SITE STATISTICS

- GPIN 1438241572, ACCOUNT NR. 46491800 LOTS 1-10, 1 BLK 6, PARK PLACE
- 2. ZONING: R-10 RESIDENTIAL DISTRICT WITH CHURCH STREET TOWNHOUSE OVERLAY DISTRICT (CSTOD)
- 3. TOTAL LOT AREA: 2800 CHURCH STREET TOTAL= 0.59 AC. OR 25,700 S.F.
- 4. EXISTING USE: VACANT PROPOSED USED: TOWNHOUSES
- 5. PARKING SPACES:

 REQUIRED=2SP/UNIT X 10 UNITS= 20 SP
- 6. THERE ARE NO KNOWN WETLANDS ON THE SITE.
- 7. FLOOD ZONE: THIS SITE IS LOCATED IN F

PROVIDED= 20 SPACES

- THIS SITE IS LOCATED IN FLOOD ZONE "X" AND "X SHADED" AS DETERMINED FROM THE FEMA MAP PANEL NO. 510104, PANEL 0135F, NORFOLK, VA. DATED 9-02-09.
- 8. CITY WATER AND SEWER ARE AVAILABLE TO THE SITE.
- 9. VERTICAL DATUM: NAVD 88(92) (CITY OF NORFOLK 2000). BENCHMARK USED: CITY OF NORFOLK STATION GPS 095. ELEVATIONS ARE EXPRESSED IN FEET.
- 10. SURVEY PERFORMED BY RICKS PALMER JONES. PINNACLE GROUP ENGINEERING, INC. MAKES NO GUARANTEE AS TO THE SURVEY'S ACCURACY AND ASSUMES NO LIABILITY FOR THE SAME.
- 11. IMPERVIOUS AREA: EXISTING: 0 SF
- PROPOSED
 PROP. BUILDINGS = 10,464 S.F.
 PROP. PAVEMENT = $\frac{4,251 \text{ S.F.}}{14,714 \text{ S.F.}}$ OR 0.34 AC.
- 12. AREA OF DISTURBANCE: 25,700 S.F. OF 0.59 AC.
- 13. BSL: FRONT = 16'
 SIDE = 9' (EXTERIOR), 5' (INTERIOR)
 REAR = 5'
- 14. BMP INFORMATION:
- A. OWNERSHIP = PRIVATE
- B. TYPE = BIORETENTION
 C. STORAGE REQUIRED FOR
- WATER QUALITY = 1,162 CF D. STORAGE REQUIRED FOR
- WATER QUANTITY = 1,575 CF
- E. DRAINAGE OF BMP WATERSHED = 13.983 SF

TOLERANCE NOTES

- 1. CONTRACTOR IS TO INSTALL ALL UTILITIES TO THE TOLERANCE REQUIRED BY THE CITY OF NORFOLK AND AS SHOWN ON THESE PLANS, SPECIFICALLY:
- A. ALL STORM DRAINAGE SHALL BE INSTALLED TO WITHIN 0.10' (ONE TENTH OF A FOOT) OF THE ELEVATION SHOWN ON THE PLAN, OR AS SPECIFIED IN WRITING BY THE CITY.
- B. MINIMUM STORM SEWER SLOPE SPECIFIED ON THE PLAN ARE ABSOLUTE MINIMUM; LESSER SLOPE WILL NOT BE ACCEPTED UNLESS IN WRITING BY THE CITY.
- C. CONTRACTOR TO BE RESPONSIBLE FOR ALL CORRECTION COST (I.E. PLAN, REVISION, PHYSICAL CORRECTION, ETC.) REQUIRED AS A RESULT OF INSTALLATION NOT MEETING THE REQUIRED TOLERANCE.

NOTES

- 1. EXCAVATION MATERIAL FROM CONSTRUCTION SHALL BE DISPOSED OF IN A LAWFUL MANNER.
- 2. PINNACLE GROUP ENGINEERING, INC.:
- A. HAS NO AUTHORITY OVER CONTRACTOR AND ASSUMES NO RESPONSIBILITY FOR ANY ENVIRONMENTAL INFRACTIONS CONTRACTOR MAY MAKE.
- B. MAKES NO GUARANTEE AS TO THE ACCURACY OF THE EXISTING SURVEY WHICH WAS CONDUCTED BY RICKS P. JONES PROFESSIONAL LAND SURVEYOR.
- 4. ANY AND ALL MATERIAL OR DEBRIS TRACKED ONTO A PRIVATE OR PUBLIC ROAD SURFACE WILL BE REMOVED AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA.
- 5. A TEMPORARY BULK CONTAINER PERMIT IS NEEDED IF CONSTRUCTION DEBRIS WILL BE COLLECTED IN A BULK CONTAINER.
- 6. IF A TEMPORARY BULK CONTAINER PERMIT IS NEEDED FOR CONSTRUCTION DEBRIS A PERMIT SHALL BE OBTAINED FROM THE HEALTH DEPARTMENT.
- 7. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO ALL OWNERS AND RESIDENTS OF PROPERTY ADJACENT TO DEVELOPMENT OF OFFSITE IMPROVEMENTS, THIRTY (30) DAYS PRIOR TO THE COMMENCEMENT OF WORK, UNLESS OTHERWISE DIRECTED BY THE CITY. CONSTRUCTION WITHIN EASEMENT OR ON PUBLIC RIGHT—OF—WAY NECESSITATES NOTICE WHETHER ADJACENT TO OR LOCATED ON THE ADJOINING PROPERTY. FAILURE TO PROVIDE THE MINIMUM NOTIFICATION TIME WILL RESULT IN A SUSPENSION OF WORK.

THE CONTRACTOR SHALL CONTACT THE CITY OF NORFOLK, BUREA OF ENVIRONMENTAL SERVICES AT 664-4368 AT LEAST 48 HOURS PRIOR TO ANY LAND DISTURBING ACTIVITY SO THAT A LAND DISTURBING PERMIT CAN BE ISSUED AND A PRE-CONSTRUCTION CONFERENCE CAN BE SCHEDULED.

| 3 | 07/03/15 | REVISED PER CITY LETTER DATED 01/20/15 | PGE |
|-----|----------|--|-----|
| 2 | 12/18/14 | REVISED PER CITY LETTER DATED 11/25/14 | PGE |
| 1 | 10/22/14 | REVISED PER CITY LETTER DATED 6/25/14 | PGE |
| NO. | DATE | REVISION | BY |

SITE DEVELOPMENT PLAN FOR

2800 CHURCH STREET

SITE PLAN #14-0053

GPIN: 1438241572, ACCT NR. 46491800 NORFOLK, VIRGINIA

DRAWING INDEX

- 1. COVER SHEET
- 2. DEMOLITION AND EXISTING SURVEY PLAN
- 3. SITE PLAN
- 4. GRADING, DRAINAGE & EROSION AND SEDIMENT CONTROL PLAN
- 5. LANDSCAPE PLAN
- 6. LIGHTING PLAN
- 7. GENERAL NOTES AND DETAILS
- 8. DETAILS
- 9. DETAILS
- 10. DETAILS

DEVELOPER

HOWERIN CONSTRUCTION 4800 B COLLEY AVE NORFOLK, VIRGINIA 23508 TEL: (757) 440-0036 FAX: (757) 440-0037

UTILITY CONTACTS

DOMINION VIRGINIA POWER

MS. BETH MYE
ENGINEERING DEPARTMENT
4901 PRINCESS ANNE ROAD
VIRGINIA BEACH, VIRGINIA 23462
PH. 757.671.3418

EXISTING PARCELS SQUARE FEET ACRES

2,575

2,575

2,575

2,575

2,575

2,575

PARCELS SQUARE FEET ACRES

3,210

2,266

2,987

2,987

2,266

2,060 2,266

3,210

25,578 0.58

10

2,266 2,060

2,575 0.06

2,575 0.06

2,575 0.06 2,575 0.06

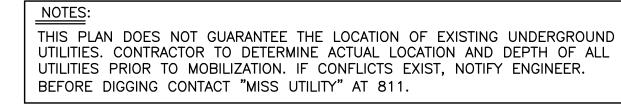
VIRGINIA NATURAL GAS

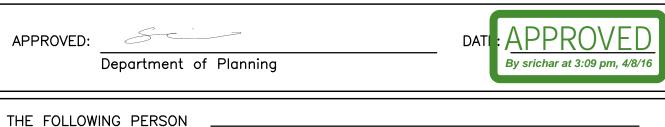
MR. CHARLES GUNTER
ENGINEERING DEPARTMENT
5100 EAST VIRGINIA BEACH BOULEVARD
NORFOLK, VIRGINIA 23502
PH. 757.466.5530

VERIZON (FORMERLY GTE OF VIRGINIA)
MR. DALE SKITELL
ENGINEERING DEPARTMENT
131B SEWELLS POINT RD
NORFOLK, VIRGINIA 23513
Ph. 757.667.4099

COX COMMUNICATIONS

MR. ANTHONY CRISH
ENGINEERING DEPARTMENT
5200 CLEVELAND ST.
VIRGINIA BEACH, VIRGINIA 23462
PH. 757.222.6575





RESPONSIBLE LAND DISTURBER CERTIFICATE #34746

DCR CERTIFICATION FOR COMBINED ADMINISTRATOR, ADMINISTRATOR, PLAN REVIEWER

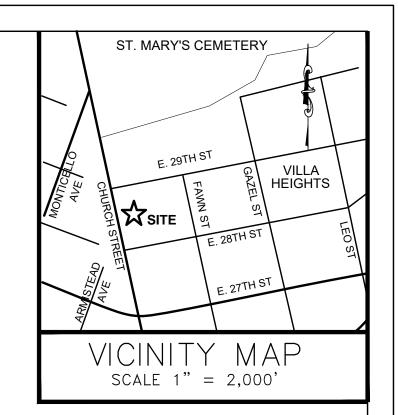
INSPECTOR, OR CONTRACTOR

VA PROFESSIONAL ENGINEER, LAND SURVEYOR, LANDSCAPE ARCHITECT, OR ARCHITECT

10.1-563 AND 10.1-566 BY VIRTUE OF THE FOLLOWING (CHECK THE CATEGORY THAT APPLIES):

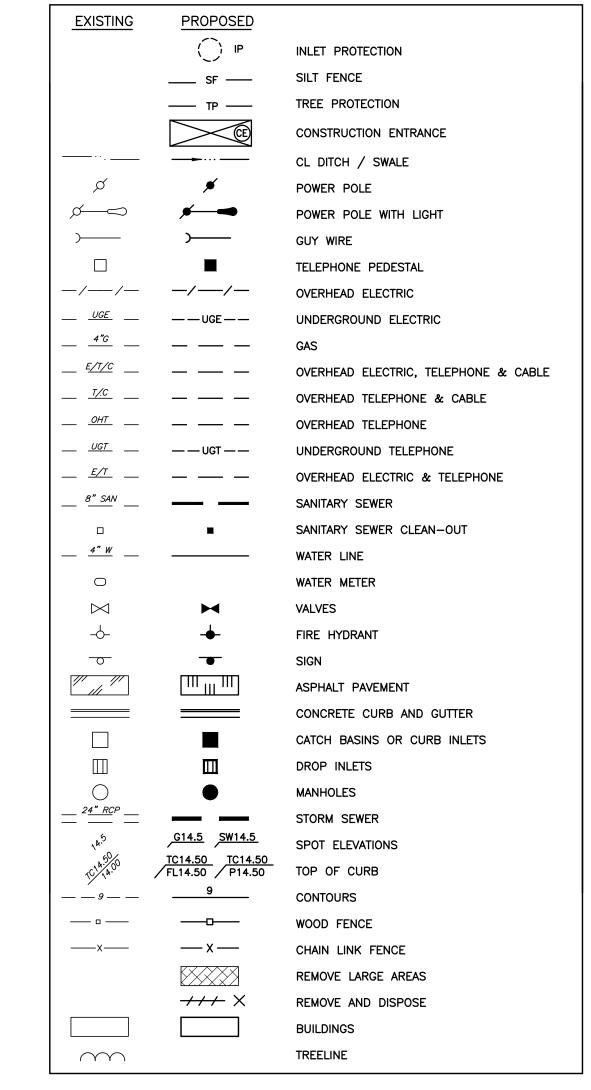
BEFORE ANY LAND DISTURBING ACTIVITY CAN BEGIN, THE CONTRACTOR

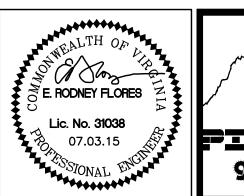
SHALL EXECUTE AND SUBMIT A RESPONSIBLE LAND DISTURBER NOTIFICATION FORM TO THE DEPARTMENT OF PLANNING, ENVIRONMENTAL SERVICES, RM. 508, CITY HALL BUILDING, 810 UNION STREET, NORFOLK, VA 23510, TEL: (757) 664-4368.



CONTRACTOR TO CONTACT ENVIRONMENTAL STORM WATER MANAGEMENT @ 823-4089 (48 HOURS NOTICE) FOR PRECONSTRUCTION CONFERENCE AND INSPECTION REQUIREMENTS WHEN A BMP IS PROPOSED AND TIE-IN TO CITY STORM DRAIN SYSTEM.

LEGEND





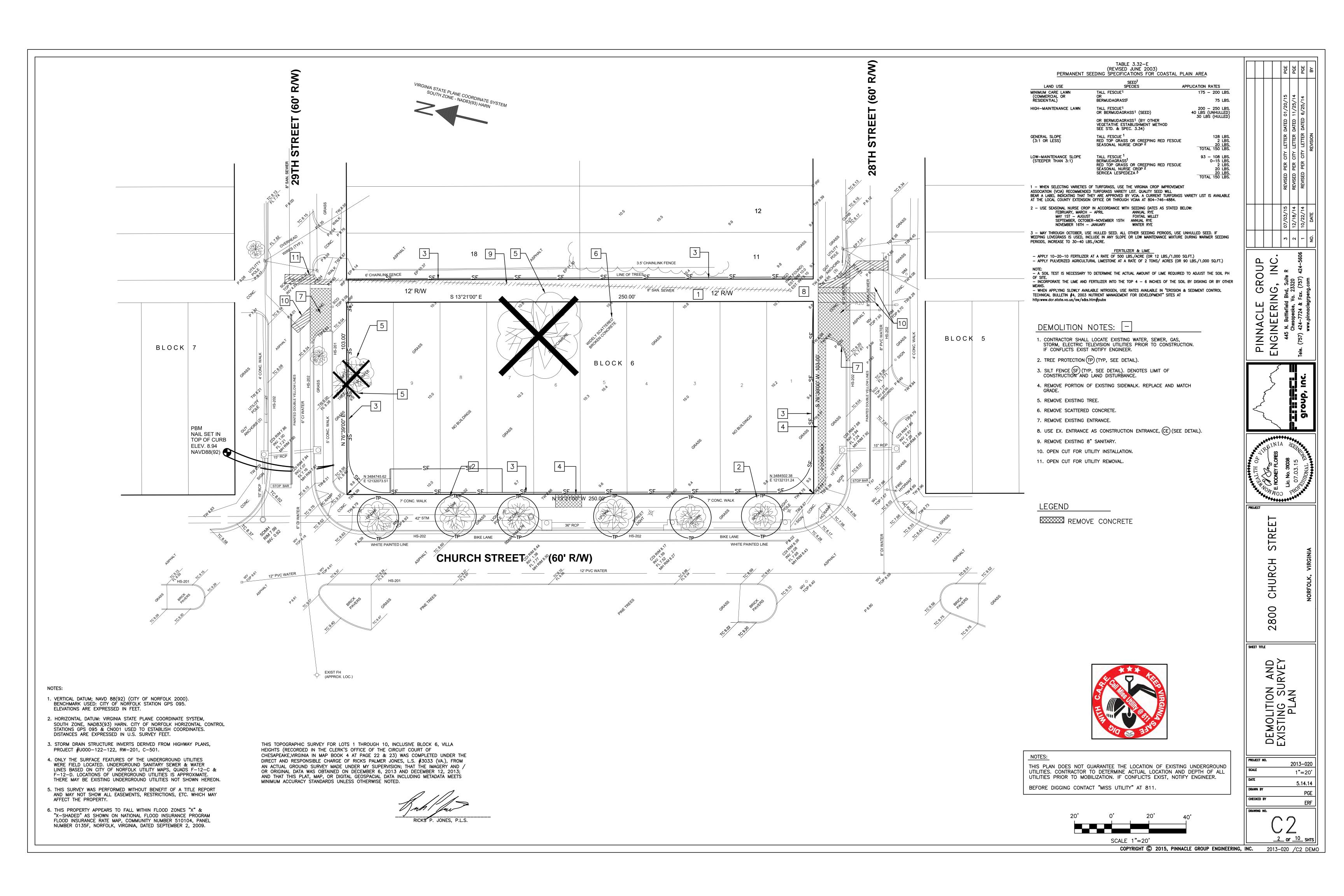


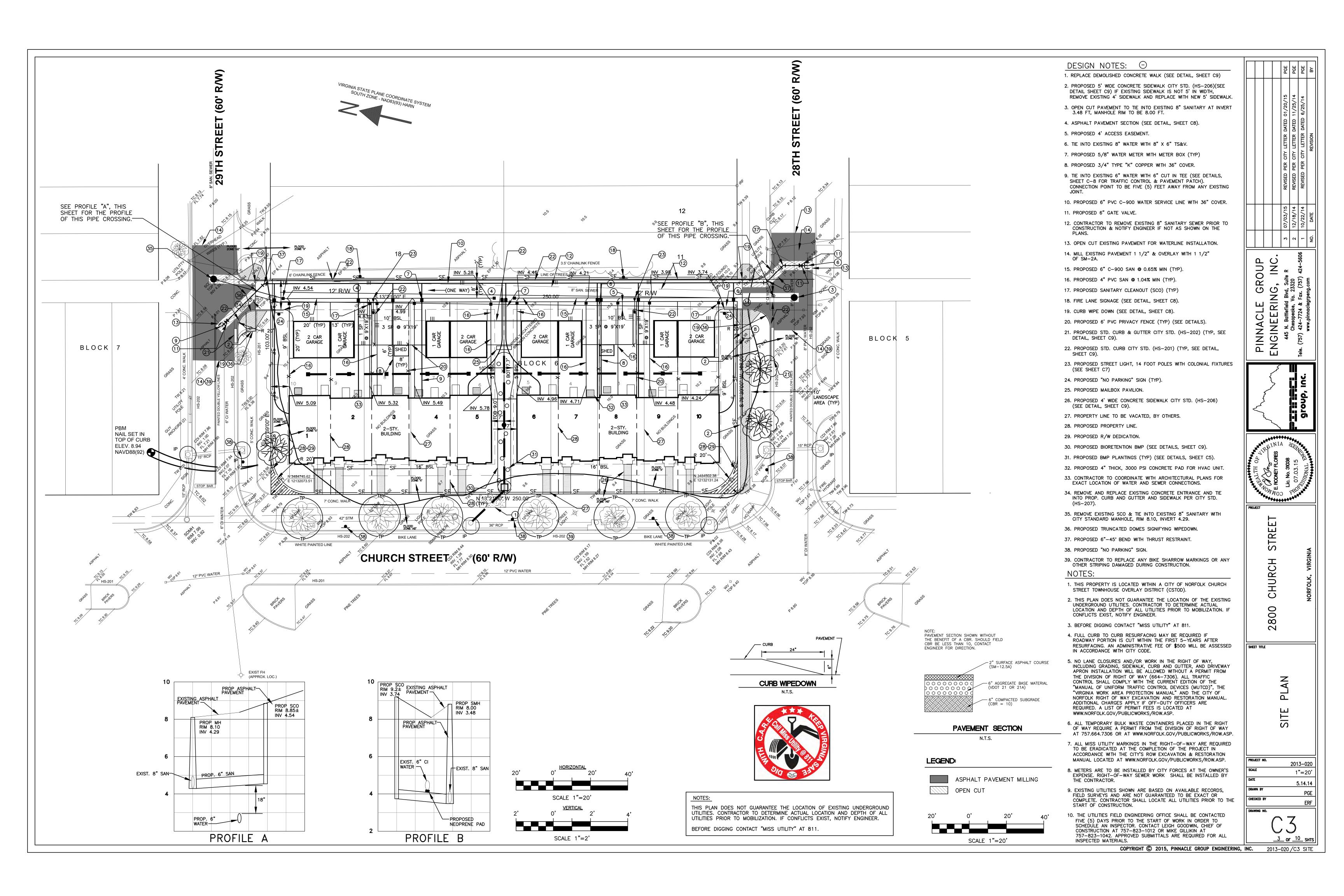
PINNACLE GROUP ENGINEERING, INC.

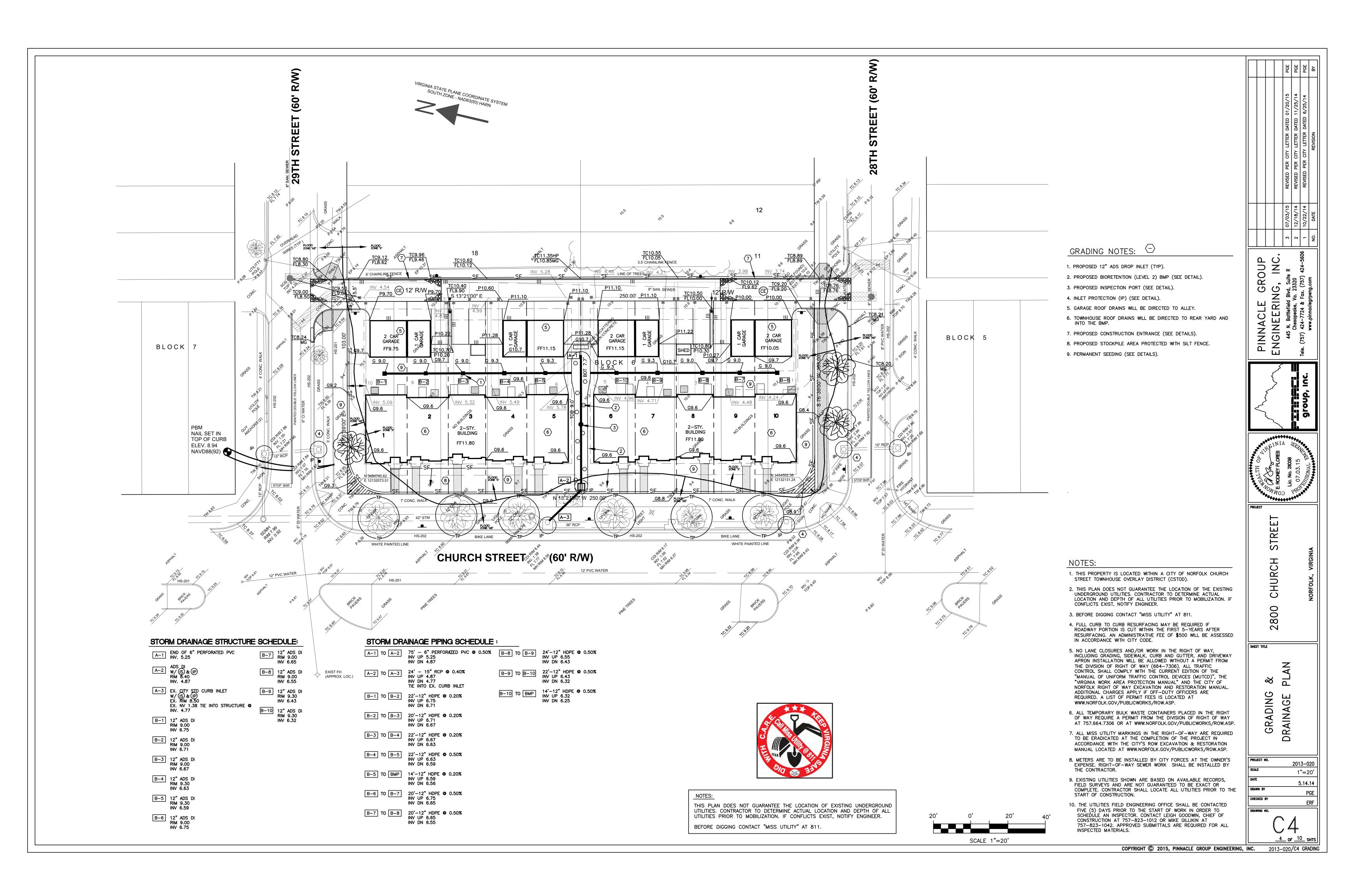
445 N. BATTLEFIELD BLVD., SUITE R
CHESAPEAKE, VIRGINIA 23320
TELEPHONE (757) 424-7724 FAX. (757) 424-5606
www.pinnaclegrpeng.com

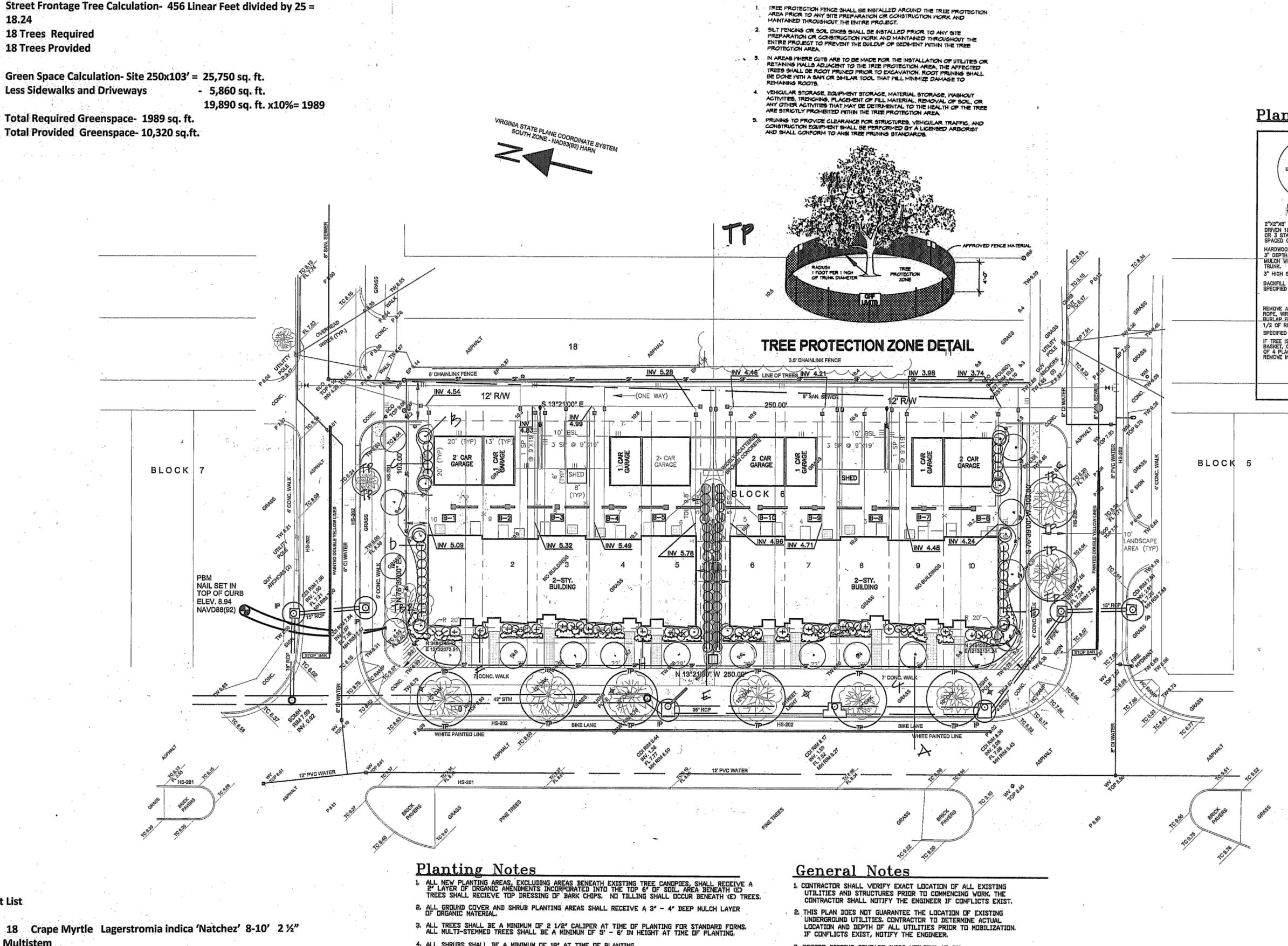
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2013-020\C1 COVER









Plant List

- Nellie R. Stevens Holly Ilex x 'Nellie R. Stevens 3' 7 gal.
- Bennetts Compacta Ilex crenata 'Bennetts' 18-24"
- Rhododendron Hybird 18-24'
- Sweetspire 'Henry's Garnet' Itea virginica 18-24" Nandina Nandina domestica 18-24"
- Dwarf Burford Holly Ilex cornuta 'burfodii nana' 18-24"
- Daylilies 1 gal. Install 12" o.c.

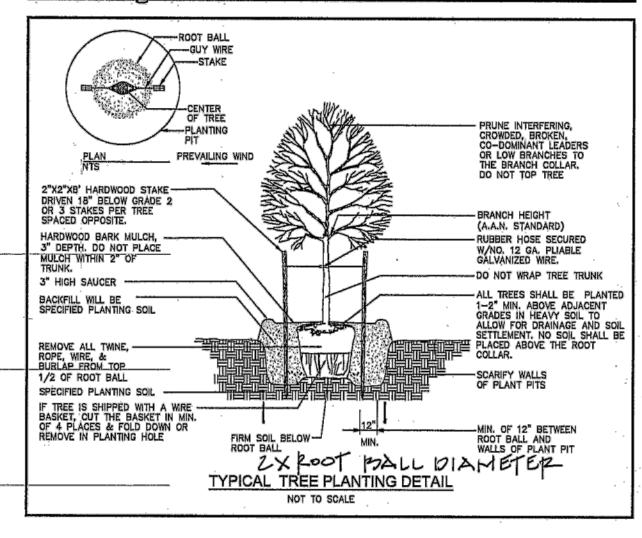
All planting contained in a continuous mulched bed of shredded hardwood 3" depth. Label materials for inspection. Remaining area to be lawn.

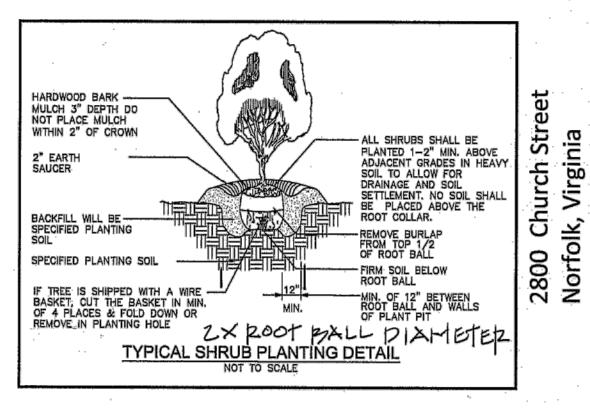
E Sweetspire are to be installed in the BMP and the area completely mulched with shredded hardwood.

- 4. ALL SHRUBS SHALL BE A MINIMUM OF 18' AT TIME OF PLANTING.
- 5. ALL PLANTS USED SHALL CONFORM TO THE STANDARDS OF THE MOST RECENT EDITION OF THE AMERICAN STANDARD OF NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN
- 7. UTILITIES CONFLICTING WITH TREE PLACEMENT SHALL REQUIRE ADJUSTMENT. WHEN ADJUSTMENT IS NECESSARY, SPACING SHALL NOT EXCEED MAXIMUM ALLOWANCE OF 50 FEET FOR LARGE TREES, 30 FEET FOR MEDIUM SIZE TREES AND 20 FEET FOR SMALL TREES.
- B, VERIFICATION OF TOTAL QUANTITIES AS SHOWN IN THE "PLANT SCHEDULE" SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE PLANTING PLAN SHALL GOVERN SHOULD THERE BE ANY DISCREPANCIES BETWEEN THE PLANTING PLAN AND THE PLANT SCHEDULE.
- 9. NEW PLANTING SHALL BE LOCATED AS SHOWN ON PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL SITE ELEMENTS AND UTILITIES. IF DISCREPANCIES OCCUR, OR IF OBSTRUCTIONS BELOW GROUND OR OVERHEAD ARE ENCOUNTERED, THE LANDSCAPE DESIGNER SHALL BE NOTIFIED. NECESSARY ADJUSTMENTS SHALL BE MADE ONLY UPON THE APPROVAL OF THE LANDSCAPE DESIGNER.
- 10. ALL BEDS SHALL BE EDGED DOWN 3' AT A 45 DEGREE ANGLE AT END OF BEDS TO ACCOMMODATE MULCH.

- 3. BEFORE DIGGING CONTACT "MISS UTILITY" AT 811.
- 4. CERTIFIED ARBURIST NEEDED TO ENSURE SURVIVABILITY OF SAVED TREES IN CLOSE PROXIMITY TO CONSTRUCTION.
- UTILITIES, CONTRACTOR TO DETERMINE ACTUAL LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO MOBILIZATION, IF CONFLICTS EXIST, NOTIFY ENGINEER.
- 6, BEFORE DIGGING CONTACT "MISS UTILITY" AT 811,
- 7, CONTRACTOR TO OBTAIN PERMIT FROM CITY OF NORFOLK'S DEPT. OF PARKS & URBAN FORESTRY TO REMOVE TRIM OR DISTURB ANY TREE WITHING THE RIGHT OF WAY OR ON CITY OF NORFOLK PROPERTY.

Planting Details





Planting season restrictions:

All ball and burlap plant material shall be installed from October 15 -March 31, unless otherwise authorized by the Department of Parks

All container grown plant material shall be installed from September 15 -May 15, unless otherwise authorized by the Department of Parks and

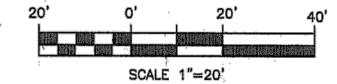
Any other dates not listed above in this Section shall be considered out-of-season. In such cases, a bond or other form of surety covering the cost of installation of all landscape material and construction shall be required in conformance with provisions set forth in Section 17-11.



THIS PLAN DOES NOT GUARANTEE THE LOCATION OF EXISTING UNDERGROUND UTILITIES. CONTRACTOR TO DETERMINE ACTUAL LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO MOBILIZATION. IF CONFLICTS EXIST, NOTIFY ENGINEER. BEFORE DIGGING CONTACT "MISS UTILITY" AT 811.

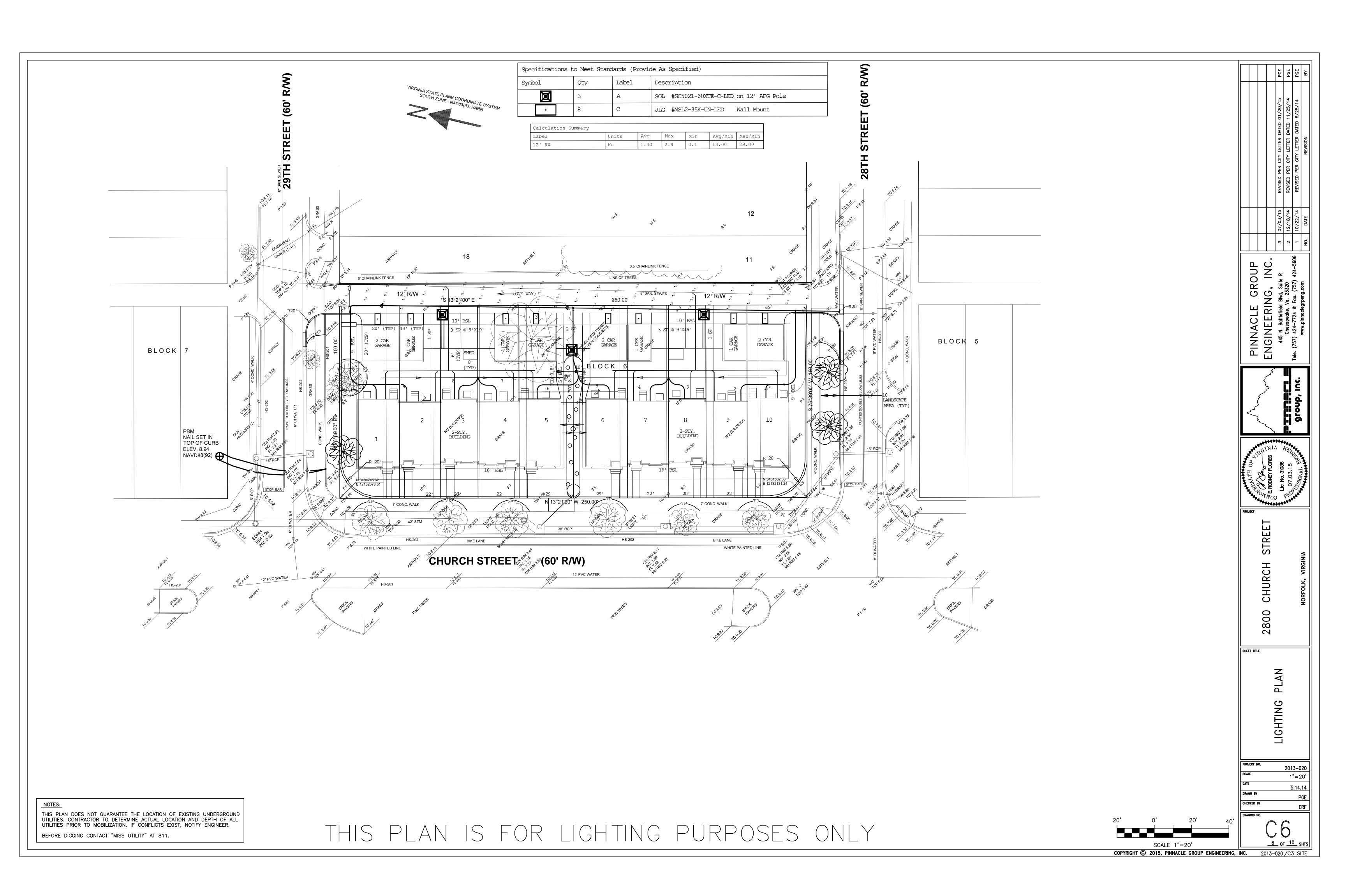
1"=20" 07/03/15

THIS PLAN IS FOR LANDSCAPE PURPOSES ONLY



ANDSCAPE

5 OF 10



. VERTICAL CONTROL- NAVD'88 (CITY OF NORFOLK GPS-141)= 15.71'

2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM WITH THE CURRENT SPECIFICATIONS AND STANDARDS OF THE DEPARTMENT OF PUBLIC WORKS AND THE DEPARTMENT OF UTILITIES, CITY OF NORFOLK, VIRGINIA.

3. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF LOCATING ANY UNDERGROUND UTILITIES (PUBLIC AND PRIVATE) THAT MAY EXIST AND CROSS THROUGH THE AREA OF CONSTRUCTION THAT ARE NOT SHOWN ON THESE PLANS. BEFORE YOU DIG, TO MISS THE UTILITIES, CALL "MISS UTILITY" OF VIRGINIA AT 1-800-552-7001. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AT THE EXPENSE ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

4. FOR WORK IN THE CITY OF NORFOLK'S RIGHT OF WAY, CONTACT 48 HOURS IN ADVANCE: -DIVISION OF RIGHT OF WAY (PERMITS): 664-7306 -INSPECTIONS: 664-7306 -ENVIRONMENTAL STORM WATER: 823-4000 -LANDSCAPING: 441-2435 -UTILITIES: 823-1001

5. APPROVAL DOES NOT PRECLUDE THE NECESSITY OF THE EXCAVATOR, BY STATE LAW, TO CONTACT THE DIVISION OF RIGHT OF WAY 48 HOURS BEFORE EXCAVATION AT 664-7306. (PERMIT NUMBER REQUIRED).

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING WITH MATCHING MATERIALS ANY PAVEMENT, DRIVEWAYS, WALKS, CURBS, ETC. THAT MAY BE CUT, OR THAT ARE DAMAGED DURING CONSTRUCTION.

7. WATER METER SETTING SHALL BE DONE BY CITY FORCES AT THE EXPENSE OF THE OWNER. LOCATION OF THE CONNECTION IS SHOWN ON THE PLANS.

8. PROJECT LIMITS ARE PROPERTY LINES, UNLESS OTHERWISE NOTED. 9. TOPSOIL, SEED AND FERTILIZE ALL AREAS WITHIN THE PROJECT LIMITS NOT OCCUPIED BY

STRUCTURES, PAVEMENT, SIDEWALKS, ETC. SEE LANDSCAPE PLAN. 10. NO LANE CLOSURES AND/OR WORK IN THE RIGHT OF WAY, INCLUDING GRADING, SIDEWALK, CURB AND GUTTER, AND DRIVEWAY APRON INSTALLATION WILL BE ALLOWED WITHOUT A PERMIT

FORM THE DIVISION OF RIGHT OF WAY (664-7306). ALL TRAFFIC CONTROL SHALL COMPLY WITH THE CURRENT EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE VIRGINIA WORK AREA PROTECTION MANUAL, AND THE CITY OF NORFOLK RIGHT OF WAY EXCAVATION AND RESTORATION MANUAL. ADDITIONAL CHARGES APPLY IF OFF-DUTY OFFICERS ARE REQUIRED. A LIST OF PERMIT FEES IS LOCATED AT www.norfolk.gov/publicworks/row.

11. ALL CONCRETE TO CLASS A-3 AIR ENTRAINED (3,000 PSI).

12. DRIVEWAY APRON IS TO BE NORFOLK STANDARD HS-207 OR VDOT CG-9D, 6" THICK FOR RESIDENTIAL OR 8" FOR COMMERCIAL, CLASS A-3 CONCRETE, AIR ENTRAINED (3,000 PSI). MAINTAIN EXISTING ELEVATION AT STREET/EDGE OF SIDEWALK. REMOVE SIDEWALK AND FORM TO UNIFORM THICKNESS. REMOVE CURB TO BASE. POUR TO BE INTEGRAL WITH APRON. ALL CONCRETE TO BE SAW CUT.

13. THE PROPOSED GROUND FLOOR ELEVATION OF ALL BUILDINGS SHALL BE 1 FOOT ABOVE THE BASE FLOOD ELEVATION AS SHOWN ON THE HUD FLOOD ZONE HAZARD MAPS FOR THE CITY OF NORFOLK, VIRGINIA.

14. ADEQUATE LIGHTING SHALL BE PROVIDED FOR EXTERIOR OF BUILDINGS AND/OR PARKING LOTS IN SUCH A MANNER AS TO ASSURE SAFETY AND SECURITY. LIGHTING SOURCES SHALL BE SHIELDED AND THERE SHALL BE NO SPILLOVER ONTO ADJACENT PROPERTIES OR THE

15. CONTRACTOR TO SUBMIT AS-BUILT PLANS TO THE DRAINAGE ENGINEER, DEPARTMENT OF PUBLIC WORKS WITHIN TEN DAYS OF PROJECT COMPLETION. (WHEN STORM SEWER IS CONSTRUCTED)

16. THE REMOVAL OR RELOCATION OF ALL UTILITIES AND APPURTENANCES WILL BE AT THE RISK AND EXPENSE OF THE CONTRACTOR. THESE INCLUDE, BUT ARE NOT LIMITED TO VIRGINIA

POWER, SEWER, TELEPHONE, COMMUNICATION, CABLE, FIBER OPTICS, ETC 17. THE UTILITIES FIELD ENGINEER OFFICE SHALL BE CONTACTED AT TELEPHONE 823-1001 FIVE(5) DAYS PRIOR TO START OF WORK TO SCHEDULE AN INSPECTOR. APPROVED

SUBMITTALS REQUIRED FOR ALL INSPECTED MATERIALS ADJACENT PROPERTY OR RIGHT-OF-WAY. 18. ALL ELEVATION REFERENCED NY NAVD 88(92) ADJ.

19. FOR ALL SITES ONE ACRE OR GREATER THAN 2.500 S.F. IN CBPA. CONTACT THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION AT 804-786-3957 TO OBTAIN A VSMP CONSTRUCTION PERMIT.

20. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CITY OF NORFOLK RIGHT-OF-WAY EXCAVATION AND RESTORATION MANUAL

21. RIGHT OF WAY EXCAVATION PERMITS ARE REQUIRED TO PERFORM EXCAVATION WORK IN THE RIGHT OF WAY. PLEASE CONTACT THE RIGHT OF WAY PERMITS OFFICE AT 664-7306 OR AT www.norfolk.gov/publicworks/row.

22. WHEN THE CONTRACTORS WORK REQUIRES THE SAWCUTTING AND/OR PARTIAL DEMOLITION AND/OR REMOVAL OF ANY SECTION OF AN EXISTING APRON OR SIDEWALK, THE CONTRACTOR WILL BE REQUIRED TO REMOVE SAID EXISTING APRON OR SIDEWALK AND REPLACE IT WITH A NEW MONOLITHIC APRON OR SIDEWALK, SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT. ALL CONCRETE IS TO BE SAW CUT. NO PATCHING WILL BE ALLOWED, COMMERCIAL APRONS SHALL BE REPLACED WITH AN APPROVED COMMERCIAL APRON. RESIDENTIAL APRONS SHALL BE REPLACED WITH AN APPROVED RESIDENTIAL APRON (HS-207). SIDEWALKS SHALL BE REPLACED WITH AN APPROVED SIDEWALK DETAIL. CONTACT THE DIVISION OF RIGHT OF WAY PERMIT OFFICE FOR APPROVAL 664-7306. (ORDINANCE NO. 40,778).

23. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED TRAFFIC CONTROL PLAN (MOT) WITH THE CONTRACTOR'S PERMIT APPLICATION TO WORK IN THE RIGHT OF WAY. THE MOT SHALL BE A DRAWING OR AERIAL PHOTO WITH SPECIFIC DETAILS. THESE SHALL INCLUDE BUT ARE NOT LIMITED TO: TRAFFIC SIGNS, DIRECTIONAL SIGNS, DESTINATION SIGNAGE. CHANNELIZING DEVICES, WATER-FILLED BARRIERS PORTABLE MESSAGES BOARDS WITH MESSAGES TO BE DISPLAYED. THE EXACT LOCATION OF ALL SIGNS AND/OR DEVICES INCLUDING SPACING FOR EACH SIGN AND/OR DEVICE, SPACING BEING APPROPRIATE FOR THE WORK ZONE LOCATION AND POSTED SPEED LIMITS. ALL MAINTENANCE OF TRAFFIC (MOT) PLANS SHALL CONFORM TO THE CURRENT ISSUE OF "THE VIRGINIA WORK AREA PROTECTION MANUAL". COPIES OR REPRODUCTIONS OF THE MOT THAT ARE INCLUDED WITH THE PROJECT DRAWINGS AND SPECIFICATIONS WILL NOT BE ACCEPTED WITHOUT THE CONTRACTOR'S PERMIT APPLICATION. CONTRACTORS SHOULD CONSIDER THESE ITEMS WHEN BIDDING PROJECT FOR CONSTRUCTION.

EROSION AND SEDIMENT CONTROL NOTES:

- Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook (3rd Edition, 1992) and the City of Norfolk erosion and sediment control
- The contractor shall contact the City of Norfolk, Bureau of Environmental Services (664-4368) at least 48 10. ALL MANHOLE CASTINGS IN PAVED AREAS SHALL BE ADJUSTABLE TYPE. hours prior to any land disturbing activity (including demolition) so that a preconstruction conference can
- The contractor shall apply permanent or temporary soil stabilization to all denuded or disturbed areas within 7 days after final grade is reached on any portion of the site. Soil stabilization must also be applied to denuded or disturbed areas which may not be at final grade but which will remain undisturbed for longer than 14 days. Soil stabilization measures include vegetative establishment, mulching and the early application of gravel base material on areas to be paved.
- All erosion and sediment control measures are to be placed prior to or as the first step in construction.
- The contractor shall inspect all erosion control measures periodically and after each runoff producing rainfall event. Any necessary repairs to maintain the effectiveness of the erosion control devices and cleanup of sedimentation are the responsibility of the contractor and shall be made immediately.
- The contractor shall limit site access by construction vehicles to entrances protected by a stone construction entrance (VESCH Std. & Spec. 3.02) or an approved comparable control measure. Sediment shall be removed from paved areas on a daily basis.
- Stock piles of soil and other erodible materials shall be stabilized or protected with sediment trapping measures. The contractor is responsible for the temporary protection and permanent stabilization for stockpiles on site as well as for materials transported from the project site.
- The contractor shall monitor and take precautions to control dust including (but not limited to) use of water, mulch, or chemical dust adhesives and control of construction site traffic.
- Effluent from de-watering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect adjacent properties, wetlands,
- The contractor is responsible for installation and maintenance of any additional control measures necessary

waterways or the storm drainage system.

- to prevent erosion and sedimentation as determined necessary by the plan approving authority.
- Temporary erosion and sediment control measures are not to be removed until all disturbed areas are stabilized. After stabilization is complete, all measures shall be removed within 30 days. Trapped sediment shall be spread and seeded.

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION

THIS PROJECT PROPOSES TO INSTALL TEN TOWNHOUSES ON AN EXISTING, UNDEVELOPED GRASSED PARCEL. THE AREA TO BE DISTURBED IS 0.59 ACRES. EXISTING SITE CONDITIONS

THIS IS AN EXISTING VACANT SITE AT 2800 CHURCH STREET. THE PARCEL IS VACANT AND GRASSED. IT CURRENTLY DRAINS TO 28TH ST., 29TH ST., AND CHURCH ST. ADJACENT AREAS

THIS SITE IS BOUNDED ON THE SOUTH BY 28TH ST., AND ON THE NORTH BY 29TH ST., ON THE WEST SIDE BY CHURCH ST., AND ON THE EAST BY RESIDENTIAL PROPERTY. SINCE WE DISCHARGE TO THE PUBLIC STORM SYSTEM, WE WILL HAVE A BMP AND E&S MEASURES IN PLACE, THERE WILL BE NO EFFECTS TO ADJACENT AREAS.

OFF-SITE AREAS THERE WILL BE NO OFFSITE DISTURBANCE.

PER THE SOILS REPORT OBTAINED FOR THE BMP BORING, THERE IS 6" OF TOPSOIL, 2.0 FEET OF BROWN SILTY CLAYEY FINE SAND- SC, 6" OF BROWN SILTY FINE SANDY- CL, 4.0 FEET OF LIGHT BROWN, FINE SAND- SP, AND 6" LIGHT BRONW SILTY FINE SAND- SP-SM.

THE SITE IS MOSTLY FLAT AND GRASSED. THERE ARE NO CRITICAL AREA ONSITE. E&S MEASURES

BEFORE CONSTRUCTION, ALL SEDIMENT CONTROL MEASURES WILL BE IN PLACE. THESE MEASURES WILL INCLUDE SILT FENCING, CONSTRUCTION ENTRANCE, INLET PROTECTION, AND RIP-RAP. THE GRASS SWALES ARE TO BE STABILIZED AND CLEANED OF SEDIMENT PRIOR TO REMOVAL OF ALL EROSION AND SEDIMENT CONTROL MEASURES. PERMANENT STABILIZATION

ALL DISTURBED AREAS ARE TO BE PERMANENT SEEDED (PS), STRAW MULCHED (MU) ONCE THEY REACH FINAL GRADE. SEEDING SCHEDULE IS ON NOTE SHEETS OF PLANS. STORMWATER RUNOFF CONSIDERATIONS

THIS DEVELOPMENT WILL CAUSE AN INCREASE IN STORM WATER RUNOFF THAT WILL BE TREATED FOR WATER QUALITY & QUANTITY THROUGH A BMP. SCHEDULE OF INSPECTIONS

1. SILT FENCING- CHECK REGULARLY FOR DAMAGE AND REPAIR AS NEEDED IMMEDIATELY. REMOVE SEDIMENT AFTER ANY SIGNIFICANT RAINFALL EVENT. 2. GRASSED SWALE- CLEAR OF SEDIMENT AFTER ANY SIGNIFICANT RAINFALL EVENT. VEGETATION SHOULD BE ESTABLISHED ON SIDE SLOPES ASAP TO CUT DOWN ON EROSION. 3. RIP-RAP- CHECK REGULARLY FOR DAMAGE AND REPAIR AS NEEDED IMMEDIATELY. REMOVE SEDIMENT AFTER ANY SIGNIFICANT RAINFALL EVENT 4. BMP- CHECK FOR DEBRIS, AND UNDERMINING OF BANKS AFTER A STORM EVENT.

CONSTRUCTION SEQUENCE:

1. CONTRACTOR TO SECURE ALL NECESSARY DEMOLITION AND LAND DISTURBING PERMITS.

- 2. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.
- 3. REMOVE ITEMS SHOWN ON DEMOLITION PLAN.
- 4. ROUGH GRADE ALLEY AND SITE.
- 5. INSTALL ALL UNDERGROUND PIPES AND UTLITIES.
- 6. INSTALL BMP.
- 7. FINISH SITE GRADING. INSTALL LANDSCAPING.

EXPENSE. LOCATION IS SHOWN ON THE PLANS.

CAST IN THE COVER.

8. REMOVE STORAGE AND STOCKPILE AREAS

9. STABILIZE ALL DISTURBED AREAS AND REMOVE EROSION AND SEDIMENT CONTROL MEASURES WITH CITY INSPECTOR APPROVAL.

UTILITY NOTES:

THE UTILITIES FIELD ENGINEERING OFFICE SHALL BE CONTACTED AT 823-1001 FIVE (5) DAYS PRIOR TO START OF WORK TO SCHEDULE AN INSPECTOR AND PRECONSTRUCTION CONFERENCE, PROPOSED FIRE HYDRANT TO BE INSTALLED BY THE CONTRACTOR, CONTACT LEIGH GOODWIN, UTILITIES CHIEF OF CONSTRUCTION AT 823-1013 TO COORDINATE.

ALL CITY RIGHT-OF-WAY AND CITY UTILITY EASEMENT WATER AND SANITARY SEWER WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HAMPTON ROAD PLANNING DISTRICT COMMISSION REGIONAL SPECIFICATIONS. THE CITY OF NORFOLK DEPARTMENT OF UTILITIES STANDARD SPECIFICATIONS, AND THE VIRGINIA DEPARTMENT OF HEALTH REGULATION. APPROVED SUBMITTALS REQUIRED ON ALL INSPECTED MATERIALS.

STAKEOUTS FOR THE PROPOSED CITY WATER MAIN AND SEWER MAIN LAYOUTS SHALL BE SUPERVISED BY A VIRGINIA LICENSED LAND SURVEYOR. WRITTEN CUT SHEETS TO BE PROVIDED TO THE UTILITIES FIELD ENGINEERING OFFICE.

4. WATER SERVICE ABANDONMENT'S SHALL BE PERFORMED BY CITY FORCES. CALL CITY OF NORFOLK UTILITIES WATER DISTRIBUTION AT TELEPHONE 823-1001 TO COORDINATE. 5. WATER METER RELOCATIONS SHALL BE PERFORMED BY CITY FORCES T THE OWNER'S

ABANDONED FIRE HYDRANTS SHALL BE SALVAGED BY THE CITY AND DELIVERED TO THE UTILITIES COMBINED OPERATIONS CENTER AT 1316 BALLENTINE BOULEVARD. CONTACT TOBY MCLAWHORN OF UTILITIES WATER DISTRIBUTION AT 823-1001 TO COORDINATE. 7. WATER MAINS MAY BE ROLLED UNDER STORM DRAINS WITHOUT FITTINGS WHEN VERTICAL

GRADE CHANGE IS 2 FEET OR LESS. 8. ALL SANITARY SEWER DUCTILE IRON PIPE SHALL BE LINED WITH PROTECTO 401 OR APPROVED EQUIVALENT

9. FOR JOINTS BETWEEN SANITARY SEWER MANHOLE SECTIONS, "RAM NECK" OR EQUIVALENT

11. ALL MANHOLES SHALL RECEIVE THE STANDARD 30" FRAME AND COVER WITH A STAINLESS STEEL RAIN STOPPER PLACED IN THE FRAME. AN "S" OR THE WORD "SEWER" SHALL BE

12. PROPOSED CITY RIGHT-OF-WAY OR CITY UTILITIES EASEMENT WATER OR SEWER WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF NORFOLK DEPARTMENT OF

UTILITIES STANDARD SPECIFICATIONS 13. WATER LINE TAP AND METER SHALL BE PERFORMED BY CITY FORCES AT THE OWNER'S

14. FLOWABLE FILL IS NOT AN APPROVED MATERIAL FOR USE IN THE CITY OF NORFOLK FOR BACKFILL WITHOUT PRIOR APPROVAL. THE SELECT MATERIAL AND 21A STONE WILL BE IN ACCORDANCE WITH 2002 VDOT ROAD AND BRIDGE SPECIFICATIONS. FOR BACKFILL AROUND THE PIPE USE SELECT MATERIAL (SECTION 207) — TYPE I AND 20 CBR COMPACTION. FOR

THE SUB BASE MATERIAL USE 6" MIN. VDOT 21A STONE IN ACCORDANCE TO SECTION 208. 15. RIGHT-OF-WAY EXCAVATION PERMITS ARE REQUIRED TO PERFORM SEWER AND WATER MAIN INSTALLATION AND ALL APPURTENANCES. PLEASE CONTACT THE RIGHT-OF-WAY PERMITS OFFICE AT 664-7306 OR AT www.norfolk.gov/publicworks/row.

16. THE CONTRACTOR WILL BE REQUIRED TO POST A CASH, CHECK, OR SURETY BOND OR LETTER OF CREDIT TO EXCAVATE IN THE RIGHT OF WAY.

17. WHEN A NEW APRON AND/OR SIDEWALK ARE INSTALLED, ALL NEW OR EXISTING UTILITY STRUCTURES SHALL BE INSTALLED AND/OR RELOCATED OUTSIDE THE AREA OF THE NEW APRON AND/OR SIDEWALK. A PERMIT AND INSPECTION ARE REQUIRED.

18. AS PART OF THE CONTRACTOR'S PERMIT APPLICATION TO WORK IN THE RIGHT OF WAY, THE CONTRACTOR MUST SUBMIT A MAP IDENTIFYING THE PROJECTS STORAGE AND LAYDOWN AREA. THE CITY DOES NOT ALLOW STORAGE, STAGING, OR LAY DOWN AREAS WITHIN THE RIGHT OF WAY. CONTRACTORS ARE ENCOURAGED TO MAKE ARRANGEMENTS TO STORE MATERIALS AND LAY DOWN ON PRIVATE PROPERTY OR THEY MUST BE STORED WITHIN

19. CONTRACTOR SHALL CONTACT THE UTILITIES FIELD ENGINEERING OFFICE AT, 823-1001, AT LEAST 72 HOURS PRIOR TO EXCAVATION AND FIVE (5) DAYS PRIOR TO CONSTRUCTION TO SCHEDULE AN INSPECTOR.

20. WATER SERVICE ABANDONMENTS SHALL BE PERFORMED BY CITY FORCES. CALL 823-1001 TO COORDINATE.

21. MISCELLANEOUS COVERS AND LIDS SHALL BE RE-ESTABLISHED AT PROPOSED GRADES.

TREE PROTECTION NOTES

2. CRITICAL ROOT ZONE:

WITH EXCEPTION OF THOSE TREES SPECIFICALLY SHOWN TO BE REMOVED, ALL EXISTING TREES UNAUTHORIZED ENCROACHMENT OF EQUIPMENT AND VEHICLES, OR ON PUBLIC AND PRIVATE PROPERTY SHALL BE ACTIVELY PRESERVED AND PROTECTED BY THE CONTRACTOR, AND ANY SUBCONTRACTORS, FROM DAMAGE TO THE CROWN AREA, TRUNK, ROOT WITHIN THE CRITICAL ROOT ZONE OF PROTECTED TREES. SYSTEM, OR ROOTING ENVIRONMENT (SOIL SYSTEM) DURING CONSTRUCTION.

GENERAL: THE CRITICAL ROOT ZONE (CRZ) IS DEFINED AS THE SURFACE AREA OF THE GROUND DIRECTLY BENEATH THE LIMITS OF THE CROWN (BRANCH) SPREAD OF A TREE. THE CRZ IS ALSO COMMONLY REFERRED TO AS THE DRIPLINE. (SEE TREE PROTECTION FENCING DETAIL). IT IS WITHIN THIS ZONE THAT THE MAJORITY OF LARGER ROOTS THAT PROVIDE SUPPORT FOR THE TREE, AND TRANSPORT WATER AND NUTRIENTS. EXIST, A RELATIVELY HIGH PERCENTAGE OF ABSORPTIVE ROOTS ALSO TYPICALLY OCCUR WITHIN THE CRZ. IN URBAN AREAS ROOTING DEPTHS WITHIN THE CRZ RARELY OCCUR BELOW 30 INCHES. WITH MOST ROOTS THE PLACEMENT OF SUCH WOULD ADVERSELY AFFECT TRAFFIC FLOW OR SAFETY, OR FOUND WITHIN THE UPPER 18 INCHES OF THE SOIL PROFILE. PAVED STREET SURFACES (CURB WHEN THE CONTRACTOR HAS CLEARLY DEMONSTRATED A CAPABILITY TO MANAGE FACE TO CURB FACE) ARE NOT INCLUDED IN THE CRZ.

CONSTRUCTION PROCEDURES: NO CONSTRUCTION VEHICLES, EQUIPMENT, MATERIALS, SUPPLIES, OR TEMPORARY FACILITIES (TRAILERS, PORTABLE TOILETS) MAY BE PLACED WITHIN THE CRZ (DRIPLINE) OF PROTECTED TREES, PAVED STREETS (CURB TO CURB) EXCEPTED. THE FOLLOWING TYPES OF ITEMS ARE RESTRICTED FROM THE CRZ: VEHICLES (CONSTRUCTION OR PERSONAL), CONSTRUCTION EQUIPMENT NOT SPECIFICALLY APPROVED AND INCIDENTAL TO THE WORK, CONCRETE WASHOUT, FUEL OR CHEMICAL STORAGE, TEMPORARY STOCKPILE OF SOIL. PIPING AND OTHER CONSTRUCTION MATERIALS AND SUPPLIES. PARKS & URBAN FORESTRY MAY PERMIT WILL BE ISSUED DURING THE MANDATORY PRECONSTRUCTION FORESTRY GRANT EXEMPTIONS FOR WORK WITHIN THE CRZ WHERE SUITABLE TREE PROTECTION MEASURES REVIEW. THE TREE WORK PERMIT MUST BE RETAINED ON THE JOB-SITE FOR THE ARE IMPLEMENTED, I.E. HAND DIGGING, INSTALLATION OF MULCH CONSTRUCTION MAT, ETC.

3. HAND DIG ZONE: GENERAL: THE HAND DIG ZONE (HDZ) IS THE AREA OF THE ROOT SYSTEM THAT IS LIKELY TO WITH THE TREE ORDINANCE, WILL REQUIRE A SEPARATE TREE WORK PERMIT. IT IS CONTAIN THE MAJORITY OF SUPPORT AND TRANSPORT ROOTS 2 INCHES AND LARGER IN

THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY TREE WORK DIAMETER. HAND DIG ZONES VARY BASED ON TREE SIZE AND SPECIES CHARACTERISTICS, SOIL CONDITIONS, AND OTHER SITE FACTORS THAT AFFECT ROOTING PATTERNS.

CONSTRUCTION PROCEDURES: ALL ROOTS 2 INCHES AND LARGER IN DIAMETER (ANY DIMENSION) ENCOUNTERED TO A 30" DEPTH IN THE HDZ, OUTSIDE THE ACTUAL SPACE OCCUPIED BY PIPES OR OTHER ELEMENTS BEING CONSTRUCTED. SHALL BE PRESERVED AND PROTECTED FROM ABRASIONS. CUTS OR OTHER SIGNIFICANT WOUNDS. EXCAVATION SHALL BE TUNNELED BENEATH THESE ROOTS. IT IS STRONGLY RECOMMENDED THAT AN AIR SPADE POWERED BY AN AIR COMPRESSOR (AIR-SPADE 150/90 MANUFACTURED BY CEG, INC. VERONA, PA, OR APPROVED EQUAL) BE UTILIZED TO EXPOSE PROTECTED ROOTS WITHOUT INJURY. PROTECTED ROOTS BRIDGING ANY OPEN EXCAVATION FOR MORE THAN 24 HOURS SHALL BE LOOSELY WRAPPED IN WET BURLAP TO PREVENT EXCESSIVE DEHYDRATION OF THE EXPOSED ROOT SURFACE. ROOTS LESS THAN 2 INCHES IN DIAMETER IN ANY DIMENSION MAY BE CUT, WHERE NECESSARY, WITH A SHARP AX, SHARPENED FLAT SPADE OR HAND PRUNING SAW AT THE EDGE OF THE EXCAVATION. ONCE EXCAVATION REACHES 30 INCHES, AND LARGER ROOTS DO NOT PROHIBIT ACCESS, MECHANICAL EQUIPMENT MAY BE USED TO DEEPEN THE EXCAVATION. IN AREAS WHERE ROOTS ARE ENCOUNTERED, WORK SHALL BE PERFORMED AND SCHEDULED TO CLOSE EXCAVATIONS AS QUICKLY AS POSSIBLE OVER EXPOSED ROOTS.

GENERAL: THE PURPOSE FOR ROOT PRUNING OF EXISTING TREES ADJACENT TO CONSTRUCTION IS TO PROVIDE A CLEANER, MORE CONTROLLED CUT THAN IS NORMALLY ACCOMPLISHED BY CONVENTIONAL EXCAVATING MACHINES. ROOT PRUNING ALSO PROVIDES AN OPPORTUNITY FOR A FORESTRY ASSESSMENT OF ROOT DAMAGE/LOSS, AND IMPACT OF ROOT PRUNING ON TREE HEALTH AND PUBLIC SAFETY.

CONSTRUCTION PROCEDURES: ROOT PRUNING, WHERE INDICATED, WITHIN THE CRITICAL ROOT ZONE MAY BE ACCOMPLISHED WITH A ROCK SAW. CHAIN SAW. HAND PRUNING SAW. SHARPENED TRENCHER OR VIBRATORY PLOW. OR A MACHINE SPECIFICALLY DESIGNED FOR ROOT PRUNING. AS REQUIRED TO RESULT IN A SMOOTH. FLAT TRUNCATION OF THE ROOT. WHERE A TRENCHER OR VIBRATOR PLOW IS UTILIZED. THE BLADE OR TEETH MUST BE SHARPENED PRIOR TO EACH PROJECT START. THE LOCATION OF THE CUT IS 6 INCHES OUTSIDE THE LIMITS OF THE EXCAVATION (TRENCH SIDE CLOSEST TOWARDS THE PROTECTED TREE) TO ENSURE THAT ALL ROOTS ENCOUNTERED IN THE TRENCH ARE PROPERLY SEVERED. LARGE ROOTS ENCOUNTERED THAT CANNOT BE SEVERED WITH ROOT PRUNING MACHINERY ARE TO BE HAND CUT WITH A SHARPENED PRUNING OR CHAIN SAW (SEE ROOT PRUNE MECHANICAL DETAIL).

5. CONCRETE DEMOLITION AND REMOVAL WITHIN THE CRZ: ALL CONCRETE AND ASPHALT REMOVAL COMPLETED WITHIN THE CRZ MUST BE COMPLETED BY A METHOD THAT PREVENTS ANY SEVERANCE OR DAMAGE TO ROOTS LOCATED DIRECTLY BENEATH OR ADJACENT TO THE HARDSCAPE SURFACE. EQUIPMENT WORKING FROM A HARD SURFACE (PAVED STREET, SIDEWALK, DRIVEWAY, ETC.) MAY BE UTILIZED TO PICK UP CONCRETE AND ÀSPHALT SECTIONS. CURB AND GUTTER REPLACEMENT WITHIN THE CRZ OF ANY PROTECTED TREE MAY BE REQUIRED TO BE HAND-FORMED WITH 1" DIMENSIONAL LUMBER, WHERE CONVENTIONAL CURB AND GUTTER FORMS WOULD SIGNIFICANTLY IMPACT A PROTECTED TREE.

6. EXCAVATION PROCEDURES WITHIN THE CRZ

GENERAL: PROTECTION OF TREES ADJACENT TO EXCAVATION INVOLVES THREE AREAS OF OPERATIONS: PLACEMENT OF EXCAVATED MATERIALS (DIRT, PIPE, ETC.) ROOT PRUNING/HAND DIGGING, AND PROTECTION OF TRUNK AND LIMBS.

CONSTRUCTION PROCEDURES: EXCAVATED MATERIAL PLANNED FOR BACKFILL USE MUST BE PLACED OUTSIDE OF THE CRITICAL ROOT ZONE OF ADJACENT TREES WHERE THERE SUFFICIENT ROOM. IF NO ROOM EXISTS DUE TO THE LOCATION OF ADJACENT STRUCTURES OR TREES AND THE FILL SOIL CANNOT BE PLACED ON A HARDSCAPE SURFACE, THE FILL SOIL MUST BE PLACED ON PLYWOOD OR OTHER SUITABLE DECKING TO CONTAIN THE FILL AND MINIMIZE POINT SOURCE SOIL COMPACTION WITHIN THE CRITICAL ROOT ZONE. ADDITIONALLY, WHERE IT IS NECESSARY TO OPERATE EQUIPMENT WITHIN THE CRITICAL ROOT ZONE (PAVED STREETS CURB FACE TO CURB FACE EXCEPTED) A SIX-INCH LAYER OF WOOD CHIPS SHALL BE PLACED AND MAINTAINED WITHIN THE CONSTRUCTION ACCESS-WAY TO MINIMIZE SOIL COMPACTION AND ROOT DAMAGED CAUSED BY THE EQUIPMENT. FOLLOWING CONSTRUCTION THE WOOD CHIPS MUST BE REMOVED WITH HAND TOOLS AND THE SITE RESTORED TO PREEXISTING

HAND DIGGING OR ROOT PRUNING WILL BE REQUIRED WHERE NOTED ON THE DRAWINGS OR OTHERWISE INDICATED.

EXTREME CARE MUST BE TAKEN TO AVOID INJURY (SCARRING, BREAKAGE, ETC.) TO THE TRUNK AND CROWN AREA (BRANCHES) OF PROTECTED TREES, WHEREVER POSSIBLE, CONSTRUCTION EQUIPMENT SHALL BE MANEUVERED AS NEEDED TO AVOID UNNECESSARY PRUNING OR CONTACT WITH PROTECTED TREES. 7. TREE PRUNING:

GENERAL: THE PURPOSE OF CLEARANCE PRUNING IS TO PROVIDE CONSTRUCTION EQUIPMENT ACCESS BENEATH AND ADJACENT TO THE CROWN (BRANCH AREA) OF PROTECTED TREES TO PREVENT UNNECESSARY BREAKAGE OR SCARRING OF LIMBS.

CONSTRUCTION PROCEDURES: ALL AUTHORIZED PRUNING WORK SHALL BE COMPLETED BY AN APPROVED, LICENSED, INSURED ARBORIST HOLDING CURRENT ARBORIST CERTIFICATION WITH THE INTERNATIONAL SOCIETY OF ARBORICULTURE. THE CONTRACTOR SHALL NOT PRUNE OR CAUSE TO HAVE PRUNED ANY TREE LOCATED ON CITY PROPERTY (INCLUDING PROPERTY TO BE DEDICATED TO THE CITY OF NORFOLK) WITHOUT FIRST SECURING A SEPARATE TREE WORK PERMIT FROM THE DIVISION OF PARKS & URBAN FORESTRY. THE CONTRACTOR MUST SEEK AND RECEIVE PERMISSION FROM THE PROPERTY OWNER PRIOR TO PRUNING ANY TREE ON PRIVATE PROPERTY. ALL PRUNING WORK SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE. THE CITY OF NORFOLK MAY ELECT, AT ITS OPTION, TO COMPLETE ANY EQUIPMENT CLEARANCE PRUNING ON PUBLIC STREET RIGHTS OF WAY.

8. SELECTIVE PRUNING OF TREES DAMAGED BY CONSTRUCTION:

GENERAL: THE PURPOSE OF SELECTIVE PRUNING IS TO REMOVE BROKEN OR OTHERWISE WOUNDED BRANCHES FROM PROTECTED TREES THAT ARE DAMAGED THROUGH CONSTRUCTION RELATED ACTIVITIES. THE CITY FORESTER WILL DIRECT SELECTIVE PRUNING AND THERAPEUTIC REQUIREMENTS NEEDED TO RESTORE TREE HEALTH OR STRUCTURE. ALL WORK MUST BE COMPLETED BY A PROFESSIONAL, ISA CERTIFIED ARBORIST, AT THE CONTRACTOR'S EXPENSE

CONSTRUCTION PROCEDURES: THE CITY FORESTER WILL ASSESS ALL CONSTRUCTION DAMAGED TREES AND ORDER THE APPROPRIATE SELECTIVE PRUNING REQUIREMENTS. DAMAGES MAY ALSO BE ASSESSED TO THE CONTRACTOR FOR THE VALUE LOSS OF ANY PROTECTED TREE DAMAGED THROUGH CARELESS OR NEGLIGENT EQUIPMENT OPERATIONS, OR CONTRACTUAL VIOLATIONS INCLUDING NONCONFORMANCE TO CONTRACT TREE PROTECTION REQUIREMENTS DETAILED IN THE PROJECT SPECIFICATIONS OR DRAWINGS, OR OTHERWISE DIRECTED. TREES THAT ARE DAMAGED BEYOND REASONABLE AESTHETIC, STRUCTURAL OR PHYSIOLOGICAL RECOVERY WILL BE APPRAISED TO DETERMINE THE VALUE OF THE TREE, AND THE CONTRACTOR WILL BE HELD LIABLE FOR THE VALUE LOSS AND ANY ASSOCIATED REMOVAL OR SITE RESTORATION COSTS. 9. DAMAGE TO PROTECTED TREES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PROTECTED TREES RESULTING FROM NEGLIGENT OR CARELESS OPERATIONS, INCLUDING BUT NOT LIMITED TO LIMB BREAKAGE, TRUNK WOUNDS OR ABRASIONS, EXCESSIVE ROOT DAMAGE, SOIL COMPACTION, ETC. UPON SUCH OCCURRENCE THE CITY FORESTER WILL EVALUATE THE EXTENT OF DAMAGE AND DETERMINE THE APPROPRIATE REMEDIAL ACTION TO BE TAKEN AT THE CONTRACTOR'S EXPENSE, INCLUDING BUT NOT LIMITED TO CORRECTIVE PRUNING. BARK TRACING. CABLING AND BRACING. HAZARD EVALUATION, REMOVAL AND SOIL/SITE RESTORATION. IF IN THE SOLE OPINION OF THE CITY FORESTER, THE AMOUNT OF DAMAGE TO ANY CITY-OWNED TREE HAS RESULTED IN A SIGNIFICANT LOSS OF FUNCTIONAL, AESTHETIC, ARCHITECTURAL, OR ECONOMIC VALUE, THE CONTRACTOR WILL ALSO BE REQUIRED TO REIMBURSE THE OWNER FOR THE FULL LOSS IN

VALUE LOSS WILL BE DETERMINED THROUGH AN APPRAISAL COMPLETED BY THE CITY FORESTER FOLLOWING ESTABLISHED PROCEDURES PUBLISHED IN THE "GUIDE FOR PLANT APPRAISAL", AUTHORED BY THE COUNCIL OF TREE AND LANDSCAPE APPRAISERS. IN THE EVENT OF ANY DISPUTE BETWEEN THE CONTRACTOR AND CITY OVER THE VALUE LOSS OF ANY TREE SO DAMAGED OR DESTROYED. THE CITY FORESTER WILL TAKE INTO CONSIDERATION AN INDEPENDENT TREE APPRAISAL COMPLETED BY AN EXPERIENCED CONSULTING ARBORIST HOLDING CURRENT MEMBERSHIP IN GOOD STANDING WITH THE AMERICAN SOCIETY OF CONSULTING ARBORISTS. (ASCA), IN ESTABLISHING THE ACTUAL VALUE LOSS. ALL COSTS ASSOCIATED WITH AN INDEPENDENT APPRAISAL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

10. TREE PROTECTION FENCING:

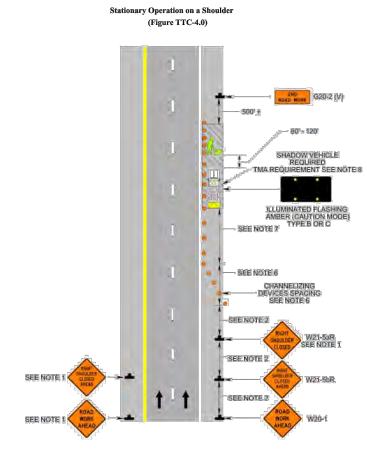
ORDINANCE.

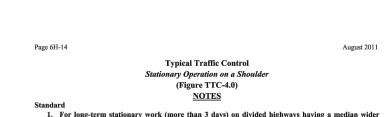
GENERAL: THE PURPOSE OF TREE PROTECTION FENCING IS TO PREVENT WITHIN THE CRITICAL ROOT ZONE OF PROTECTED TREES.

CONSTRUCTION PROCEDURES: TREE PROTECTION FENCING SHALL BE BLAZE-ORANGE IN COLOR, HEAVY-DUTY PLASTIC MESH FENCE, 4 FEET TALL, SECURELY ATTACHED TO METAL 2" U-CHANNEL POST, SET A MAXIMUM OF 8' ON CENTER.

TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO COMMENCING WITH ANY PROPOSED CONSTRUCTION ACTIVITY WITHIN 10 FEET OF ANY PROTECTED TREE, PAVED STREETS (CURB TO CURB) EXCEPTED. THE CITY FORESTER MAY WAIVE THE REQUIREMENT FOR TREE PROTECTION FENCING ADJACENT TO STREET TREES WHERE CONSTRUCTION OPERATIONS ADJACENT TO STREET TREES WITHOUT UNDO RISK OF TREE DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TREE PROTECTION FENCING ERECT AND IN GOOD REPAIR THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES FOR WHICH THE FENCING WAS REQUIRED.

11. TREE ORDINANCE AND TREE WORK PERMIT: THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF THE CITY OF NORFOLK TREE ORDINANCE (CHAPTER 45, NORFOLK CITY CODE). A TREE WORK PERMIT IS REQUIRED FOR THIS PROJECT IF ANY CITY TREES ARE INVOLVED. THE DURATION OF THE PROJECT. ANY WORK NOT SPECIFICALLY SHOWN OR DESCRIBED INCLUDING BUT NOT LIMITED TO TREE PRUNING, TREE REMOVAL, OR ANY CHANGE ORDERS FOR WHICH A TREE WORK PERMIT WOULD BE REQUIRED IN ACCORDANCE THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY TREE WORK PERMITS PRIOR TO PROCEEDING WITH ANY ACTIVITY REGULATED BY THE TREE



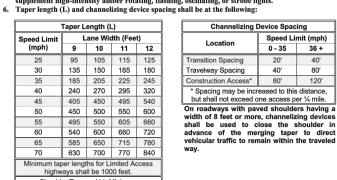


than 8', sign assemblies on both sides of the roadway shall be required as shown (ROAD WORK AHEAD (W20-1), RIGHT SHOULDER CLOSED AHEAD (W21-5bR)), even though only one required on the side where the shoulder is being closed and a RIGHT SHOULDER CLOSED AHEAD (W21-5bR) sign shall be added to that side.

2. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less. 3. The SHOULDER WORK (W21-5) sign on an intersecting roadway may be omitted where drivers

emerging from that roadway will encounter another advance warning sign prior to this activity area.

For short duration operations of 1 hour or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, oscillating, or strobe lights is used. 5. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, oscillating, or strobe lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, oscillating, or strobe lights.



- The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit. 8. A shadow vehicle shall be used whenever a person is required to operate equipment mounted on or in the work vehicle such as buckets, augers, post drivers, etc. For work operations on the shoulder with a duration greater than 1 hour where workers are present, a shadow vehicle shall be used. A truck-mounted attenuator (TMA) shall be used on the shadow vehicle on Limited
- Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 9. When a side road intersects the highway within the temporary traffic control zone, additional

SECTION B

PVC POSTS ---

1"X1"x3" ALUM.

AT EACH POST) -

EXCAVATION AND RESTORATION IN THE RIGHT OF WAY:

1. ALL WORK WITHIN THE RIGHT OF WAY SHALL COMPLY WITH THE CITY OF NORFOLK RIGHT OF WORKS RIGHT-OF-WAY DIVISION. DOWNLOAD AT

HTTP://WWW.NORFOLK.GOV/DOCUMENTCENTER/VIEW/779. IT IS IMPORTANT THAT CONTRACTORS FAMILIARIZE THEMSELVES WITH THE REQUIREMENTS OUTLINED IN THE MANUAL. FAILURE TO OO SO MAY IMPACT PROJECT COSTS. ALSO SEE "OTHER" IN THIS SECTION. EXCEPTIONS MAY BE PERMITTED. A REVIEW MEETING WITH RIGHT OF WAY IS REQUIRED. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE. 2. ALL WORK WITHIN THE RIGHT OF WAY SHALL COMPLY WITH THE CITY OF NORFOLK DESIGN

STANDARDS: DOWNLOAD AT HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=819. EXCEPTIONS MAY BE PERMITTED. A REVIEW MEETING WITH RIGHT OF WAY IS REQUIRED. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE 3. FLOWABLE FILL IS NOT AN APPROVED MATERIAL FOR USE IN THE CITY OF NORFOLK FOR BACKFILL WITHOUT PRIOR APPROVAL. THE SELECT MATERIAL AND 21A STONE WILL BE IN ACCORDANCE WITH THE 2002 VDOT ROAD AND BRIDGE SPECIFICATIONS. FOR BACKFILL

COMPACTION. FOR THE SUB BASE MATERIAL USE 6" MIN. VDOT 21A STONE IN ACCORDANCE

O SECTION 208. 4. NEW DEVELOPMENTS, CONSTRUCTION, AND ADDITIONS REQUIRE NEW SIDEWALK, CURB, GUTTER, AND DRIVEWAYS. EXCEPTIONS MAY BE PERMITTED. A REVIEW MEETING WITH RIGHT OF WAY IS REQUIRED. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV TO

AROUND THE PIPE USE SELECT MATERIAL (SECTION 207) - TYPE I AND 20 CBR

5. IF APPROVED BY RIGHT-OF-WAY, WHEN THE CONTRACTORS WORK REQUIRES THE SAWCUTTING AND/OR PARTIAL DEMOLITION AND/OR REMOVAL OF ANY SECTION OF AN EXISTING APRON OR SIDEWALK. THE CONTRACTOR WILL BE REQUIRED TO REMOVE SAID EXISTING APRON OR SIDFWALK AND REPLACE IT WITH A NEW MONOLITHIC APRON OR SIDEWALK, SIDEWALK SHALI BE REMOVED TO THE NEAREST JOINT. ALL CONCRETE IS TO BE SAW CUT. NO PATCHING WILL BE ALLOWED. COMMERCIAL APRONS SHALL BE REPLACED WITH AN APPROVED COMMERCIAL APRON. RESIDENTIAL APRONS SHALL BE REPLACED WITH AN APPROVED RESIDENTIAL APRON (HS-207). SIDEWALKS SHALL BE REPLACED WITH AN APPROVED SIDEWALK DETAIL. CONTACT THE DIVISION OF RIGHT-OF-WAY FOR APPROVAL AT

PWROW@NORFOLK.GOV (ORDINANCE NO: 40,778)" 6. UTILITY POLES MUST BE RELOCATED AT YOUR PROJECT'S COST. A COPY OF THE WORK ORDER FOR POLE RELOCATIONS MUST ACCOMPANY RIGHT-OF-WAY PERMITS.

1. A PERMIT AND INSPECTION IS REQUIRED TO PERFORM EXCAVATION AND INSTALLATION WORK OF ANY KIND IN THE RIGHT-OF-WAY APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362

VEHICULAR AND PEDESTRIAN TRAFFIC FOR ANY DURATION. APPLICATIONS: HTTP://www.norfolk.gov/indfx.aspx?nid=362 3. A PERMIT AND INSPECTION IS REQUIRED FOR LANE OR SIDEWALK CLOSURES FOR WORK WASHING, GRADING, OR INSTALLING ANY ITEM ABOVE OR UNDERGROUND.

2. A PERMIT AND INSPECTION IS REQUIRED TO SLOW, CLOSE, REDIRECT, DETOUR, OR ALTER

APPLICATIONS: HTTP://www.norfolk.gov/index.aspx?nid=362 4. A PERMIT AND INSPECTION IS REQUIRED TO PLACE ANY OBJECT IN THE CITY RIGHT-OF-WAY. APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362 5. A PERMIT IS REQUIRED TO HAUL OVERSIZED, OVERWEIGHT, OR OVER HEIGHT LOADS.

APPLICATIONS: HTTP://WWW.NORFOLK.GOV/INDEX.ASPX?NID=362 6. A PERMIT AND INSPECTION ARE REQUIRED WHEN A NEW APRON AND/OR SIDEWALK IS INSTALLED, ALL NEW OR EXISTING UTILITY STRUCTURES SHALL BE INSTALLED AND/OR RELOCATED OUTSIDE THE AREA OF THE NEW APRON AND/OR SIDEWALK.

APPLICATION: WWW.NORFOLK.GOV/INDEX.ASPX?NID=362 7. A PERMIT AND INSPECTION IS REQUIRED FOR TEMPORARY BULK WASTE CONTAINERS PLACED IN THE RIGHT OF WAY. IF THE CONTAINER IS PLACED ON PRIVATE PROPERTY A PERMIT FROM THE HEALTH DEPARTMENT IS REQUIRED.

1. CURRENT RIGHT OF WAY PERMIT FEES:

HTTP://WWW.NORFOLK.GOV/DOCUMENTCENTER/VIEW/789 2. EXEMPTION: CONTRACTORS PERFORMING WORK UNDER CONTRACT WITH THE CITY OF NORFOLK ARE EXEMPT FROM PERMIT FEES THROUGH JULY 1, 2014. EFFECTIVE JULY 1, 2014. CONTRACTORS PERFORMING WORK UNDER CONTRACT WITH THE CITY OF NORFOLK MUST PAY STREET, LANE, AND SIDEWALK CLOSURE FEES. 3. EXEMPTION: CONTRACTORS PERFORMING WORK UNDER CONTRACT WITH VDOT ARE EXEMPT FROM ALL PERMIT FEES.

ALL TRAFFIC CONTROL SHALL COMPLY WITH THE CURRENT EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)", THE "VIRGINIA WORK AREA PROTECTION MANUAL" AND THE "CITY OF NORFOLK RIGHT OF WAY EXCAVATION AND RESTORATION MANUAL ADDITIONAL CHARGES APPLY IF OFF-DUTY OFFICERS ARE REQUIRED. A LIST OF PERMIT FEES IS LOCATED AT WWW.NORFOLK.GOV/INDEX.ASPX?NID=362 2. FOR CONSTRUCTION IN OR ADJACENT TO ANY ARTERIAL AND/OR COLLECTOR STREETS REQUIRING TEMPORARY LANE OR STREET CLOSURE, THE CONTRACTOR MUST SCHEDULE A MEETING WITH THE CITY'S TRAFFIC MITIGATION TEAM. PLEASE CONTACT PUBLIC WORKS AT

PWROW@NORFOLK.GOV TO SCHEDULE. 3. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED TRAFFIC CONTROL PLAN (MOT) WITH THE CONTRACTOR'S PERMIT APPLICATION TO WORK IN THE RIGHT-OF-WAY AT LEAST 14 DAYS IN ADVANCE OF THE START DATE. THE MOT SHALL BE A DRAWING OR AERIAL PHOTO WITH SITE SPECIFIC DETAILS. THESE SHALL INCLUDE BUT ARE NOT LIMITED TO: TRAFFIC SIGNS, DIRECTIONAL SIGNS, DESTINATION SIGNAGE, CHANNELIZING DEVICES, WATER-FILLED BARRIERS, PORTABLE MESSAGE BOARDS WITH MESSAGES TO BE DISPLAYED AND TIMES AND DURATIONS OF DISPLAYED MESSAGES. ADDITIONALLY, THE MOT MUST DISPLAY THE EXACT LOCATION OF ALL SIGNS AND/OR DEVICES INCLUDING SPACING FOR FACH SIGN AND/OF DEVICE, SPACING BEING APPROPRIATE FOR THE WORK ZONE LOCATION AND POSTED SPEED LIMITS. ALL MAINTENANCE OF TRAFFIC (MOT) PLANS SHALL CONFORM TO THE CURRENT ISSUE "THE VIRGINIA WORK AREA PROTECTION MANUAL" COPIES OR REPRODUCTIONS OF

STANDARD VWAPM TTC PLANS MAY NOT BE SUFFICIENT. CONTRACTORS SHOULD CONSIDER THESE ITEMS WHEN BIDDING FOR CONSTRUCTION AS IT MAY AFFECT COSTS. 4. NORFOLK POLICE REQUIRES OFF-DUTY OFFICERS FOR TRAFFIC CONTROL IN ANY SIGNALIZED INTERSECTION AND AS REQUIRED BY PERMIT. NORFOLK POLICE REQUIRES THAT OFF-DUTY OFFICERS BE SCHEDULED THROUGH THE SUPERVISOR OF THE TRAFFIC UNIT AT 757-823-4464. OFF-DUTY OFFICERS ARE INDEPENDENT CONTRACTORS. THE COST FOR

OFF-DUTY OFFICERS IS A CONTRACTOR/OWNER RESPONSIBILITY

WORKS AT PWROW@NORFOLK.GOV TO SCHEDULE.

APPROX.

6' PRIVACY FENCE DETAIL

THE CONTRACTOR, OWNER, OR DEVELOPER WILL BE REQUIRED TO POST A CASH, CHECK, OR SURETY BOND OR LETTER OF CREDIT TO EXCAVATE IN THE RIGHT OF WAY." DOWNLOAD THE FORM: HTTP://WWW.NORFOLK.GOV/DOCUMENTCENTER/VIEW/1406 2. BOND AMOUNT MUST INCLUDE 100% TOTAL COST OF ROW INSTALLATION INCLUDING

STREET LIGHTS, WATER, SEWER, STORM, BMPS, ROADWAY, SIDEWALK, CURB, GUTTER, AN

ADDITIONAL AMOUNT MAY BE SET AT THE DISCRETION OF THE DIRECTOR OF PUBLIC WORKS AND/OR ROW MANAGER. 3. BOND WILL BE REDUCED DOWN TO 10% FROM THE DATE OF FINAL INSPECTION FOR A 2 YEAR WARRANTY TERM. A SEPARATE WARRANTY BOND IS ACCEPTABLE IN LIEU OF A BONI REDUCTION. A LETTER REQUESTING RELEASE OR REDUCTION MUST BE SENT TO THE RIGHT OF WAY PERMITS OFFICE VIA E-MAIL AT PWROW@NORFOLK.GOV.

NOTES TO CITY A/E DESIGNERS AND CONTRACTORS:

4. ALL CITY PROJECTS CANNOT BE BID UNTIL UTILITIES ARE RELOCATED OR ARRANGEMENTS HAVE BEEN COORDINATED BY THE CITY'S PROJECT MANAGER, A/E, AND RIGHT OF WAY DIVISION. PLEASE PROVIDE A LIST AND DRAWINGS OF ALL UTILITIES NEEDING RELOCATION TO RIGHT-OF-WAY DIVISION AT OR BEFORE 30% SUBMITTAL. 5. PROJECT DESIGNERS MUST INCLUDE A DETAILED TRAFFIC CONTROL PLAN FOR UTILITY WORK WITHIN THE RIGHT-OF-WAY IN THE PLANS. FOR CONSTRUCTION IN OR ADJACENT TO ANY ARTERIAL AND/OR COLLECTOR STREETS AS DEFINED IN THE VIRGINIA WORK AREA PROTECTION MANUAL REQUIRING TEMPORARY LANE OR STREET CLOSURE, THE CONTRACTOR MUST

SCHEDULE A MEETING WITH THE CITY'S TRAFFIC MITIGATION TEAM. PLEASE CONTACT PUBLIC

1x6 PVC BOARD

BETWEEN BOARDS

— 4x4 PVC POSTS

@ 4'-0" O.C.

MAX. (EXTEND

GROUND)

POST 3'-0" INTO

OTHER:

1. PLEASE INCLUDE A SEQUENCE OF CONSTRUCTION IN THE PLANS. WAY EXCAVATION & RESTORATION MANUAL, (ORDINANCE NO. 40,778), DEPARTMENT OF PUBLIC 2. DETAILED STAMPED DRAWINGS FOR SHORING AND SCAFFOLDING WILL BE REQUIRED AS PART OF THE RIGHT-OF-WAY PERMIT PROCESS.

3. ANY EXCAVATION IN THE ROADWAY MUST BE PATCHED WITH ASPHALT. STONE IS NOT 4. FULL CURB TO CURB RESURFACING WILL BE REQUIRED IF ROADWAY PORTION IS CUT WITHIN THE FIRST 5 YEARS AFTER RESURFACING. AN ADMINISTRATIVE FEE OF \$500 WILL BE

ASSESSED IN ACCORDANCE WITH CITY CODE. . AS PART OF THE CONTRACTOR'S PERMIT APPLICATION TO WORK IN THE RIGHT OF WAY. THE CONTRACTOR MUST SUBMIT A MAP IDENTIFYING THE PROJECTS STORAGE AND LAY DOWN AREA. THE CITY DOES NOT ALLOW STORAGE, STAGING OR LAY DOWN AREAS WITHIN THE RIGHT OF WAY, CONTRACTORS ARE ENCOURAGED TO MAKE ARRANGEMENTS TO STORE MATERIALS AND LAY DOWN ON PRIVATE PROPERTY OR THEY MUST BE STORED WITHIN CONSTRUCTION

6. ALL MISS UTILITY MARKINGS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE ERADICATED AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE CITY'S ROW EXCAVATION & RESTORATION MANUAL LOCATED AT WWW NORFOLK GOV/INDEX ASPX?NID=362 . DESIGNERS ARE RESPONSIBLE TO CHECK IN-FIELD GRADES AND TO CONSULT WITH THE PROPER CITY OF NORFOLK STAFF IF THERE ARE QUESTIONS OR CONCERNS. DESIGNERS MUST SUBMIT A NOTICE VIA EMAIL TO THE RIGHT-OF-WAY DIVISION AT PWROW@NORFOLK.GOV VERIFYING THAT GRADES HAVE BEEN CHECKED AND ARE CORRECT 8. A CONSTRUCTION FENCE MAY BE REQUIRED FOR YOUR SITE. IN DOWNTOWN, CONCRETE BARRIERS AND WOOD PANELS ARE REQUIRED IN MOST CASES. IN SOME CASES, CHAIN LINK

. NOTIFICATION MUST BE APPROACHED FROM 3 LEVELS OR TIERS FOCUSING ON THOSE AFFECTED BY THE CONSTRUCTION. CONTRACTORS AND/OR PROJECT SPONSOR WILL BE REQUIRED TO NOTIFY RESIDENTS AND BUSINESSES IN THE IMMEDIATE AREA THAT WILL BE AFFECTED BY THE CONSTRUCTION. DOOR HANGERS MUST BE PLACED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION AND MUST INCLUDE A 24 HOUR CONTACT PHONE NUMBER FOR EMERGENCIES. UPDATES MUST BE PROVIDED TO RESIDENTS AND BUSINESSES ON A

OF FENCE. PLEASE CONTACT PUBLIC WORKS AT PWROW@NORFOLK.GOV

UNIVERSITIES, GOVERNMENT FACILITIES, ETC.)

BI-WEEKLY OR MONTHLY BASIS DEPENDING ON THE FOLLOWING a. IMMEDIATE IMPACT — BUSINESS OR RESIDENTS WITHIN THE CONSTRUCTION ZONE WHO WILL BE AFFECTED BY ACCESS RESTRICTIONS, NOISE, DIRT AND DUST, USE OF PROPERTY DIRECTLY ADJACENT TO THEM, ETC

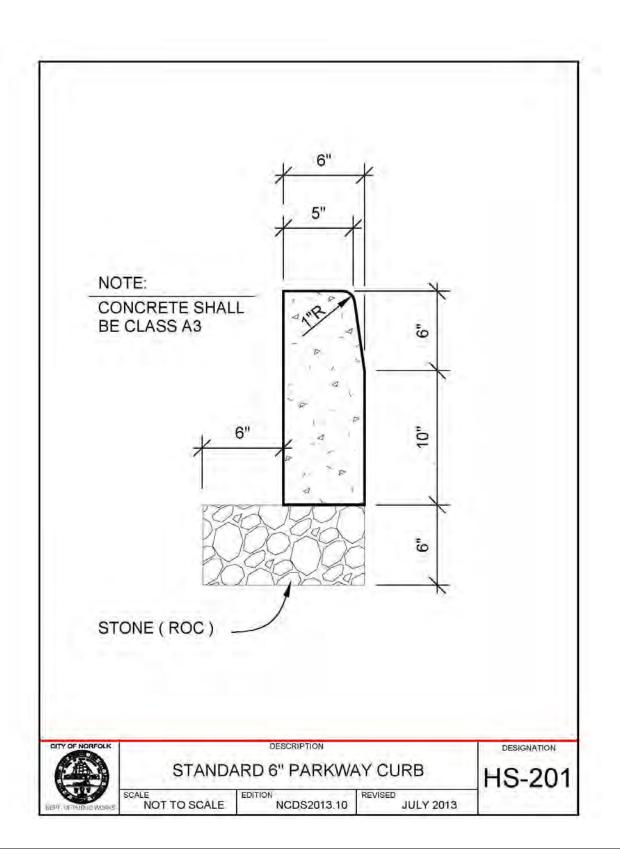
. AREA IMPACT -THOSE WHO TRAVEL THROUGH OR WILL BE DETOURED AROUND LOCAL OR COLLECTOR STREETS, AFFECTED BY CONSTRUCTION INCLUDING CIVIC LEAGUES, BUSINESS ASSOCIATIONS AND PROPERTY OWNERS. :. CITYWIDE IMPACT -THOSE WHO ARE AFFECTED BY VEHICULAR OR PEDESTRIAN ACCESS ON ARTERIAL STREETS OR IN BUSINESS OR OTHER PUBLIC ACTIVITY AREAS (SCHOOLS,

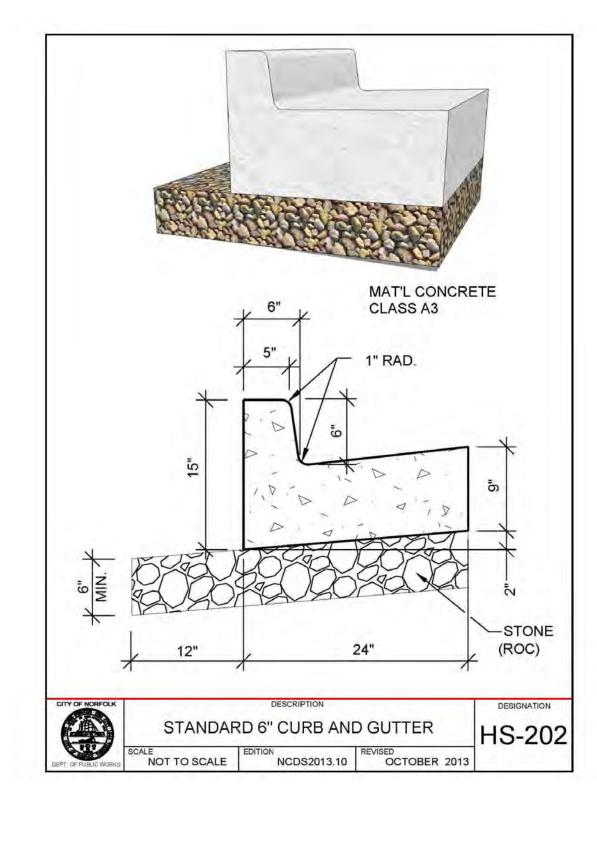
FENCE IS ACCEPTABLE. A REVIEW BY RIGHT OF WAY IS REQUIRED TO DETERMINE THE TYPE

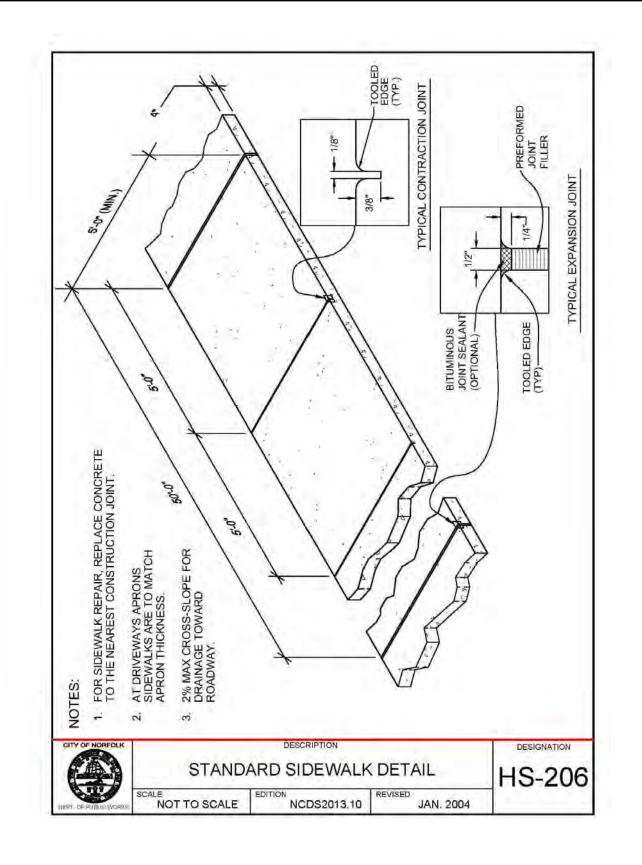
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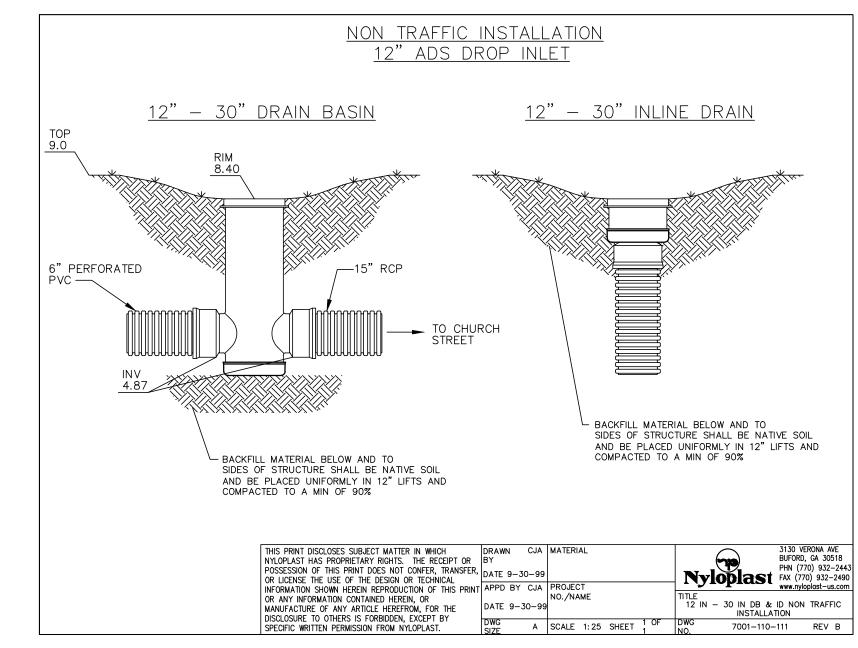
2013-020 AS SHOWN 5.14.14

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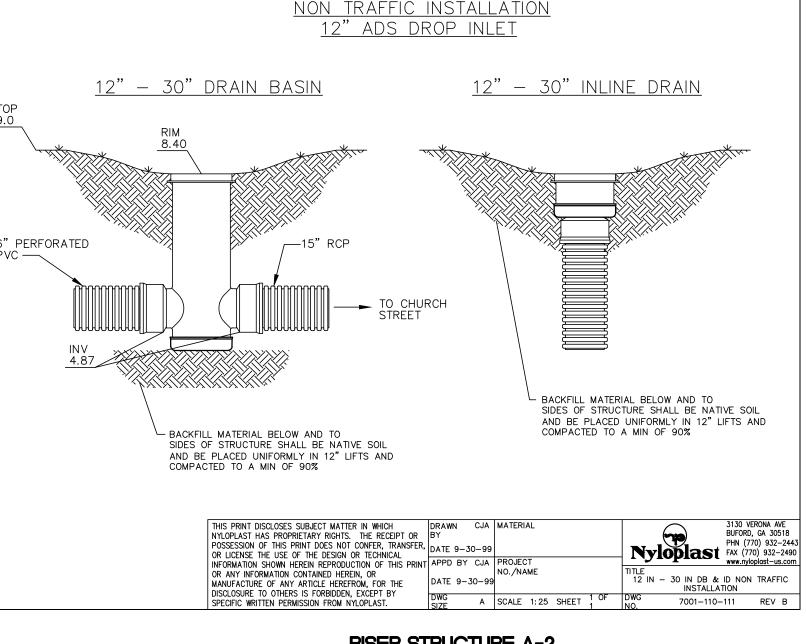




RISER STRUCTURE A-2

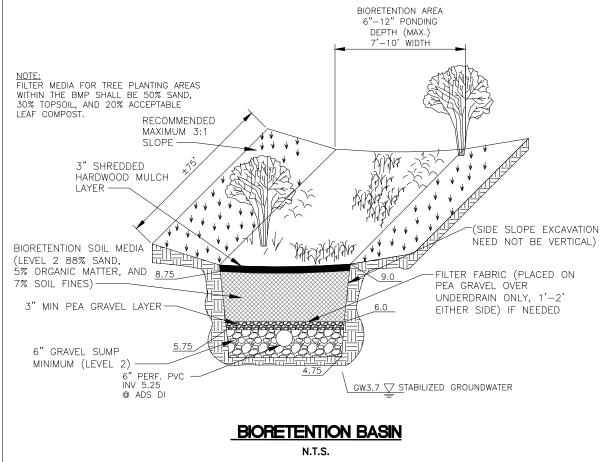
STORMWATER MANAGEMENT MAINTENANCE FACILITY (SWMF) MAINTENANCE SCHEDULE

- THE BIORETENTION SYSTEM SHALL BE INSPECTED MONTHLY AND AFTER MAJOR STORM EVENTS FOR
- 4. THE OWNER/DEVELOPER SHALL MAKE QUARTERLY INSPECTIONS OF THE BIORETENTION FACILITY AND VEGETATION THEREON AND TO CORRECT ANY

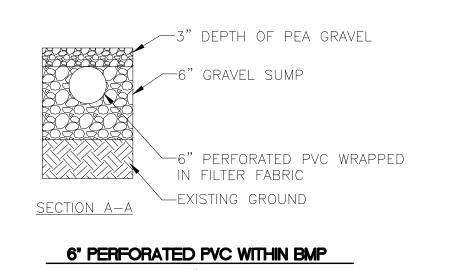


BIORETENTION SYSTEM

- 2. THE OWNER/DEVELOPER SHALL KEEP A LOG OF THESE INSPÉCTIONS ON LOCATION FOR REVIEW BY THE CITY OF NORFOLK INSPECTIONS AS
- 3. THE OWNER/DEVELOPER IS RESPONSIBLE FOR MAINTAINING THE STORM WATER MANAGEMENT FACILITY SHOULD IT MALFUNCTION OR CEASE TO OPERATE AT THEIR OWN COST.



WRAP ENTIRETY OF PIPE WITH FILTER @ ADS DI 75'-6" PERFORATED PVC @ 0.50%— -WRAP ENTIRETY OF 6" PERFORATED PVC PIPE WITHIN BMP (75 FEET) WITH STONE AS



SECTION 8: CONSTRUCTION

Section 8: Construction

8.1 Construction Sequence

Construction Stage E&S Controls. Micro-bioretention and small-scale bioretention areas should be fully protected by silt fence or construction fencing, particularly if they will rely on infiltration (i.e., have no underdrains). Ideally, bioretention should remain outside the limit of disturbance during construction to prevent soil compaction by heavy equipment. Bioretention basin locations may be used as small sediments traps or basins during construction. However, these must be accompanied by notes and graphic details on the E&S plan specifying that (1) the maximum excavation depth at the construction stage must be at least 1 foot above the postconstruction installation, and (2) the facility must contain an underdrain. The plan must also show the proper procedures for converting the temporary sediment control practice to a permanent bioretention facility, including dewatering, cleanout and stabilization.

8.2 Bioretention Installation

The following is a typical construction sequence to properly install a bioretention basin (also see Figure 9.16). The construction sequence for micro-bioretention is more simplified. These steps may be modified to reflect different bioretention applications or expected site conditions:

Step 1. Construction of the bioretention area may only begin after the entire contributing drainage area has been stabilized with vegetation. It may be necessary to block certain curb or other inlets while the bioretention area is being constructed. The proposed site should be checked for existing utilities prior to any excavation.

Step 2. The designer and the installer should have a preconstruction meeting, checking the boundaries of the contributing drainage area and the actual inlet elevations to ensure they conform to original design. Since other contractors may be responsible for constructing portions of the site, it is quite common to find subtle differences in site grading, drainage and paving elevations that can produce hydraulically important differences for the proposed bioretention area. The designer should clearly communicate, in writing, any project changes determined during the preconstruction meeting to the installer and the plan review/inspection authority.

Step 3. Temporary E&S controls are needed during construction of the bioretention area to divert stormwater away from the bioretention area until it is completed. Special protection measures such as erosion control fabrics may be needed to protect vulnerable side slopes from erosion during the construction process.

Step 4. Any pre-treatment cells should be excavated first and then sealed to trap sediments.

Step 5. Excavators or backhoes should work from the sides to excavate the bioretention area to its appropriate design depth and dimensions. Excavating equipment should have scoops with adequate reach so they do not have to sit inside the footprint of the bioretention area. Contractors should use a cell construction approach in larger bioretention basins, whereby the

SECTION 9: MAINTENANCE

9.1. Maintenance Agreements

Section 4 VAC 50-60-124 of the regulations specifies the circumstances under which a maintenance agreement to must be executed between the owner and the local program. This section sets forth inspection requirements, compliance procedures if maintenance is neglected, notification of the local program upon transfer of ownership, and right-of-entry for local program

For bioretention, maintenance agreements must contain recommended maintenance tasks and a copy of an annual inspection checklist. When micro-scale bioretention practices are applied on private residential lots, homeowners will need to be educated regarding their routine maintenance needs. A deed restriction, drainage easement or other mechanism enforceable by the qualifying local program must be in place to help ensure that rain gardens and bioretention filters are maintained and not converted or disturbed, as well as to pass the knowledge along to any subsequent owners. The mechanism should, if possible, grant authority for local agencies to access the property for inspection or corrective action.

9.2. First Year Maintenance Operations

Successful establishment of bioretention areas requires that the following tasks be undertaken in the first year following installations:

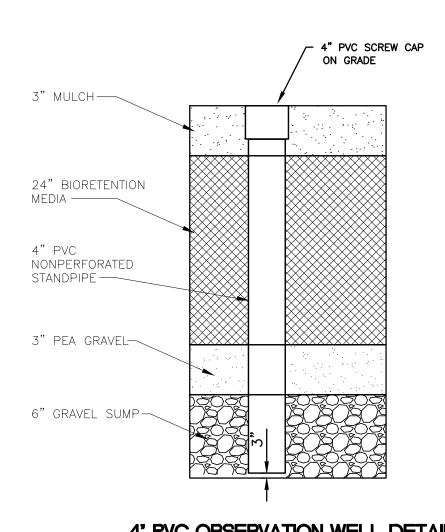
- Initial inspections. For the first 6 months following construction, the site should be inspected at least twice after storm events that exceed ½ inch of rainfall.
- Spot Reseeding. Inspectors should look for bare or eroding areas in the contributing drainage area or around the bioretention area, and make sure they are immediately stabilized with grass cover.
- Fertilization. One-time, spot fertilizations may be needed for initial plantings.
- Watering. Watering is needed once a week during the first 2 months, and then as needed during first growing season (April-October), depending on rainfall.
- Remove and replace dead plants. Since up to 10% of the plant stock may die off in the first year, construction contracts should include a care and replacement warranty to ensure that vegetation is properly established and survives during the first growing season following construction. The typical thresholds below which replacement is required are 85% survival of plant material and 100% survival of trees.

9.3. Maintenance Inspections

It is highly recommended that a spring maintenance inspection and cleanup be conducted at each bioretention area. The following is a list of some of the key maintenance problems to looks

 Check to see if 75% To 90% cover (mulch plus vegetative cover) has been achieved in the bed, and measure the depth of the remaining mulch.

G:\2011 Projects\2011-019 Courthouse Academy SP\CADD\DETAILS\19-3.11-6 SCHEDULE.JPG



4' PVC OBSERVATION WELL DETAIL

 \simeq S CHN 00 ∞ 7 NOITN \simeq BIO 2013-020 AS NOTED 5.14.14

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