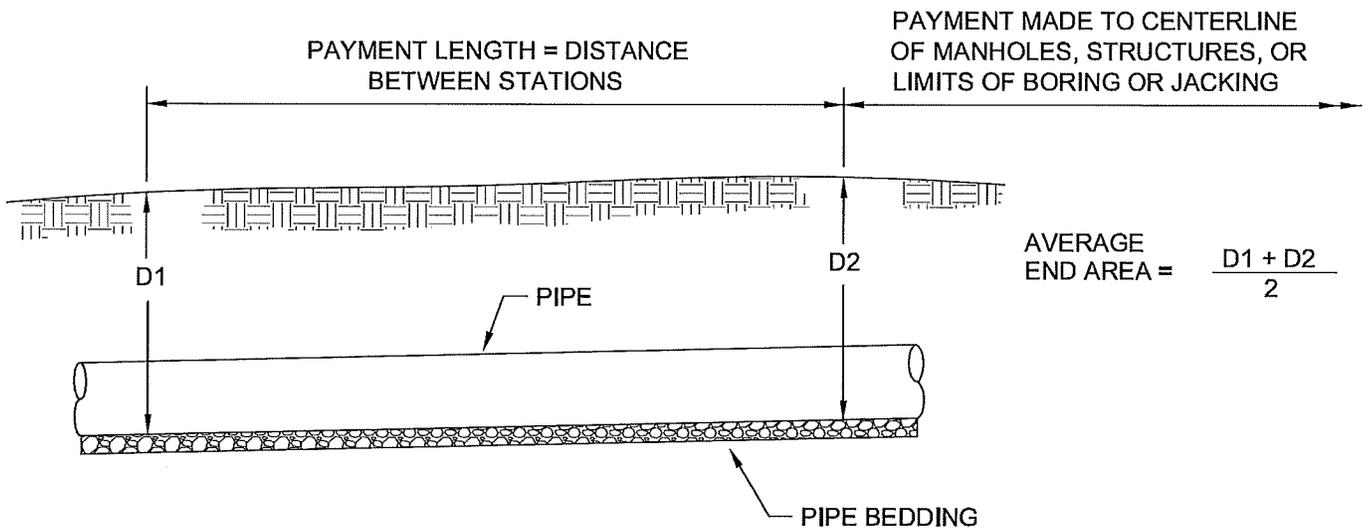
NOTES:

1. THESE BEDDING DETAILS ARE NOT INTENDED FOR THERMOPLASTIC STORM DRAINAGE PIPE
2. BEDDING MATERIAL TO BE APPROVED BY LOCALITY BEFORE USE.
3. TRENCH BOTTOM TO BE FREE OF WATER BEFORE PLACING BEDDING.
4. SHAPE RECESSES FOR BELL OF PIPE BY HAND.
5. BACKFILL ABOVE BEDDING WITH SPECIFIED BACKFILL MATERIAL. SEE SPECIFICATIONS SECTION 303.
6. REFER TO CONTRACT DOCUMENTS FOR TYPE OF BEDDING.
7. MINIMUM TRENCH WIDTH SHALL CONFORM TO PIPE MANUFACTURER'S RECOMMENDATIONS IF MORE STRINGENT.
8. TRENCH BOX OR OTHER SHORING METHODS SHALL NOT DISTURB PIPE EMBEDMENT AND BEDDING MATERIAL AFTER COMPACTION.
9. BEDDING SHALL BE INCLUDED IN THE PRICE OF THE PIPE UNLESS OTHERWISE INDICATED.

REFERENCE 200,303	CATEGORY EARTHWORK	DATE 12/10	SHEET No. 2 OF 2	DETAIL No. EW_01
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SECTION



PROFILE

SEE EW_02, SHEET 2 OF 2 FOR NOTES.

PAYMENT LIMITS
TRENCH EXCAVATION AND BACKFILL

NOT TO SCALE

REFERENCE 200,303	CATEGORY EARTHWORK	DATE 12/10	SHEET No. 1 OF 2	DETAIL No. EW_02
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NOTES:

1. PAYMENTS SHALL BE MADE USING THE AVERAGE END AREA METHOD AT THE UNIT COST PER FOOT, AT AVERAGE DEPTHS, AT 25' STATIONS BASED ON PLAN GRADES.

EXAMPLE: D1 = 10.5 FT., D2 = 7.3 FT.

$$\frac{D1 + D2}{2} = \frac{10.5 + 7.3}{2} = \frac{17.8}{2} = 8.9 \text{ FT.}$$

PAYMENTS WOULD BE MADE AT THE UNIT PRICE BID FOR 8' TO 10' DEPTH FOR THIS 25 FOOT SECTION OF TRENCH EXCAVATION AND BACKFILL.

2. IN THE EVENT THE PAYMENT DEPTH SHALL EQUAL THE UPPER LIMIT OF PAYMENT CLASSIFICATION, PAYMENT WILL BE MADE AT THE LOWEST DEPTH UNIT PRICE (e.g. PAYMENT DEPTH = 10 FT.: PAYMENT WILL BE MADE AT THE UNIT PRICE FOR 8' TO 10' DEPTH, NOT AT THE UNIT PRICE FOR 10' TO 12' DEPTH).

PAYMENT LIMITS
TRENCH EXCAVATION AND BACKFILL

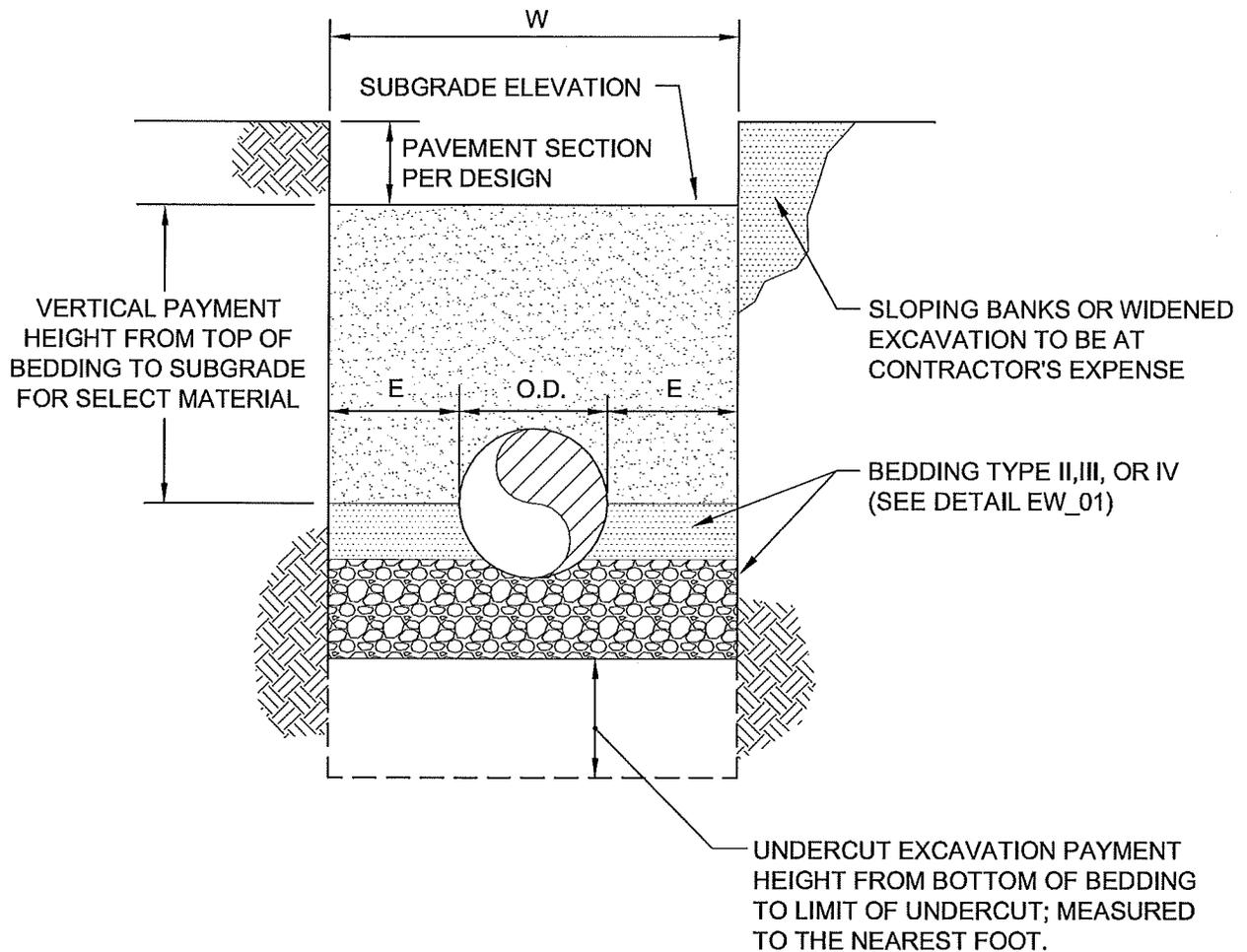
NOT TO SCALE

REFERENCE 200,303	CATEGORY EARTHWORK	DATE 12/10	SHEET No. 2 OF 2	DETAIL No. EW_02
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PIPE SIZE	DIMENSION "E"
0"-24"	8"
27"-36"	12"
42"-72"	15"

DEPTH (FT.)	DIMENSION "W"*
0-4.99	2' OR O.D.+2E
5-9.99	4' OR O.D.+2E
10-13.99	5' OR O.D.+2E
14-20	7' OR O.D.+2E
OVER 20	SPECIAL DESIGN - SEE CONTRACT DOCUMENTS

- * WIDTH FOR COMPUTING QUANTITIES OF SELECT FILL AND UNDERCUT (CONTINGENT ITEMS)
- * FOR CONTINGENT ITEMS, "W" SHALL BE THE GREATER OF THE TWO DIMENSIONS LISTED.



SEE EW_03, SHEET 2 OF 2 FOR ADDITIONAL NOTES.

TRENCH WIDTH DETAIL FOR PAYMENT OF CONTINGENT ITEMS

NOT TO SCALE

REFERENCE 200,303	CATEGORY EARTHWORK	DATE 12/10	SHEET No. 1 OF 2	DETAIL No. EW_03
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NOTES:

1. "W" = MAXIMUM PAYMENT WIDTH FOR CONTINGENT ITEMS IN TRENCH EXCAVATION.
2. VOLUMES TO BE CALCULATED BY AVERAGE END AREA METHOD AS DESCRIBED IN EW_02 AND WIDTH ("W") AS DETERMINED IN EW_03.
3. NO ADDITIONAL PAYMENT WILL BE MADE FOR EXTRA WIDTH TO ACCOMMODATE MANHOLES OR OTHER APPURTENANCES.
4. MEASUREMENT OF LENGTH TO BE ALONG CENTERLINE OF PIPE FROM START TO FINISH OF CONTINGENT ITEM.
5. CONTINGENT ITEMS INCLUDE SELECT MATERIAL, SELECT BEDDING AND UNDERCUT EXCAVATION.
6. TONNAGE FOR CONTINGENT ITEMS SHALL BE COMPUTED USING THE UNIT WEIGHTS AS SPECIFIED FOR THE TYPE OF MATERIAL WITH VOLUMES DERIVED AS FOLLOWS:
#57 STONE = 100 LBS./CUBIC FOOT
#21A, 21B, OR 26 STONE = 138 LBS./CUBIC FOOT
SAND (VDOT GRADE A) = 110 LBS./CUBIC FOOT

**TRENCH WIDTH DETAIL FOR
PAYMENT OF CONTINGENT ITEMS**

NOT TO SCALE

<i>REFERENCE</i> 200,303	<i>CATEGORY</i> EARTHWORK	<i>DATE</i> 12/10	<i>SHEET No.</i> 2 OF 2	<i>DETAIL No.</i> EW_03
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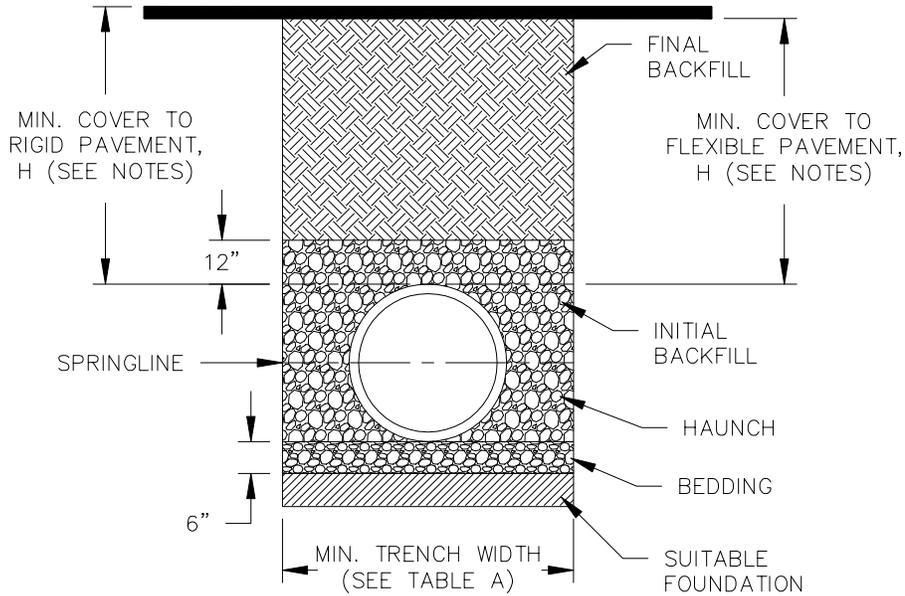


TABLE A- RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

TABLE B- RECOMMENDED MAXIMUM HEIGHT OF COVER

PIPE DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER FEET
12	0.8	21
15	1.2	21
18	1.8	20
24	3.1	20
30	4.9	19
36	7.1	18
42	7.1	18
48	7.1	17

TABLE C- RECOMMENDED MINIMUM HEIGHT OF COVER DURING CONSTRUCTION

PIPE DIAMETER	MINIMUM COVER HEIGHT DURING CONSTRUCTION
12" TO 30"	18"
36" AND ABOVE	1/2 DIAMETER

TABLE D MINIMUM RECOMMENDED COVER BASED ON RAILWAY LOADING CONDITIONS **

PIPE DIAM.	COOPER E-80***
UP TO 24"	24"
30"-36"	36"
42"-60"	48"

** COVER IS MEASURED FROM TOP OF PIPE TO BOTTOM OF RAILWAY TIE.

*** E-80 COVER REQUIREMENTS, ARE ONLY APPLICABLE TO ASTM F 2306 PIPE.

TYPICAL TRENCH DETAIL FOR HDPE (TYPE S) STORM DRAIN PIPE

NOT TO SCALE

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS OR AS MODIFIED BY THE OWNER.
2. TRENCH BOX OR OTHER SHORING METHODS SHALL NOT DISTURB THE PIPE BEDDING AND BACKFILL MATERIALS AFTER THEIR COMPACTION.
3. WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH INDICATED ON THE DRAWINGS OR AS DIRECTED BY THE OWNER AND REPLACE WITH BEDDING MATERIAL.
4. BEDDING MATERIAL SHALL BE CRUSHED STONE OR VDOT NO. 57 STONE IN ACCORDANCE WITH SPECIFICATION SECTION 303 UNLESS OTHERWISE NOTED ON THE DRAWINGS OR REQUIRED BY THE OWNER. MINIMUM BEDDING THICKNESS SHALL BE 6-INCHES.
5. BACKFILL MATERIAL SHALL CONFORM TO THE FOLLOWING:
 - A. INITIAL BACKFILL:
VDOT AGGREGATE NO. 25, 26, 21A OR 21B; AS INDICATED ON THE DRAWINGS OR AS DIRECTED BY THE OWNER, SHALL BE INSTALLED AS INITIAL BACKFILL IN THE PIPE ZONE EXTENDING NOT LESS THAN 12-INCHES ABOVE THE CROWN OF PIPE. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
 - B. FINAL BACKFILL:
FINAL BACKFILL MATERIALS SHALL BE THE SAME AS THE INITIAL BACKFILL UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR DIRECTED BY THE OWNER.
6. MINIMUM COVER (H):

TRAFFIC APPLICATIONS – MINIMUM COVER SHALL BE 24-INCHES, UNLESS MODIFIED BY THE LOCALITY, FOR UP TO 60-INCH DIAMETER PIPE, MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF FLEXIBLE PAVEMENT OR TO THE TOP OF RIGID PAVEMENT.

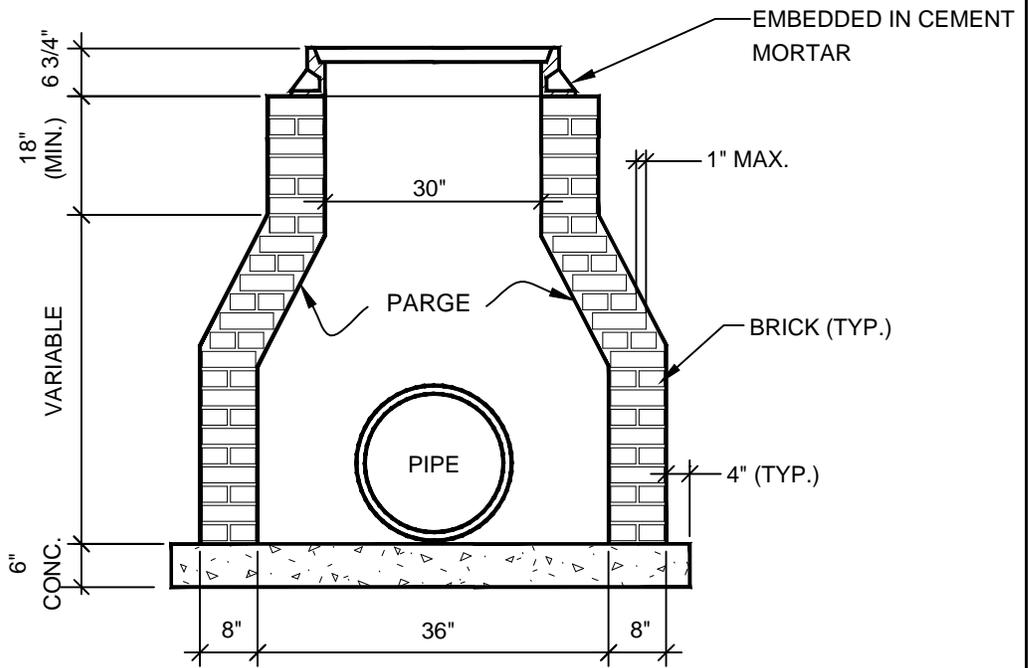
NON-TRAFFIC APPLICATIONS – MINIMUM COVER IN GRASS OR LANDSCAPE AREA IS 12-INCHES FROM THE TOP OF THE PIPE TO GROUND SURFACE.

ENTRANCES – THE MINIMUM FINISHED COVER IS 9-INCHES FOR PIPE DIAMETERS LESS THAN OR EQUAL TO 24-INCH. FOR PIPE DIAMETERS GREATER THAN 24-INCHES, THE MINIMUM COVER SHALL BE 12-INCHES OR 1/8 THE PIPE DIAMETER, WHICHEVER IS GREATER. WHERE THE SURFACE OVER THE TOP OF THE PIPE WILL BE ASPHALT, A MINIMUM OF 6-INCHES OF SELECT BACKFILL MATERIAL SHALL BE PLACED BETWEEN THE TOP OF THE PIPE AND THE BOTTOM OF THE ASPHALT.

TYPICAL TRENCH DETAIL FOR HDPE (TYPE S) STORM DRAIN PIPE

NOT TO SCALE

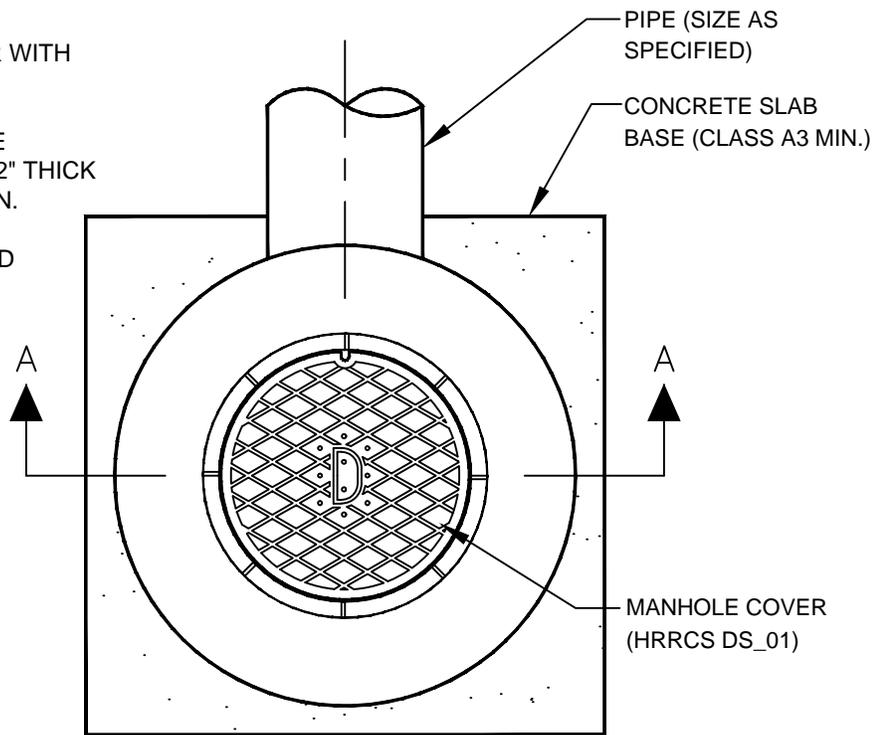
<i>REFERENCE</i> 200, 302, 303	<i>CATEGORY</i> EARTHWORK	<i>DATE</i> 12/10	<i>SHEET No.</i> 2 OF 2	<i>DETAIL No.</i> EW_04
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SECTION A - A

NOTES:

1. 4" BRICK, AASHTO M91, GRADE SM, SHALL BE LAID IN CEMENT MORTAR WITH SHOVED JOINTS NOT TO EXCEED 3/8" THICK. INTERIOR FACE SHALL BE PLASTERED WITH MIN. 1/2" THICK CEMENT MORTAR, TYPE N.
2. INVERT SHALL BE SHAPED IN ACCORDANCE WITH VDOT STANDARD IS-1



PLAN

CITY OF NORFOLK



DEPT. OF PUBLIC WORKS

DESCRIPTION

STANDARD MANHOLE

DESIGNATION

HS-104

SCALE

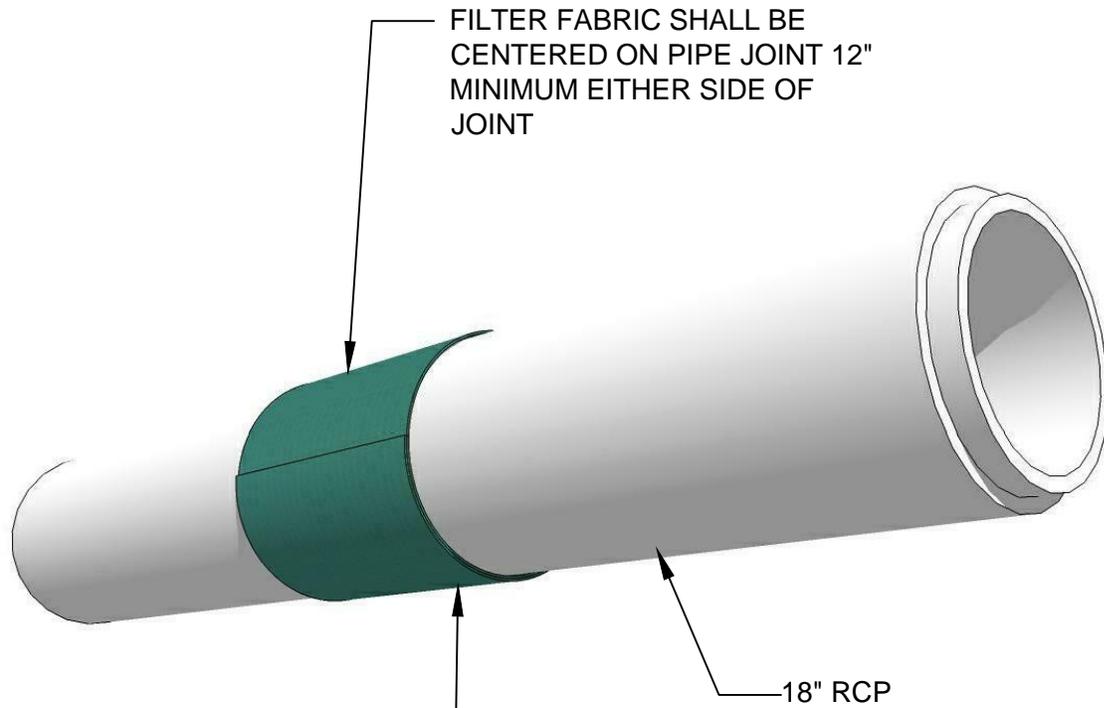
NOT TO SCALE

EDITION

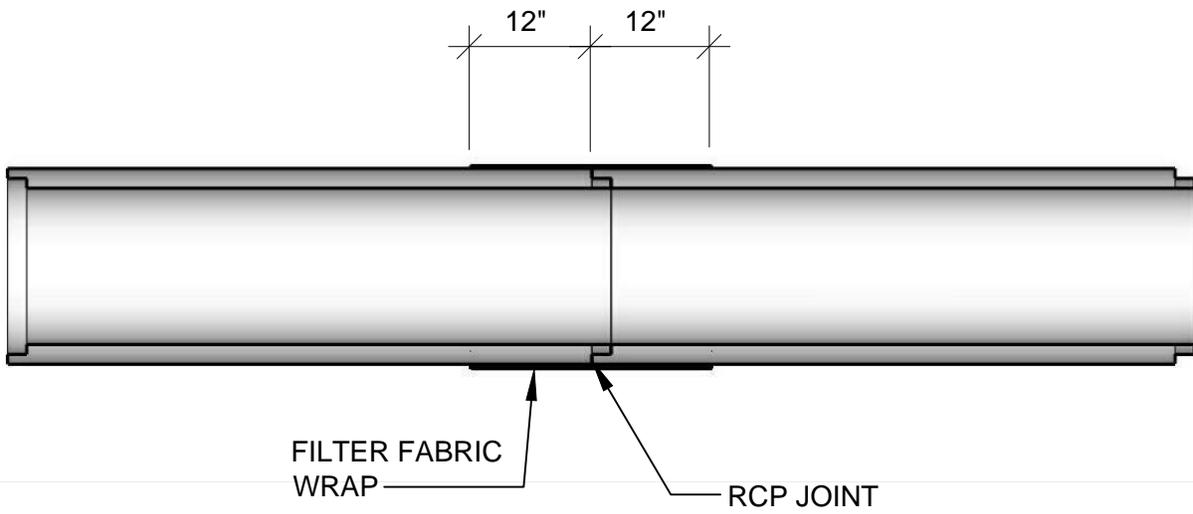
NCDS2014.06

REVISED

JUNE 2014



FILTER FABRIC SHALL WRAP AROUND OUTER DIAMETER OF RCP 1 1/2 TIMES MINIMUM.

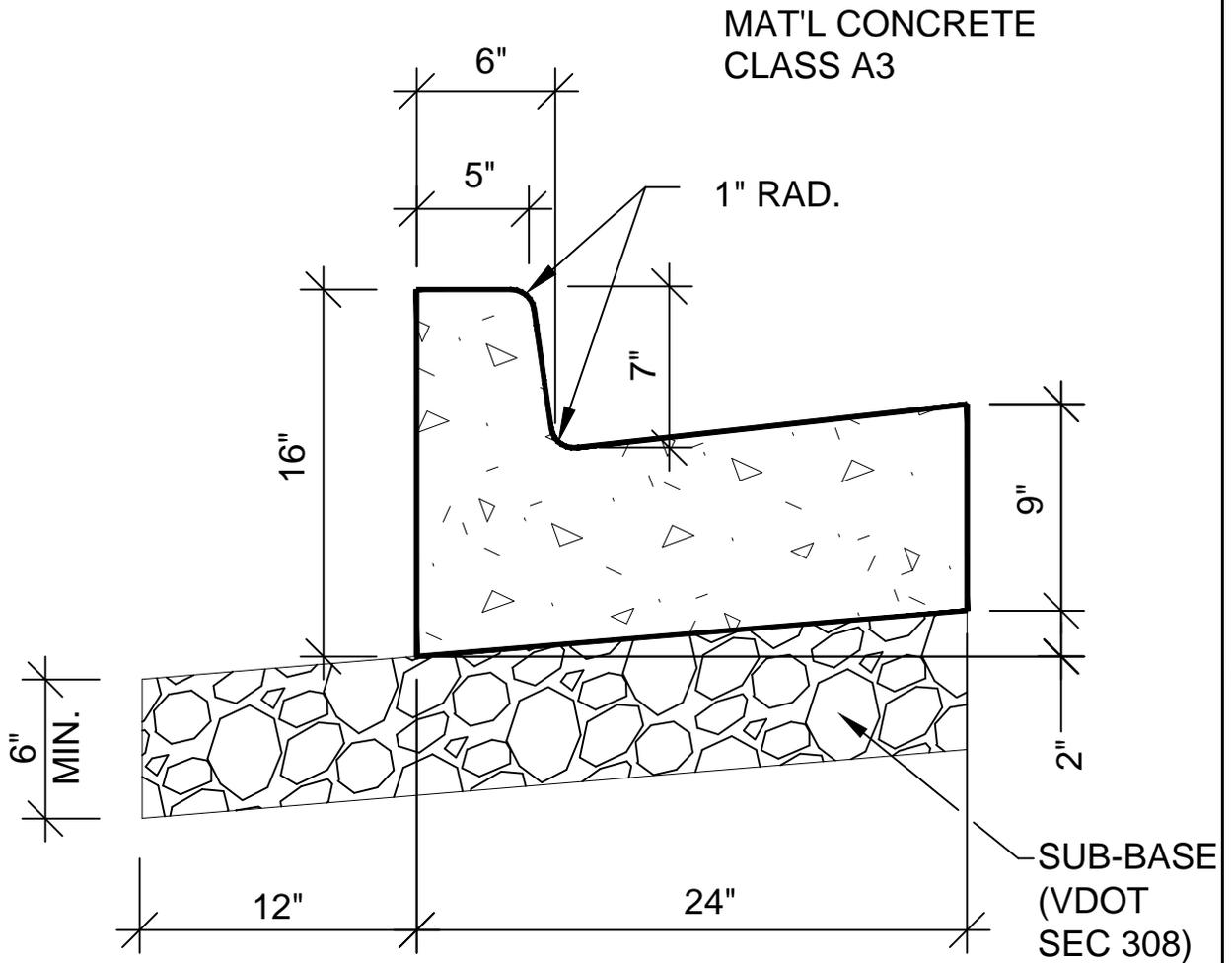


SECTION

NOTE

FILTER FABRIC SHALL BE NONWOVEN GEOTEXTILE CONSTRUCTION FABRIC (ACF ENVIRONMENTAL #35)

 <p>CITY OF NORFOLK DEPT. OF PUBLIC WORKS</p>	<p>DESCRIPTION</p> <p>FABRIC JOINT WRAP</p> <p>SCALE: NOT TO SCALE</p> <p>EDITION: NCDS2014.06</p> <p>REVISED: MARCH 2013</p>	<p>DESIGNATION</p> <p>HS-106</p>
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CITY OF NORFOLK



DEPT. OF PUBLIC WORKS

DESCRIPTION

7" CURB AND GUTTER

DESIGNATION

HS-202

SCALE

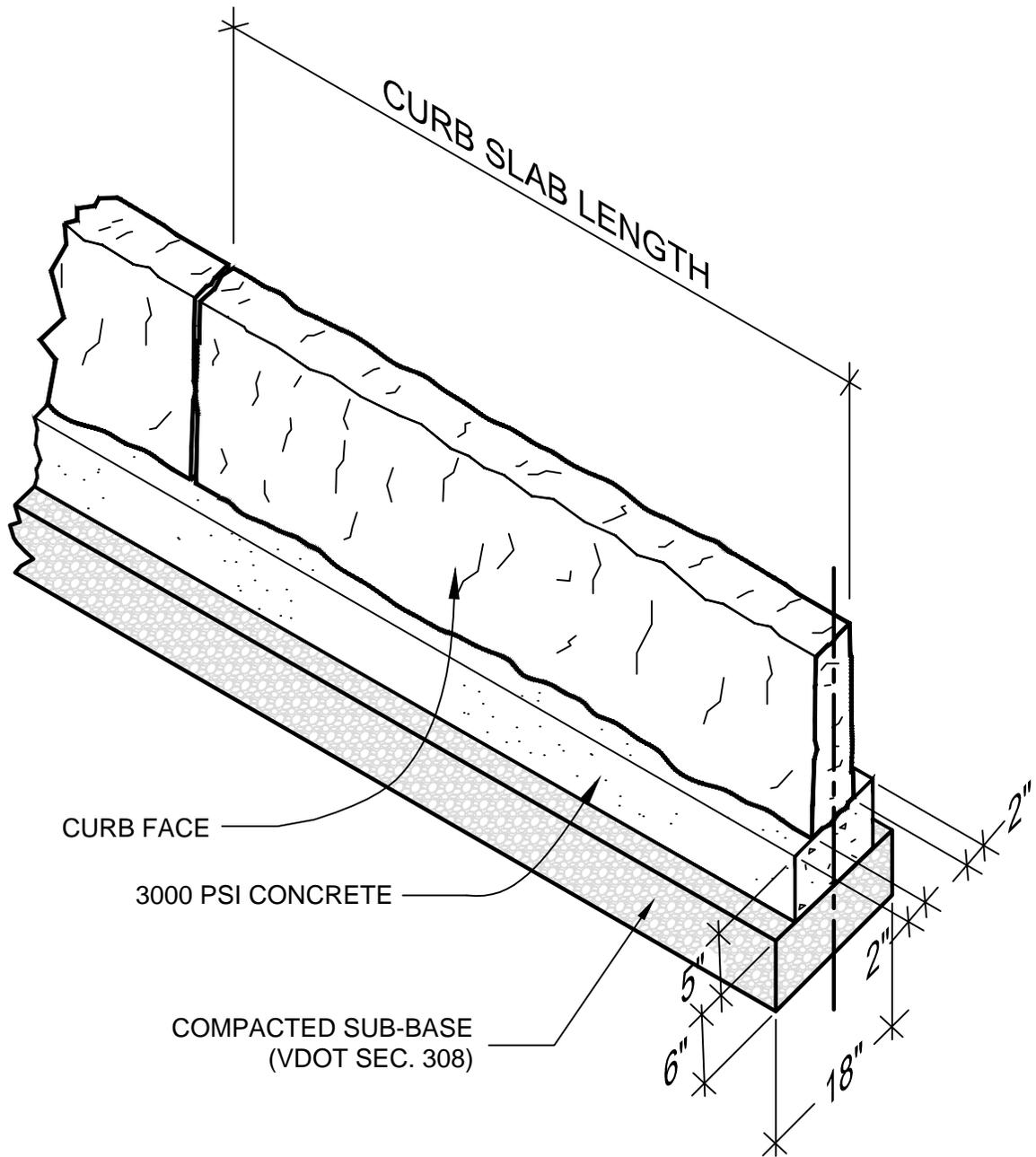
NOT TO SCALE

EDITION

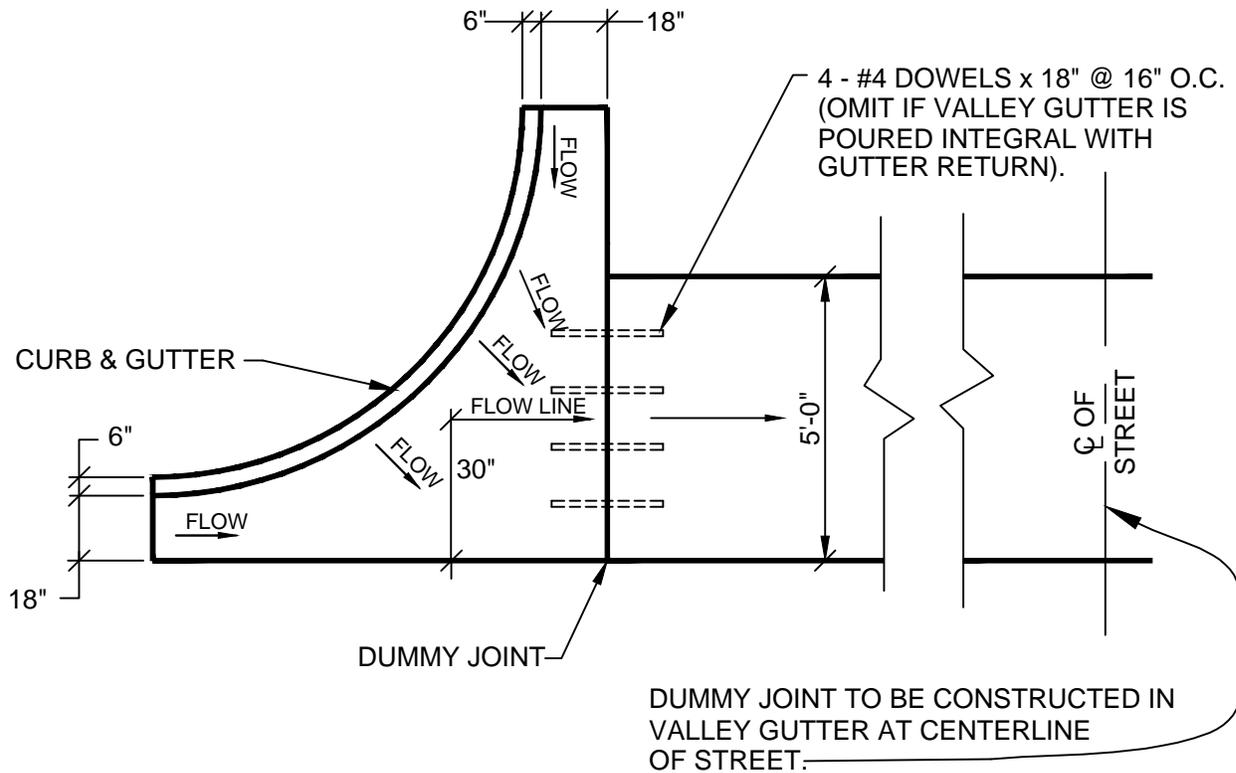
NCDS2014.06

REVISED

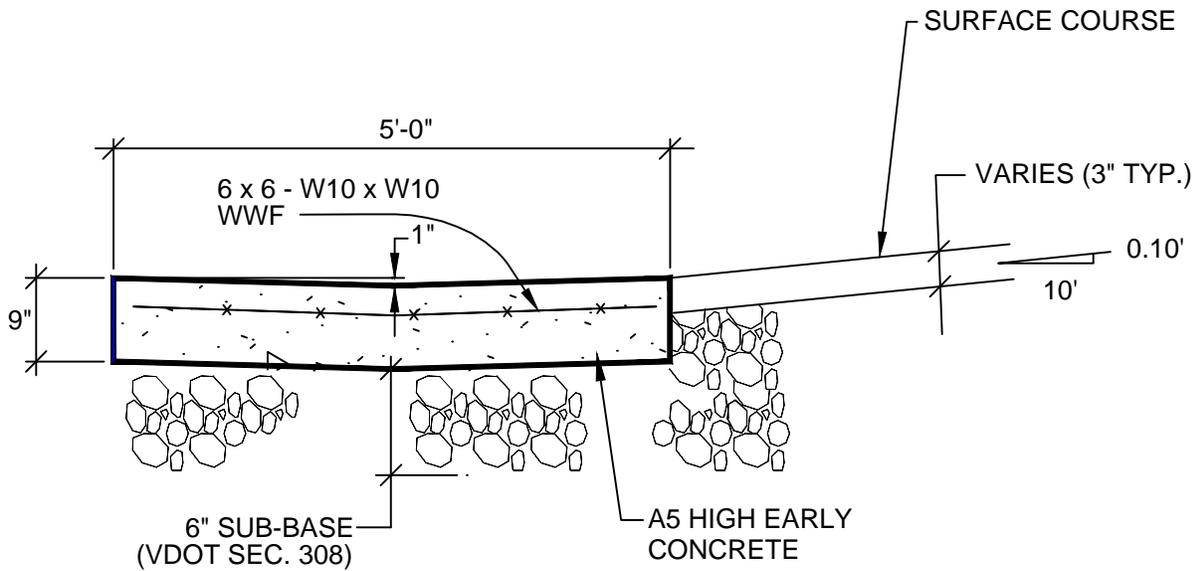
JUN. 2014



<p>CITY OF NORFOLK</p>  <p>DEPT. OF PUBLIC WORKS</p>	<p>DESCRIPTION</p> <p>METHOD OF SETTING GRANITE CURB</p> <p>SCALE: NOT TO SCALE</p> <p>EDITION: NCDS2014.06</p> <p>REVISED: JUNE 2014</p>	<p>DESIGNATION</p> <p>HS-203</p>
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PLAN VIEW

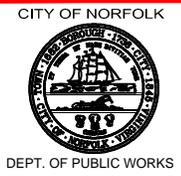
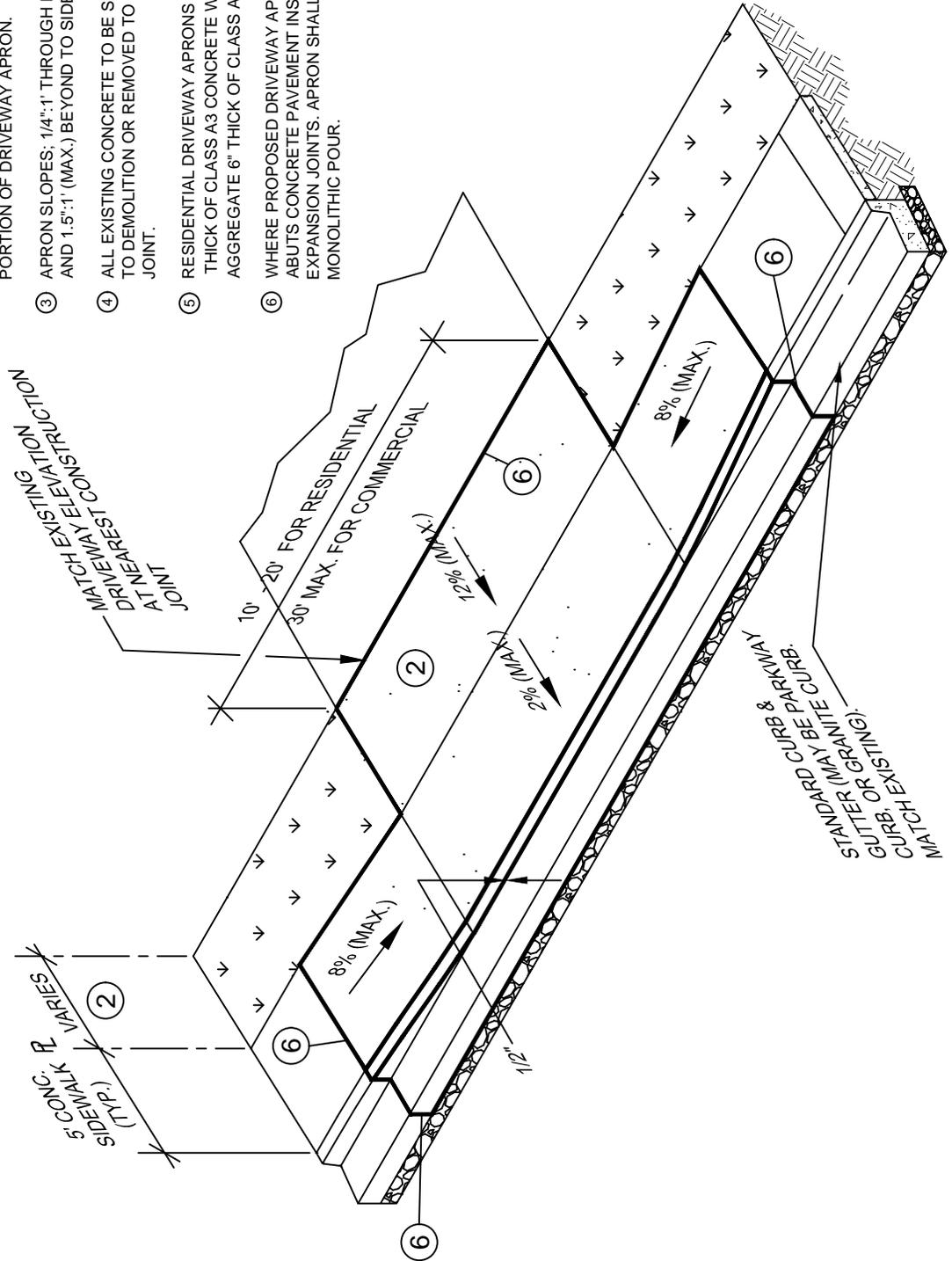


SECTION AT CL

 CITY OF NORFOLK DEPT. OF PUBLIC WORKS	DESCRIPTION		DESIGNATION
	STANDARD VALLEY GUTTER		HS-205
SCALE	EDITION	REVISED	
NOT TO SCALE	NCDS2014.06	JUNE 2014	

NOTES

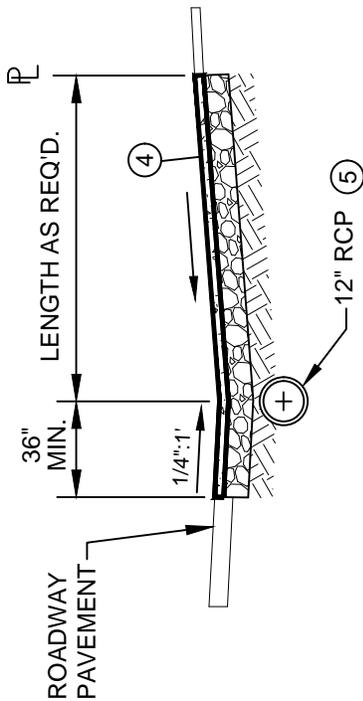
- ① APRONS SHALL BE CONSTRUCTED AT LEAST 3 FT. FROM ALL UTILITY POLES, FIRE HYDRANTS, TELEPHONE PEDESTALS, ETC.
- ② PERMISSION FROM PROPERTY OWNER SHALL BE ACQUIRED BEFORE CONSTRUCTING THIS PORTION OF DRIVEWAY APRON.
- ③ APRON SLOPES; 1/4":1" THROUGH FIRST 3' (MIN.) AND 1.5":1" (MAX.) BEYOND TO SIDEWALK.
- ④ ALL EXISTING CONCRETE TO BE SAW-CUT PRIOR TO DEMOLITION OR REMOVED TO NEAREST JOINT.
- ⑤ RESIDENTIAL DRIVEWAY APRONS SHALL BE 6" THICK OF CLASS A3 CONCRETE WITH 6" OF AGGREGATE 6" THICK OF CLASS A3.
- ⑥ WHERE PROPOSED DRIVEWAY APRON ABUTS CONCRETE PAVEMENT INSTALL 1/2" EXPANSION JOINTS. APRON SHALL BE A MONOLITHIC POUR.



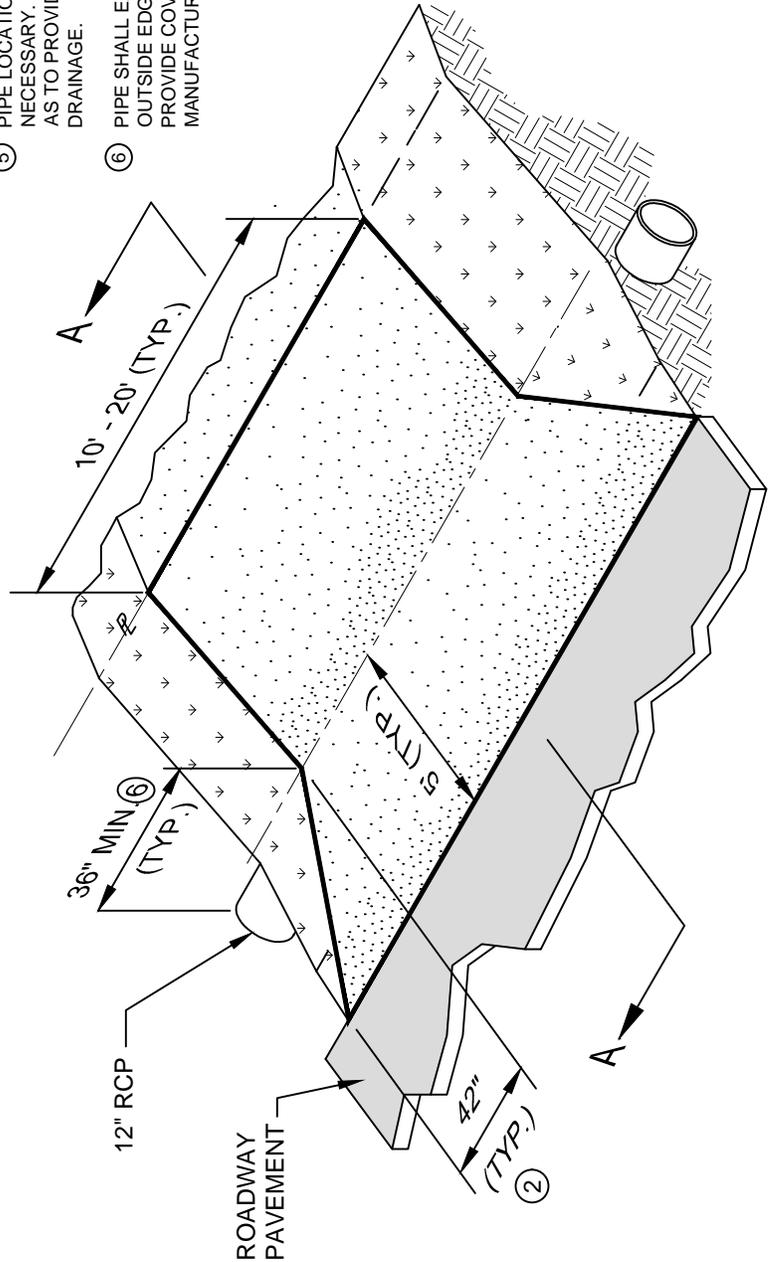
DESCRIPTION		DESIGNATION
ADA VARIATION OF DRIVEWAY APRON		HS-208
SCALE	EDITION	REVISED
NOT TO SCALE	NCDS2014.06	JUNE 2014

NOTES

- ① APRONS SHALL BE CONSTRUCTED AT LEAST 3 FT. FROM ALL UTILITY POLES, FIRE HYDRANTS, TELEPHONE PEDESTALS, ETC.
- ② APRON FLARES OR ANY OTHER PART OF THE DRIVEWAY APRON SHALL NOT ENCROACH ONTO THE ADJACENT PROPERTY.
- ③ APRON SLOPES:
RECOMMENDED: 1/2": 1'
NOT TO EXCEED: 1-1/4": 1'
NOT TO EXCEED: 1/4": 1' ACROSS PEDESTRIAN CROSSING (WHERE APPLICABLE)
- ④ RESIDENTIAL DRIVEWAY APRONS SHALL BE 2" BITUMINOUS CONCRETE SURFACE MIX OVER 8" COMPACTED AGGREGATE BASE OR 6" OF CLASS A3 CONCRETE, MONOLITHICALLY POURED.
- ⑤ PIPE LOCATION MAY VARY WITHIN THE R.O.W. AS NECESSARY. THE PIPE SHALL BE INSTALLED SO AS TO PROVIDE AND MAINTAIN POSITIVE DRAINAGE.
- ⑥ PIPE SHALL EXTEND 3' (MIN.) BEYOND FARTHEST OUTSIDE EDGE OF ENTRANCE AT CROSSING. PROVIDE COVER AS SPECIFIED BY MANUFACTURER.



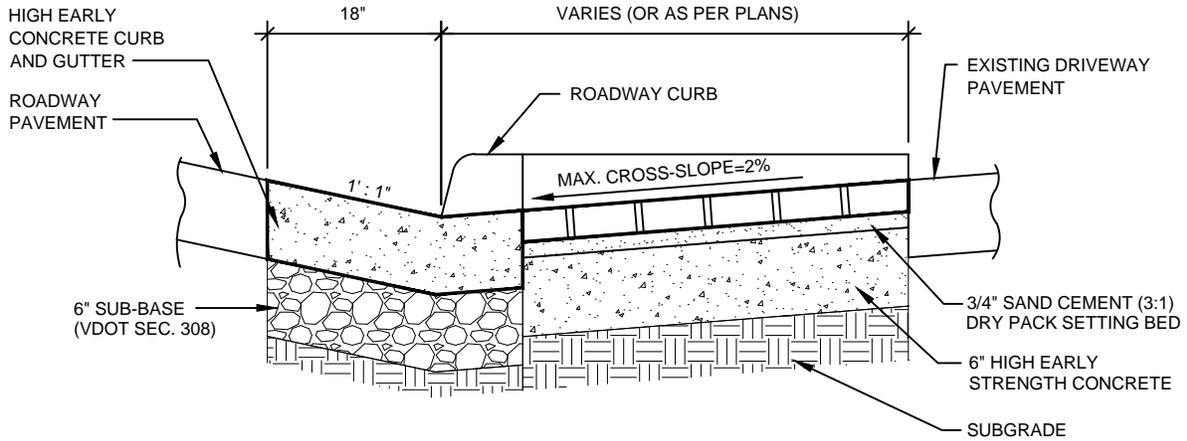
SECTION A - A



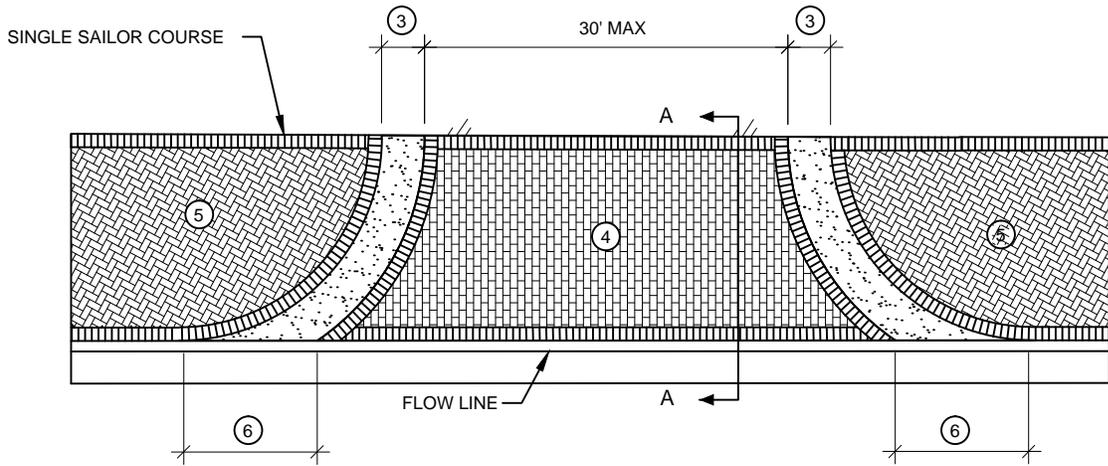
CITY OF NORFOLK

 DEPT. OF PUBLIC WORKS

DESCRIPTION		DESIGNATION
STANDARD RESIDENTIAL DRIVEWAY APRON WITHOUT CURB AND GUTTER		HS-209
SCALE NOT TO SCALE	EDITION NCDS2014.06	REVISED DECEMBER 2007

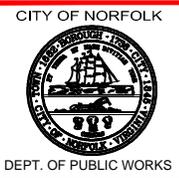


SECTION A - A

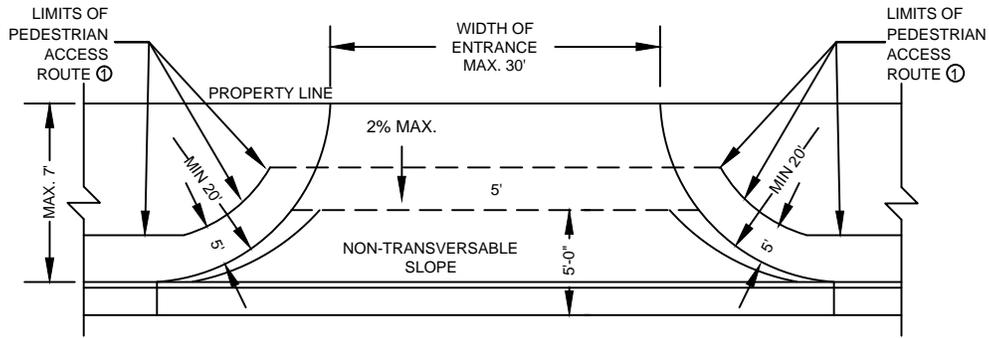


NOTES

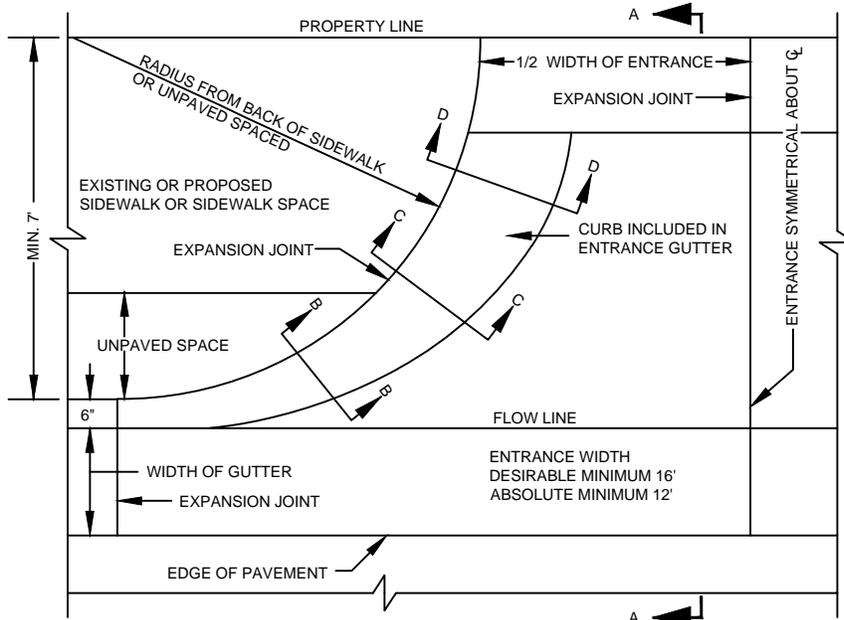
- ① APRONS SHALL BE CONSTRUCTED AT LEAST 3 FEET FROM ALL UTILITY POLES, FIRE HYDRANTS, TELEPHONE PEDESTALS, ETC.
- ② APRON FLARES AND ANY OTHER PART OF THE DRIVEWAY, SHALL NOT ENCROACH ONTO ADJACENT PROPERTY.
- ③ 24" WIDE CONCRETE TRANSITION STRIP; RADIUS AS PER PLANS.
- ④ HEAVY VEHICULAR PAVERS
 SIZE: 4" X 8" X 2 3/4", TYPE F
 COLOR: ENGLISH EDGE DARK ACCENT
 PATTERN: RUNNING BOND
 MANUFACTURED BY: PINE HALL BRICK COMPANY, WINSTON SALEM, NC OR APPROVED EQUAL
- ⑤ SIDEWALK BRICK PAVER
 SIZE: 4" X 8" X 2 1/4"
 COLOR: PATHWAY FULL RANGE (FR)
 PATTERN: 45° HERRINGBONE
 MANUFACTURED BY: PINE HALL BRICK COMPANY, WINSTON SALEM, NC OR APPROVED EQUAL
- ⑥ WIPE DOWN CURB ALONG CONCRETE STRIP



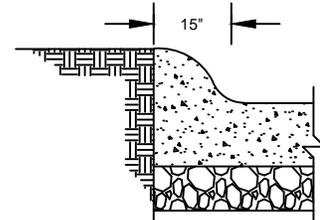
CITY OF NORFOLK		DESCRIPTION	DESIGNATION
DEPT. OF PUBLIC WORKS		COMMERCIAL BRICK DRIVEWAY APRON	
		SCALE NOT TO SCALE	EDITION NCDS2014.06
		REVISED JUNE 2014	HS-210



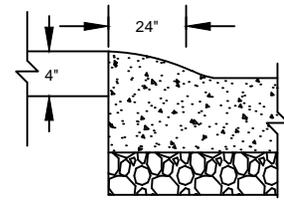
PEDESTRIAN ACCESS ROUTE DETAIL



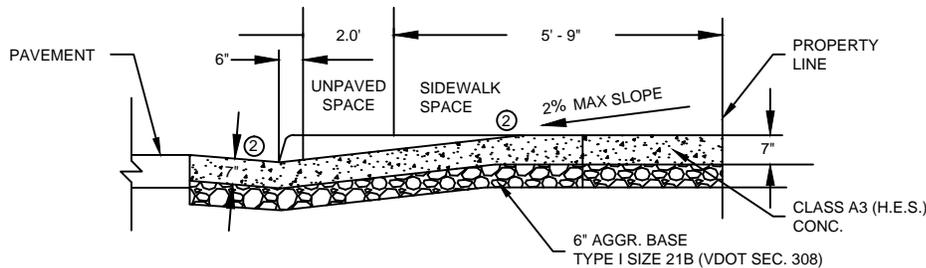
HALF PLAN



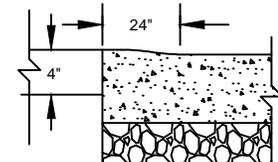
SECTION B-B



SECTION C-C



SECTION A - A



SECTION D-D

NOTES:

- ① ADDITIONAL RIGHT -OF-WAY IS REQUIRED IF THE LIMITS OF PEDESTRIAN ACCESS ROUTE EXTENDS BEYOND EXISTING OR PROPOSED RIGHT-OF-WAY.
- ② POINT OF GRADE CHANGE.

CITY OF NORFOLK



DEPT. OF PUBLIC WORKS

DESCRIPTION

STANDARD COMMERCIAL DRIVEWAY APRON

DESIGNATION

HS-212

SCALE

NOT TO SCALE

EDITION

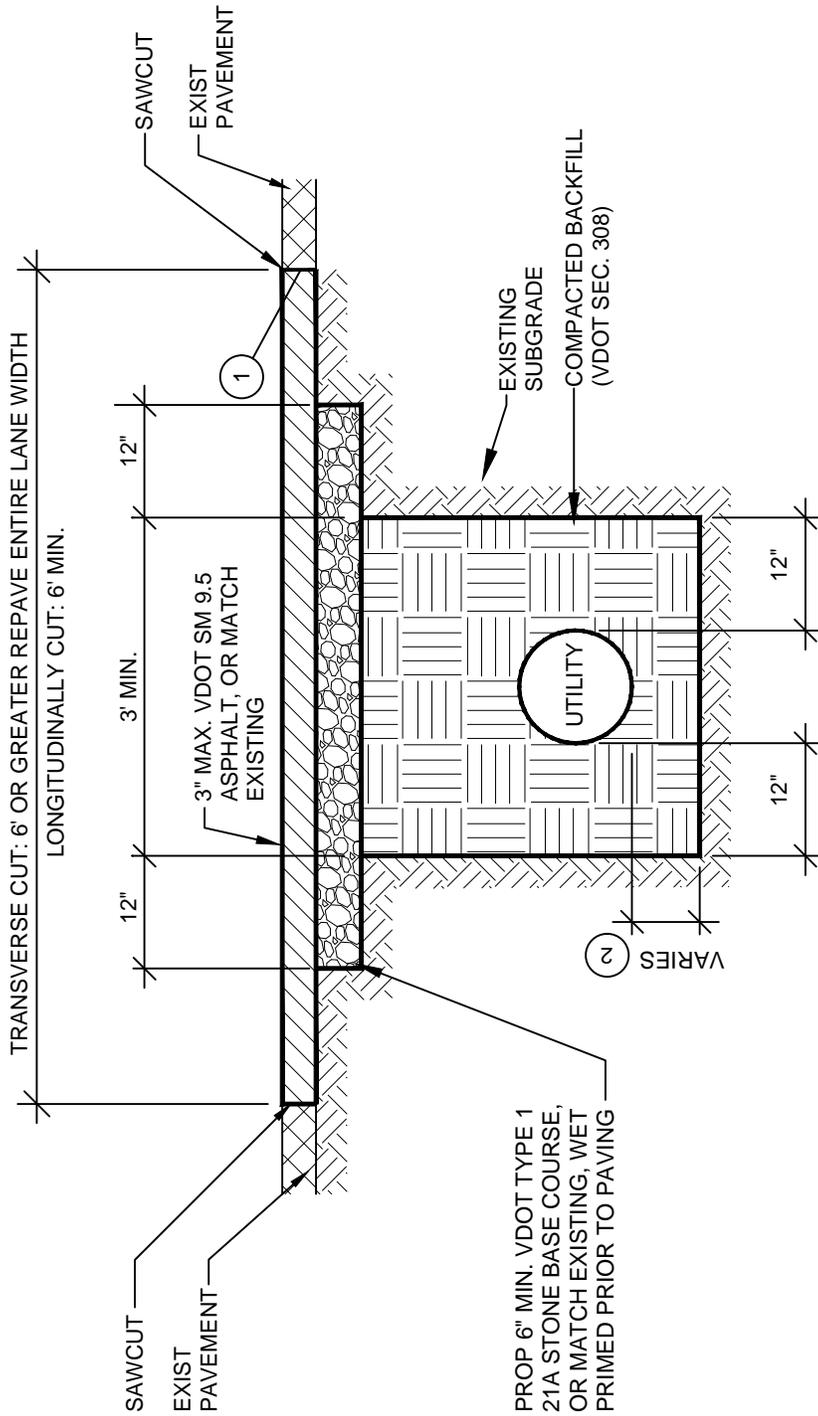
NCDS2014.06

REVISED

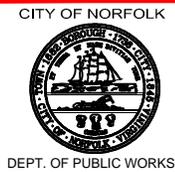
JUNE 2014

NOTES

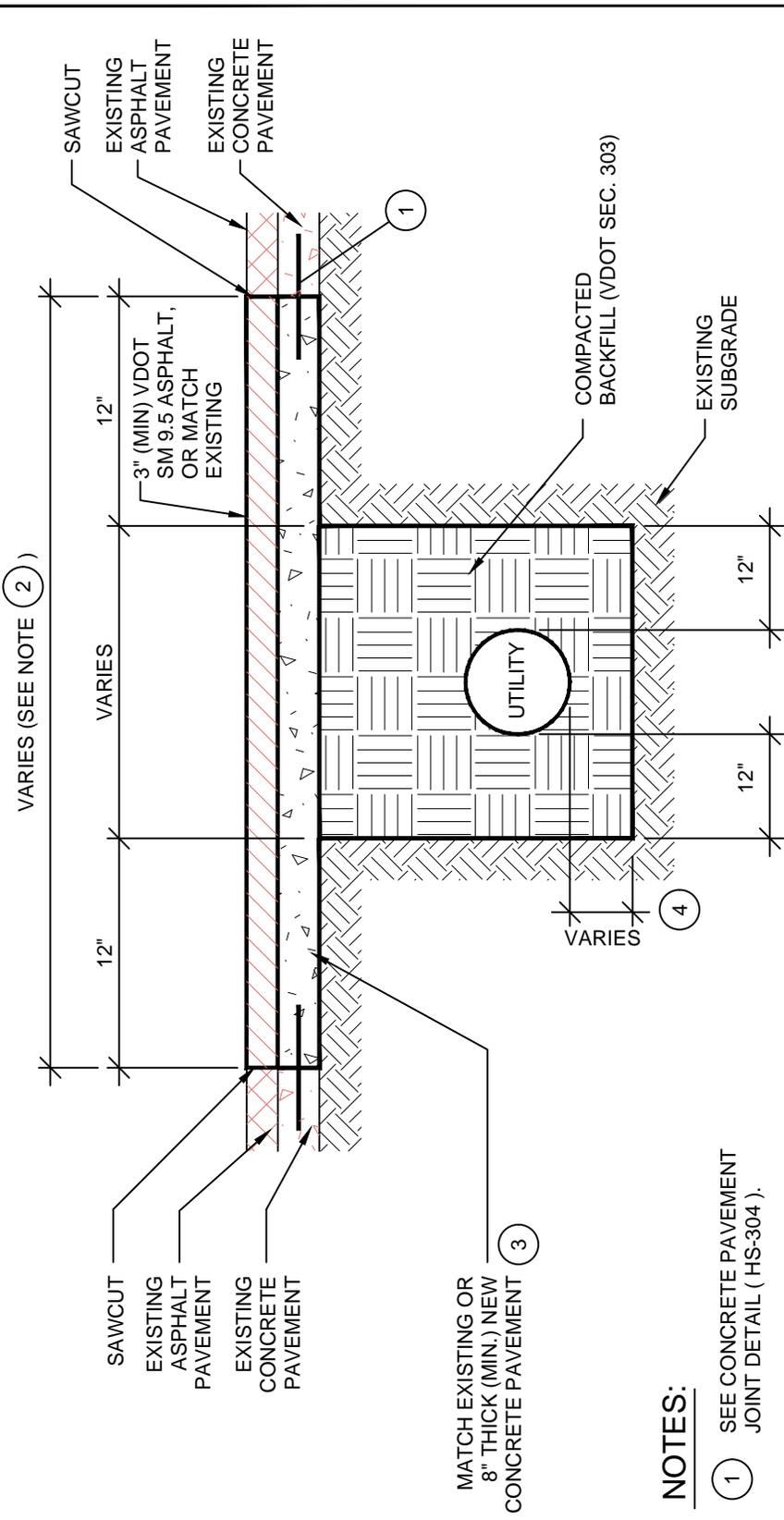
- ① TACK COAT: CRS-1 OR RC-250 @ 0.10 GAL. PER SQUARE YARD ALL VERTICAL SURFACES.
- ② REFER TO UTILITY PIPE BEDDING SPECIFICATIONS.



**TYPE I
 (BITUMINOUS ASPHALT OVER STONE)**



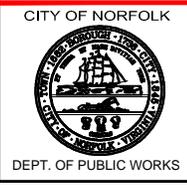
DESCRIPTION		DESIGNATION
STANDARD PAVEMENT REPLACEMENT ASPHALT OVER STONE		HS-301
SCALE	EDITION	REVISED
NOT TO SCALE	NCDS2014.06	JUNE 2014



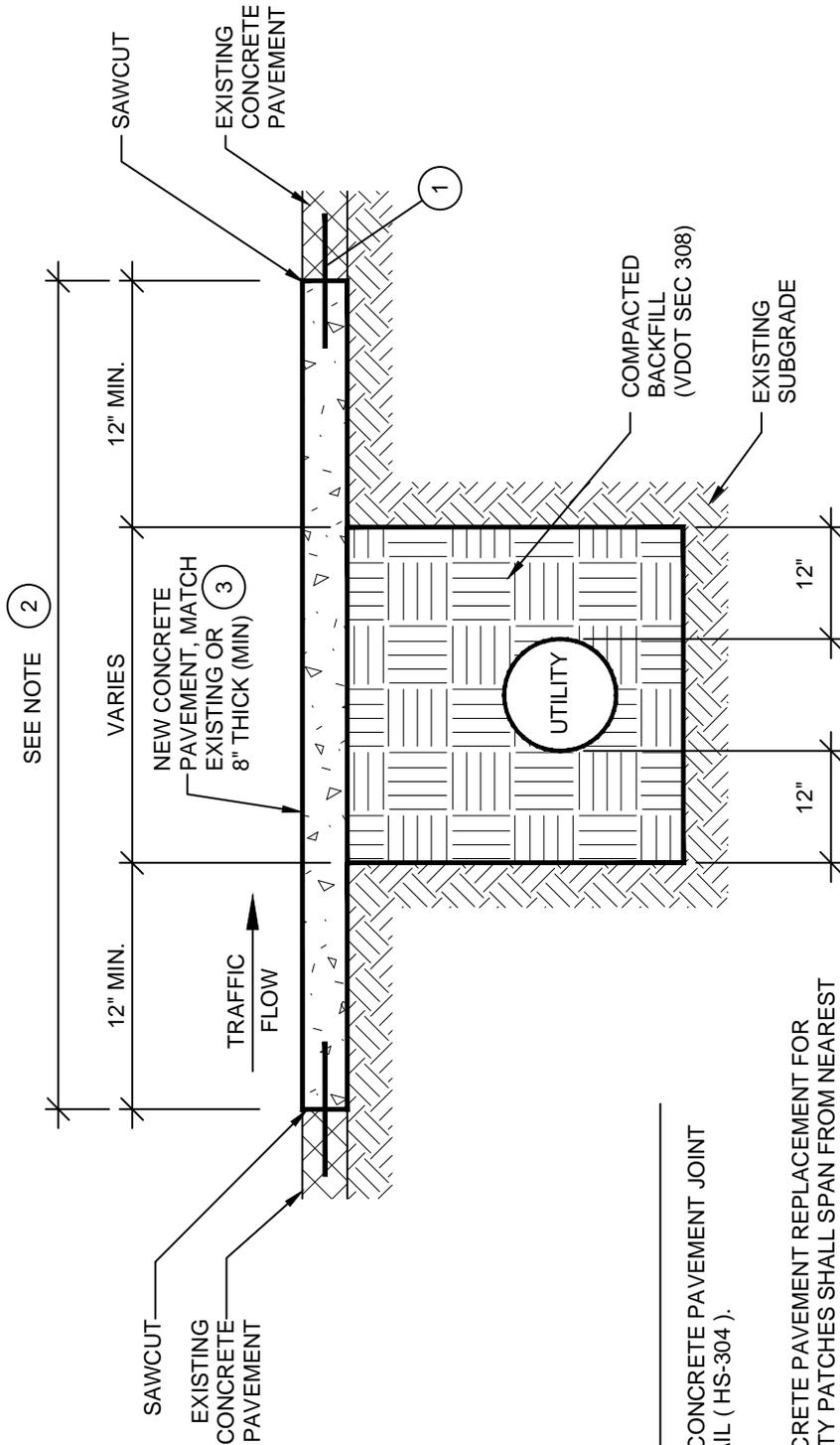
**TYPE II
 (BITUMINOUS ASPHALT OVER CONCRETE)**

NOTES:

- ① SEE CONCRETE PAVEMENT JOINT DETAIL (HS-304).
- ② LIMITS OF RESTORATION ARE DEFINED IN THE RIGHT-OF WAY EXCAVATION AND RESTORATION MANUAL.
- ③ CONCRETE SHALL BE CLASS A3 OR CLASS A5 EARLY STRENGTH CONCRETE.
- ④ REFER TO UTILITY PIPE BEDDING SPECIFICATIONS.



DESCRIPTION		DESIGNATION
STANDARD PAVEMENT REPLACEMENT ASPHALT OVER CONCRETE		HS-302
SCALE	EDITION	REVISED
NOT TO SCALE	NCDS2014.06	JUNE 2014



NOTES

- 1 SEE CONCRETE PAVEMENT JOINT DETAIL (HS-304).
- 2 CONCRETE PAVEMENT REPLACEMENT FOR UTILITY PATCHES SHALL SPAN FROM NEAREST TRAVERSE JOINT TO TRAVERSE JOINT AND FROM LONGITUDINAL JOINT TO LONGITUDINAL JOINT. DEFINED IN THE RIGHT-OF-WAY EXCAVATION AND RESTORATION MANUAL.
- 3 CONCRETE SHALL BE CLASS A3 OR CLASS A5 EARLY STRENGTH CONCRETE.

**TYPE III
(CONCRETE)**

CITY OF NORFOLK



DEPT. OF PUBLIC WORKS

DESCRIPTION

**STANDARD PAVEMENT REPLACEMENT
CONCRETE**

DESIGNATION

HS-303

SCALE

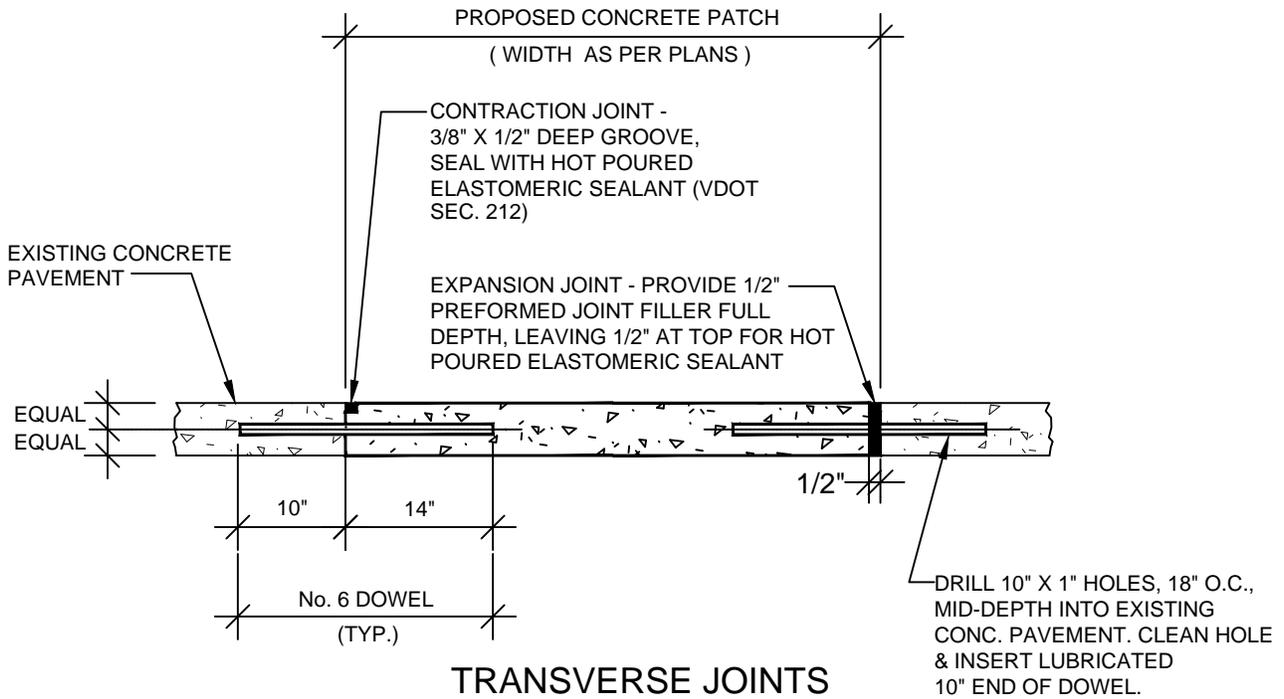
NOT TO SCALE

EDITION

NCDS2014.06

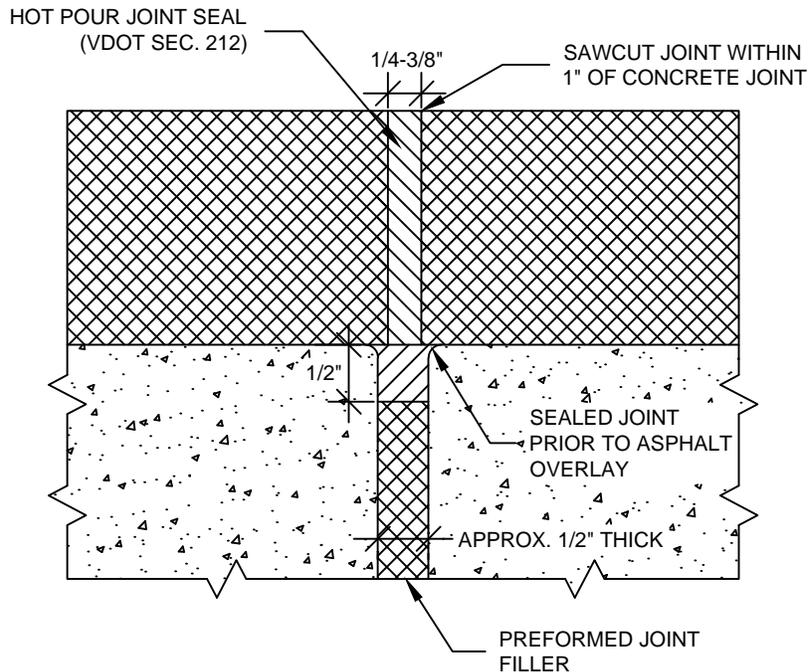
REVISED

JUNE 2014



TRANSVERSE JOINTS

AT LONGITUDINAL JOINTS, PROVIDE
DOWELS AT MAXIMUM 30" O.C. WITH
MINIMUM DISTANCE OF 18" FROM
TRANSVERSE JOINT.



EXPANSION JOINT SEAL IN ASPHALT OVERLAY

CITY OF NORFOLK



DEPT. OF PUBLIC WORKS

DESCRIPTION

CONCRETE PAVEMENT JOINT DETAIL

DESIGNATION

HS-304

SCALE

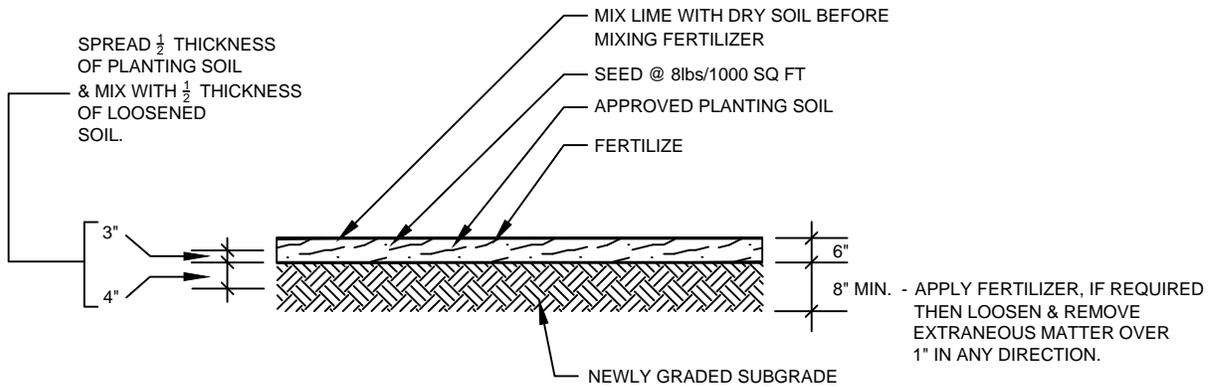
NOT TO SCALE

EDITION

NCDS2014.06

REVISED

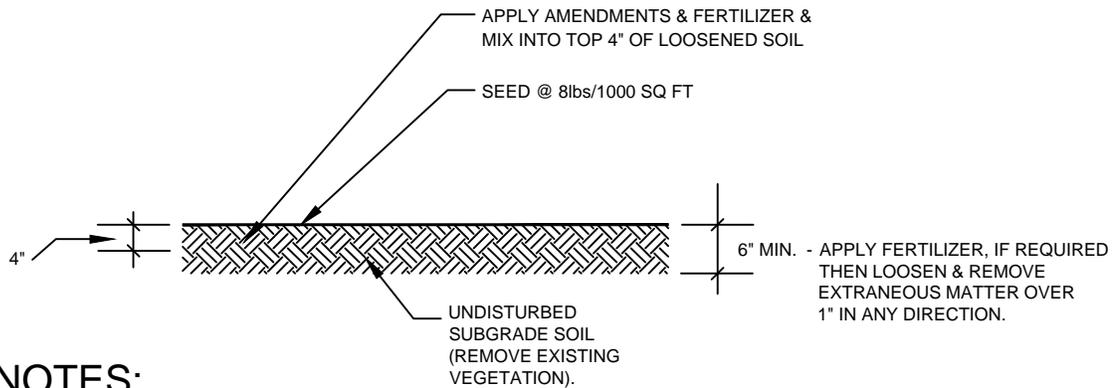
JUNE 2014



NOTES:

NEWLY GRADED AREAS

1. SEE "TURF AND GRASS" SPECIFICATIONS FOR SEED TYPE, PLANTING SEASONS, HYDRO-SEEDING, SODDING AND OTHER REQUIREMENTS.
2. TEST SOIL AND APPLY AMENDMENTS AND FERTILIZER TO COMPLY WITH ASTM D5268.
3. AFTER SEEDING, THE AREA SHALL BE RAKED, ROLLED, WATERED AND MULCHED IN AN APPROVED MANNER.
4. THE CONTRACTOR SHALL MAINTAIN ALL GRASSED AREAS TO PROVIDE FOR A SMOOTH UNIFORM TURF UPON COMPLETION OF THE CONTRACT.



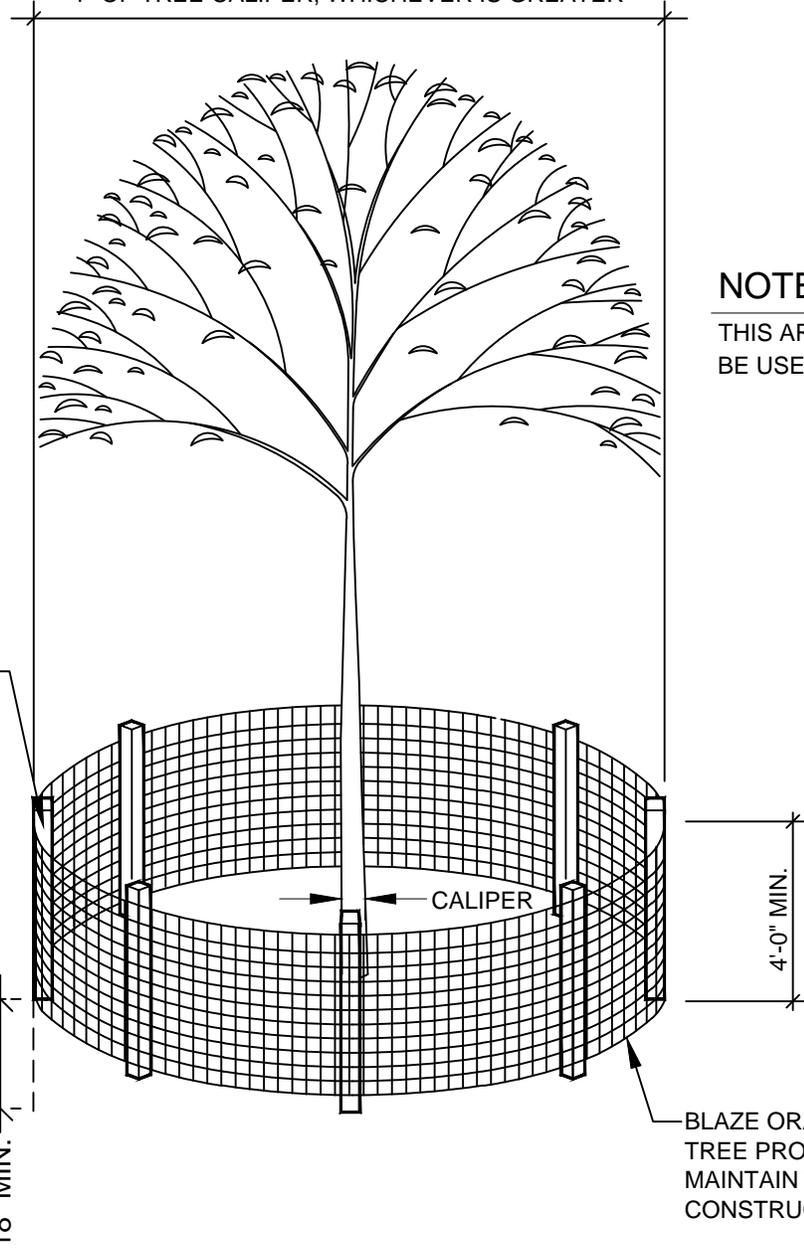
NOTES:

EXISTING AREAS

1. SEE "TURF AND GRASS" SPECIFICATIONS FOR SEED TYPE, PLANTING SEASONS, HYDRO-SEEDING, SODDING AND OTHER REQUIREMENTS.
2. TEST SOIL AND APPLY AMENDMENTS AND FERTILIZER TO COMPLY WITH ASTM D5268. AFTER SEEDING, THE AREA SHALL BE RAKED, ROLLED, WATERED

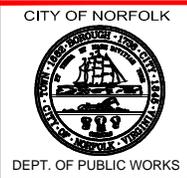
 CITY OF NORFOLK DEPT. OF PUBLIC WORKS	DESCRIPTION		DESIGNATION
	STANDARD GRASS PLANTING DETAIL		HS-601
SCALE	EDITION	REVISED	
NOT TO SCALE	NCDS2014.06	JUNE 2014	

CRITICAL ROOT ZONE
 DRIP LINE OF THREE OR 1'-0" RADIUS PER.
 1" OF TREE CALIPER, WHICHEVER IS GREATER



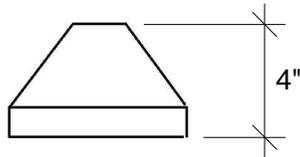
NOTE

THIS AREA SHALL NOT
 BE USED FOR STORAGE

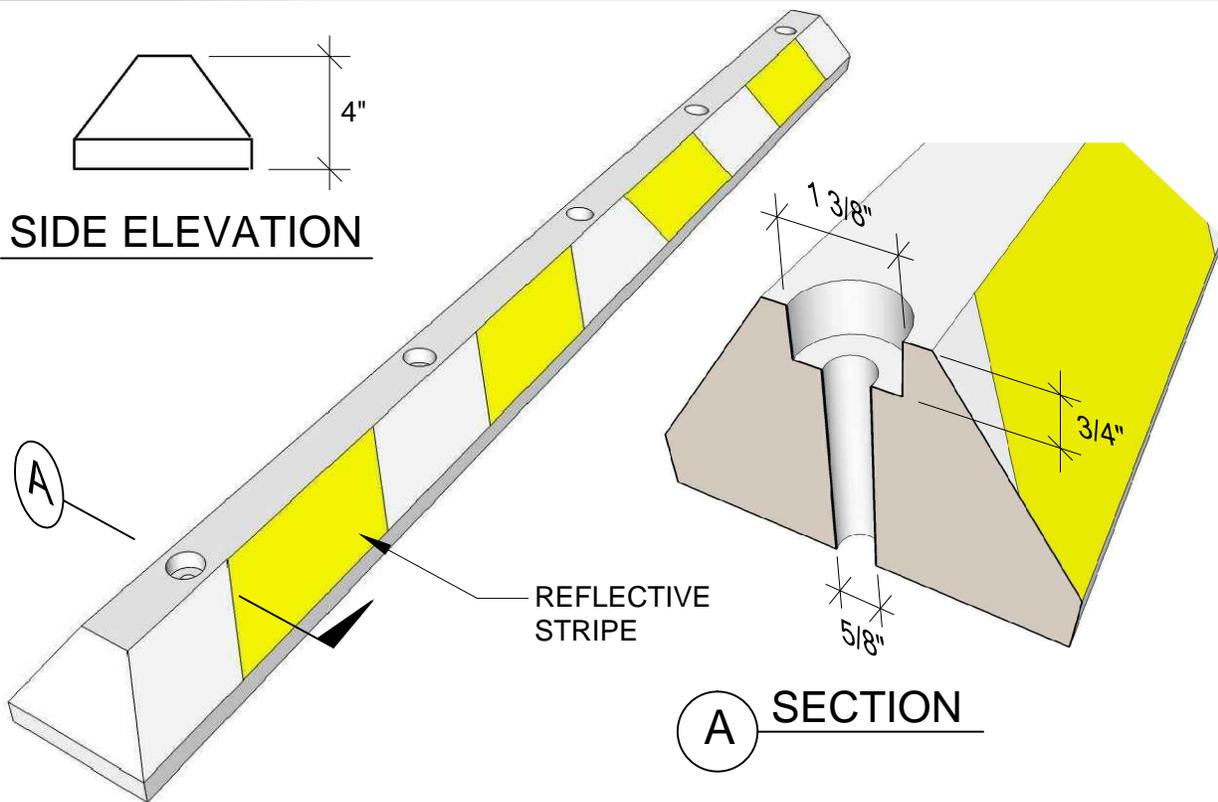


CITY OF NORFOLK		DESCRIPTION		DESIGNATION
STANDARD TREE PROTECTION DETAIL				
SCALE	EDITION	REVISED		
NOT TO SCALE	NCDS2014.06	JUNE 2014		

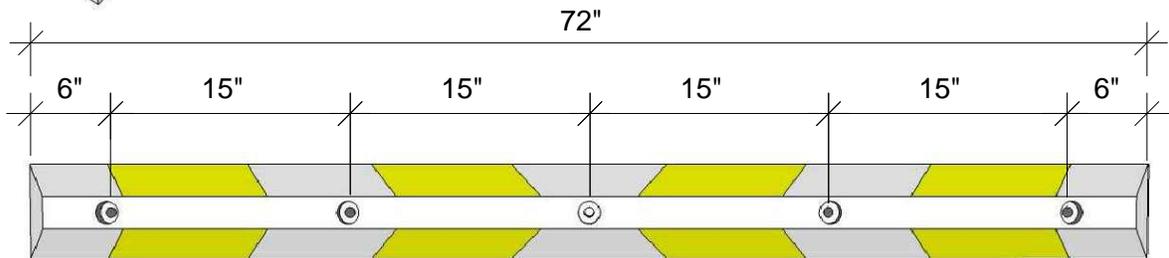
HS-602



SIDE ELEVATION



A SECTION

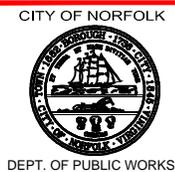


PLAN VIEW



FRONT ELEVATION

1. MATERIAL SHALL BE 100% RECYCLED RUBBER.
2. REFLECTIVE STRIPES SHALL BE YELLOW EXCEPT AT HANDICAP STALLS; THEN THE COLOR SHALL BE BLUE
3. ANCHORS SHALL BE 1/2" X 8" LAG BOLTS WITH METAL SHIELDS (APPLICABLE TO ASPHALT AND CONCRETE PAVEMENT). 1/2" X 14" REBAR SPIKES MAY BE USED WITH ASPHALT PAVEMENT ONLY.



DESCRIPTION
RECYCLED RUBBER WHEEL STOP
 (BUMPER LOG)

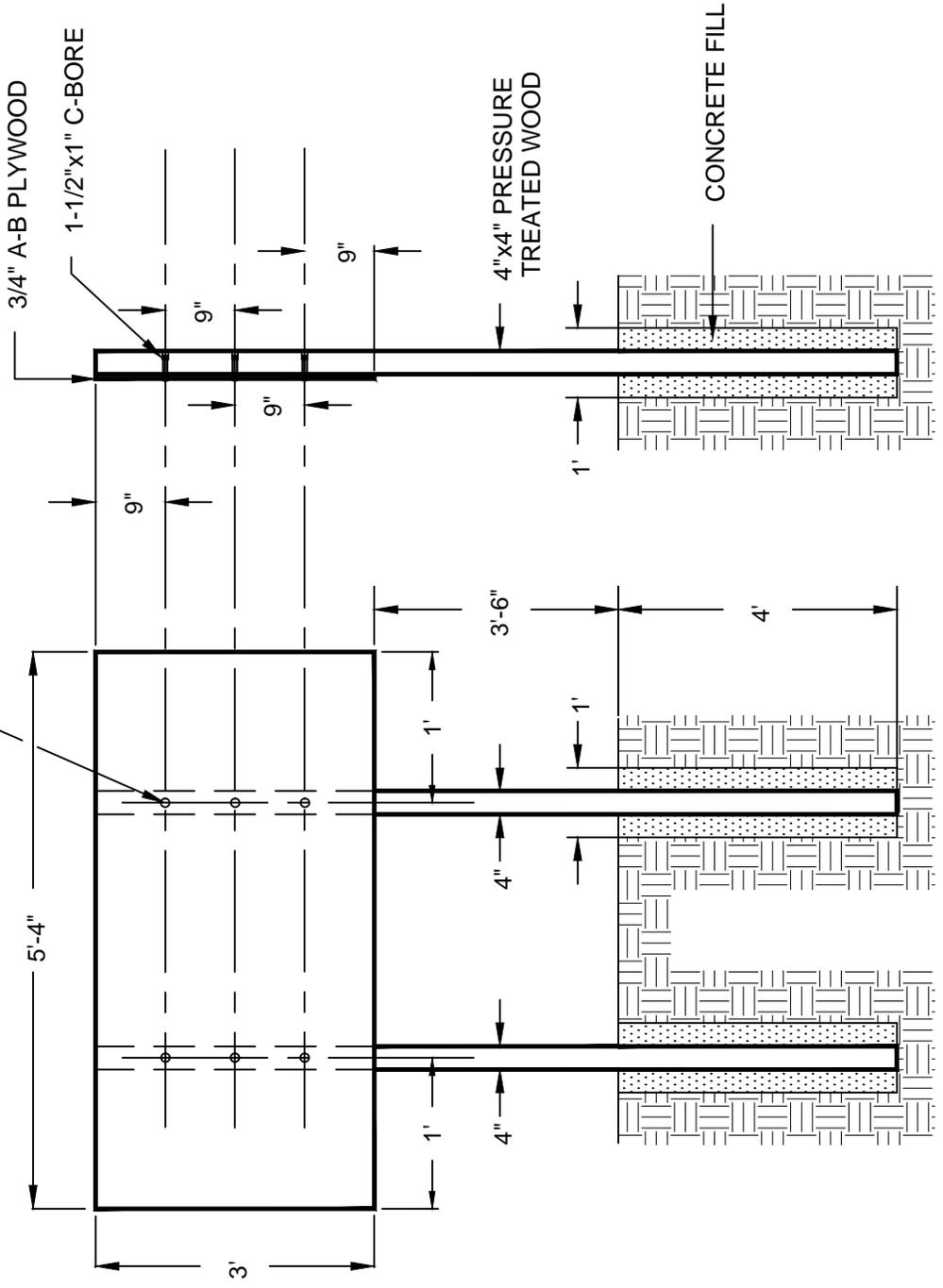
DESIGNATION
HS-603

SCALE
 NOT TO SCALE

EDITION
 NCDS2014.06

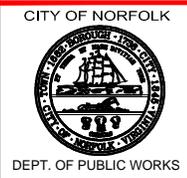
REVISED
 MARCH 2013

(6) 3/4"x4" GALVANIZED CARRIAGE BOLTS
w/ WASHERS @ 12" O.C.

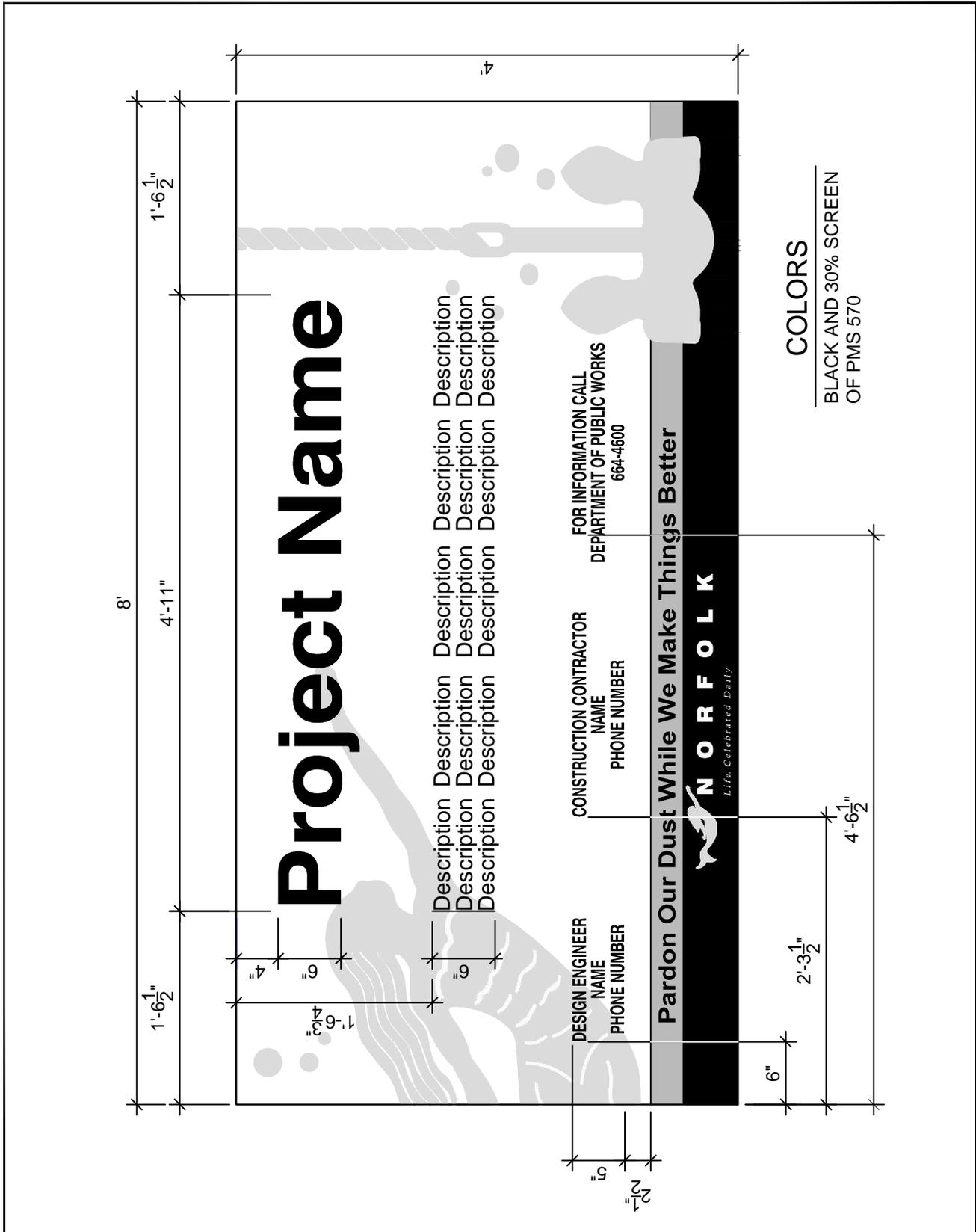


SIDE VIEW

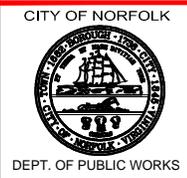
FRONT VIEW



CITY OF NORFOLK		DESCRIPTION		DESIGNATION
		CONSTRUCTION SIGN INSTALLATION (SMALL)		HS-605
SCALE	NOT TO SCALE	EDITION	NCDS2014.06	
		REVISED	JAN. 2004	

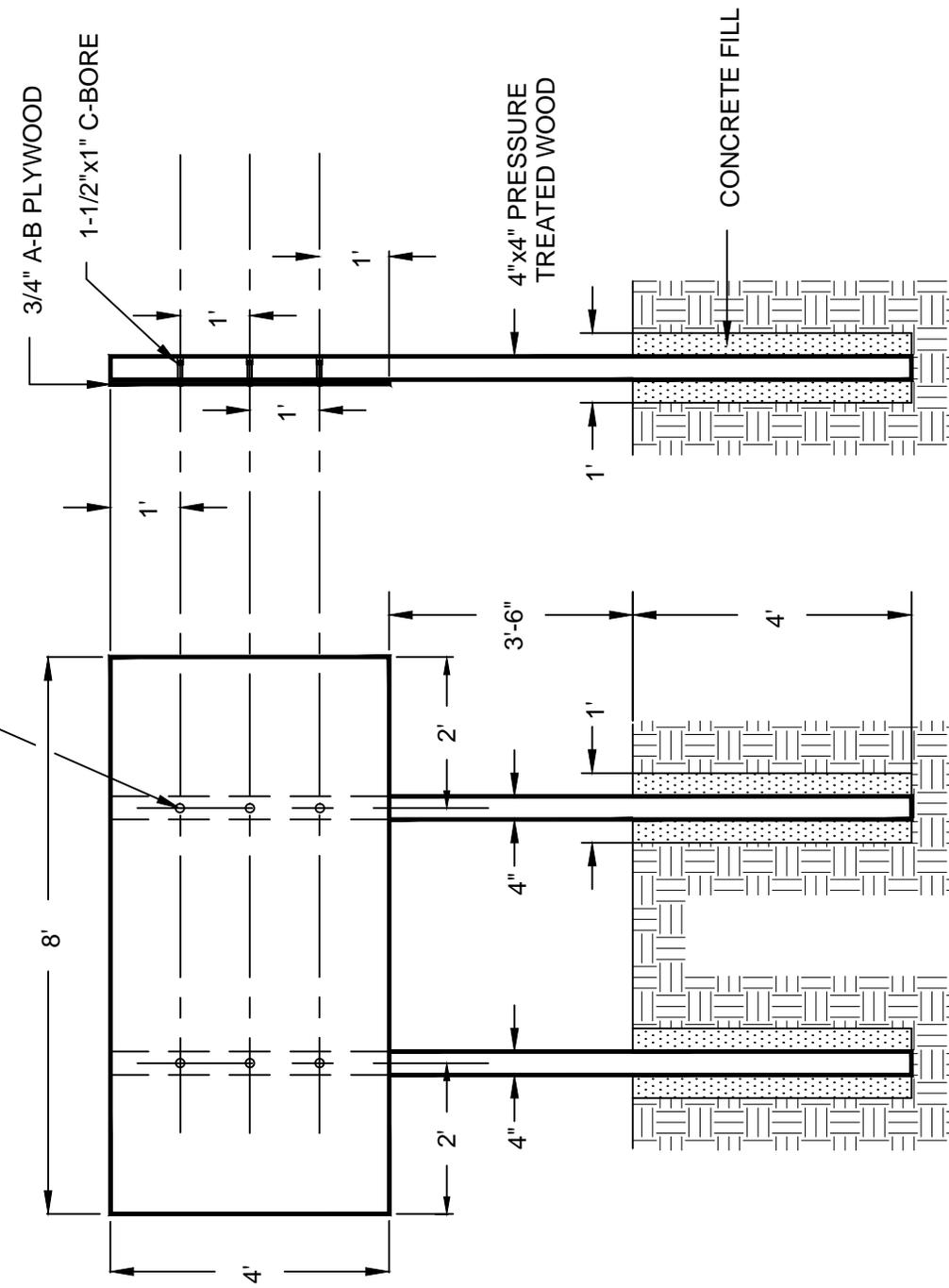


COLORS
 BLACK AND 30% SCREEN
 OF PMS 570



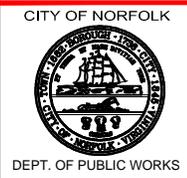
CITY OF NORFOLK		DESCRIPTION		DESIGNATION	
STANDARD CITY CONSTRUCTION SIGN (LARGE)				HS-606	
SCALE	EDITION	REVISED			
NOT TO SCALE	NCDS2014.06	JAN. 2004			

(6) 3/4"x4" GALVANIZED CARRIAGE BOLTS
w/ WASHERS @ 12" O.C.



SIDE VIEW

FRONT VIEW



CITY OF NORFOLK		DESCRIPTION		DESIGNATION
		CONSTRUCTION SIGN INSTALLATION (LARGE)		HS-607
SCALE	NOT TO SCALE	EDITION	NCDS2014.06	
		REVISED	JAN. 2004	



November 30, 2010

TO: **City of Norfolk, Department of Public Works**
810 Union Street, Room 700
Norfolk, VA 23510

Attn: Mr. Chuck Joyner, P. E.

RE: **Utility Trench Excavation Criteria**
LRT Alignment
Norfolk, Virginia
GET Project No: VB10-290G

Dear Mr. Joyner:

Pursuant to your request, **GET Solutions, Inc.** is pleased to provide this report, outlining our recommended excavation criteria for future utility work to be performed adjacent to the LRT rail lines. The purpose of these criteria is to allow utility contractors to perform minor excavations adjacent to the LRT rail lines in a safe manner, and without having to provide an engineered cut detail. Also, the criteria outlined herein will identify conditions where the contractor is compelled to retain a professional engineer to provide a designed cut detail.

The depth and slope of an excavation, and groundwater conditions control the overall stability and movement of an open cut. On the basis of the generalized shallow subsurface soil conditions and groundwater table levels, the following guidelines should be adhered to:

I. Excavation Parameters NOT requiring an Engineered Plan:

1. Edge of slope (top of cut) is maintained at a minimum distance of 2 feet from edge of transitional slab.
2. The side slope of the cut is constructed at a 2:1 (Horizontal: Vertical) incline or flatter. This is applicable for cuts that are parallel or perpendicular to the LRT rails.
3. The maximum depth of the open cut (as described above in item number 1) does not exceed 6 feet in depth.
4. The depth of the open cut (as described above in item number 1) does not extend below the static groundwater table level by more than 12 inches.
5. No dewatering required to maintain a dry working area inside the excavation.
6. The excavation not required to be open overnight.

A detail of the excavation parameters is further outlined on the attached plan, Figure 1.

II. Excavation Parameters that WILL require an Engineered Plan:

Conditions not meeting the previously outlined parameters or criteria will require an engineered excavation plan and/or shoring plan developed by a registered professional engineer in the Commonwealth of Virginia, including any dewatering requirements.

Furthermore, the following conditions will trigger the requirement of an engineered excavation plan:

1. Any vertical cuts.
2. Dewatering adjacent to rail lines may have an adverse impact on the lines. Accordingly, any dewatering activities must be approved by a professional engineer, indicating that no settlements will occur at the rail lines as a result.

III. General Requirements:

1. In all cases, instrumentation to monitor the existing rail lines (in the form of surveying or other approved methods) should be implemented by the contractor to verify that the excavations have not impacted the rail lines. The monitoring and/or surveying should be performed at pre-construction time, at time of work completion (post construction), and at a future time within 3 years of completion of work (post post construction); all at the discretion of the City of Norfolk Department of Public Works personnel.
2. All backfill material should consist of suitable structural fill, placed and compacted in accordance with the requirements of the municipality in which the work is being performed.
3. In case of emergency repairs, open cuts requiring an engineered plan (**Conditions of Section II**) must be performed under the observations of a registered professional engineer.

We appreciate the opportunity to offer our services to you, and trust that you will call this office with any questions that you may have.

Respectfully Submitted,

GET Solutions, Inc.

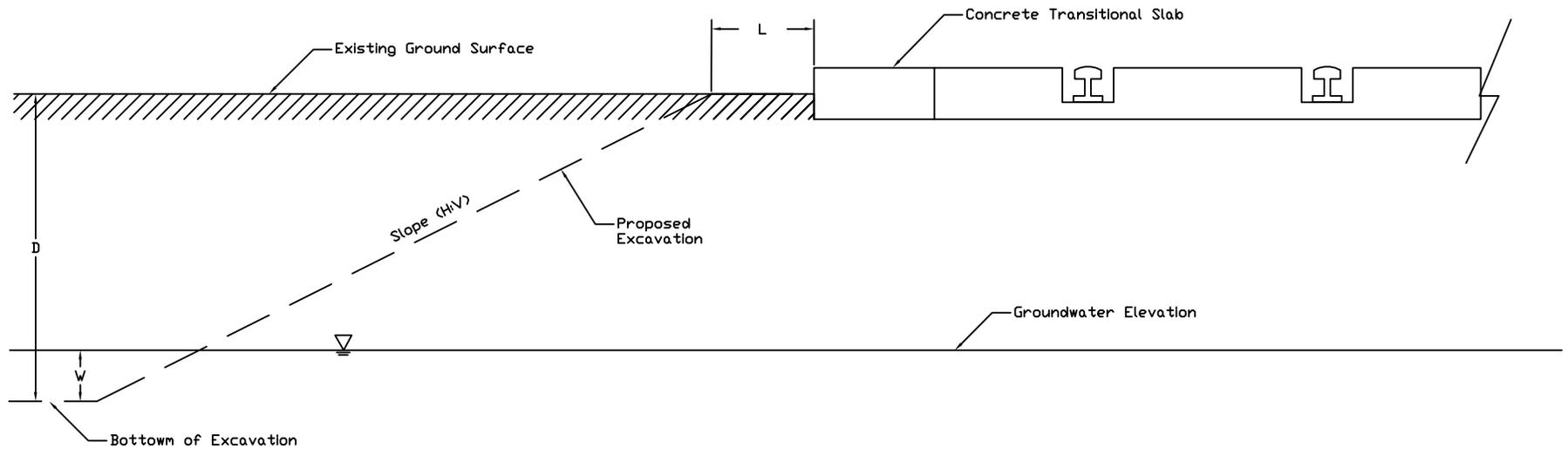


Camille A. Kattan, P. E.

Principal Engineer

VA Lic. # 18045





Excavation Criteria NOT requiring Engineered Plan must satisfy all requirements below:

- $L \geq 2$ feet
- $D \leq 6$ feet
- $W \leq 12$ inches
- Slope = 2:1 (H:V) or flatter

If any one of these criteria is not met, then an Engineered Plan will be required.



EXCAVATION PARAMETER DETAIL

Utility Trench Excavation Criteria
LRT Alignment
Norfolk, Virginia

Project No.
VB10-290G

Drawn By
Chris Caton, E.I.T.

Edited By
na

LEGEND

Date
11/23/2010

Scale
As Shown

Figure No.
1

Design Guidelines for the Installation of Wireless Telecommunications Facilities in the City of Norfolk Right-of-Way

I. Definition

- A. Wireless Telecommunications Facilities: antennas, along with their associated poles, mounting equipment, utility cabinets, and other appurtenances, that transmit and receive data for cell phone and other mobile communication services.
- B. Wireless Provider: a certificated provider of telecommunications services which has a franchise agreement with the City of Norfolk to install, maintain and operate a telecommunications system in the public right-of-way.

II. Siting of Wireless Facilities in the Right-of-Way

- A. New Wireless Telecommunication Facilities shall be installed or co-located on appropriate existing poles and structures whenever possible. Wireless Providers shall use the smallest and least visible antennas, equipment cabinets, and other facilities to accomplish the operator's coverage and service objectives. When feasible and consistent with the purposes and requirements of these guidelines and the applicable requirements of the pole owner, Wireless Providers shall make unused space on existing poles available for future co-location of other telecommunication facilities, including space for different operators providing similar, competing services.
- B. No more than 1 antenna array may be attached to a single utility pole, street light pole, or traffic signal support.
- C. Facilities shall be installed within existing underground ducts or conduits whenever such ducts, conduits, manholes or other facilities have volume or capacity that is available or will be available for third party facilities.
- D. Any installations that are proposed for local landmark or historic districts will require additional review.

III. Design Guidelines

A. General

- i. Colors and materials for facilities shall be chosen to blend in with the surroundings. All visible exterior surfaces shall be constructed of non-reflective materials and painted or textured using colors to match or blend with the primary background
- ii. The color, design, and landscaping of above-ground installations may be varied from these guidelines in response to the request of property or business owners so long as the Director of Public Works approves such changes. Wireless Providers shall take all reasonable steps to modify proposed plans to accommodate public concerns and shall describe such changes in the permit application filed with the City.
- iii. When facility lighting is needed for security or safety reasons it shall be designed to avoid glare and minimize illumination on adjacent properties.

- iv. No advertising shall be placed on any above-ground Wireless Telecommunications Facilities or equipment. Informational signage required by these guidelines may include an identifying logo.
- v. A Tree Permit is required for the installation of any Wireless Telecommunications Facilities located within the canopy of a street tree, or a protected tree on private property, or within a minimum of a 10-foot radius of the base of such a tree. Depending on site-specific criteria (e.g. location of tree, size and type of tree etc.), the City Forester may require a radius greater than 10 feet.
- vi. All Wireless Telecommunications Facilities shall be designed to be resistant to and minimize opportunities for unauthorized access, climbing, vandalism, graffiti, and other conditions that would result in hazardous conditions, visual blight, or attractive nuisances. The Director of Public Works may require the provision of warning signs, fencing, anti-climbing devices, or other techniques to prevent unauthorized access and vandalism when, because of their location and/or accessibility, antenna facilities have the potential to become an attractive nuisance.
- vii. At the time of modification or upgrade of Wireless Telecommunications Facilities, existing equipment shall, to the extent feasible, be replaced with equipment of equal or greater technical capacity and reduced size so as to reduce visual impacts.
- viii. Each Wireless Provider shall provide signage identifying the name and phone number of a party to contact in event of an emergency. The signage shall be attached to the base of any utility pole or light standard to which Wireless Telecommunications Facilities are attached. Dimensions shall not exceed 8 1/2 inches by 11 inches.
- ix. The exterior walls and roof covering of all aboveground equipment shelters and cabinets shall be constructed of materials rated as nonflammable by the City Building Code Official. Openings in all above-ground equipment shelters and cabinets shall be protected against penetration by fire and windblown embers to the extent feasible.
- x. If the Wireless Provider is unable to meet the above design guidelines, a detailed request for variance must be submitted as part of the permitting process for further review.

B. Poles

- i. Wireless Telecommunications Facilities installed on existing utility poles should not be larger, more obtrusive, or more readily visible than the existing facilities and devices affixed to the pole.
- ii. The height of new Wireless Telecommunications Facilities, measured from grade to highest reach of equipment or antenna, shall not exceed the average height of utility poles within a 500' radius of the proposed location, unless additional height is expressly granted by the Director of Public Works. Additional height shall only be granted where it is essential for proper functionality of Wireless Telecommunications Facilities.

- iii. An antenna enclosure attached to the top of a utility or street light pole shall not exceed 4 feet in height, and shall not have a diameter greater than the diameter of the pole.
- iv. Steel poles are preferred so that all wiring can be internal to the pole. The pole color shall match adjacent steel pole color. Any external equipment shall match the color of the pole. If wooden poles must be used, all loose wires shall be wrapped and secured with a riser guard. On both new and existing poles, all equipment shall be painted to match the pole on which it is located.

C. Equipment Enclosures

- i. A maximum of 2 equipment enclosures and 1 meter box may be attached to a utility or street light pole, as follows:
 - a) A primary equipment enclosure installed on the same utility or street light pole as the antenna enclosure(s), preferably facing the street or perpendicular to the street, shall be no larger than approximately 4 cubic feet in volume, with a width not exceeding approximately 12 inches and a depth not exceeding approximately 10 inches, and shall be as small as reasonably possible with current technology. An electric meter and a cut-off switch may be located outside of the primary equipment enclosure;
 - b) In lieu of a separate meter box, the Director of Public Works may allow a larger primary equipment enclosure if the Applicant demonstrates that the enclosure will contain an electricity meter and cut-off switch, provided that the width of the enclosure does not exceed approximately 12 inches and the depth does not exceed approximately 10 inches, and is as small as reasonably possible with current technology.
 - c) A secondary equipment enclosure installed on a utility or street light pole that is near the utility or street light pole to be used for the antenna enclosure(s) and primary equipment enclosure, preferably facing the street or perpendicular to the street, shall be no larger than approximately 4 cubic feet in volume, with a width not exceeding approximately 12 inches and a depth not exceeding approximately 10 inches, and shall be as small as reasonably possible with current technology.
 - d) The bracket supporting an equipment enclosure shall not extend more than the minimum necessary to support the equipment.

D. Supporting Elements

- i. Supporting Elements. If a supporting element for any antenna enclosure such as a cross-arm or pole top extension is needed, such supporting element shall be no larger, longer, or bulkier than is necessary to comply with applicable law or such generally applicable written rules.

E. Ground Mounted Utility Boxes and Cabinets.

