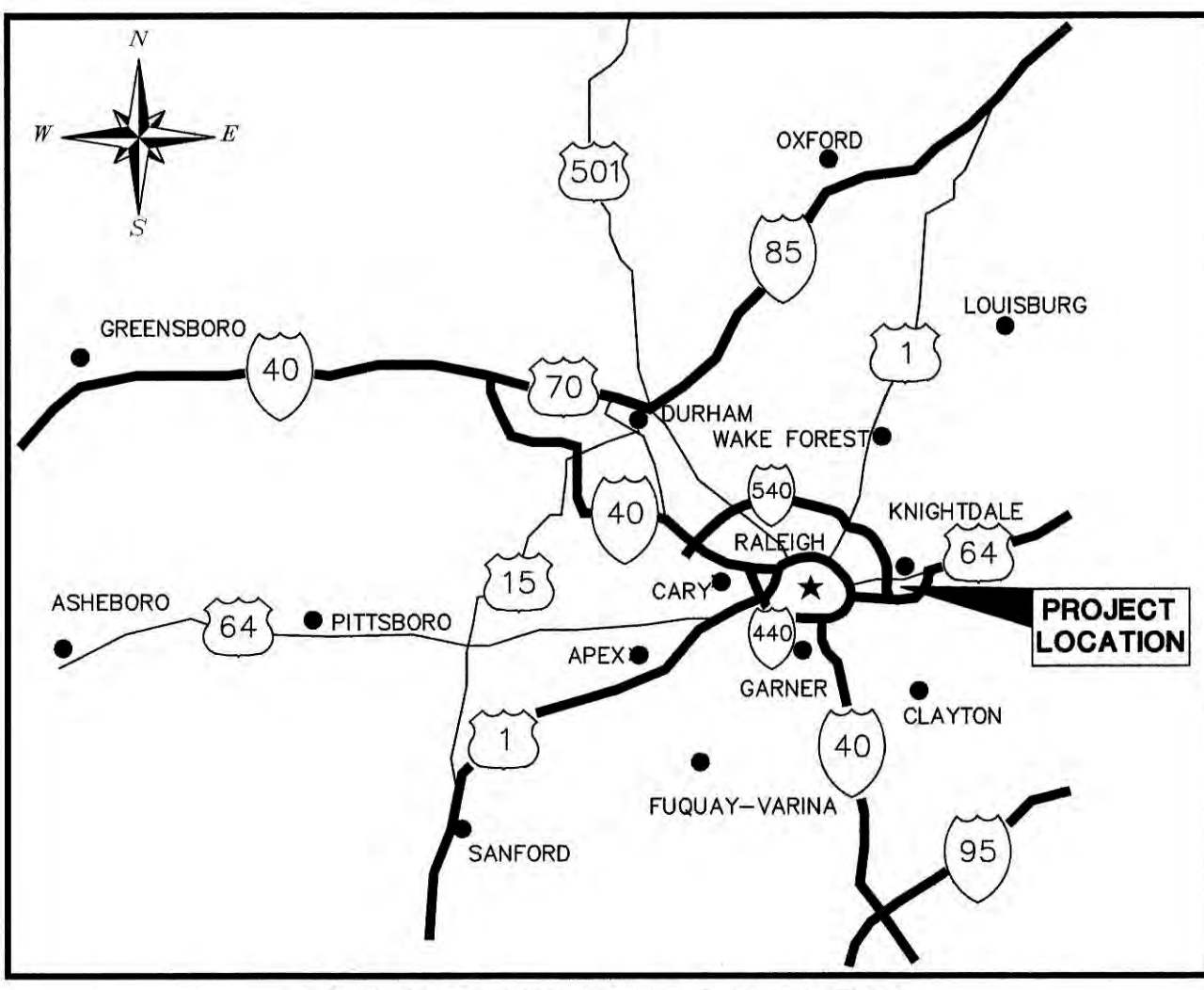


Printed By: Kimley-Horn and Associates, Inc. Date: 11/08/2019 09:24:57 AM. K:\RAL\DEV\17254007\_Parkstone Phase 2\Planning Phase 2\17254007\_Parkstone Phase 2\Cover Sheet.dwg



PROJECT LOCATION

Table with 2 columns: PUBLIC IMPROVEMENT QUANTITIES and NTS. Rows include Sidewalk, Curb & Gutter, Streets, Storm Drainage, Water Line, Water Stubs, Sanitary Sewer, and Sewer Stubs.

PHASING SCHEDULE
Completion of construction for the commercial project within the HB-CD Property for the residential townhome project within the RMX-PUD Property shall occur no later than August 17, 2023.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

RETAIL BUILDING ELEVATIONS WERE APPROVED WITH THE PREVIOUS REZONING. RETAIL BUILDINGS WILL COMPLY WITH THE PREVIOUSLY APPROVED ELEVATIONS.

PROJECT OWNER AND CONSULTANT

SITE DEVELOPER: KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC
5786 WIDEWATERS PARKWAY PO BOX 3
DE WITT, NY 13214
MR. BRIAN R. LONG
PH. (704) 248-7838

CIVIL ENGINEER: KIMLEY-HORN AND ASSOCIATES, INC.
421 FAYETTEVILLE ST., SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 653-2927
ATTN: CHRIS BOSTIC, P.E.
chris.bostic@kimley-horn.com

LANDSCAPE ARCHITECT: KIMLEY-HORN AND ASSOCIATES, INC.
421 FAYETTEVILLE ST., SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 653-2945
ATTN: RICHARD BROWN, PLA
richard.brown@kimley-horn.com

SURVEYOR: RWK, P.A.
101 W. MAIN ST., SUITE 202
GARNER, NC 27529
PHONE: (919) 779-4864
ATTN: CHUCK PIRATZKY
cpiratzky@rwkpa.com

ATTENTION CONTRACTORS

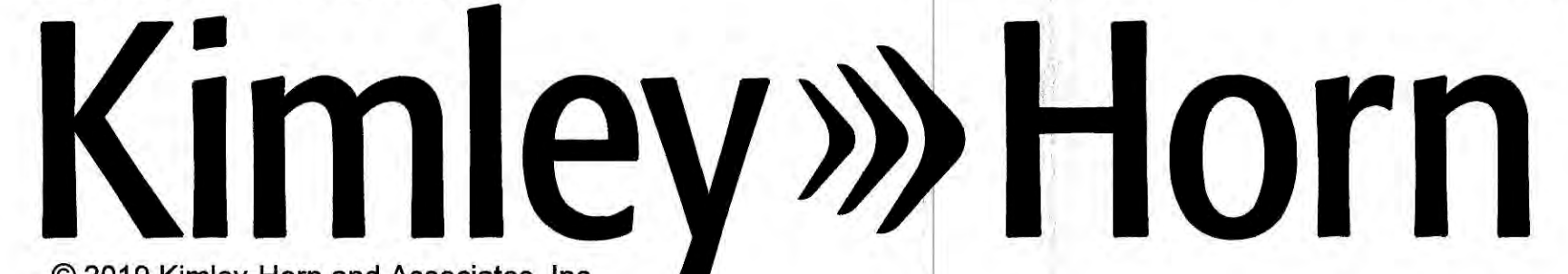
The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Works Department at (919) 996-2409...

- ZMA-8-19 CONDITIONS
The applicant must proceed with an amendment to the existing Parkstone UAA (Wake County Register of Deeds Book 016667, Pages 02285-02315)
The 11.0 acre balance of the 26.688 acre tract will remain zoned the existing Highway Business Conditional District (HB-CD) designation.

NOTE: A DRAFT OF THE PROJECT'S PLAT IS TO BE SUBMITTED TO CORPUD FOR REVIEW AND APPROVAL PRIOR TO RECORDING OF THE PLAT. UTILITY BUILDING PERMITS WILL BE ISSUED BY THE TOWN UPON PLAT APPROVAL.

PROPOSED WATER ALLOCATION POLICY POINTS (AWARDED AT TIME OF OVERALL PARKSTONE MASTER PLAN/REZONING APPROVAL)
MIXTURE OF USE DEVELOPMENT - 41 PTS.
CLUBHOUSE <4000 S.F. W/ FULL KITCHEN - 9 PTS.

PREPARED IN THE OFFICE OF:



© 2019 Kimley-Horn and Associates, Inc.
421 FAYETTEVILLE STREET - SUITE 600 - RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 677-2000

CONSTRUCTION PLAN SUBMITTAL FOR:
PARKSTONE VILLAGE
901 PARKSTONE TOWNE BOULEVARD
KNIGHTDALE, NC 27545
TOWN OF KNIGHTDALE PROJECT #ZMA-8-19

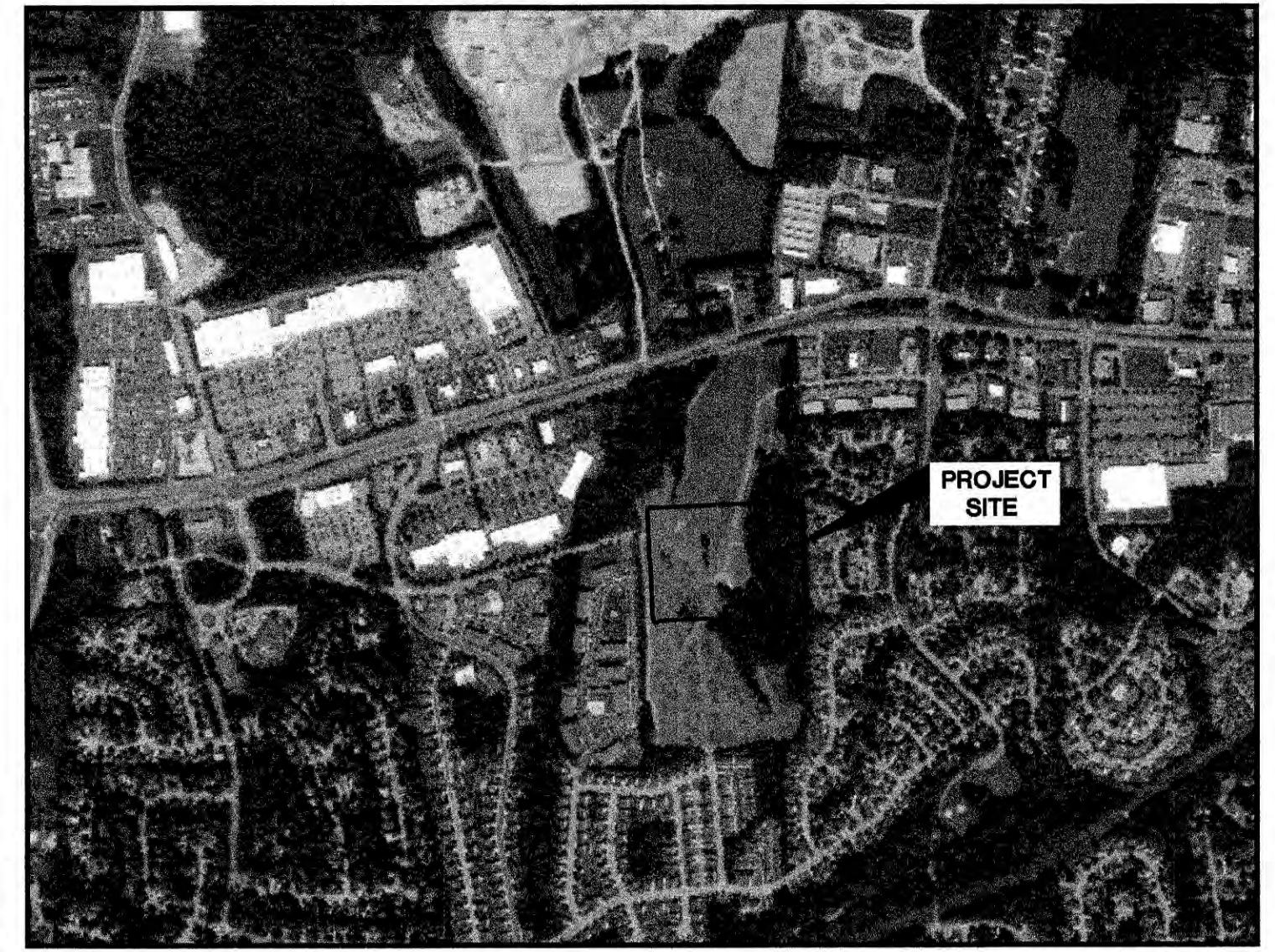
SITE DATA table with columns: EXISTING ZONING, EXISTING USE, TOTAL SITE AREA, PROPERTY SETBACKS, PROJECT DATA, PROPOSED USE, DEVELOPMENT NAME, PIN#, TOWNHOMES, PROPOSED # OF BUILDINGS, BUILDING LOT COVERAGE, VEHICULAR SURFACE AREA, PARKING, CONNECTIVITY INDEX, ALLOWABLE SITE IMPERVIOUS AREA, PROPOSED SITE IMPERVIOUS AREA, REMAINING ALLOWED IMPERVIOUS AREA TO POND 2, OPEN SPACE ACREAGE, TOTAL NUMBER OF PARCELS, TOTAL NUMBER OF HOUSING UNITS, GROSS PROJECT DENSITY PER ACRE, CONTROL POINT.

a. Town Approved Standards Shall Control. In the event of a conflict or inconsistency between these construction drawings and the Town of Knightdale's Approved Standards for this project, the Approved Standards shall control.

b. Professional Design Engineer Certification. These improvements shall be constructed in accordance with the following drawings and with the Standard Specifications of the Town of Knightdale.

1. Chris Bostic, P.E., certify that the Standard Specifications of the Town of Knightdale have been thoroughly checked and found to be in compliance with the project. All exceptions to the applicable Town standards have been properly approved by the Town of Knightdale and said exceptions are shown on Sheet 22CD-24AB of these drawings.

a. Professional Engineer Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.
By: [Signature] Date: 10/9/2020
Town Engineer
These plans are approved by the Town of Knightdale and serve as construction plans for this project.
By: [Signature] Date: 10/9/2020
Administrator



VICINITY MAP

SCALE: 1" = 1000'

Sheet List Table

Table with 2 columns: Sheet Number and Sheet Title. Lists sheets from C0.0 (COVER SHEET) to L1.2 (LANDSCAPE DETAILS).

This document, together with the concepts and designs presented herein, as an instrument of services, is intended only for the specific purpose and client for which it was prepared.

Copyright Kimley-Horn and Associates, Inc., 2019

NOVEMBER 8, 2019

JOB NUMBER: 017254007

SITE PERMITTING APPROVAL
Water and Sewer Permits (if applicable)
The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # S-4722.

NC CERTIFICATE OF AUTHORIZATION: F-0102

Table with 4 columns: No., COMMENTS, REVISIONS, DATE. Shows revision history for the project.

Kimley-Horn logo and contact information: 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601. PHONE: 919-677-2000 FAX: 919-677-2050



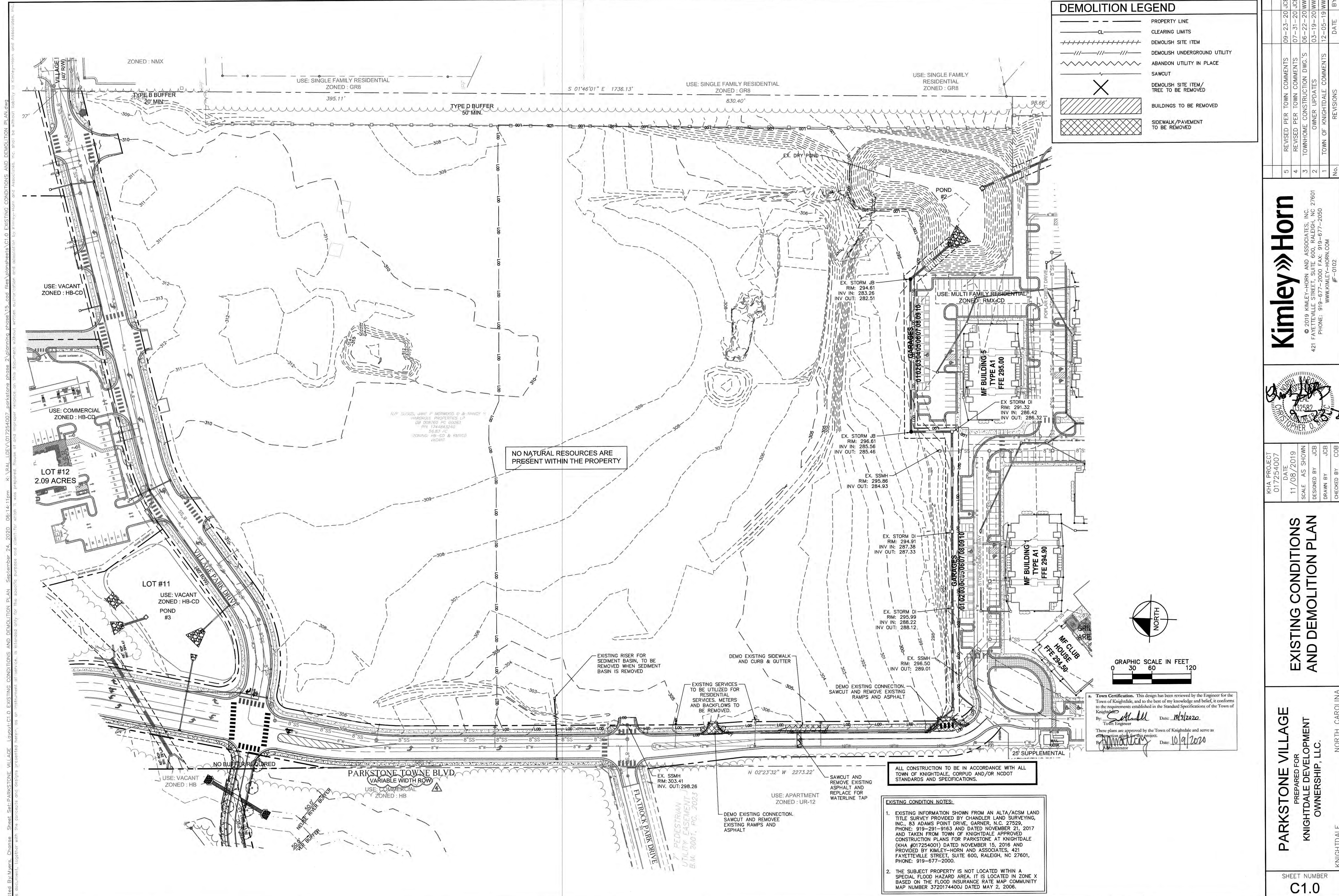
DATE: 11/08/2019
SCALE: AS SHOWN
DESIGNED BY: JCB
DRAWN BY: JCB
CHECKED BY: COB

COVER SHEET

PARKSTONE VILLAGE
PREPARED FOR
KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC.
NORTH CAROLINA
KNIGHTDALE

SHEET NUMBER
C0.0





DEMOLITION LEGEND	
	PROPERTY LINE
	CLEARING LIMITS
	DEMOLISH SITE ITEM
	DEMOLISH UNDERGROUND UTILITY
	ABANDON UTILITY IN PLACE
	SAWCUT
	DEMOLISH SITE ITEM/TREE TO BE REMOVED
	BUILDINGS TO BE REMOVED
	SIDEWALK/PAVEMENT TO BE REMOVED

NO.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20	WWH
2	OWNER UPDATES	03-19-20	WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH

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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



KHA PROJECT	017254007
DATE	11/08/2019
SCALE	AS SHOWN
DESIGNED BY	JCB
DRAWN BY	JCB
CHECKED BY	COB

**EXISTING CONDITIONS AND DEMOLITION PLAN**

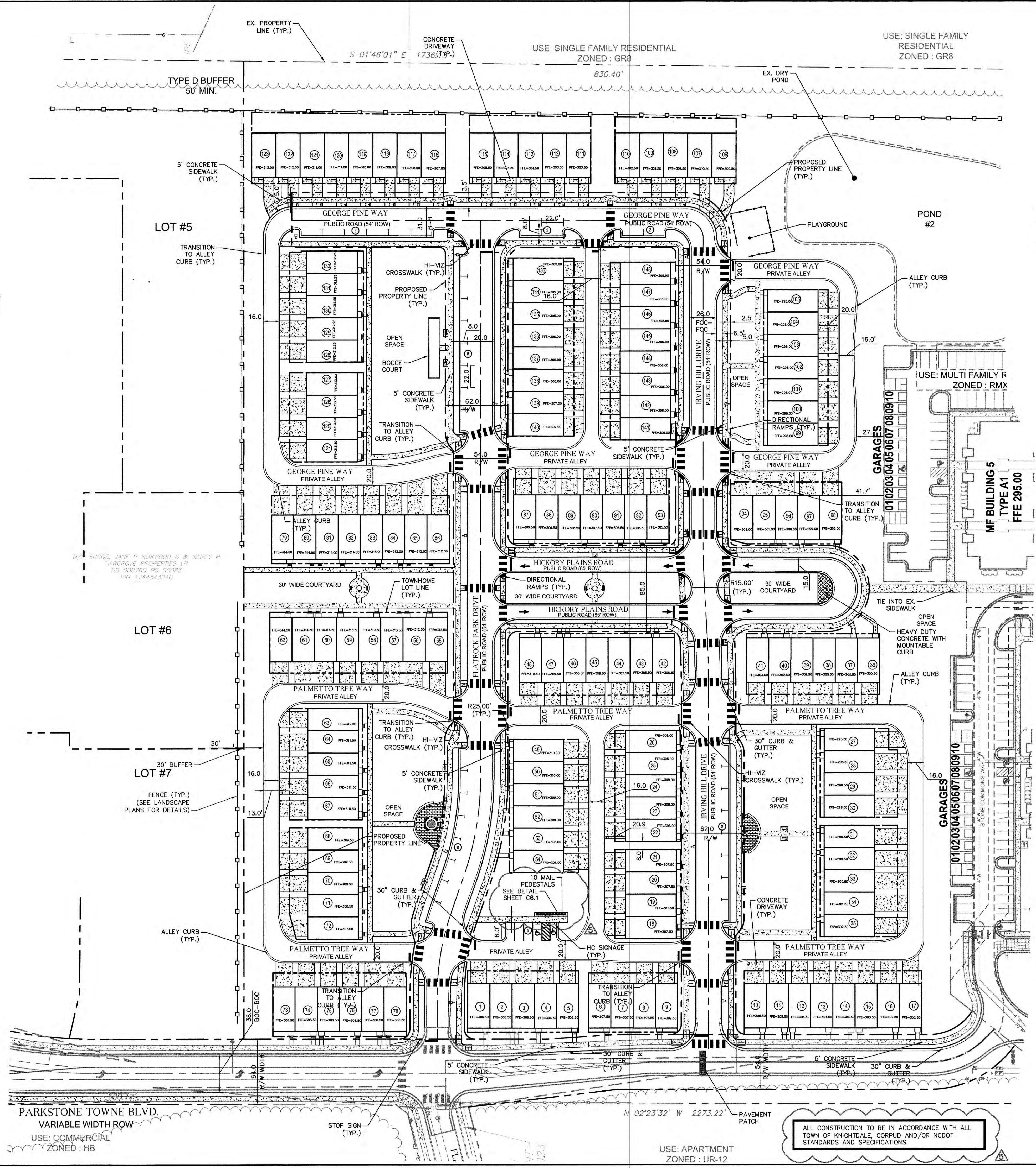
**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 NORTH CAROLINA  
 KNIGHTDALE

SHEET NUMBER  
**C1.0**

plotted by: Myers, Chandra Sheet Set: PARKSTONE VILLAGE Layout: C1.0 EXISTING CONDITIONS AND DEMOLITION PLAN September 24, 2020 08:14:11pm K:\VAPAL\_DEVA\017254007\_parkstone phase 2\_planning phase 2\_planning phase 15\_cad files\plan sheets\C1.0\_EXISTING CONDITIONS AND DEMOLITION PLAN.dwg  
 This document, together with the project and design documents, is prepared only for the specific purpose and site for which it was prepared. Review of and approval of this document by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



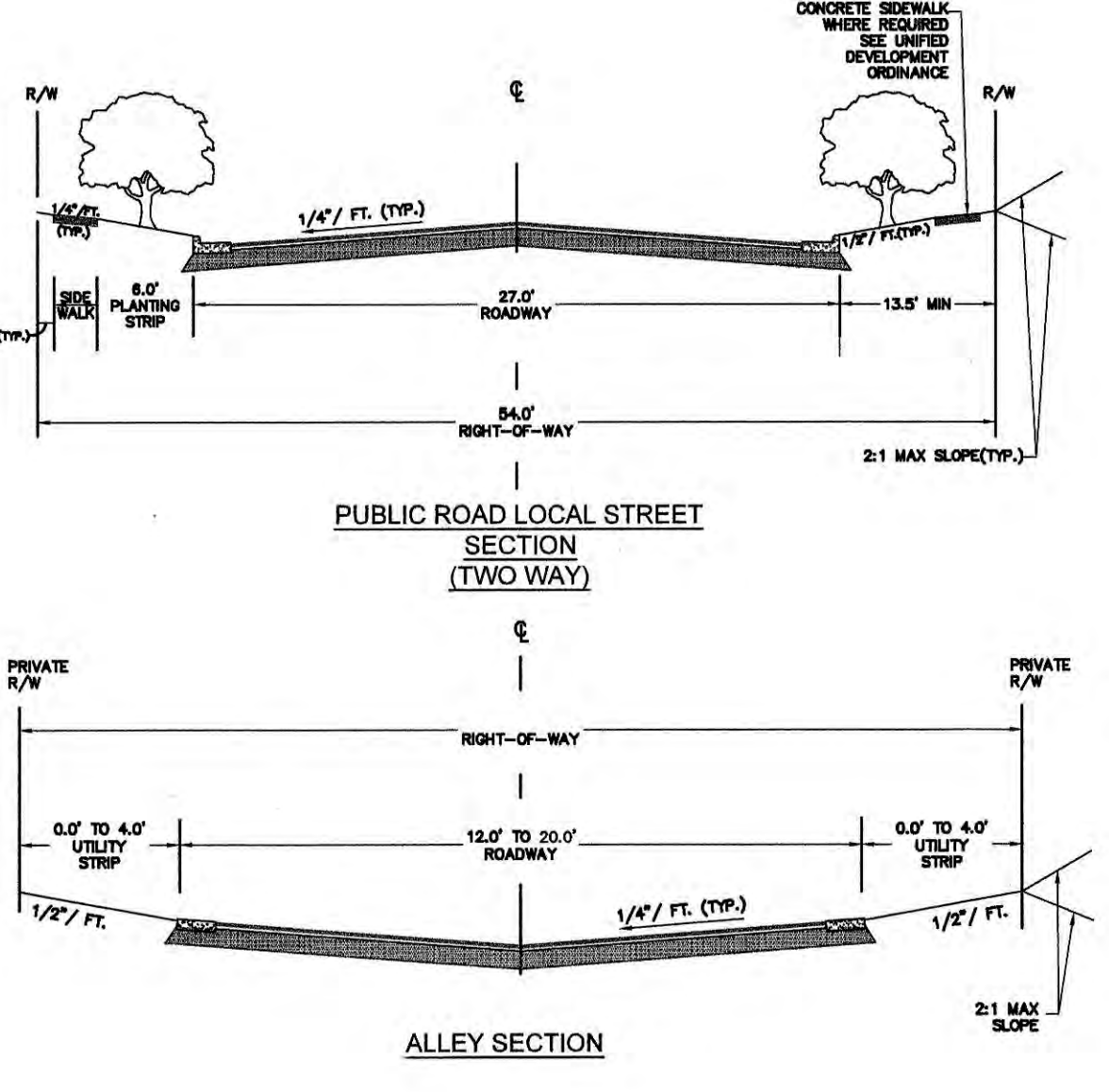
NOTE:  
 LOTS 1-17, 36-48, 55-62,  
 73-98 SHALL BE 3-STORY. ALL  
 OTHERS SHALL BE 2 STORY.



**LEGEND**

- PAINTED TRAFFIC ARROW
- CONCRETE SIDEWALK
- HEAVY DUTY CONCRETE (8" @ 4000PSI)
- PROPOSED PARKING COUNT
- LIGHT DUTY ASPHALT
- DETECTABLE WARNING SURFACE

NOTE:  
 1. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET. (UNLESS OTHERWISE STATED)  
 2. DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.



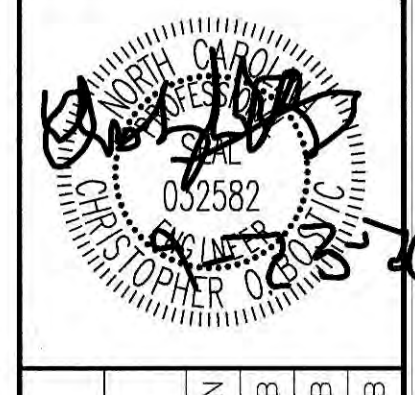
**GRAPHIC SCALE IN FEET**  
 0 25 50 100

**Town Certification:** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/12/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/14/2020  
 Administrator

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

NO.	REVISIONS	DATE
5	REVISED PER TOWN COMMENTS	09-23-20 JCB
4	REVISED PER TOWN COMMENTS	07-31-20 JCB
3	TOWNSHIP CONSTRUCTION DIM'S	06-22-20 WWH
2	OWNER UPDATES	03-19-20 WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19 WWH

**Kimley»Horn**  
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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



KHA PROJECT	DATE	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
017254007	11/08/2019	AS SHOWN	JCB	JCB	COB

**SITE PLAN**

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 NORTH CAROLINA  
 KNIGHTDALE

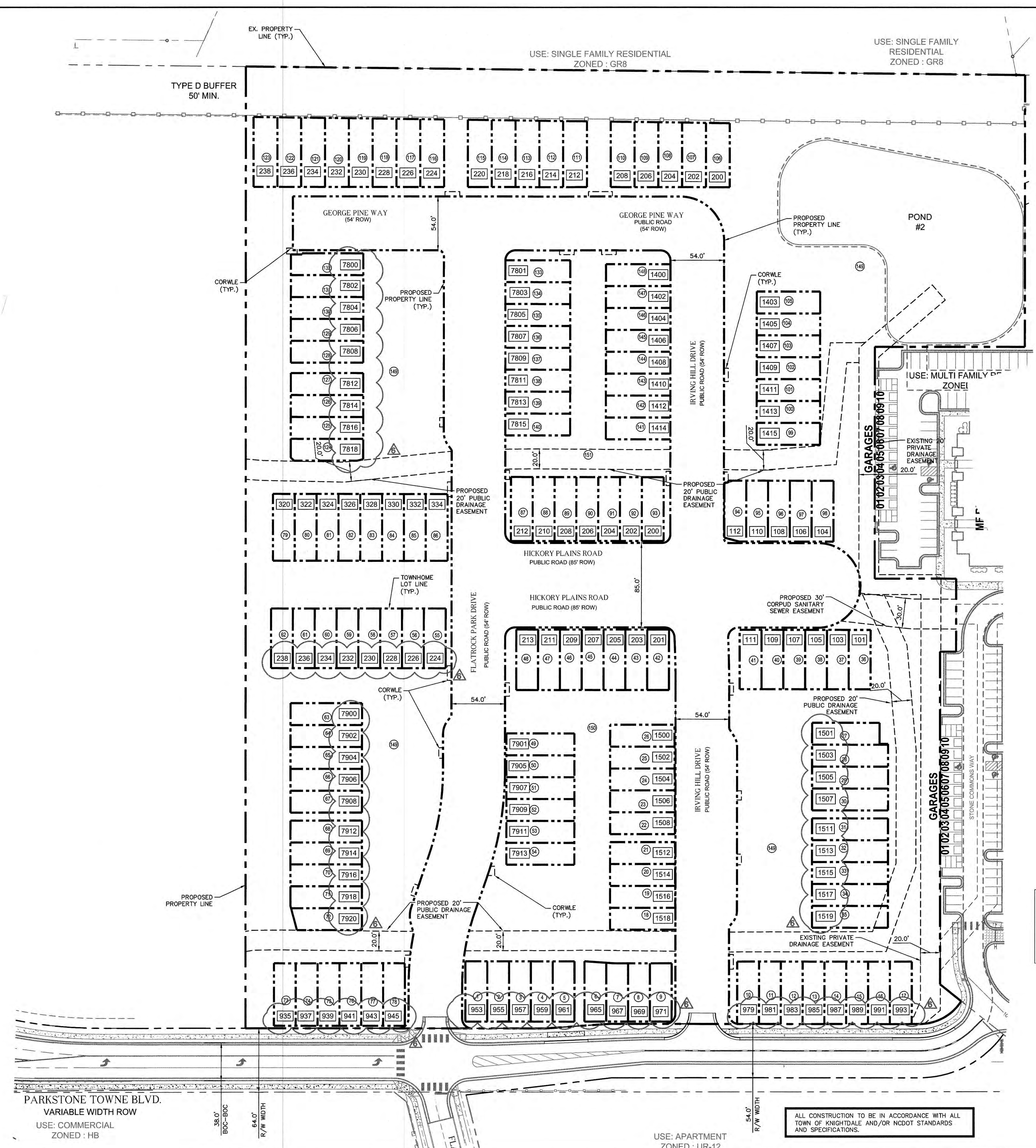
SHEET NUMBER  
**C2.0**





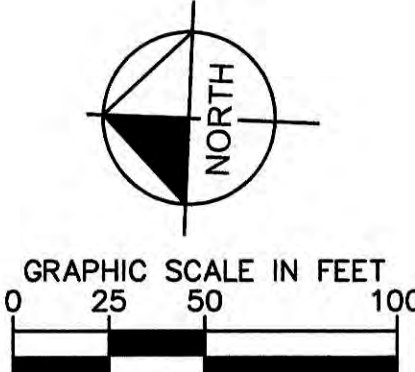


Plotted By: Myers, Chonase\_Sheet Set: PARKSTONE VILLAGE Layout: C2.2 PRELIMINARY SUBDIVISION PLAN October 01, 2020 02:22:48pm K:\PAL\_LDE\A\017254007\_parkstone\_phase\_2\planning\_phase\15\_cod\_files\plan sheets\C2.2 PRELIMINARY SUBDIVISION PLAN.dwg  
 This document, together with the contracts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Release of any information contained herein is prohibited without written authorization and adaptation by Kimley-Horn and Associates, Inc. also be without liability to Kimley-Horn and Associates, Inc.



**LEGEND**

	PROPOSED PROPERTY LINES
	PROPOSED TOWNHOME LOTS
	PROPOSED COMMON AREA LOTS
	PROPOSED TOWNHOME ADDRESS



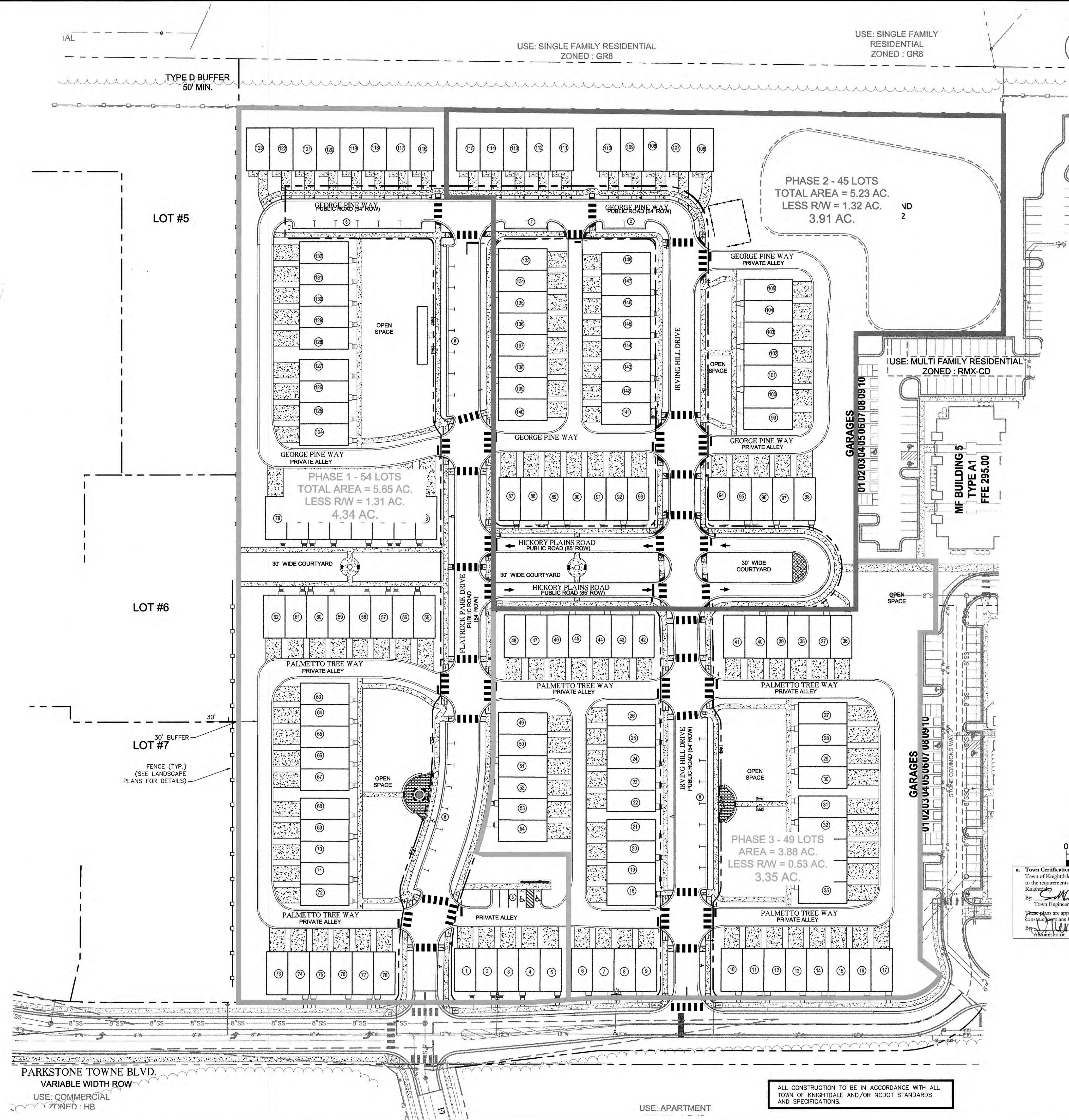
a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/9/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/9/2020  
 Administrator

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

	<p>REVISIONS</p> <table border="1"> <tr> <th>No.</th> <th>DATE</th> <th>BY</th> </tr> <tr> <td>6</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> </tr> </table>	No.	DATE	BY	6			5			4			3			2			1				<p><b>Kimley»Horn</b></p> <p>© 2019 KIMLEY-HORN AND ASSOCIATES, INC.        421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601        PHONE: 919-677-2000 FAX: 919-677-2050        WWW.KIMLEY-HORN.COM</p>
No.	DATE	BY																						
6																								
5																								
4																								
3																								
2																								
1																								
<p>KHA PROJECT 017254007</p> <p>DATE 11/08/2019</p> <p>SCALE AS SHOWN</p> <p>DESIGNED BY JCB</p> <p>DRAWN BY JCB</p> <p>CHECKED BY COB</p>	<p>PRELIMINARY SUBDIVISION PLAN</p>	<p><b>PARKSTONE VILLAGE</b></p> <p>PREPARED FOR KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC.</p> <p>NORTH CAROLINA KNIGHTDALE</p>	<p>SHEET NUMBER <b>C2.2</b></p>																					



Plotted By: Myers, Charnise. Sheet Set: PARKSTONE VILLAGE. LAYOUT: C2.3 PHASING MAP. Date: 01/20/2020 02:42:10pm. K:\V\AL\_DEVA\017254007-parkstone-phase-2-planning-phase-1-5\_cad-files\plansheets\C2.3 PHASING MAP.dwg. This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



NOTE:  
IRVING HILL DRIVE NEEDS TO BE OPEN ALL THE WAY TO PARKSTONE TOWNE BLVD. BEFORE OCCUPATION OF PHASE 2.

No.	REVISIONS	DATE
6	REVISED PER TOWN COMMENTS	10-01-20 JCB
5	REVISED PER TOWN COMMENTS	09-23-20 JCB
4	REVISED PER TOWN COMMENTS	07-31-20 JCB
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20 WWH
2	OWNER UPDATES	03-19-20 WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19 WWH

No.	REVISIONS	DATE
6	REVISED PER TOWN COMMENTS	10-01-20 JCB
5	REVISED PER TOWN COMMENTS	09-23-20 JCB
4	REVISED PER TOWN COMMENTS	07-31-20 JCB
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20 WWH
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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



KHA PROJECT	017254007
DATE	11/08/2019
SCALE	AS SHOWN
DESIGNED BY	JCB
DRAWN BY	JCB
CHECKED BY	COB

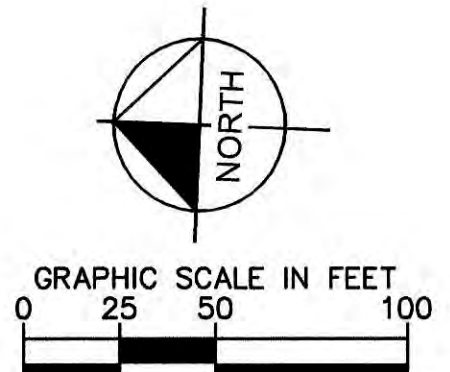
**PHASING MAP**

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 NORTH CAROLINA

SHEET NUMBER  
**C2.3**

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/9/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as Construction Plans for this project.  
 By: *[Signature]* Date: 10/9/2020  
 Administrator



PARKSTONE TOWNE BLVD.  
 VARIABLE WIDTH ROW  
 USE: COMMERCIAL  
 70' NFD : HB

USE: APARTMENT

GARAGES  
 01/02/05/04/05/06/07/08/09/10

GARAGES  
 01/02/05/04/05/06/07/08/09/10

USE: MULTI FAMILY RESIDENTIAL  
 ZONED : RMX-CD  
 MF BUILDING 5  
 TYPE A1  
 FFE 295.00

LOT #5

LOT #6

LOT #7

PHASE 1 - 54 LOTS  
 TOTAL AREA = 5.85 AC.  
 LESS R/W = 1.31 AC.  
 4.34 AC.

PHASE 2 - 45 LOTS  
 TOTAL AREA = 5.23 AC.  
 LESS R/W = 1.32 AC.  
 3.91 AC.

PHASE 3 - 49 LOTS  
 AREA = 3.88 AC.  
 LESS R/W = 0.53 AC.  
 3.35 AC.

IAL

TYPE D BUFFER  
 50' MIN.

USE: SINGLE FAMILY RESIDENTIAL  
 ZONED : GR8

USE: SINGLE FAMILY RESIDENTIAL  
 ZONED : GR8

GEORGE PINE WAY  
 PUBLIC ROAD (64' ROW)

GEORGE PINE WAY  
 PUBLIC ROAD (64' ROW)

GEORGE PINE WAY  
 PRIVATE ALLEY

GEORGE PINE WAY

GEORGE PINE WAY  
 PRIVATE ALLEY

PALMETTO TREE WAY  
 PRIVATE ALLEY

PALMETTO TREE WAY  
 PRIVATE ALLEY

PALMETTO TREE WAY  
 PRIVATE ALLEY

PALMETTO TREE WAY  
 PRIVATE ALLEY

PRIVATE ALLEY

PALMETTO TREE WAY  
 PRIVATE ALLEY

30' WIDE COURTYARD

30' WIDE COURTYARD

30' WIDE COURTYARD

30' WIDE COURTYARD

30' WIDE COURTYARD

30' WIDE COURTYARD

OPEN SPACE

OPEN SPACE

OPEN SPACE

OPEN SPACE

OPEN SPACE

OPEN SPACE

12 11 10 9 8 7 6 5 4 3 2 1

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

13 12 11 10 9 8 7 6 5 4 3 2 1

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

14 13 12 11 10 9 8 7 6 5 4 3 2 1

17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

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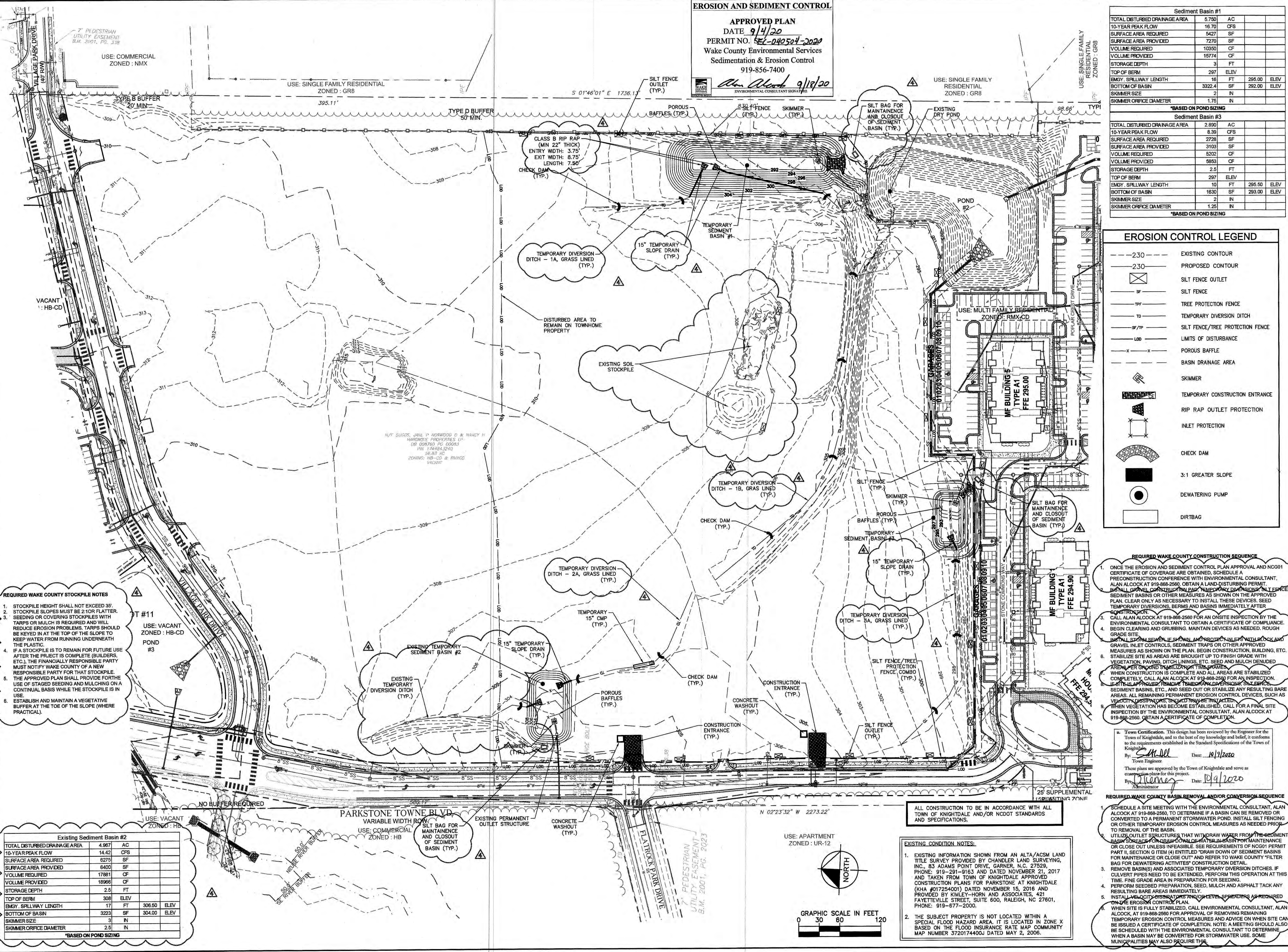
26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



Project: Parkstone Village, Phase 1, Erosion Control Plan. Date: 11/08/2019. Scale: As Shown. Drawn by: JCB. Checked by: COB.

**EROSION AND SEDIMENT CONTROL**

**APPROVED PLAN**  
 DATE: 9/14/20  
 PERMIT NO.: 19-040504-2020  
 Wake County Environmental Services  
 Sedimentation & Erosion Control  
 919-856-7400  
 9/18/20



Sediment Basin #1	
TOTAL DISTURBED DRAINAGE AREA	5.750 AC
10-YEAR PEAK FLOW	16.70 CFS
SURFACE AREA REQUIRED	5427 SF
SURFACE AREA PROVIDED	7270 SF
VOLUME REQUIRED	10350 CF
VOLUME PROVIDED	15774 CF
STORAGE DEPTH	3 FT
TOP OF BERM	297 ELEV
EMG. SPILLWAY LENGTH	16 FT 295.00 ELEV
BOTTOM OF BASIN	3322.4 SF 292.00 ELEV
SKIMMER SIZE	2 IN
SKIMMER ORIFICE DIAMETER	1.75 IN

*\*BASED ON POND SIZING*

Sediment Basin #3	
TOTAL DISTURBED DRAINAGE AREA	2.890 AC
10-YEAR PEAK FLOW	8.39 CFS
SURFACE AREA REQUIRED	2728 SF
SURFACE AREA PROVIDED	3403 SF
VOLUME REQUIRED	5203 CF
VOLUME PROVIDED	6863 CF
STORAGE DEPTH	2.5 FT
TOP OF BERM	297 ELEV
EMG. SPILLWAY LENGTH	10 FT 295.50 ELEV
BOTTOM OF BASIN	1630 SF 293.00 ELEV
SKIMMER SIZE	2 IN
SKIMMER ORIFICE DIAMETER	1.25 IN

*\*BASED ON POND SIZING*

**EROSION CONTROL LEGEND**

- - - 230 - - - EXISTING CONTOUR
- - - 230 - - - PROPOSED CONTOUR
- ☒ SILT FENCE OUTLET
- 5' — SILT FENCE
- 10' — TREE PROTECTION FENCE
- 5' / 10' — TEMPORARY DIVERSION DITCH
- 5' / 10' — SILT FENCE/TREE PROTECTION FENCE
- 100' — LIMITS OF DISTURBANCE
- X — X — POROUS BAFFLE
- — — BASIN DRAINAGE AREA
- ☐ SKIMMER
- ☐ TEMPORARY CONSTRUCTION ENTRANCE
- ☐ RIP RAP OUTLET PROTECTION
- ☐ INLET PROTECTION
- ☐ CHECK DAM
- ☐ 3:1 GREATER SLOPE
- ☐ DEWATERING PUMP
- ☐ DIRTBAG

- REQUIRED WAKE COUNTY STOCKPILE NOTES**
1. STOCKPILE HEIGHT SHALL NOT EXCEED 35'.
  2. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
  3. SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEPT IN AT THE TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDERNEATH THE PLASTIC.
  4. IF A STOCKPILE IS TO REMAIN FOR FUTURE USE AFTER THE PROJECT IS COMPLETE (BUILDERS, ETC.), THE FINANCIALLY RESPONSIBLE PARTY MUST NOTIFY WAKE COUNTY OF A NEW RESPONSIBLE PARTY FOR THAT STOCKPILE.
  5. THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGED SEEDING AND MULCHING ON A CONTINUOUS BASIS WHILE THE STOCKPILE IS IN USE.
  6. ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

- REQUIRED WAKE COUNTY CONSTRUCTION SEQUENCE**
1. ONCE THE EROSION AND SEDIMENT CONTROL PLAN APPROVAL AND NCG01 CERTIFICATE OF COVERAGE ARE OBTAINED, SCHEDULE A PRECONSTRUCTION CONFERENCE WITH ENVIRONMENTAL CONSULTANT, ALAN ALCOCK AT 919-868-2560. OBTAIN A LAND-DISTURBING PERMIT, INSTALL CONSTRUCTION ENTRANCE, TEMPORARY DIVERSION DITCHES, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
  2. CALL ALAN ALCOCK AT 919-868-2560 FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.
  3. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
  4. INSTALL SLOPE SEVERE (IF SHOWN) AND PROTECT SLOPES WITH LOGS AND GRAVEL INLET CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN. BEGIN CONSTRUCTION, BUILDING, ETC.
  5. STABILIZE AREAS AS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENuded AREAS PER ON-SITE STABILIZATION PLAN.
  6. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL AN ALCOCK AT 919-868-2560 FOR AN INSPECTION. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISTRIBUTORS, SHOULD REMAIN INSTALLED.
  7. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT, ALAN ALCOCK AT 919-868-2560. OBTAIN A CERTIFICATE OF COMPLETION.

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: *[Signature]* Date: 10/12/2020  
 Town Engineer

These plans are approved by the Town of Knightdale and serve as evidence of approval for this project.

By: *[Signature]* Date: 10/19/2020  
 Administrator

- REQUIRED WAKE COUNTY BASIN REMOVAL AND/OR CONVERSION SEQUENCE**
1. SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT, ALAN ALCOCK AT 919-868-2560. TO DETERMINE IF A BASIN CAN BE REMOVED OR CONVERTED TO A PERMANENT STORMWATER POND. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
  2. UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SEDIMENT BASIN SURFACE OR DRAW DOWN OF WATER IN BASIN FOR MAINTENANCE OR CLOSE OUT UNLESS INFEASIBLE. SEE REQUIREMENTS OF NCG01 PERMIT PART II, SECTION G ITEM (4) ENTITLED "DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT" AND REFER TO WAKE COUNTY FILTER BAG FOR DEWATERING ACTIVITIES' CONSTRUCTION DETAIL.
  3. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF CULVERT PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
  4. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ASPHALT TACK ANY RESULTING BARE AREAS IMMEDIATELY.
  5. INSTALL VELOCITY DISTRIBUTORS OR OTHER LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
  6. WHEN SITE IS FULLY STABILIZED, CALL ENVIRONMENTAL CONSULTANT, ALAN ALCOCK, AT 919-868-2560 FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE. SOME MUNICIPALITIES MAY ALSO REQUIRE THIS.

**Existing Sediment Basin #2**

TOTAL DISTURBED DRAINAGE AREA	4.967 AC
10-YEAR PEAK FLOW	14.42 CFS
SURFACE AREA REQUIRED	6275 SF
SURFACE AREA PROVIDED	9400 SF
VOLUME REQUIRED	17881 CF
VOLUME PROVIDED	18966 CF
STORAGE DEPTH	2.5 FT
TOP OF BERM	308 ELEV
EMG. SPILLWAY LENGTH	17 FT 308.50 ELEV
BOTTOM OF BASIN	3223 SF 304.00 ELEV
SKIMMER SIZE	3 IN
SKIMMER ORIFICE DIAMETER	2.5 IN

*\*BASED ON POND SIZING*

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

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  2. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA. IT IS LOCATED IN ZONE X BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720174400Q DATED MAY 2, 2006.

**Kimley»Horn**

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 PHONE: 919-877-2000 FAX: 919-877-2050  
 WWW.KIMLEY-HORN.COM

**EROSION CONTROL PHASE 1**

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.

NORTH CAROLINA  
 KNIGHTDALE

NO.	REVISIONS	DATE	BY
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WHW
2	OWNER UPDATES	03-19-20	WHW
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20	WHW
4	REVISED PER TOWN COMMENTS	07-31-20	JCB

SHEET NUMBER **C3.0**

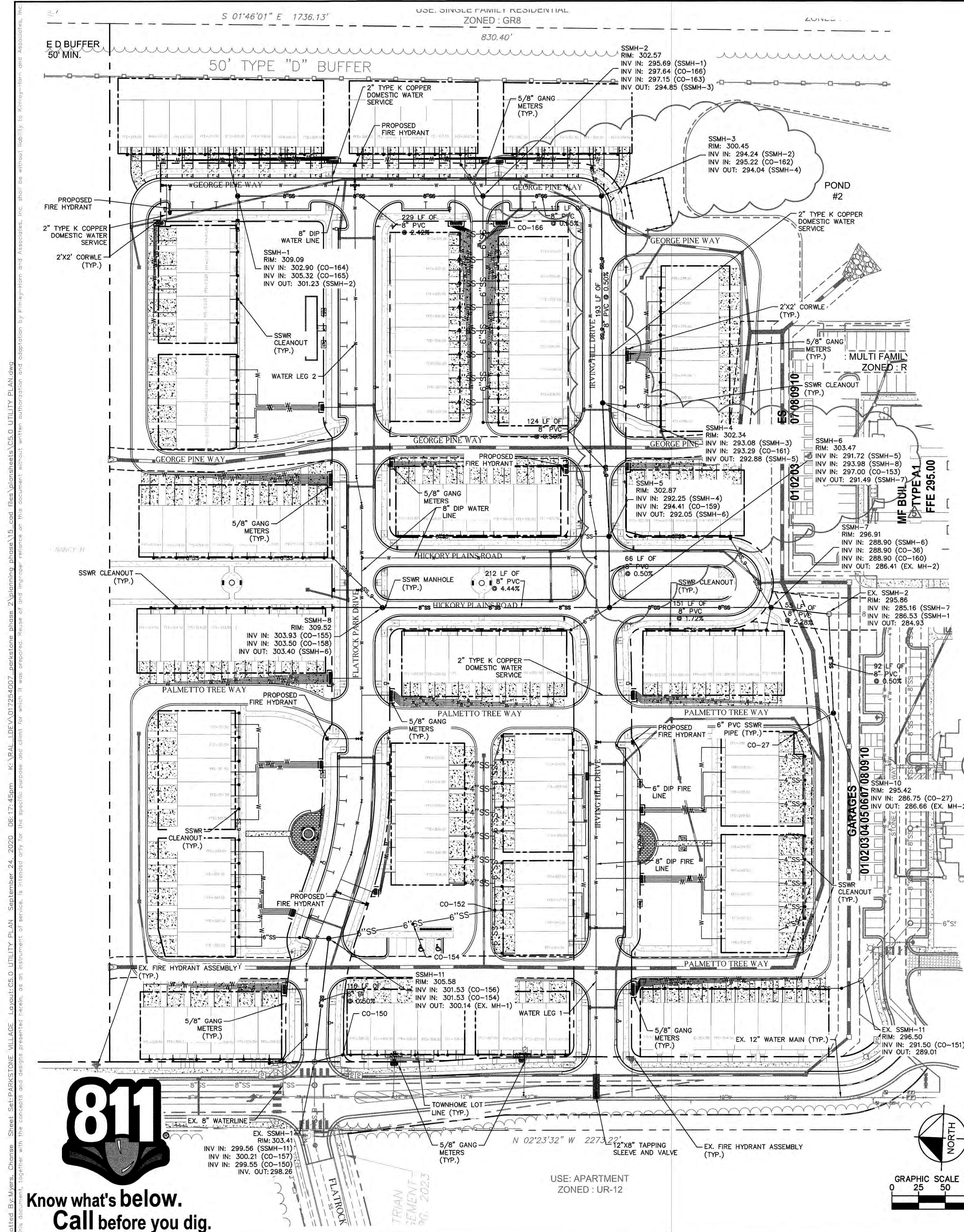




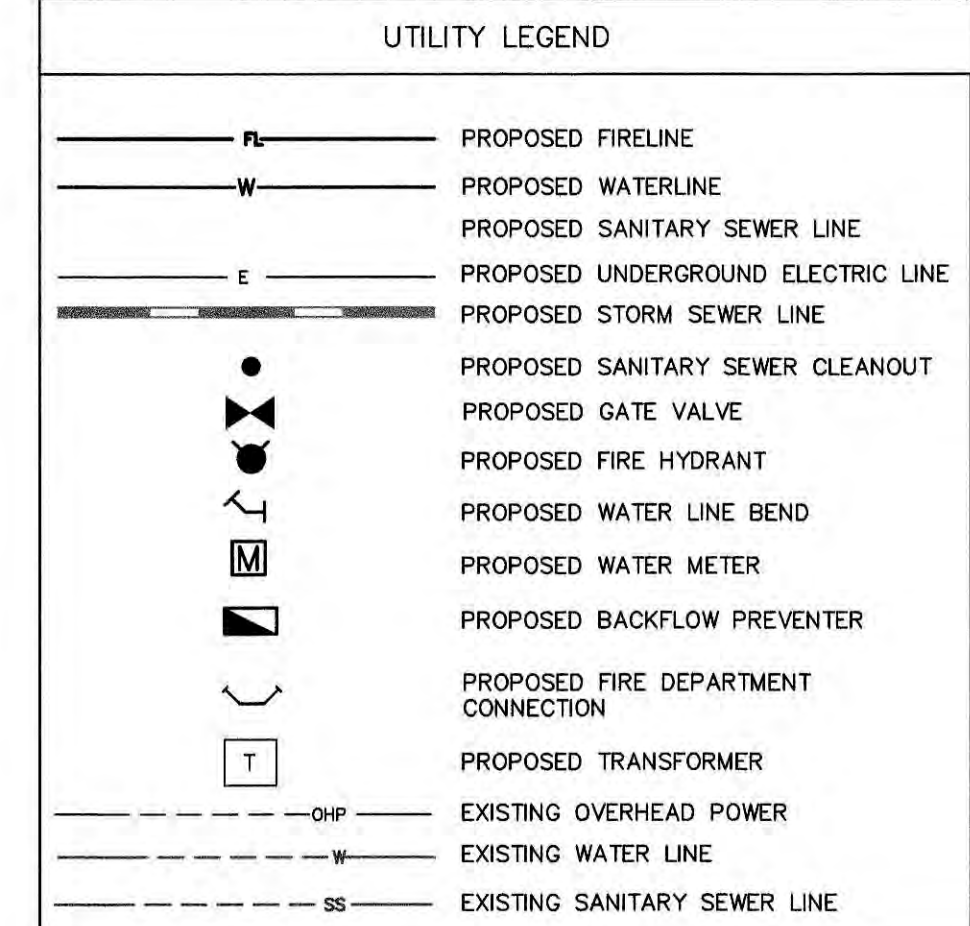








STRUCTURE NAME	INVERT OUT
CO-150	299.70
CO-152	302.57
CO-154	302.01
CO-166	298.23



- STANDARD UTILITY NOTES (AS APPLICABLE):**
- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
  - UTILITY SEPARATION REQUIREMENTS:
    - A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
    - B) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
    - C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASUREMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
    - D) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
    - E) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49).
    - F) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
  - ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
  - CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
  - 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
  - IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
  - INSTALL 2" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
  - INSTALL 6" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
  - PRESSURE-REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.
  - ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
  - NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
  - GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT TIMOTHY BEASLEY AT (919) 996-2334 OR TIMOTHY.BEASLEY@RALEIGHNC.GOV FOR MORE INFORMATION.
  - CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: *[Signature]* Date: 10/19/2020  
 Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: *[Signature]* Date: 10/19/2020  
 Administrator

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

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**SITE PERMITTING APPROVAL**

The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # 31-5232Z.

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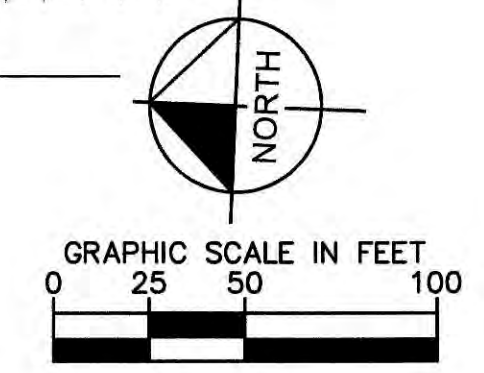
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City of Raleigh Public Utilities Department Permit # 31-5232Z

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approval plans. Any work submitted by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be added once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval: Lorea M Sample  
 Raleigh Water Review Officer

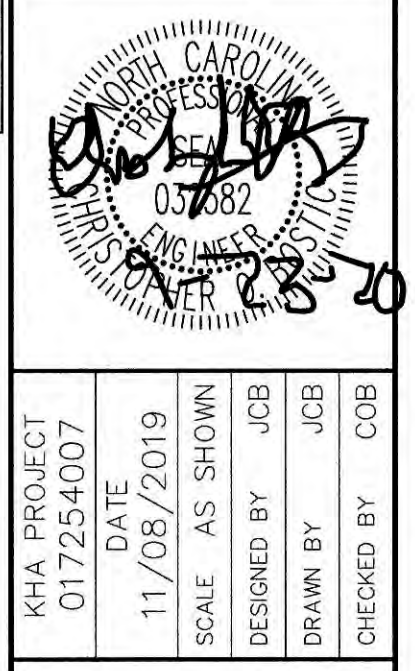


**Know what's below.  
Call before you dig.**

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20	WWH
2	OWNER UPDATES	03-19-20	WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH

**Kimley-Horn**

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 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM



**UTILITY PLAN**

KHA PROJECT: 017254007  
 DATE: 11/08/2019  
 SCALE: AS SHOWN  
 DESIGNED BY: JCB  
 DRAWN BY: JCB  
 CHECKED BY: COB

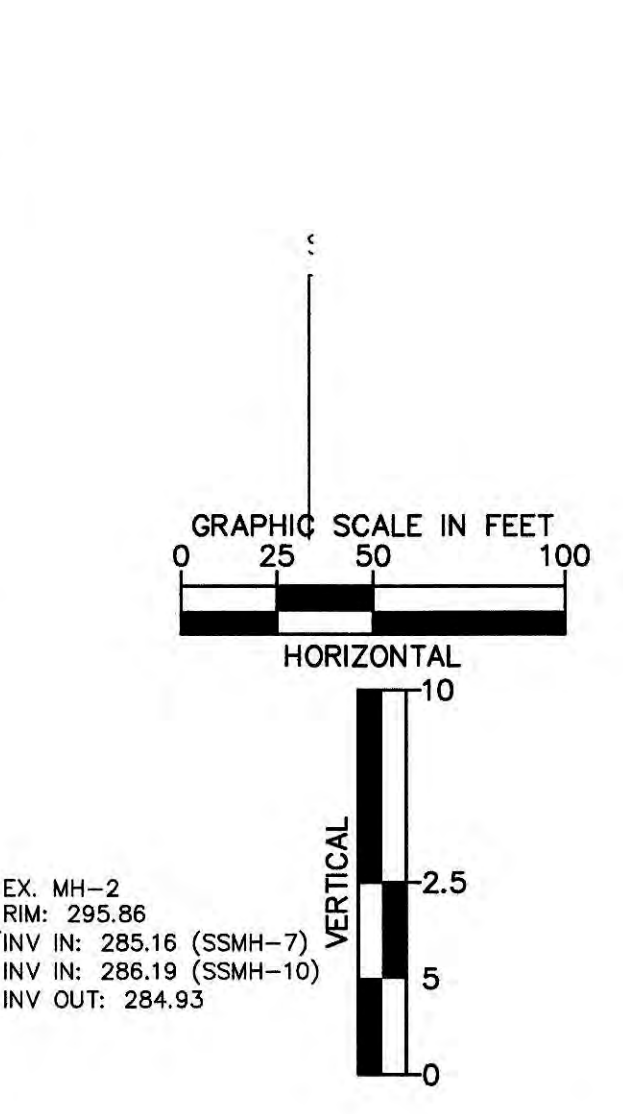
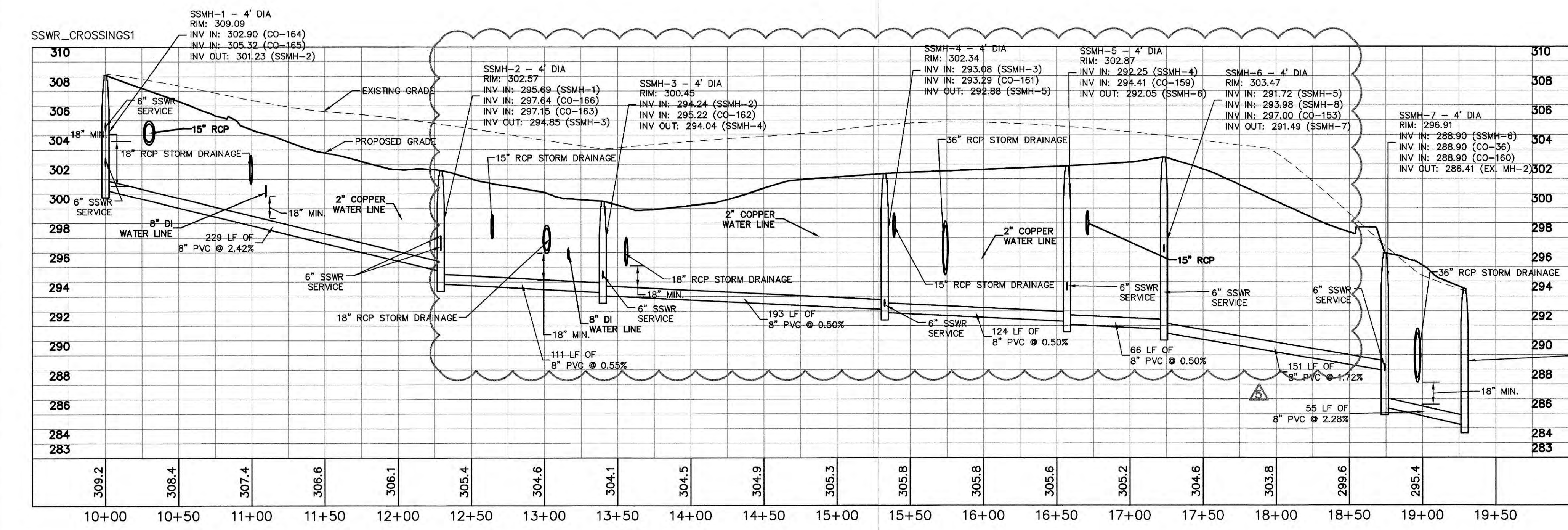
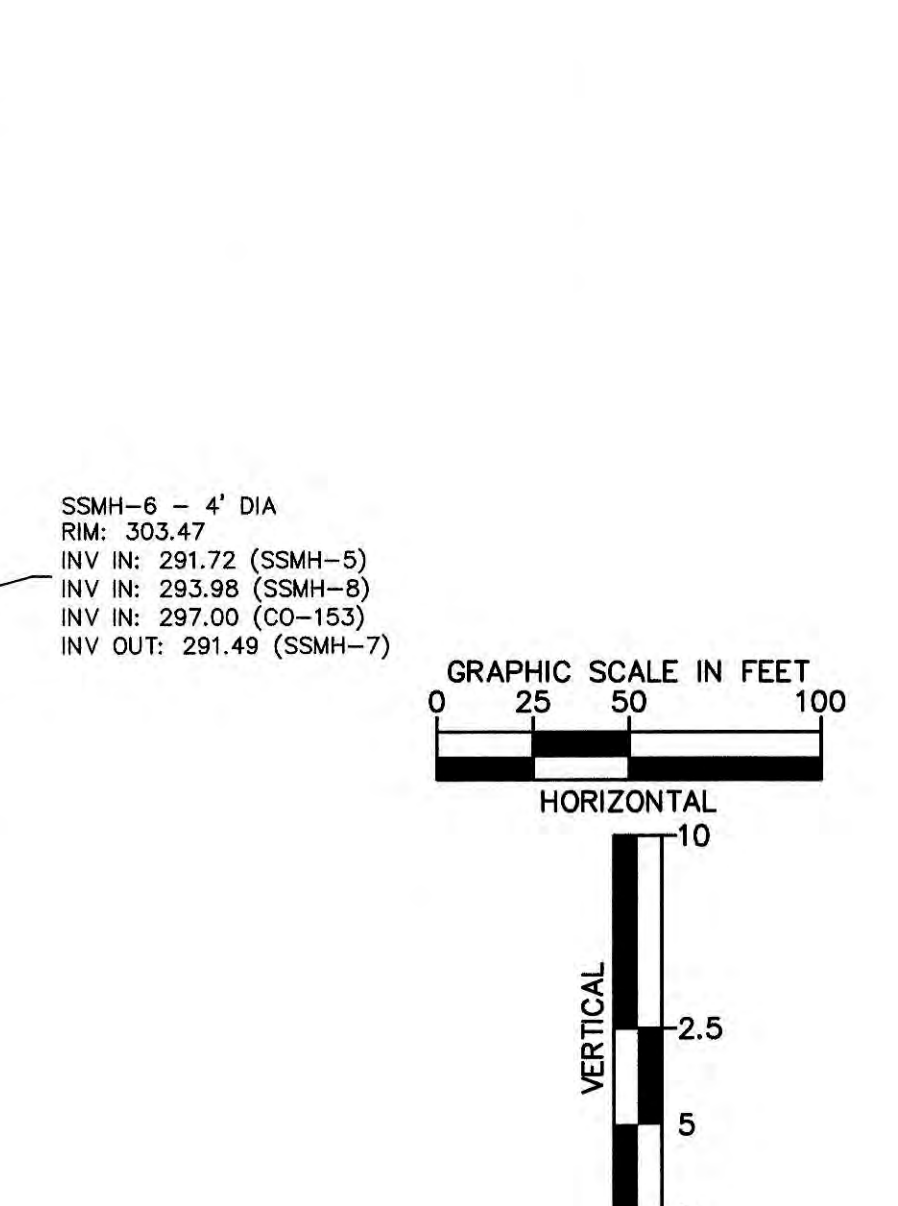
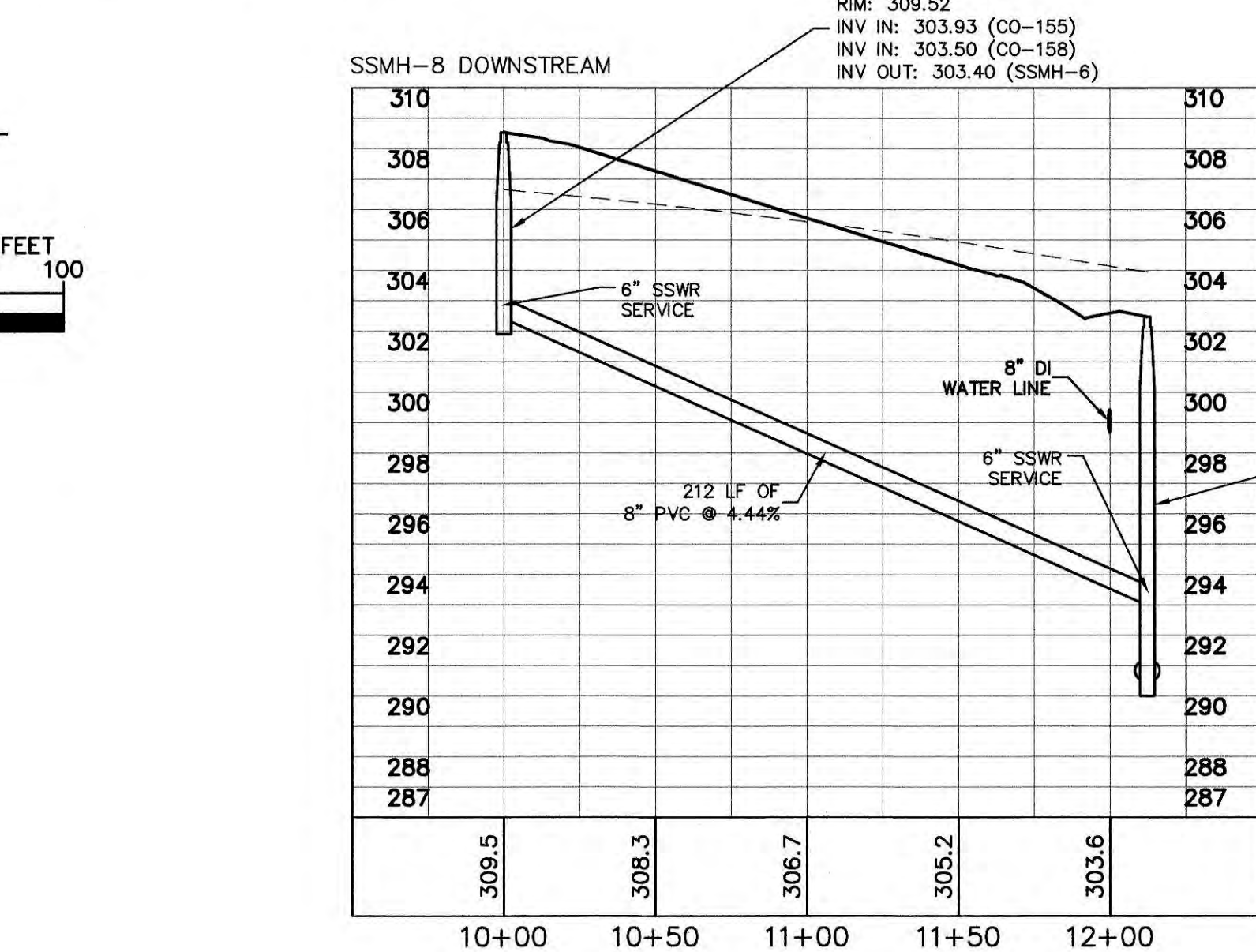
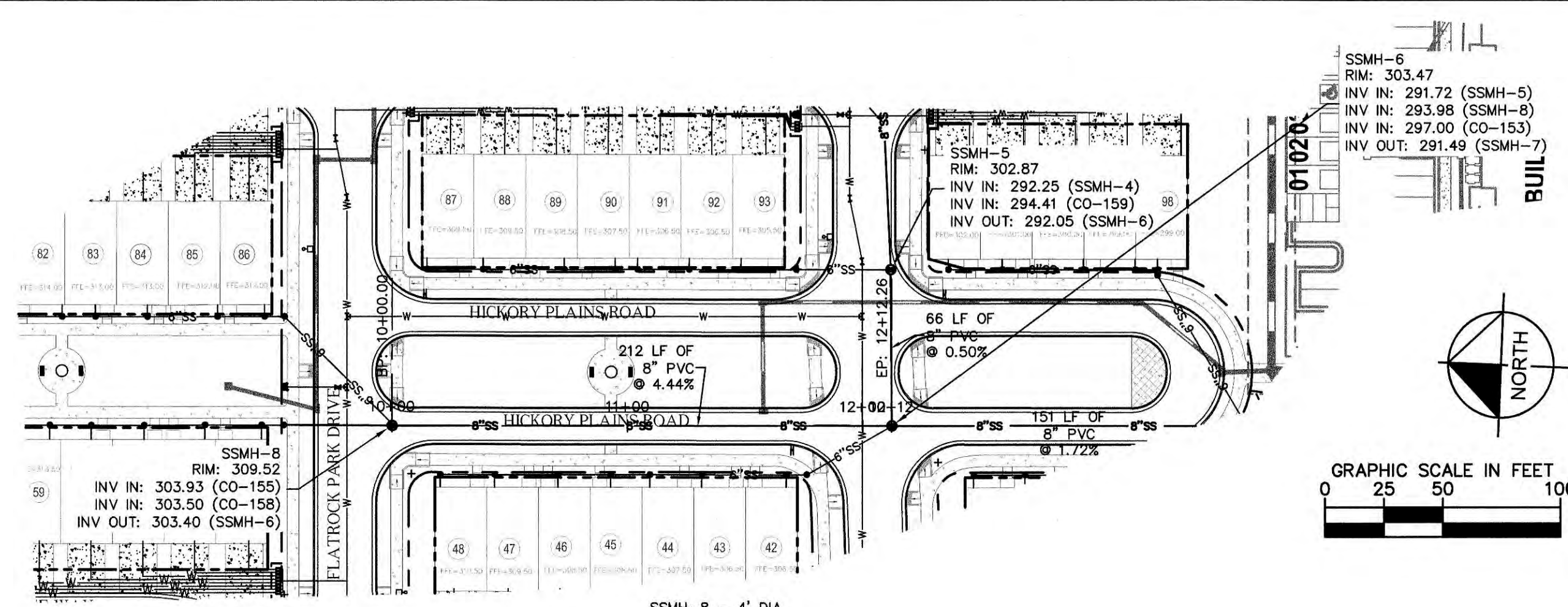
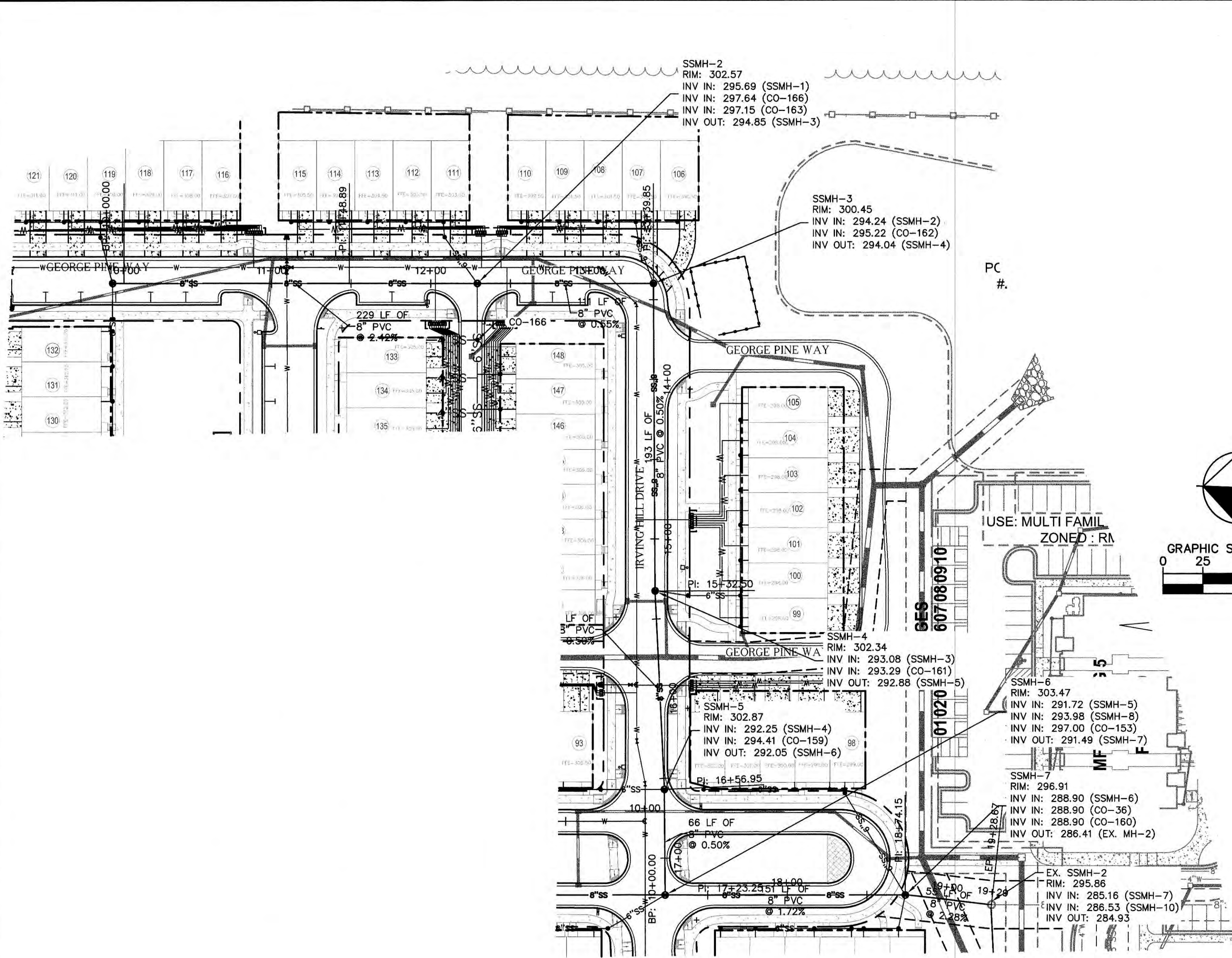
**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.

NORTH CAROLINA  
 KNIGHTDALE

SHEET NUMBER  
**C5.0**



Plotted By: Meters, Change: Sheet: Parkstone Village Layout: C5.1 UTILITY PLAN AND PROFILE, September 24, 2020, 06:19:06pm, K:\RAL\_DEV\017254007\_parkstone\_phase\_2\planing\_phase\_2\parkstone\_phase\_2\planing\_phase15\_cool\_files\planing\c5.01 UTILITY PLAN.dwg  
 This document, together with the conceptual and design presentations herein, are an instrument of service, as an instrument of service, as intended only for the specific address and site for which it was prepared. Release of this instrument of service, in whole or in part, without liability to Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

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**Town Certification:** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: *[Signature]* Date: 10/9/2020  
 Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: *[Signature]* Date: 10/9/2020  
 Administrator

**SITE PERMITTING APPROVAL**

**Water and Sewer Permits (if applicable)**

The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # 5-4722.

The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # 5-3721.

The City of Raleigh consents to the connection to the public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh Public Utilities Department Permit # 5-4722(P)

**CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION**

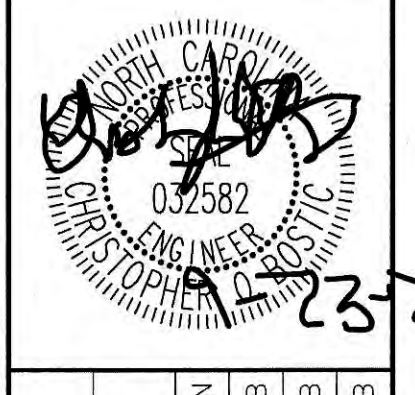
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City of Raleigh Development Approval: Lorea M Sample  
 Raleigh Water Review Officer

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**Kimley-Horn**

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 WWW.KIMLEY-HORN.COM



KHA PROJECT	017254007
DATE	11/06/2019
SCALE	AS SHOWN
DESIGNED BY	JCB
DRAWN BY	JCB
CHECKED BY	COB

**UTILITY PLAN AND PROFILE**

**PARKSTONE VILLAGE  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.**

NORTH CAROLINA  
 KNIGHTDALE

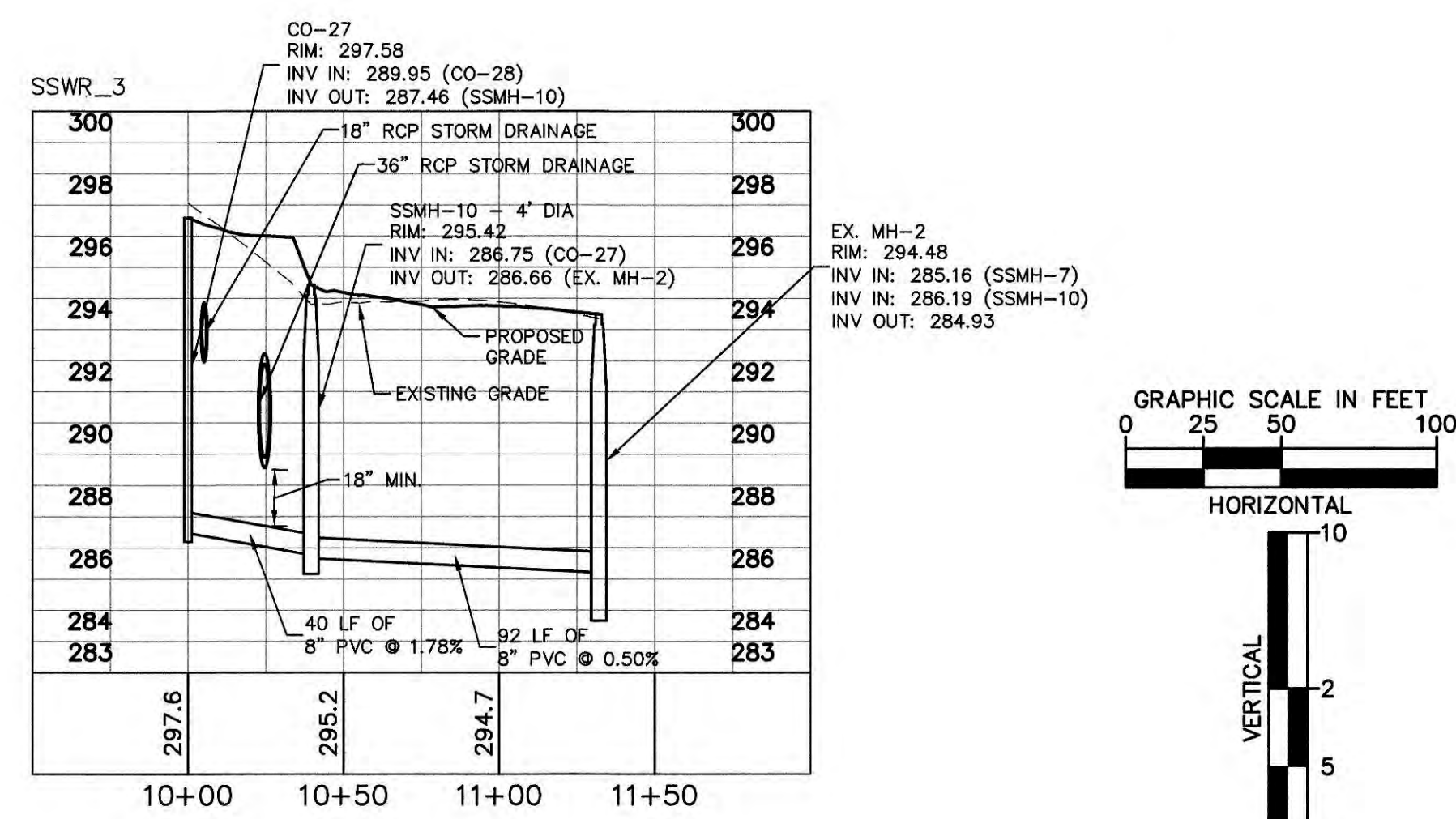
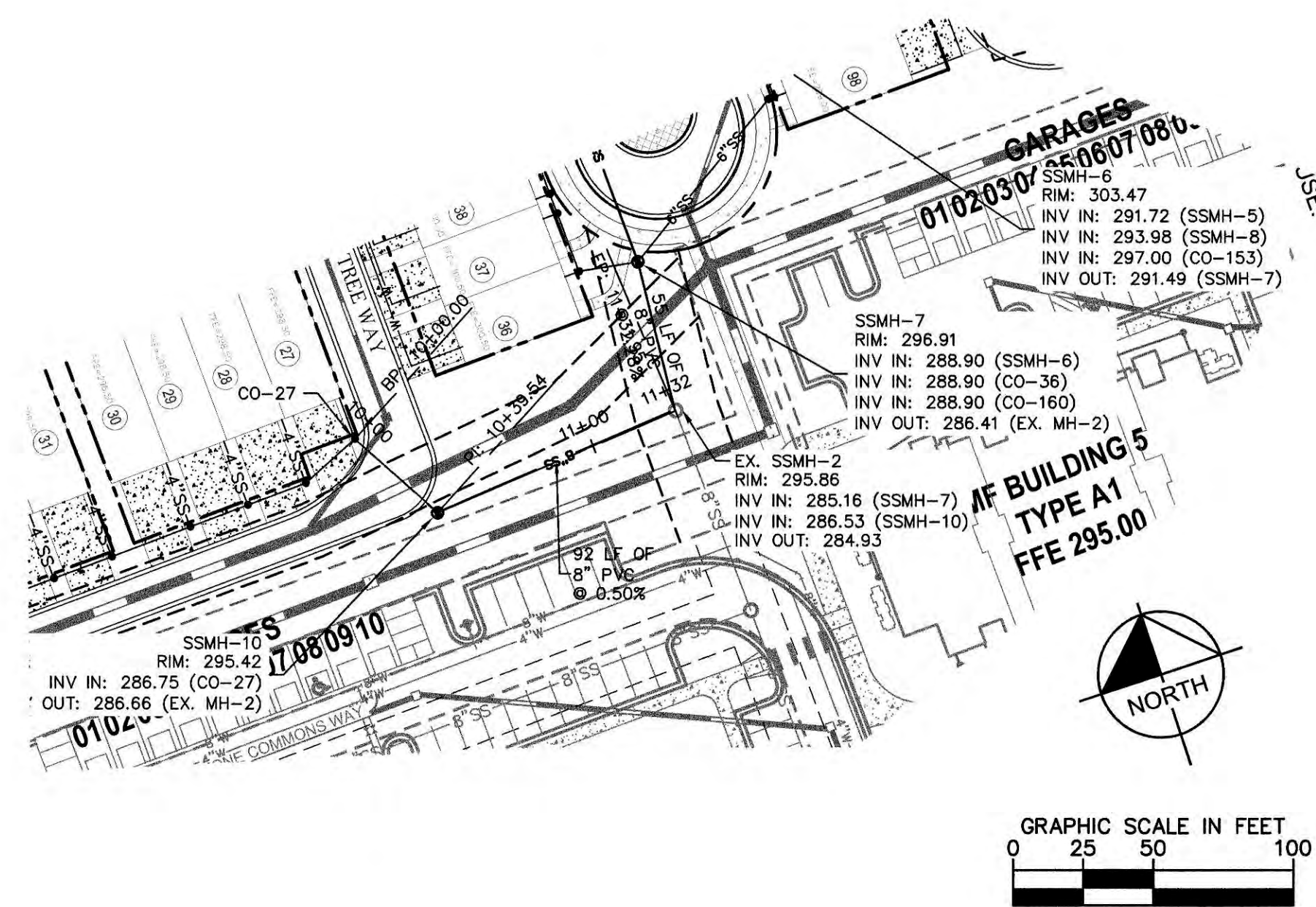
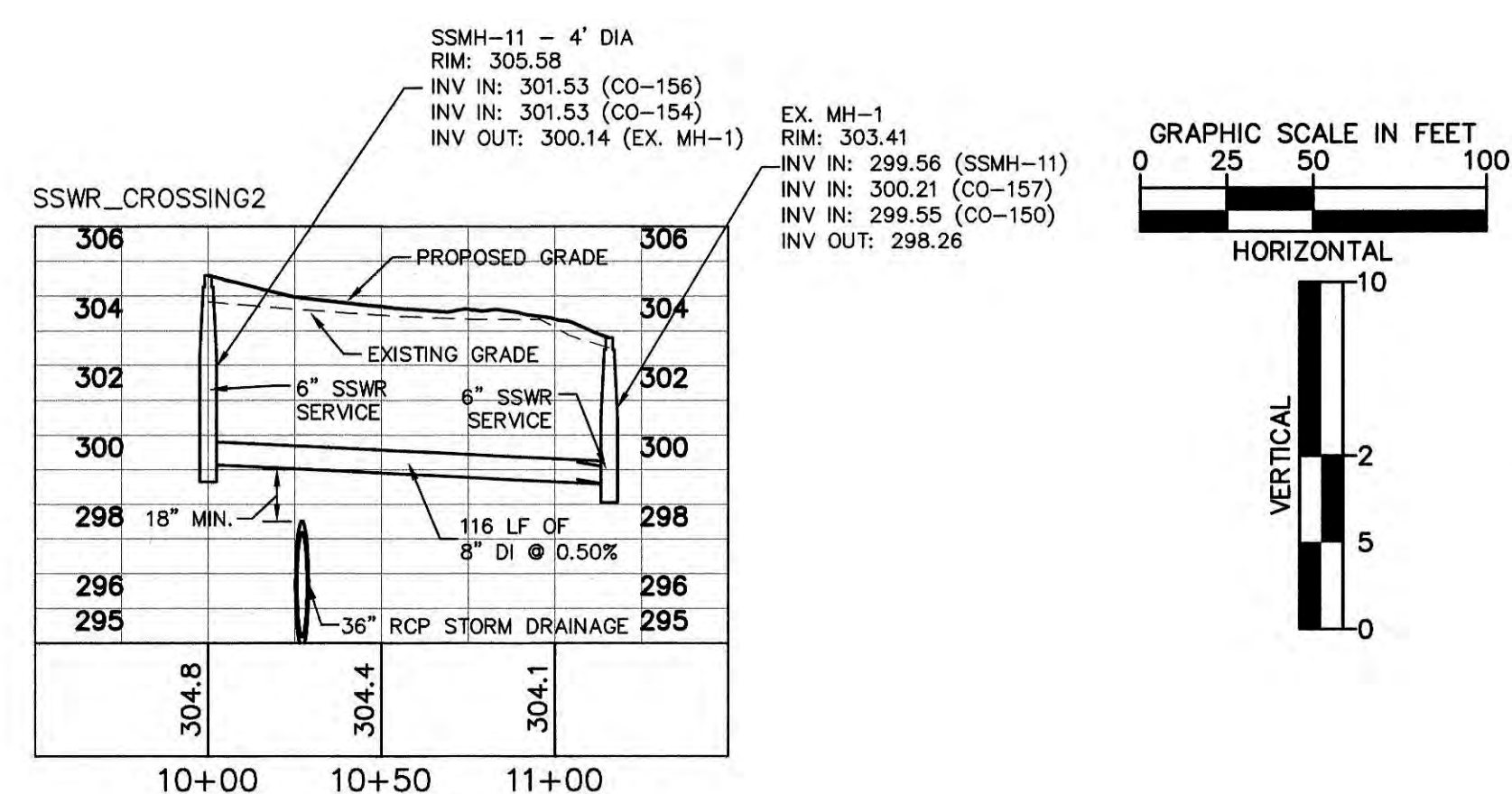
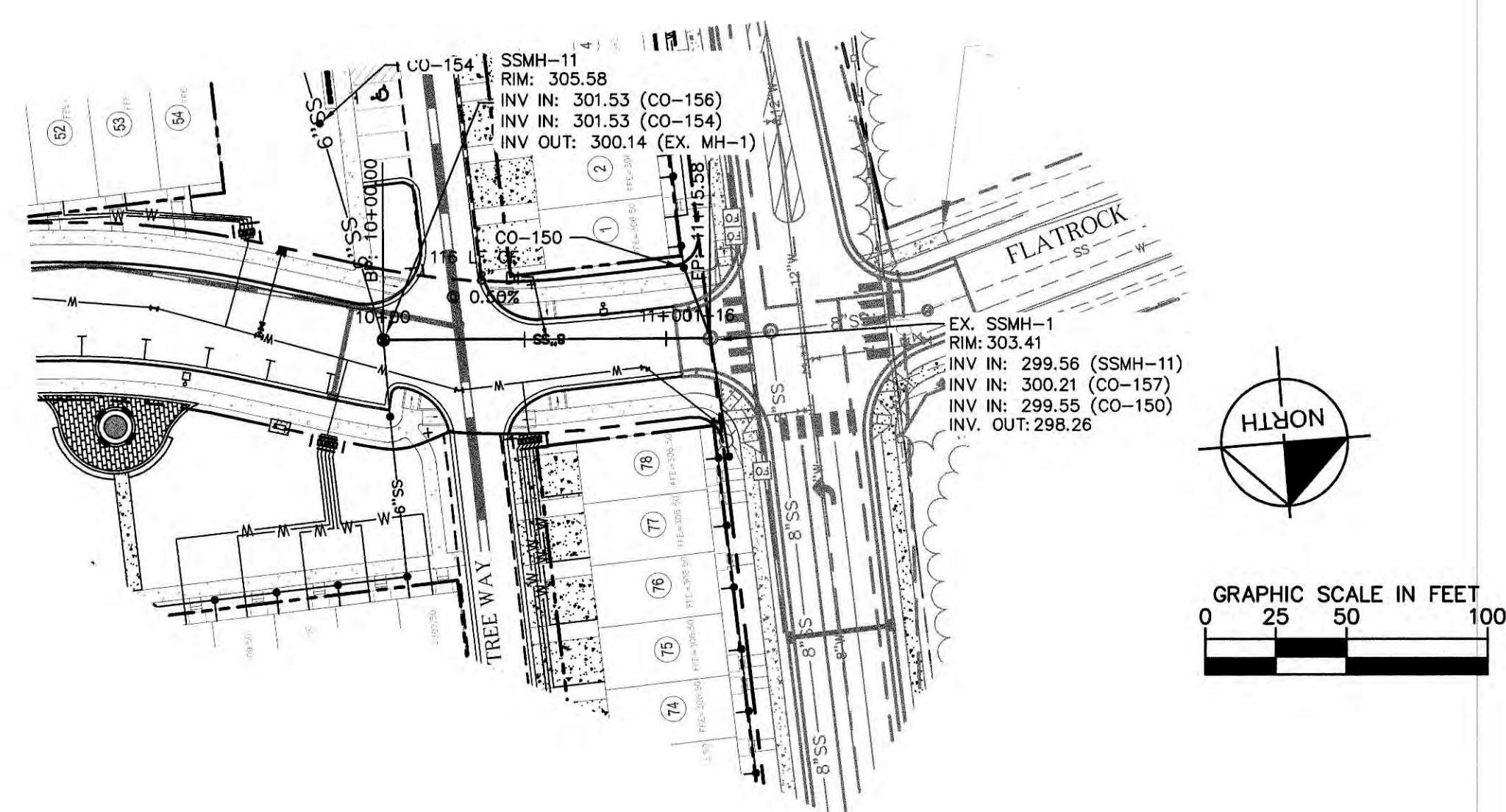




Plotted By: Myers, Chonise Sheet Set: PARKSTONE VILLAGE Layout: C5.2 UTILITY PLAN AND PROFILE September 24, 2020 06:20:24pm K:\REAL\_DEV\017254007\_parkstone phase 2 planning phase\5\_cof\_files\plan\sheet\C5.0 UTILITY PLAN.dwg  
 This document, together with the concepts and designs presented herein, are an instrument of service, as intended only for the specific purpose and area client for which it was prepared. Reuse of any information contained herein without the written authorization and approval of Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



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 By: *[Signature]* Date: 10/9/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/9/2020  
 Administrator

SITE PERMITTING APPROVAL

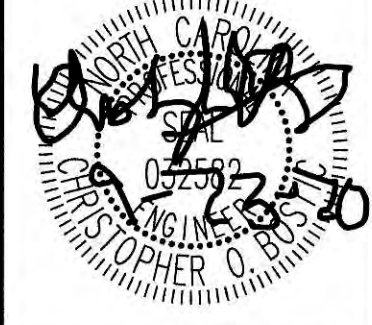
**Water and Sewer Permits (if applicable)**  
 The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # 35-4722.  
 The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # 35-3721.  
 The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
 City of Raleigh Public Utilities Department Permit # 35-4723(P)

CITY OF RALEIGH - PLANS APPROVED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be added once issued. Any modification to this approval once issued will invalidate this approval.  
 City of Raleigh Development Approval  
 Raleigh Water Review Officer

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20	WWH
2	OWNER UPDATES	03-19-20	WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH

**Kimley-Horn**  
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 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



KHA PROJECT	017254007
DATE	11/08/2019
SCALE	AS SHOWN
DESIGNED BY	JCB
DRAWN BY	JCB
CHECKED BY	COB

UTILITY PLAN AND PROFILE

PARKSTONE VILLAGE  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 NORTH CAROLINA  
 KNIGHTDALE



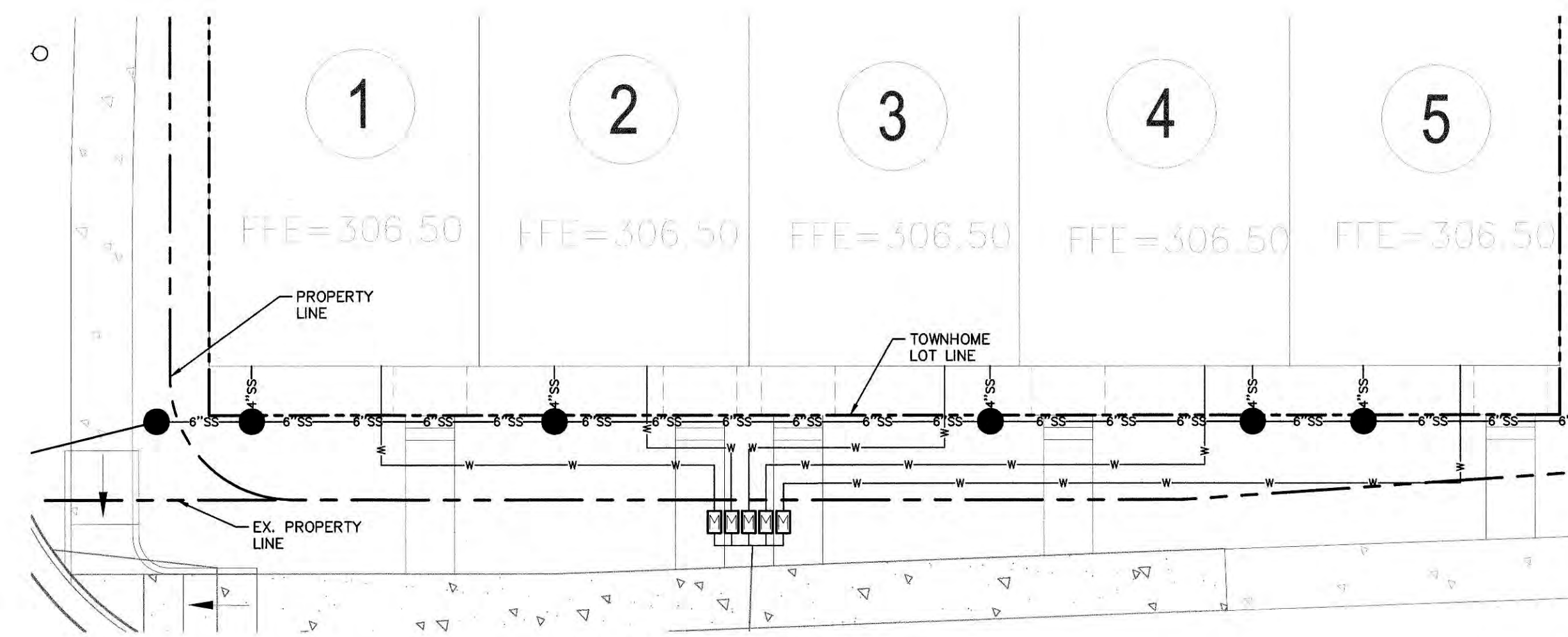
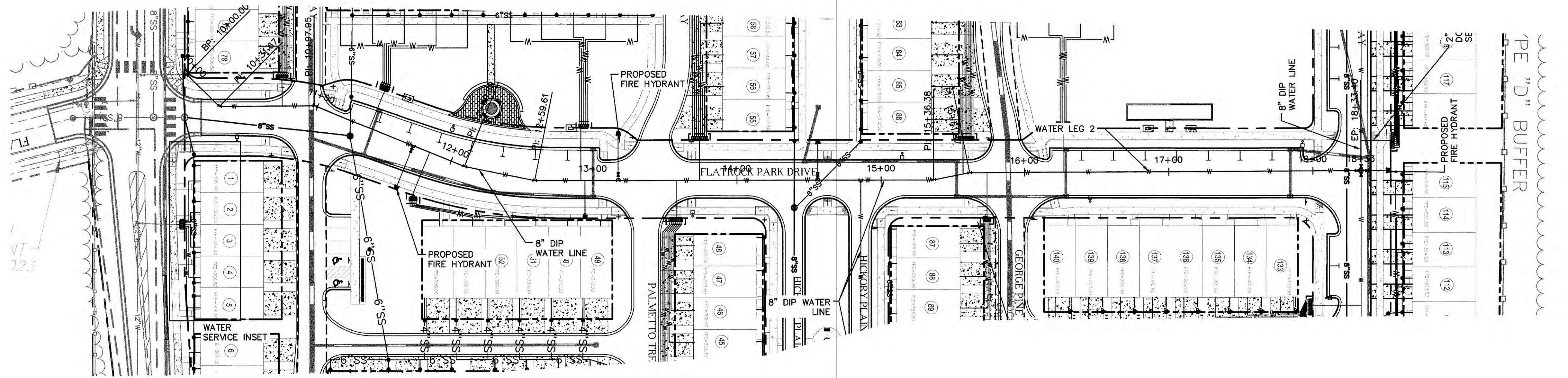




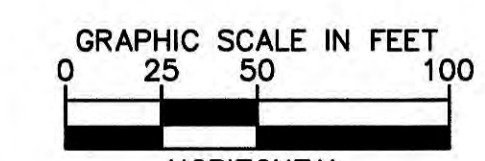
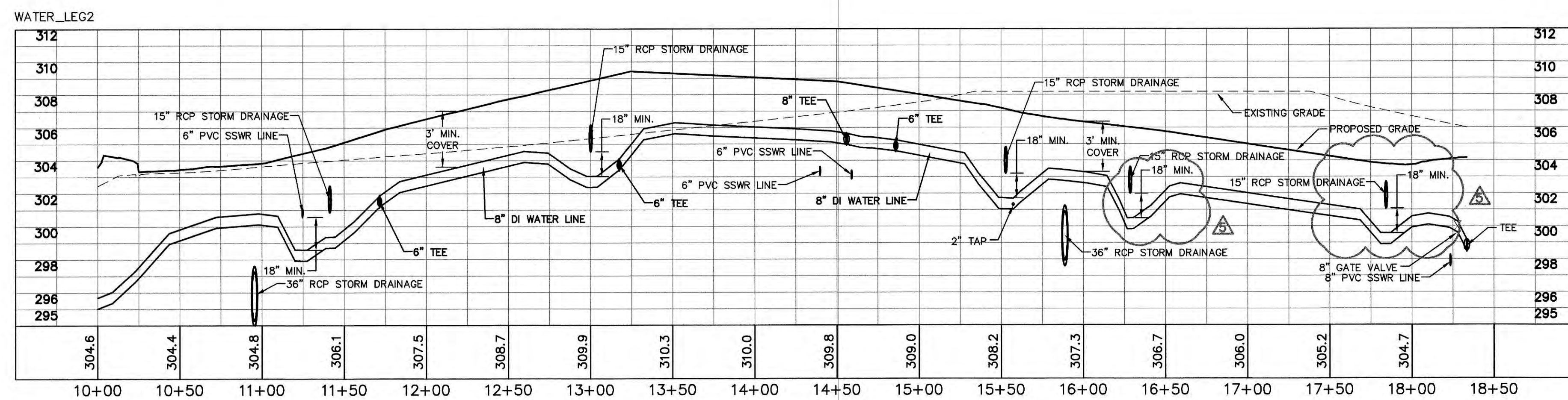
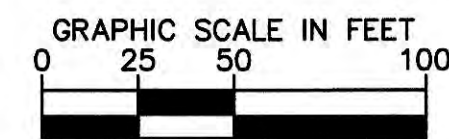
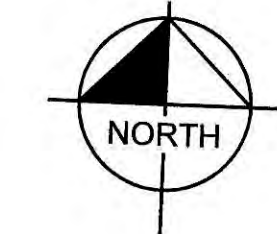
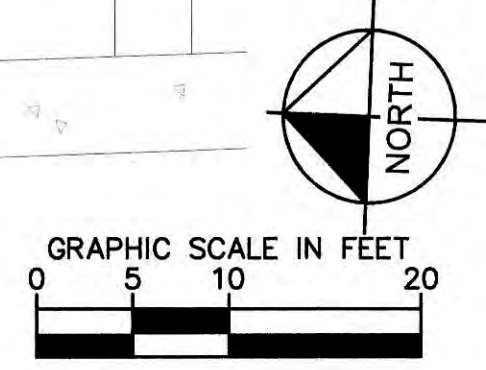
Plotted By: Myers, Chomse - Sheet Set: PARKSTONE VILLAGE - Layout: C5.4 UTILITY PLAN AND PROFILE - September 24, 2020 - 06:22:44pm - K:\REAL\LDV\017254007\parkstone phase 2\plan\phase1\5\_cad files\plan\sheet\c5.0.dwg



Know what's below.  
Call before you dig.



WATER SERVICE INSET



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

- EXISTING CONDITION NOTES:
- EXISTING INFORMATION SHOWN FROM AN ALTA/ACSM LAND TITLE SURVEY PROVIDED BY CHANDLER LAND SURVEYING, INC., 83 ADAMS POINT DRIVE, GARNER, N.C. 27529, PHONE: 919-291-9163 AND DATED NOVEMBER 21, 2017 AND TAKEN FROM TOWN OF KNIGHTDALE APPROVED CONSTRUCTION PLANS FOR PARKSTONE AT KNIGHTDALE (KHA #017254001) DATED NOVEMBER 15, 2016 AND PROVIDED BY KIMLEY-HORN AND ASSOCIATES, 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601, PHONE: 919-677-2000.
  - THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA. IT IS LOCATED IN ZONE X BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720174400J DATED MAY 2, 2006.

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 By: *[Signature]* Date: 10/9/2020  
 Town Engineer  
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 By: *[Signature]* Date: 10/9/2020  
 Administrator

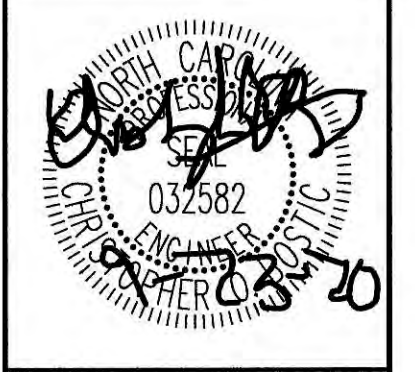
**SITE PERMITTING APPROVAL**

**Water and Sewer Permits (if applicable)**  
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 City of Raleigh Public Utilities Department Permit # 30-6723(D)

**CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION**  
 Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Reviewer. Other than the City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.  
 City of Raleigh Development Approval: \_\_\_\_\_  
 Raleigh Water Review Officer

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
3	TOWNHOME CONSTRUCTION DMC'S	06-22-20	WWH
2	OWNER UPDATES	03-19-20	WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH

**Kimley-Horn**  
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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



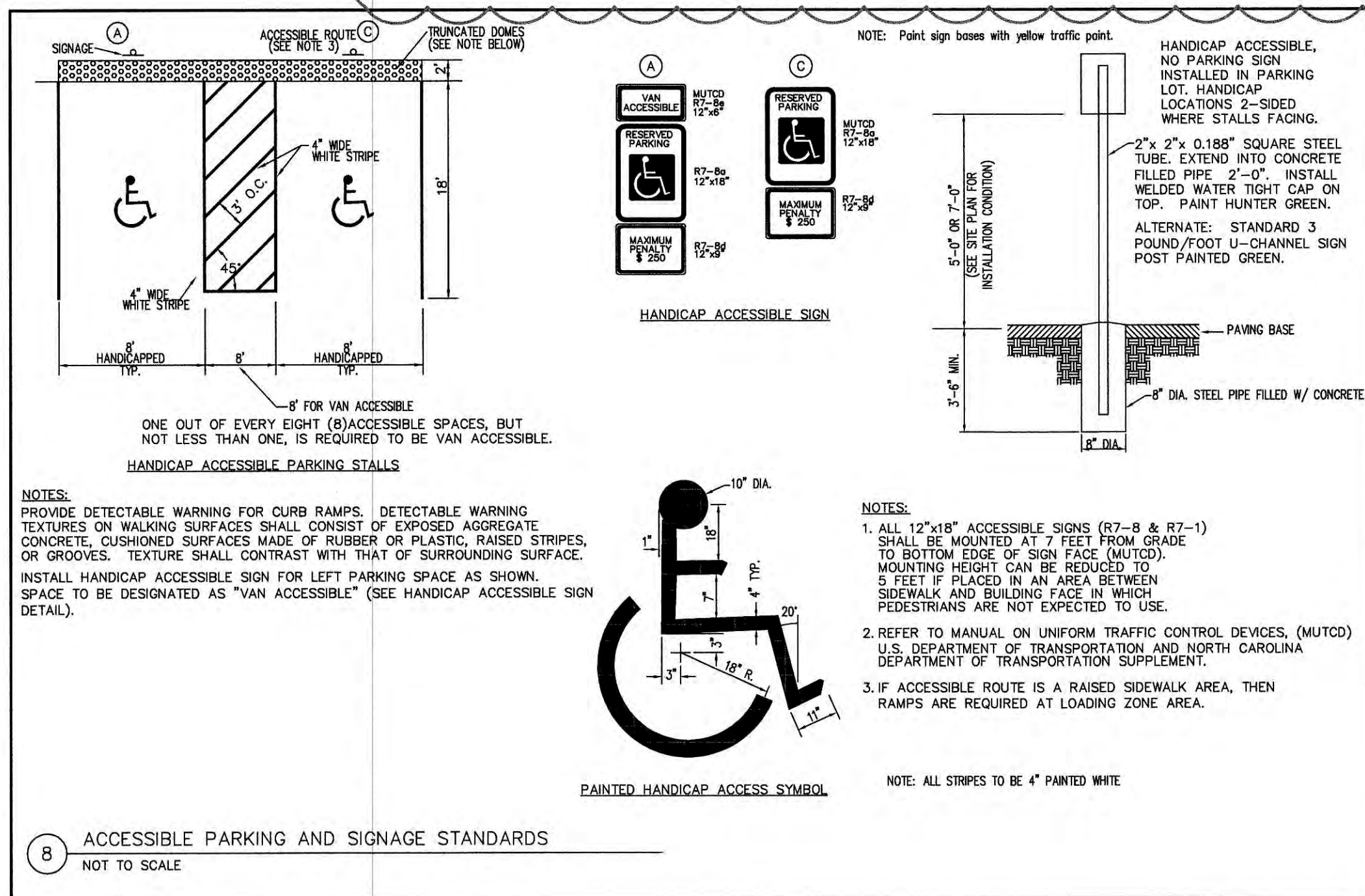
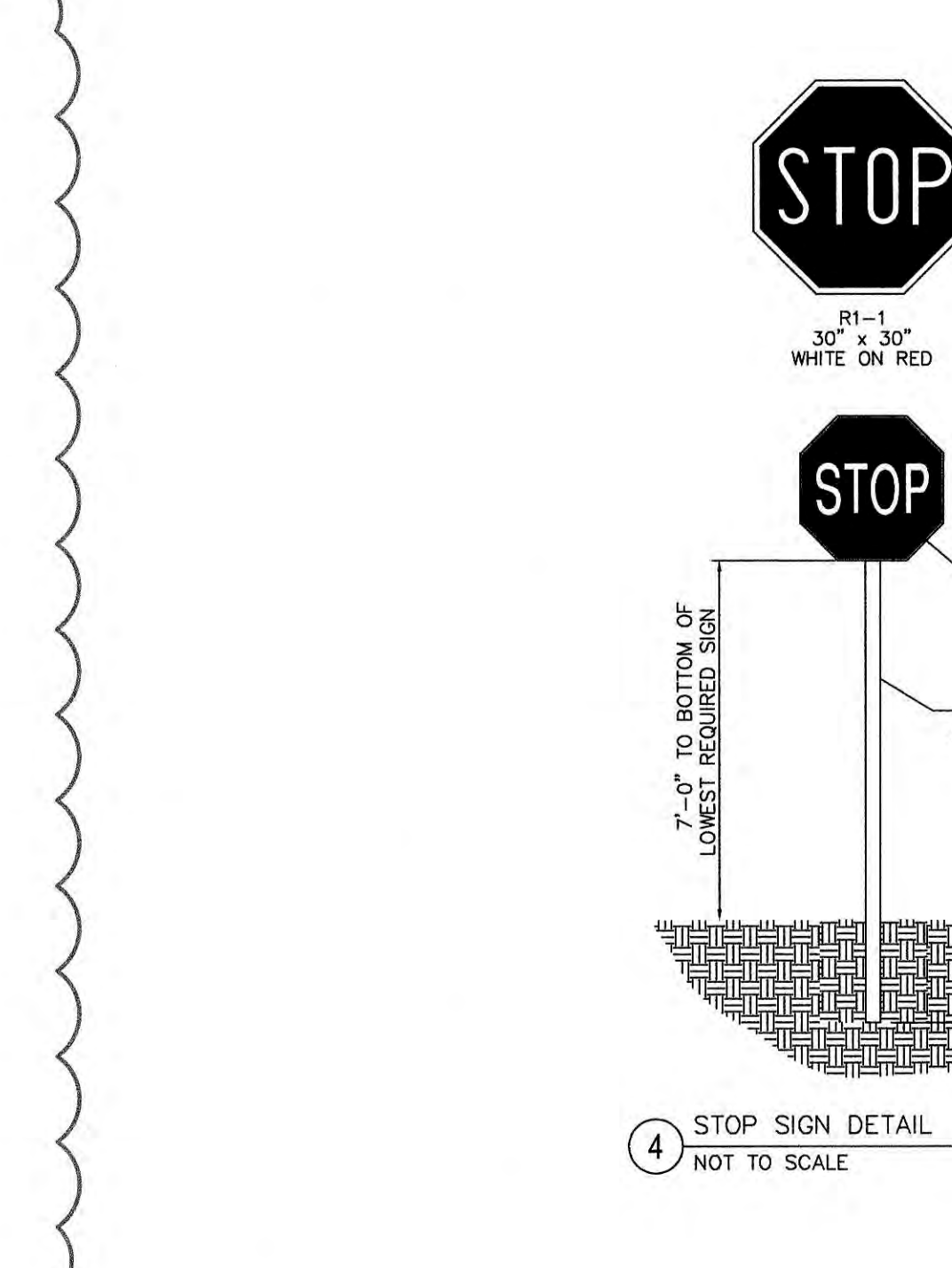
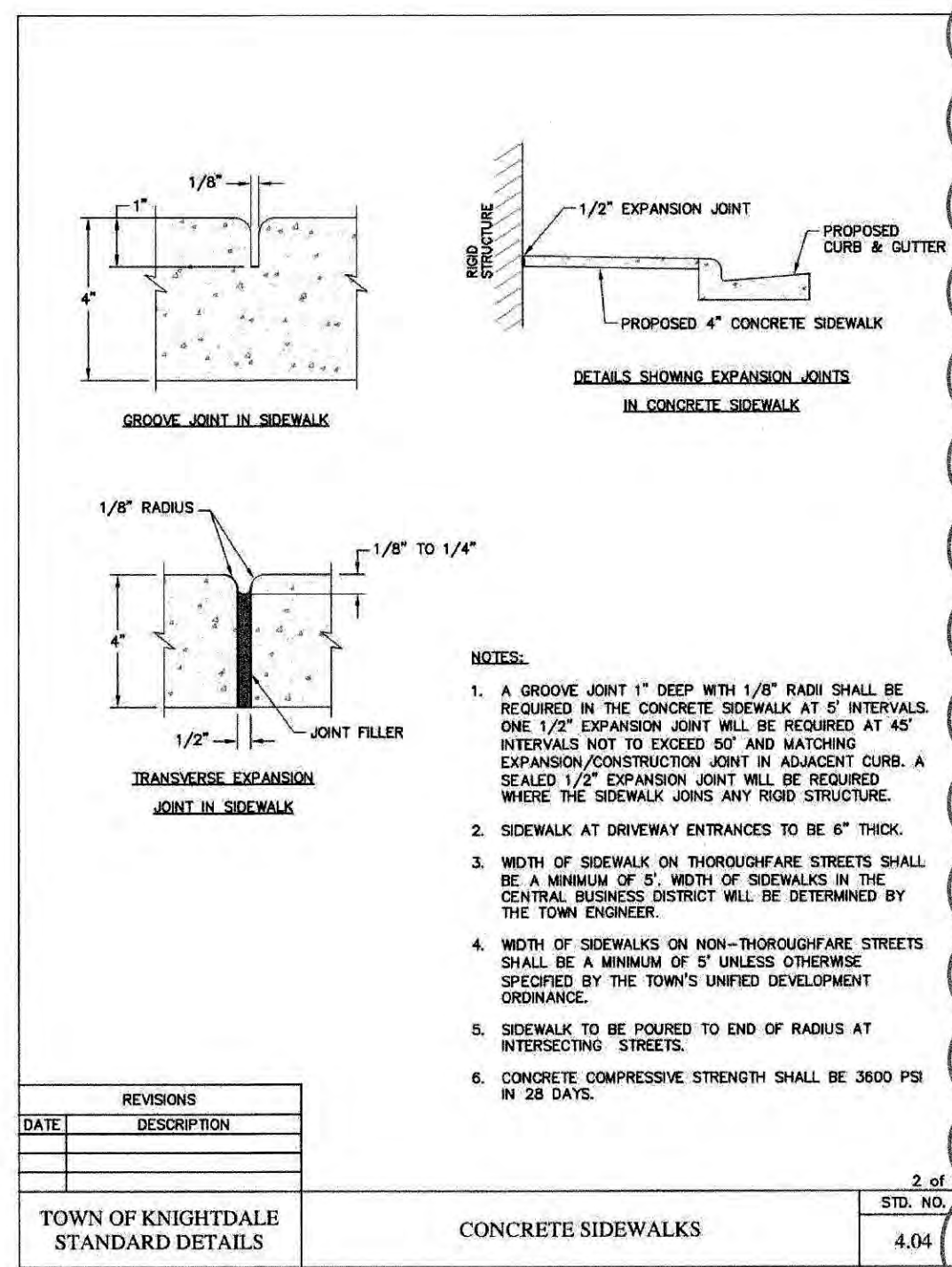
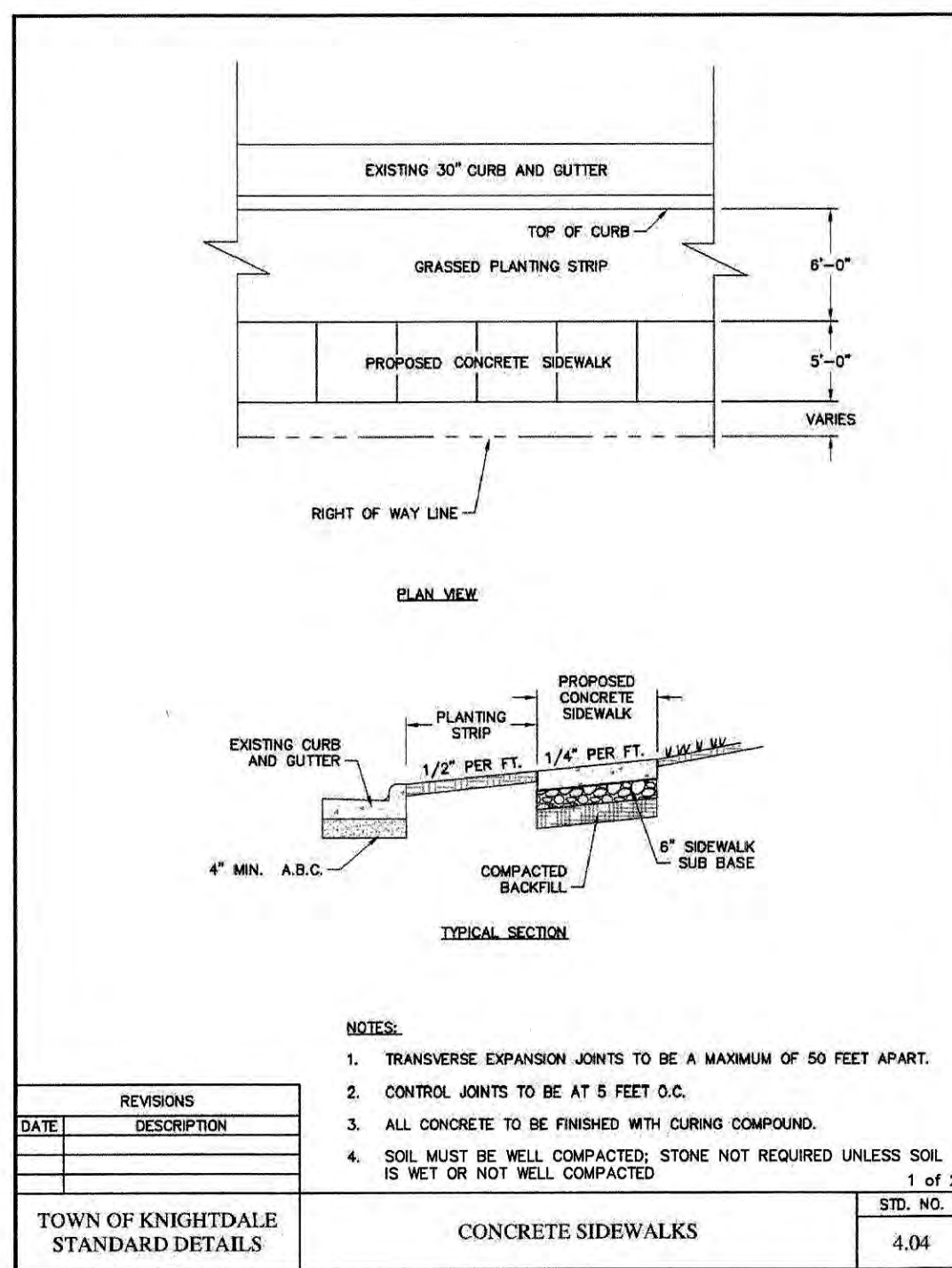
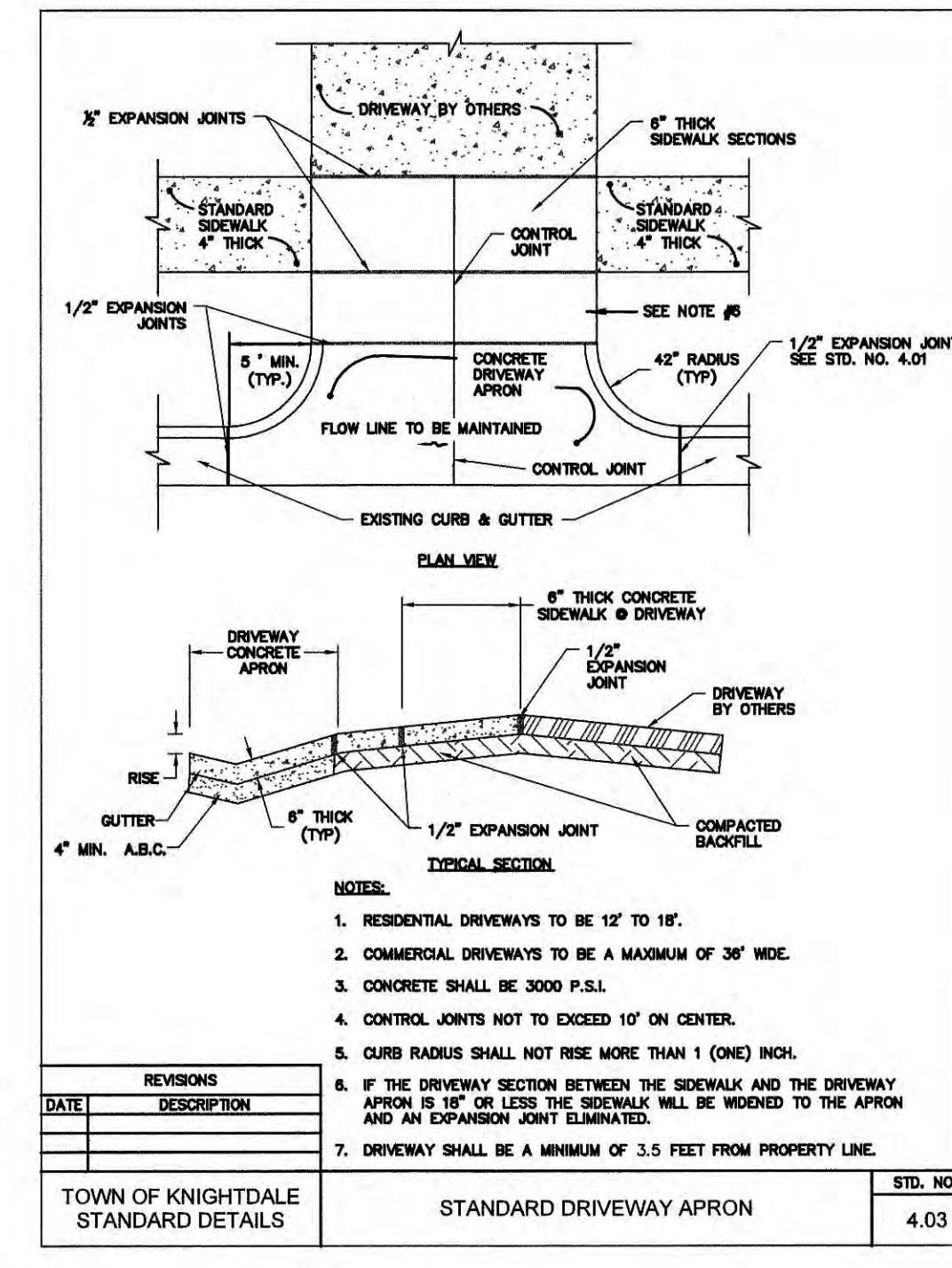
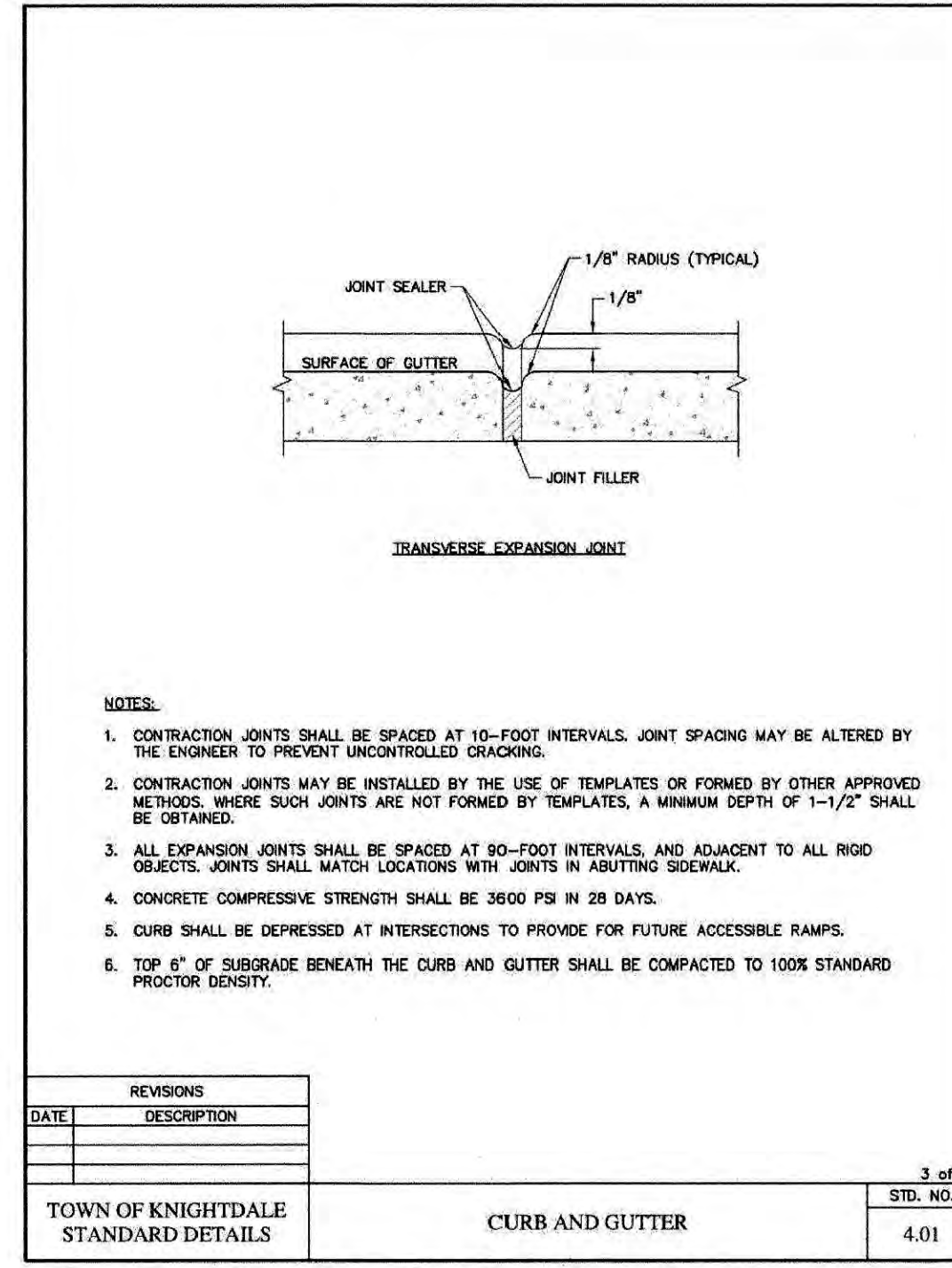
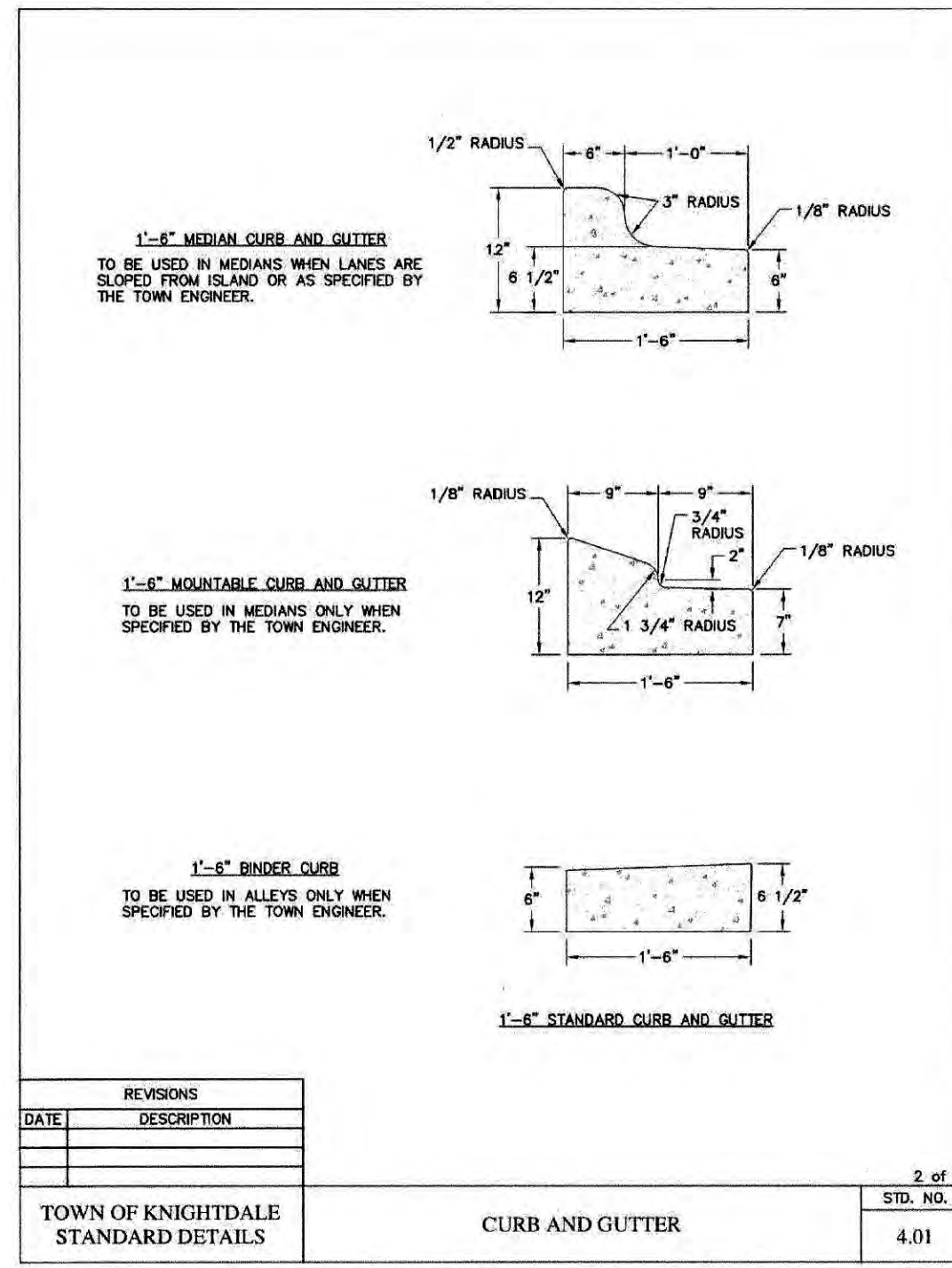
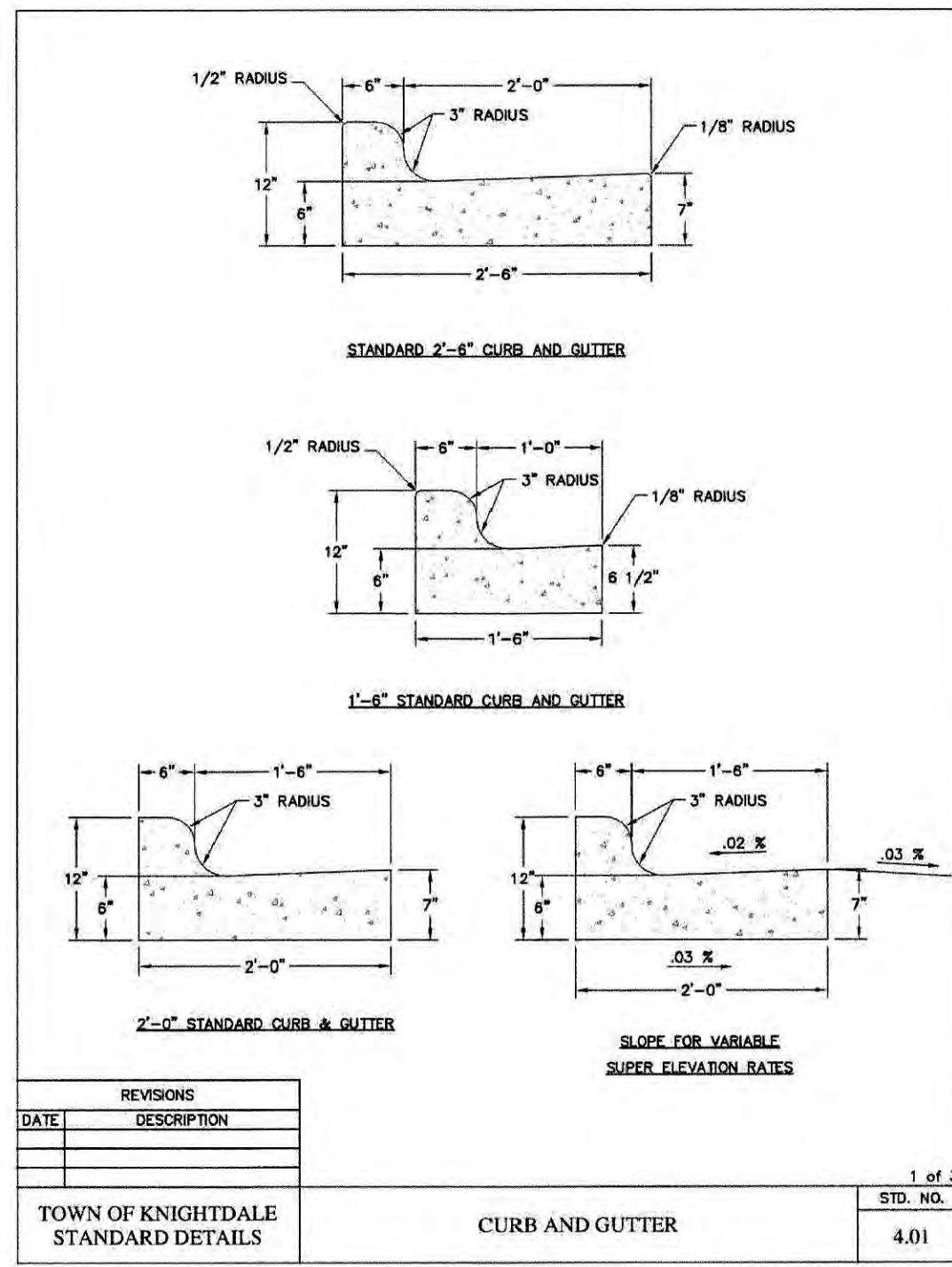
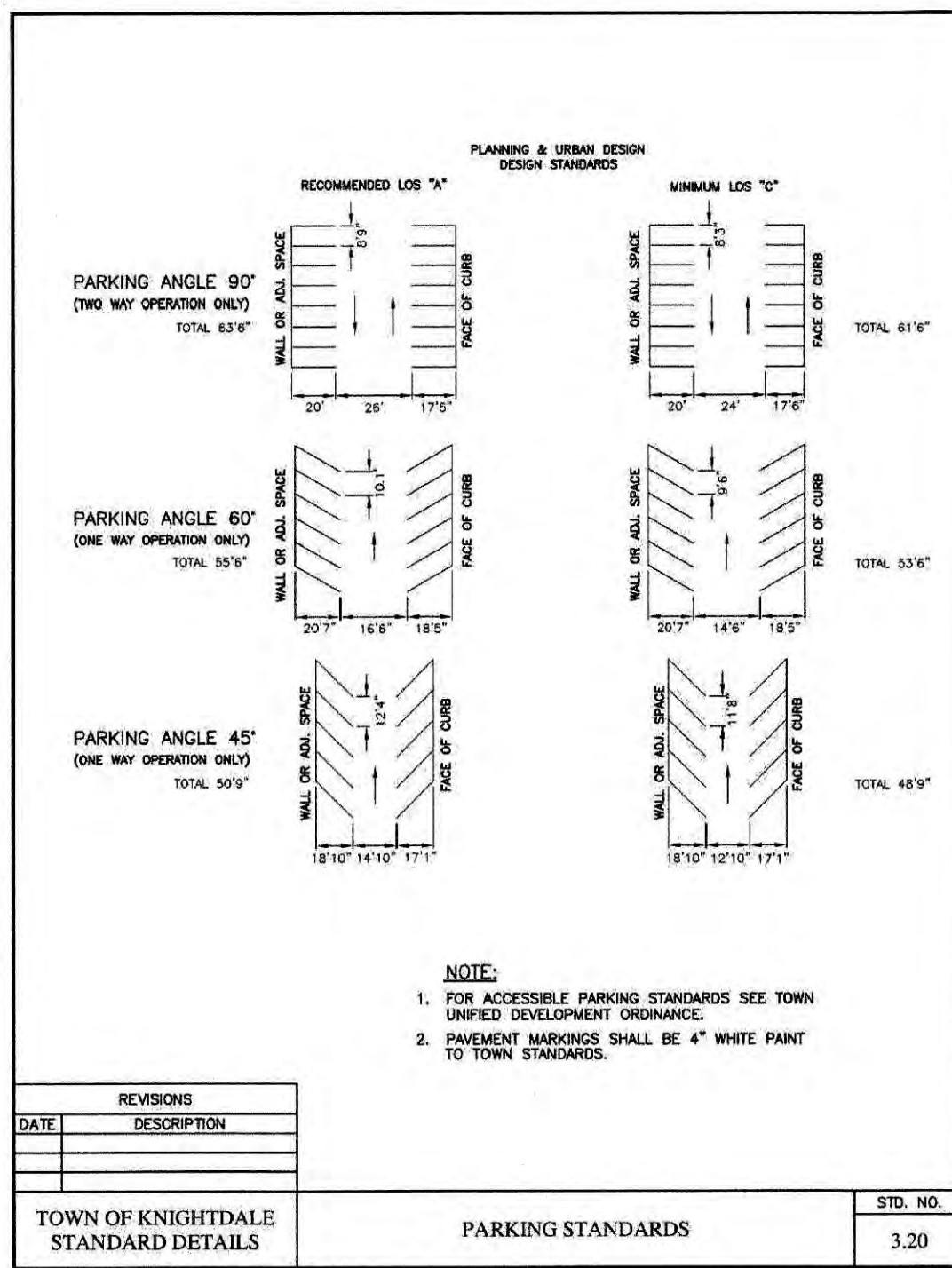
KHA PROJECT: 017254007  
 DATE: 11/08/2019  
 SCALE: AS SHOWN  
 DESIGNED BY: JCB  
 DRAWN BY: JCB  
 CHECKED BY: CCB

**UTILITY PLAN AND PROFILE**

**PARKSTONE VILLAGE**  
 PREPARED FOR  
**KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC.**  
 NORTH CAROLINA  
 KNIGHTDALE



Plotted By: Myers, Chanse - Sheet Set: PARKSTONE VILLAGE - Layout: C6.0 SITE DETAILS - October 01, 2020 02:22:05pm - K:\V\AL-IDEA\017254007 - parkstone phase 2 planning phase 1\5\_cad files\plan\std\std.dwg - Details.dwg  
 This document, together with the concepts and design presented herein, is an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

4. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/19/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/19/2020  
 Administrator

KHA PROJECT: 017254007  
 DATE: 11/08/2019  
 SCALE: AS SHOWN  
 DESIGNED BY: JCB  
 DRAWN BY: JCB  
 CHECKED BY: COB

KIMLEY-HORN & ASSOCIATES, INC.  
 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM

6 REVISED PER TOWN COMMENTS 10-01-20 JCB  
 5 REVISED PER TOWN COMMENTS 09-23-20 JCB  
 4 REVISED PER TOWN COMMENTS 07-31-20 JCB  
 3 TOWNHOME CONSTRUCTION DWG.'S 06-22-20 WWH  
 2 OWNER UPDATES 03-19-20 WWH  
 1 TOWN OF KNIGHTDALE COMMENTS 12-05-19 WWH

NO.      REVISIONS      DATE      BY

PARKSTONE VILLAGE  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.

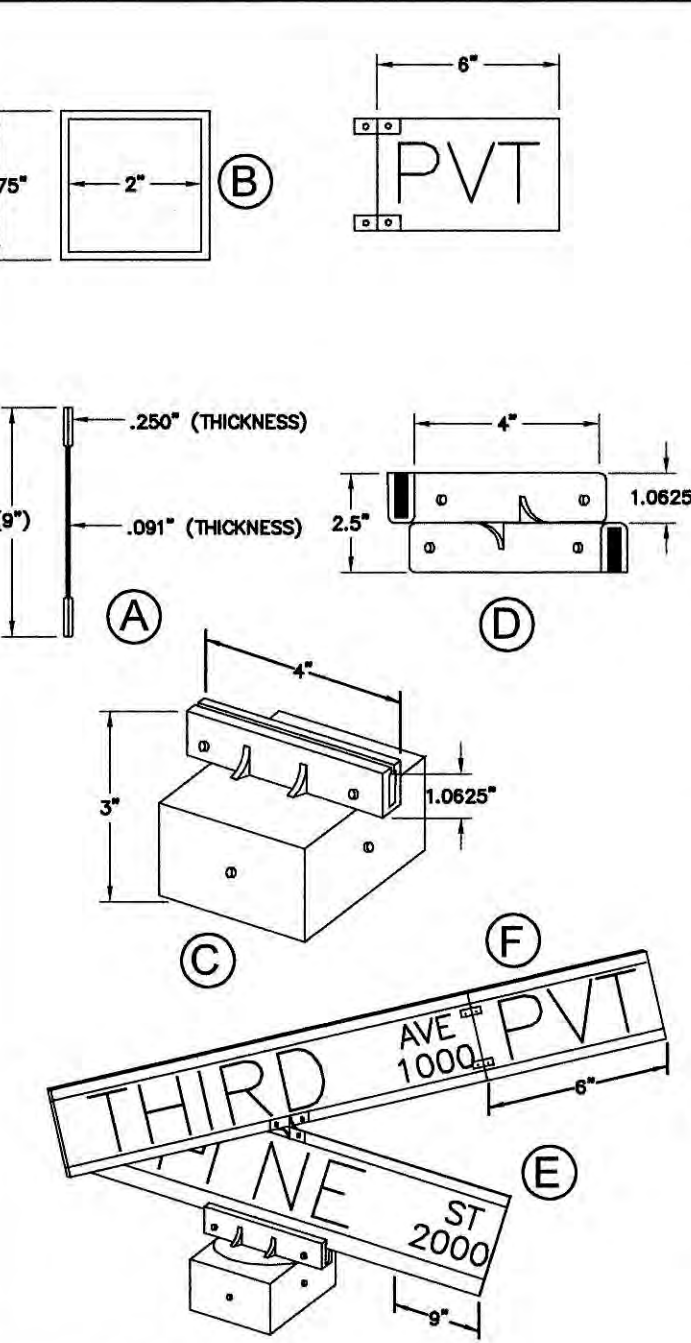
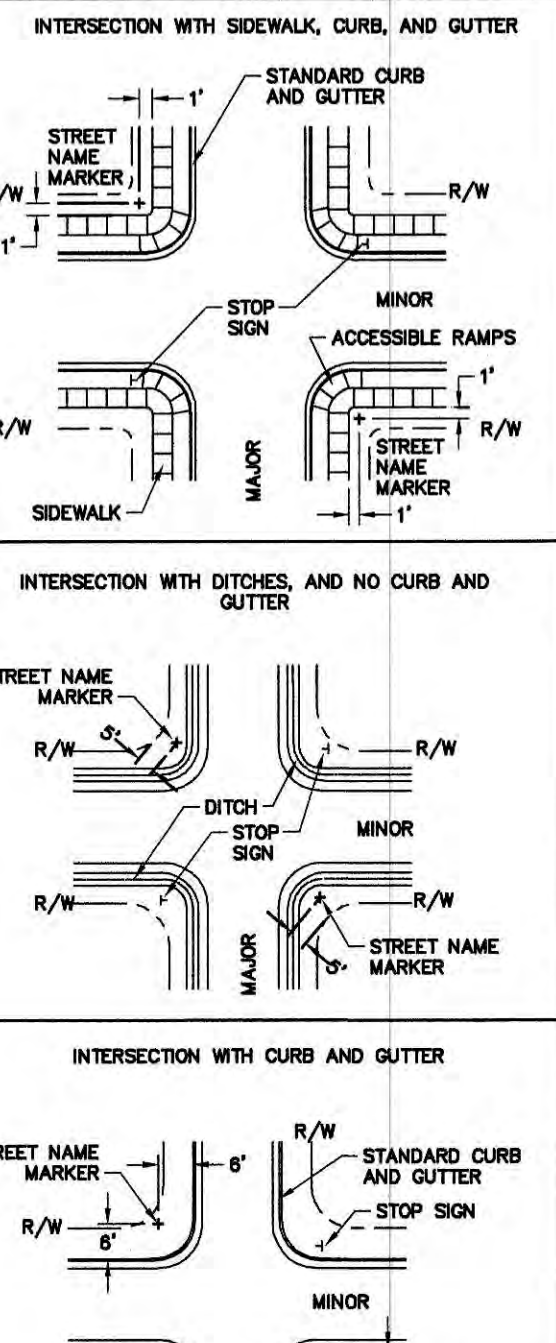
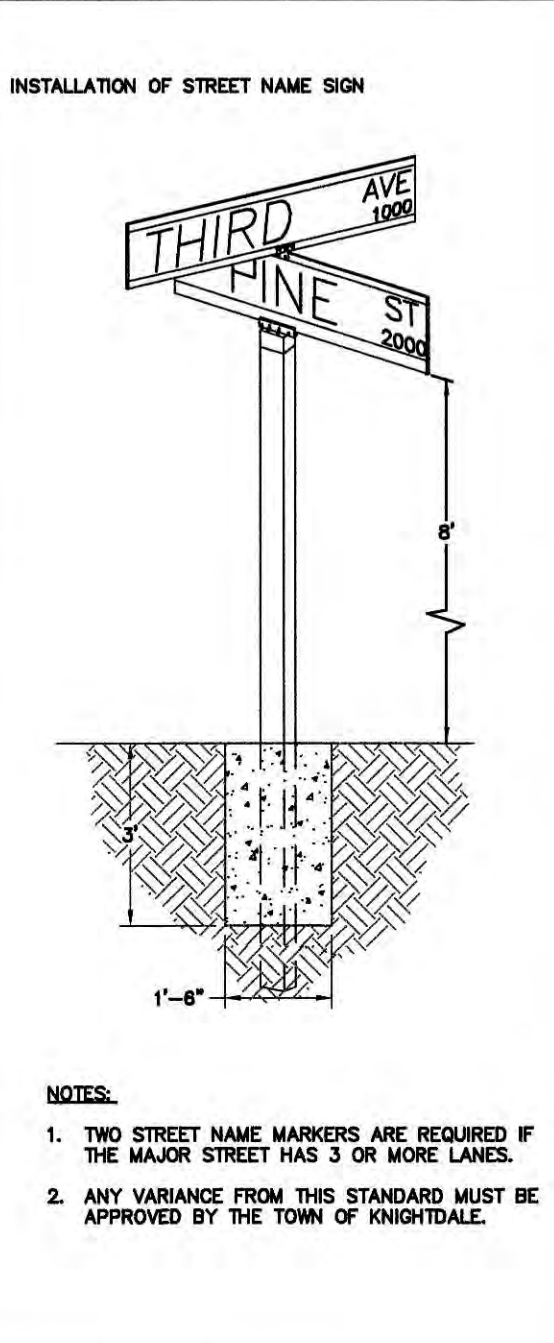
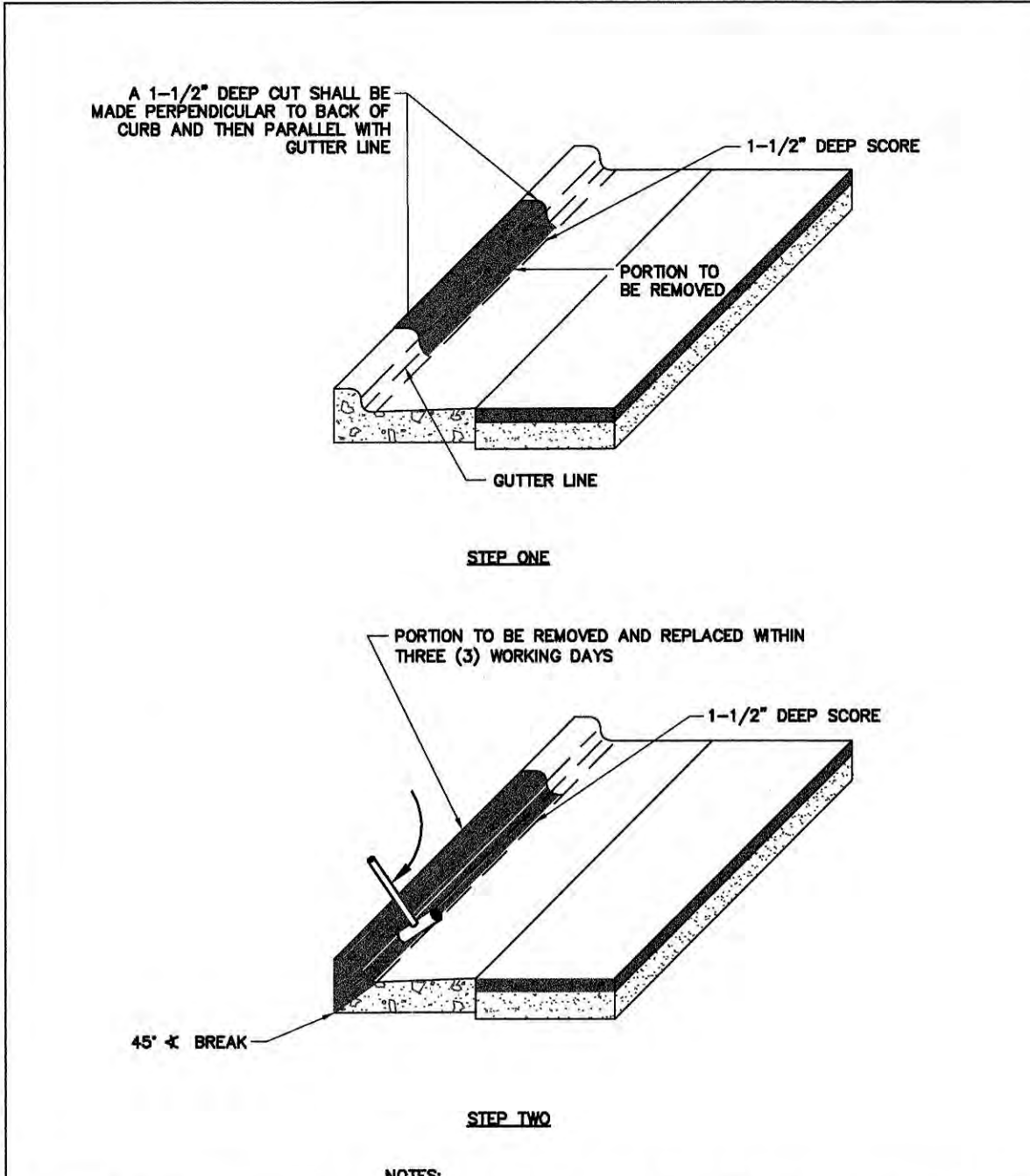
NORTH CAROLINA  
 KNIGHTDALE

SHEET NUMBER  
**C6.0**

SITE DETAILS

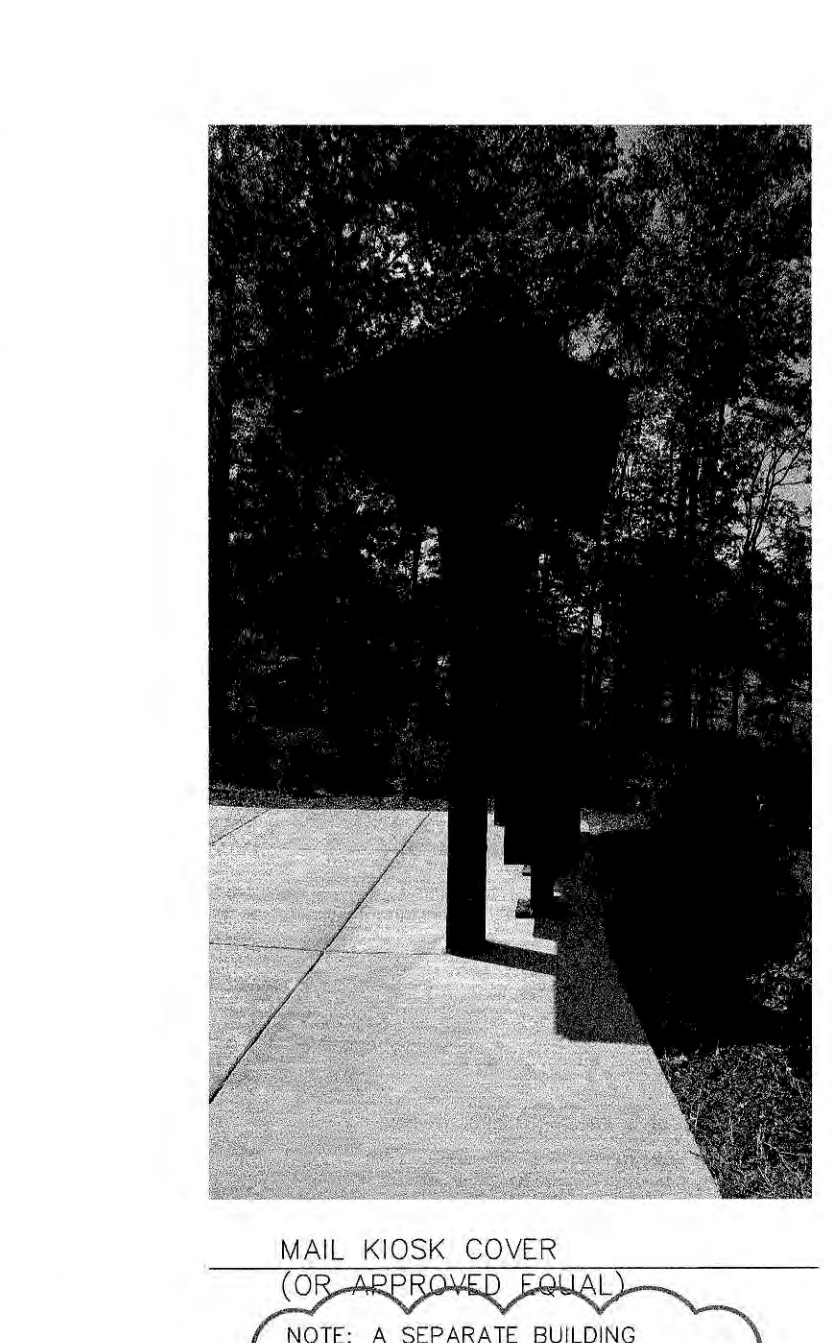
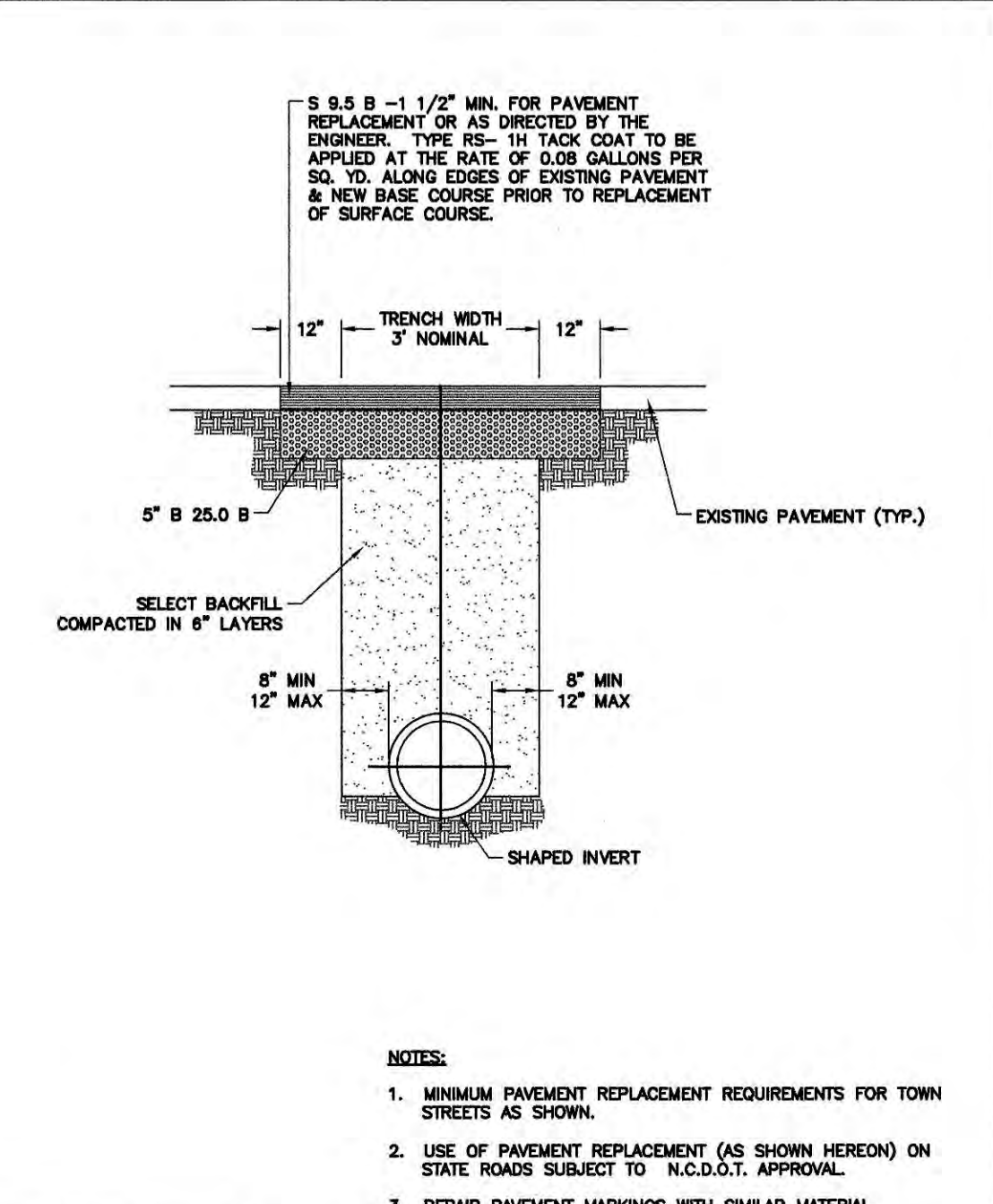


Printed By: Myers, Charnae - Sheet: Set: PARKSTONE VILLAGE - Layout: C6.1 - SITE DETAILS - October 01, 2020 02:23:12pm - K:\VAL-LDEV\017254007-parkstone phase 2\plan\misc\plan\c6.1 - SITE - DETAIL - SWS  
 This document, together with the contracts and designs presented herein, is intended only for the specific project and client for which it was prepared. Measure of any discrepancy between written construction and observation by the contractor shall be without liability to the contractor and its subcontractors, Inc.



**NOTES:**

- BLADES SHALL BE EXTRUDED ALUMINUM EXTRUSION OR 6061-T6 ALLOY .060" THICK. POST SHALL BE 10'-0" IN LENGTH. GLASS LAMINATED STEEL CONTINUOUS MILL DIPPED, WITH NO RAW EDGES, OR 40, 1540 WALL ALUMINUM (SEE DETAIL E).
- CAP TO BE ALUMINUM #800 ALLOY OR EQUAL SLOTTED FOR .25" EXTRUDED BLADE. 2.375" I.D. BASE, DIE CAST AND POLISHED. CAP SHALL BE TAPPED TO RECEIVE AND INCLUDE 3 STAINLESS STEEL SET SCREWS FOR POST MOUNTING AND 2 STAINLESS STEEL SET SCREWS FOR MOUNTING. SET SCREWS TO HAVE ALLEN HEADS (SEE DETAIL C).
- BLADE SPACER BRACKET SHALL MEET SAME SPECIFICATIONS AS THE CAP WITH 2 SCREWS TO EACH BLADE MOUNTING (SEE DETAIL D).
- THE FACE OF ALL BLADES SHALL MEET SHEETING WITH #230 WHITE DIE CUT LETTERS WITH REVERSED SCREENED #708 TRANSPARENT GREEN. THE PRIMARY LETTERS SHALL BE 5" HIGH UPPER CASE, FHVA SERIES B AND PREFIX/SUFFIX LETTERS SHALL BE 2-1/2" HIGH UPPER CASE, FHVA SERIES C. ALL MATERIALS TO BE VACUUM AND HEAT APPLIED TO A PREPARED ALUMINUM BLADE, WHICH HAS BEEN CLEANED AND ALL FOREIGN MATERIAL REMOVED (SEE DETAIL E).
- LETTERS, NUMBERS AND SPACING SHALL CONFORM TO THE STANDARD ALPHABET FOR HIGHWAY SIGNS, 1986 EDITION, REPRINT MAY, 1972 BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, OFFICE OF TRAFFIC OPERATION.
- ALL STREET NAME SIGNS ARE SUBJECT TO APPROVAL BY THE TOWN BLOCK NUMBERS SHALL BE PROVIDED ON SIGNS AND CORRESPOND TO OPTICALLY APPROVED ADDRESSES.
- IF THE STREET IS INTENDED TO BE PRIVATE, A SUPPLEMENTAL PLATE IS REQUIRED. THE SUPPLEMENTAL PLATE MAY BE ATTACHED TO THE SIGN OR AN EXTENDED BLADE WITH BLACK OR YELLOW SHEETING MAY BE USED. THE SIGN SHALL HAVE BLACK LETTERS THAT SHOW PVT TO STAND FOR PRIVATE. THE LETTERS SHALL BE 2-1/2" HIGH UPPER CASE, FHVA SERIES C, ON A BACKGROUND OF YELLOW ENGINEERING GRADE SHEETING. (SEE DETAIL F).



REVISIONS	DATE	DESCRIPTION

REVISIONS	DATE	DESCRIPTION

REVISIONS	DATE	DESCRIPTION

REVISIONS	DATE	DESCRIPTION

REVISIONS	DATE	DESCRIPTION

REVISIONS	DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

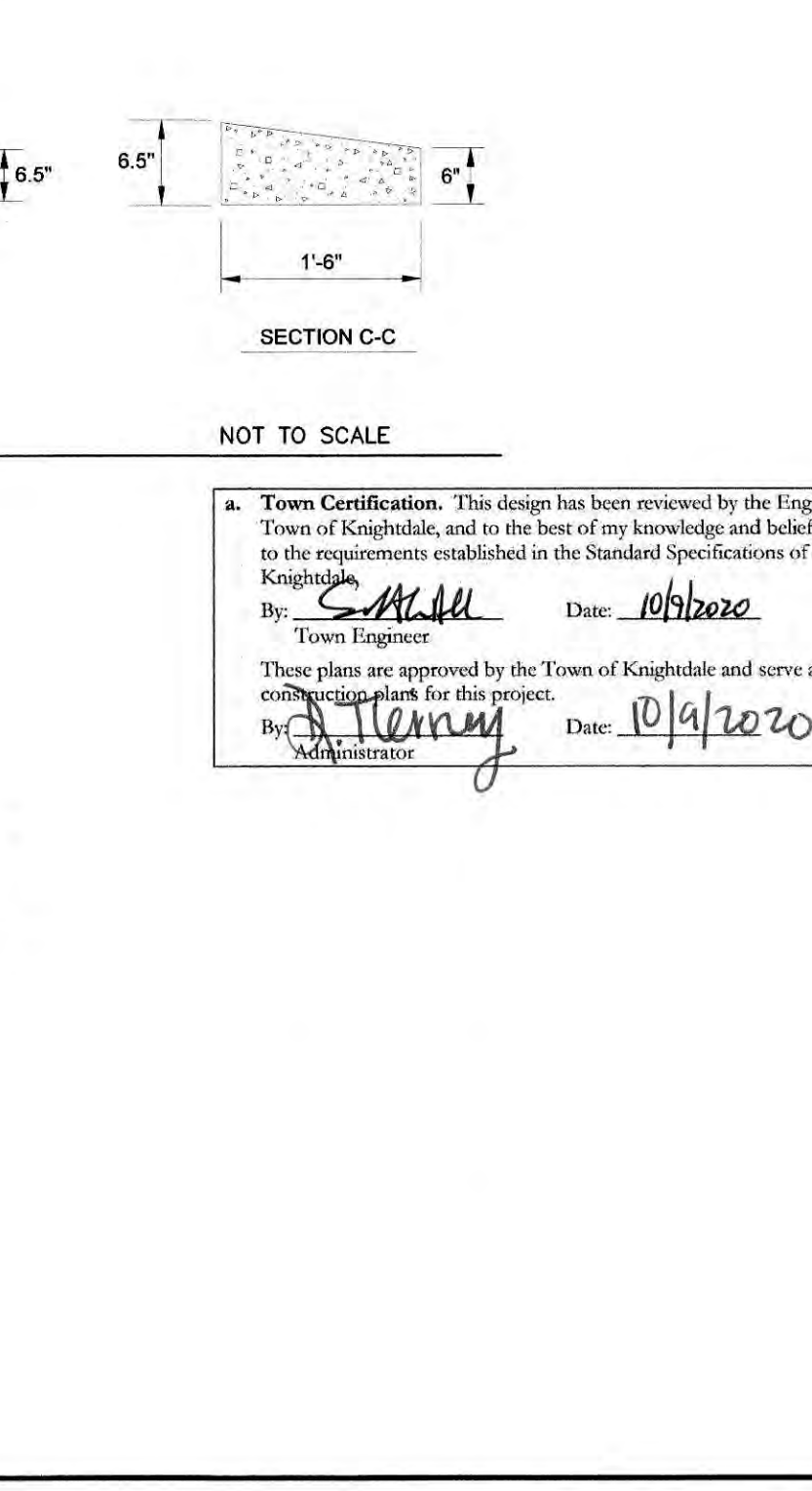
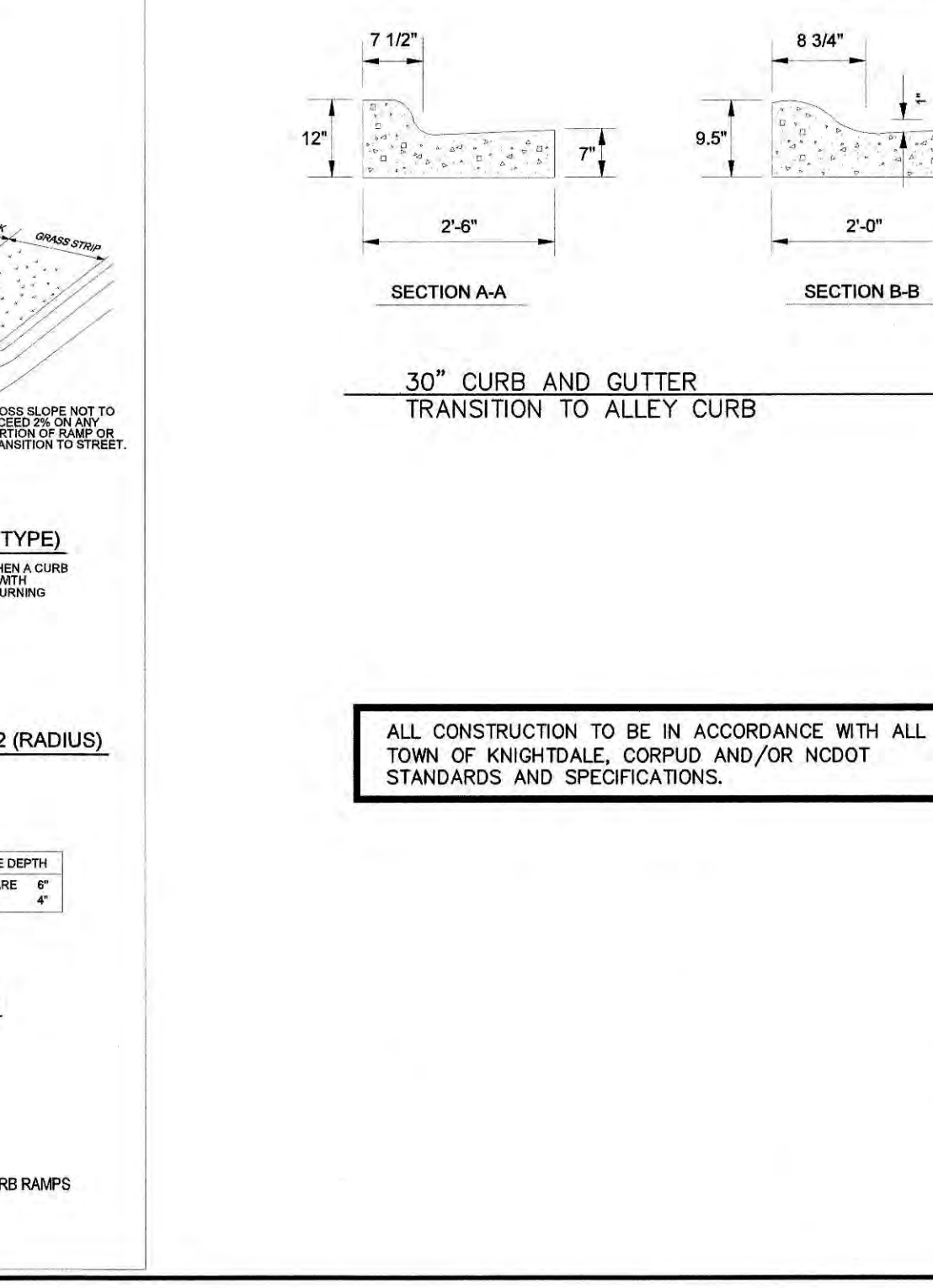
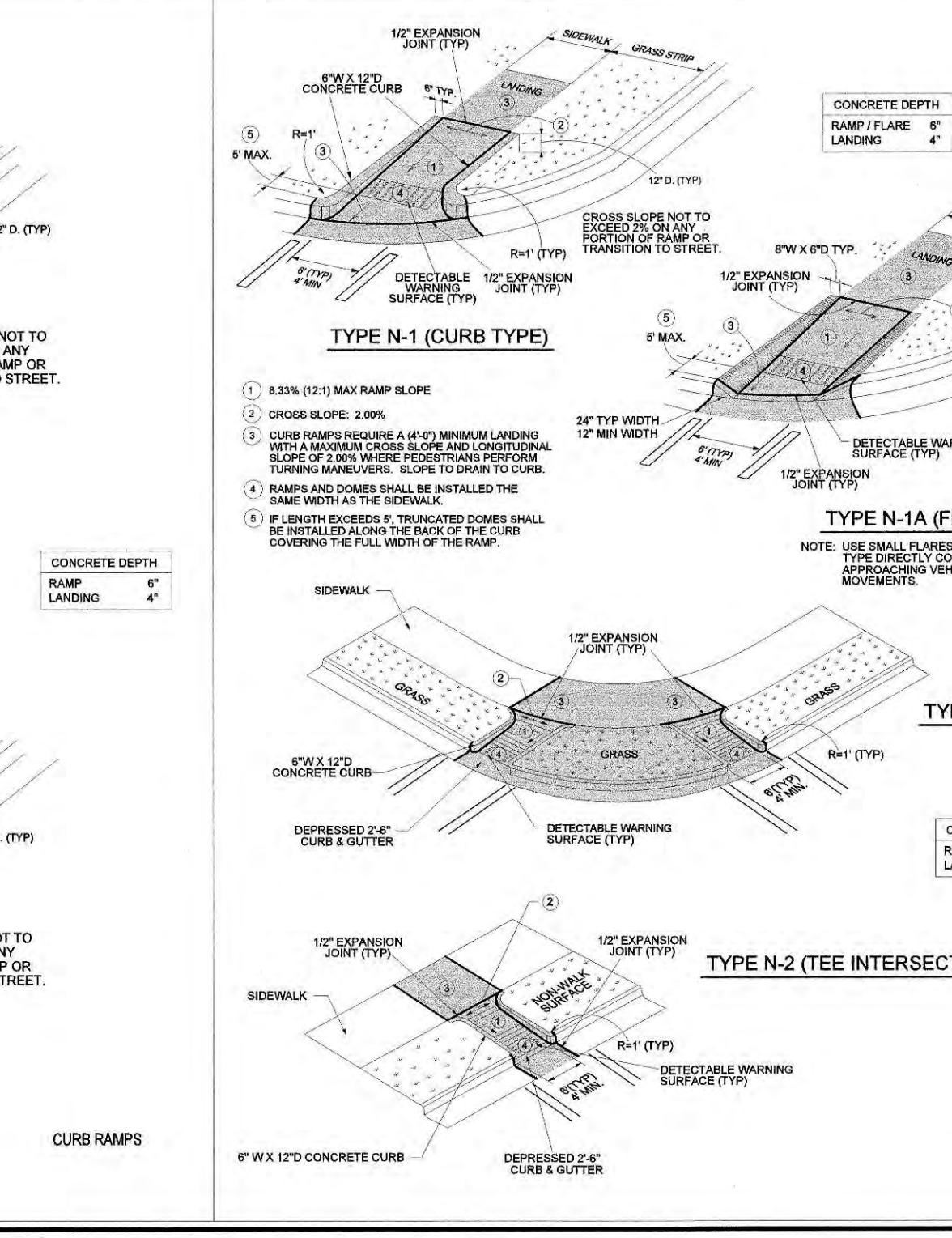
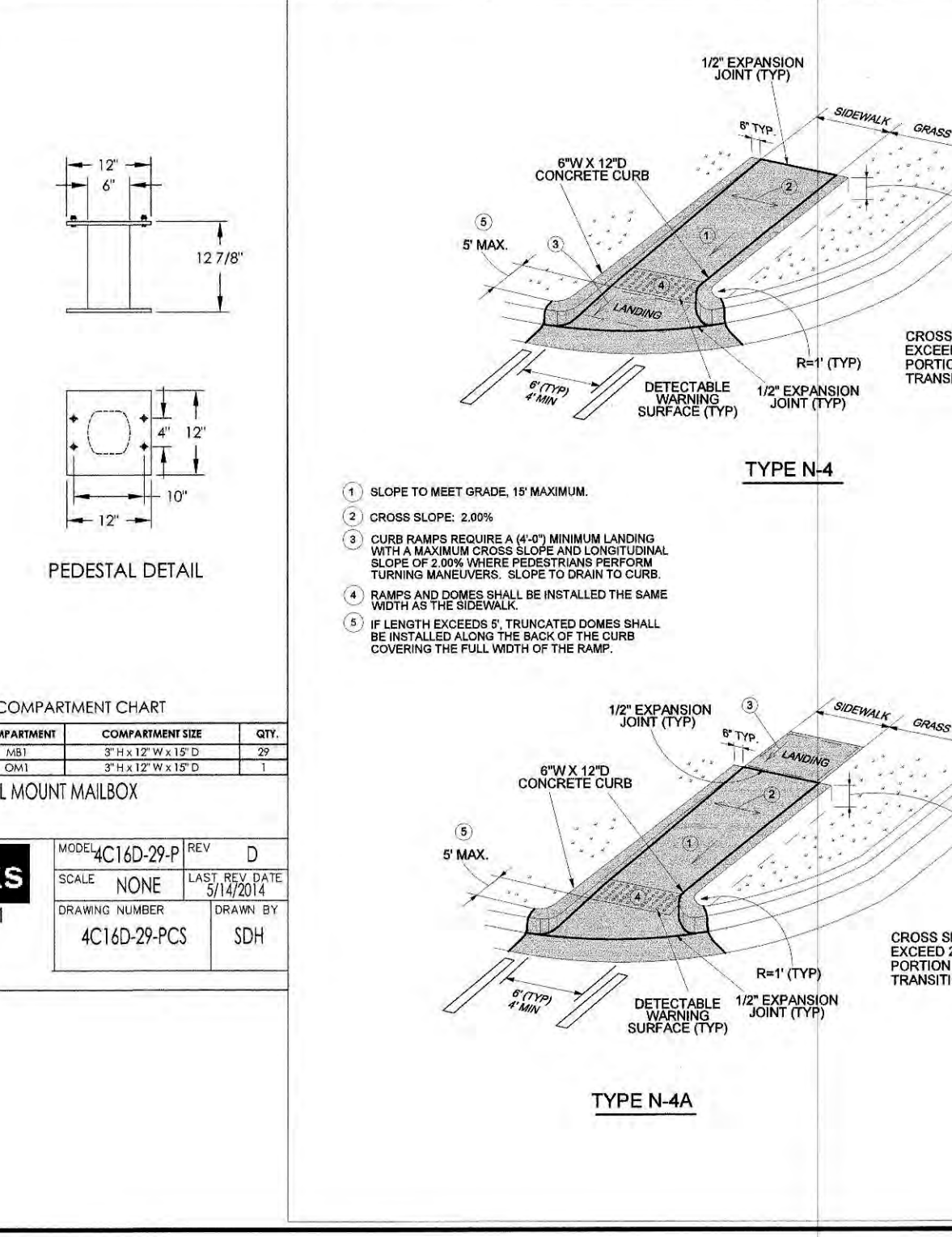
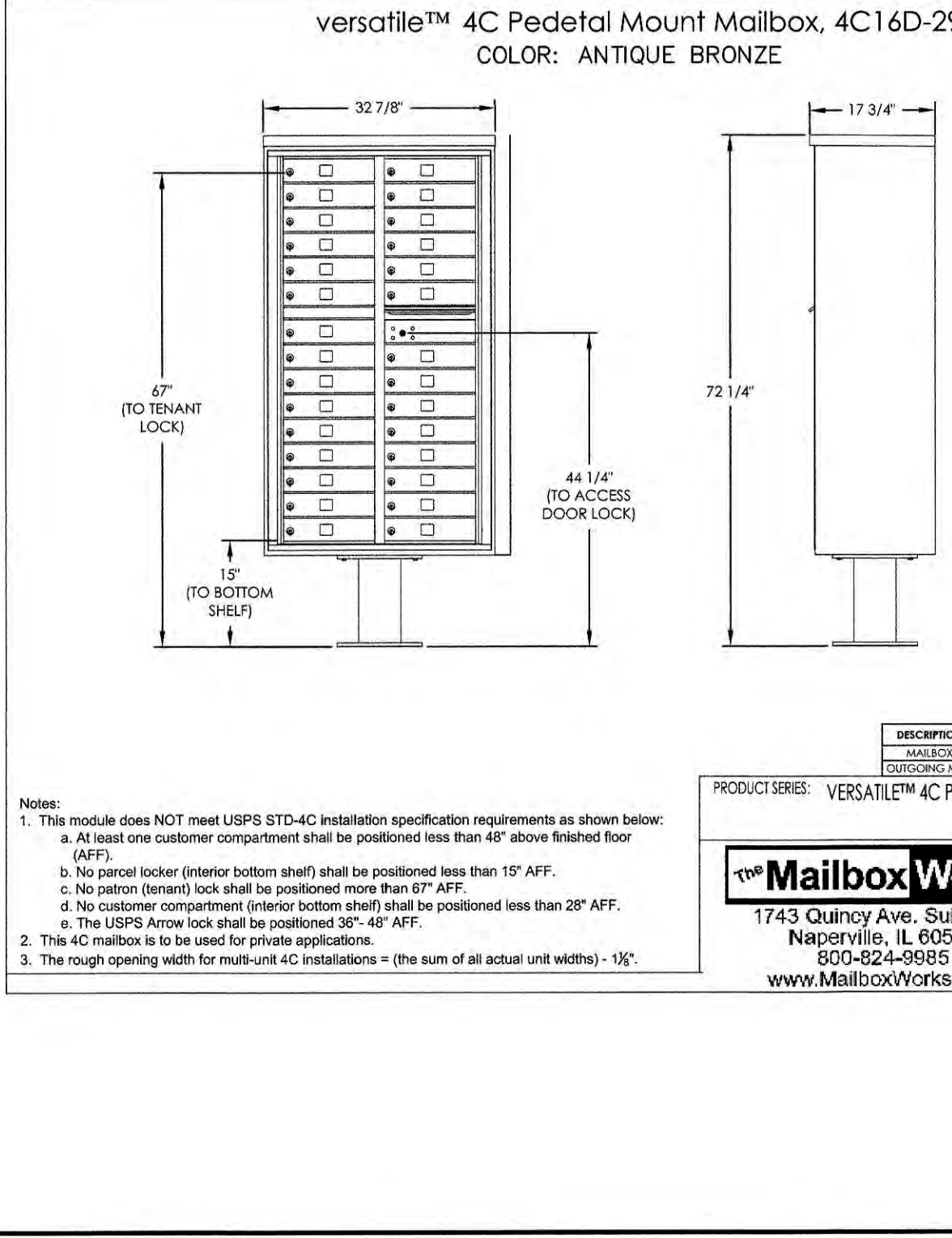
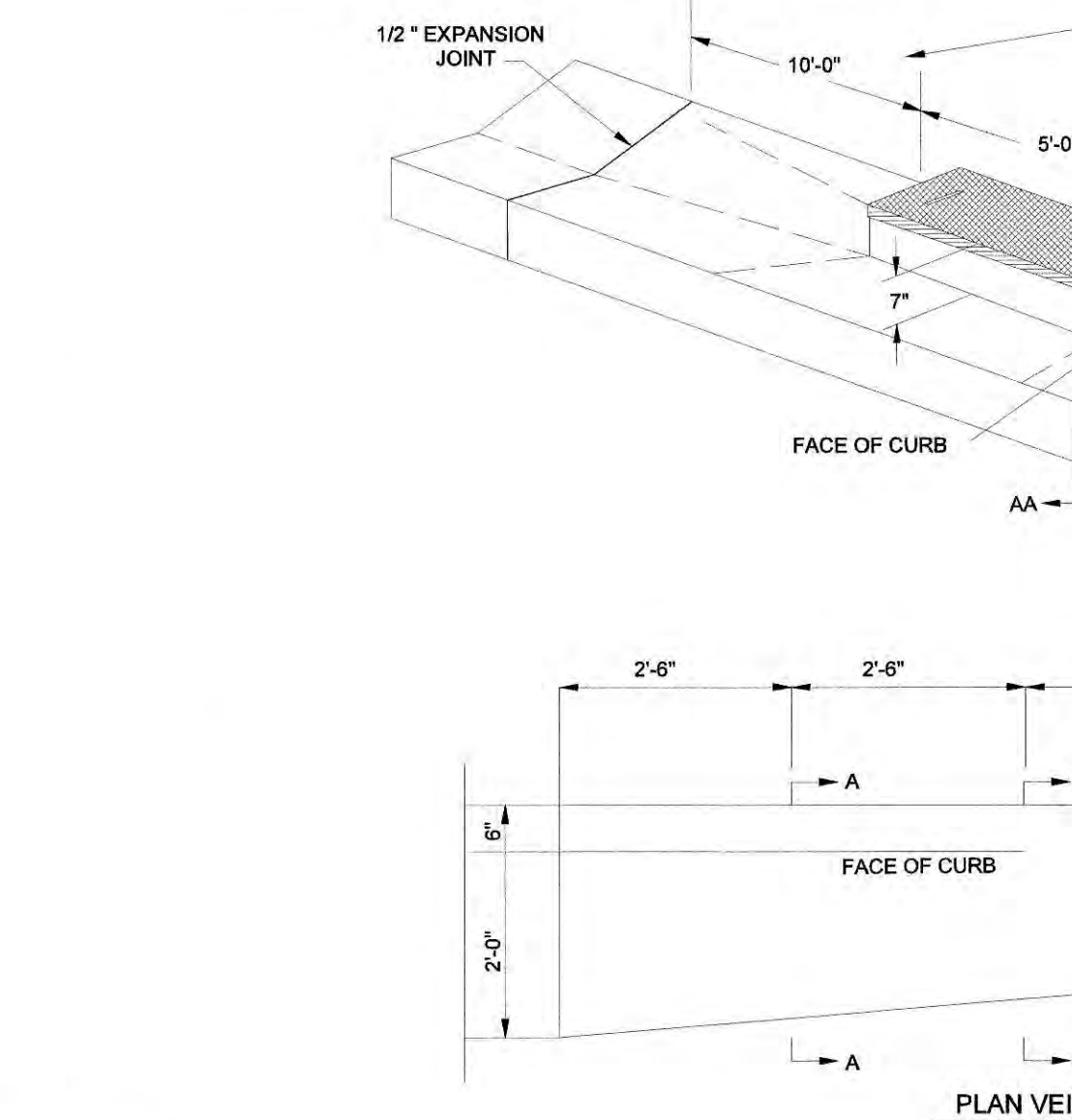
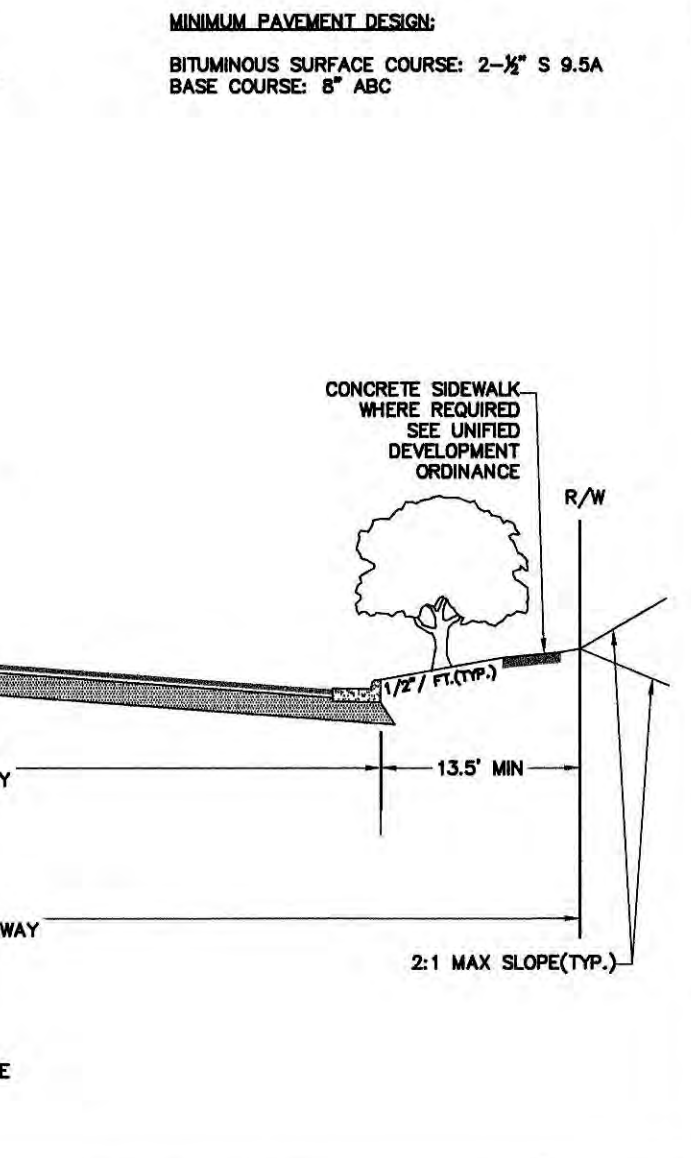
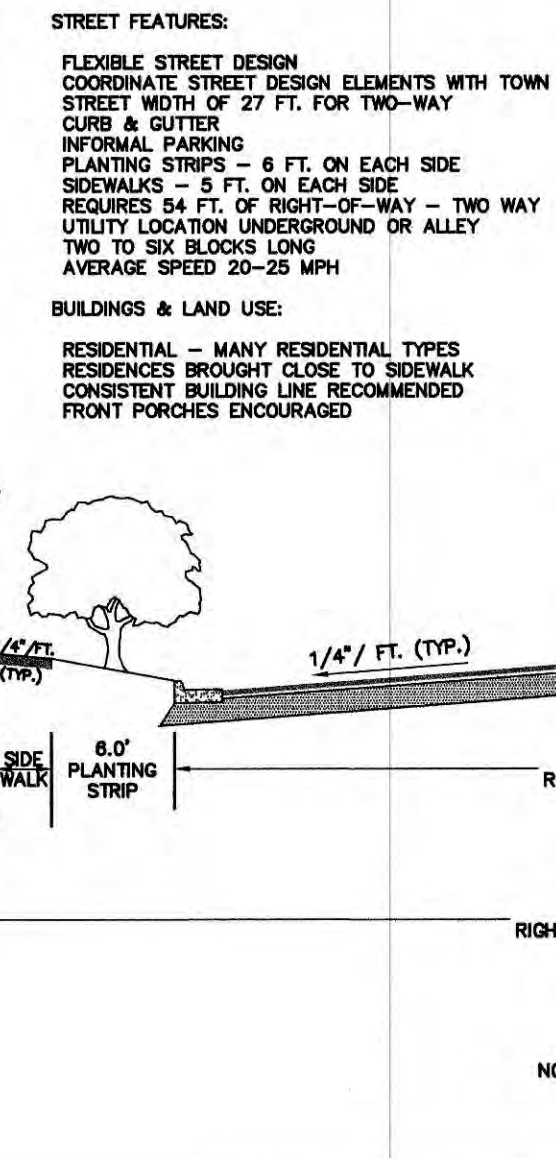
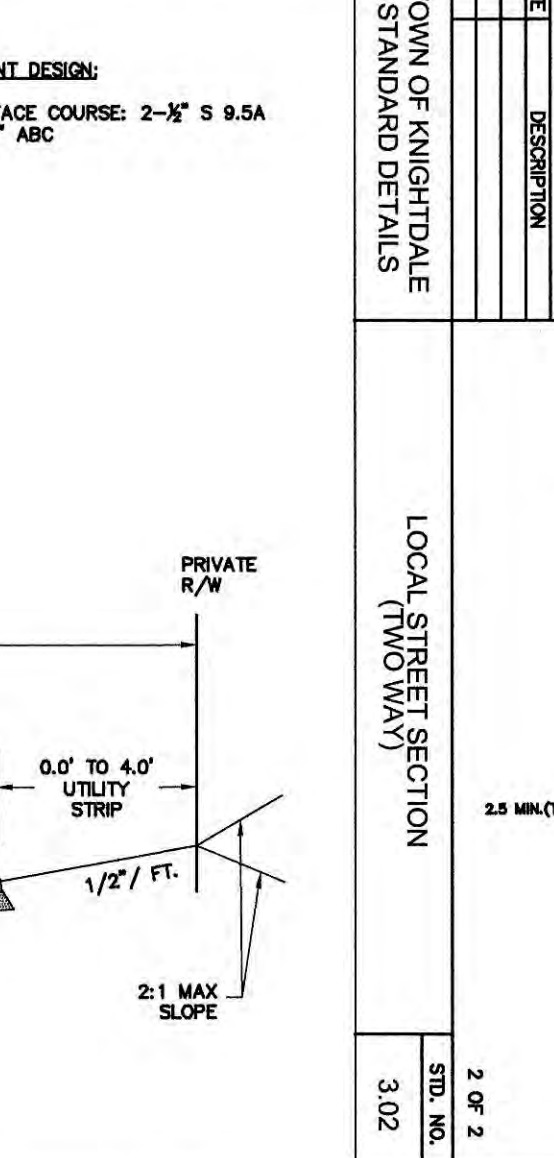
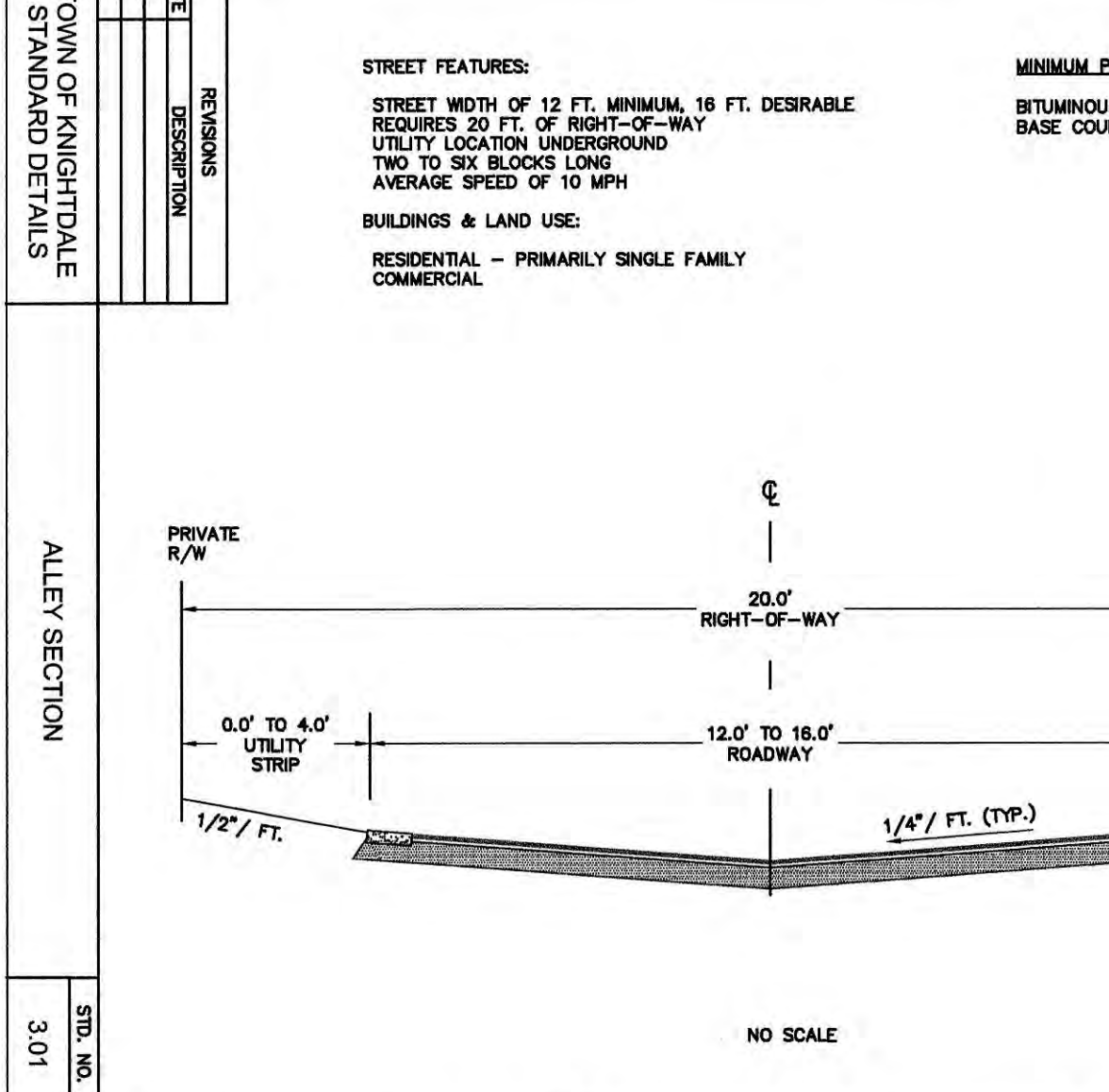
TOWN OF KNIGHTDALE STANDARD DETAILS

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TOWN OF KNIGHTDALE STANDARD DETAILS

TOWN OF KNIGHTDALE STANDARD DETAILS

TOWN OF KNIGHTDALE STANDARD DETAILS



**versatile™ 4C Pedestal Mount Mailbox, 4C16D-29-P**  
 COLOR: ANTIQUE BRONZE

**Mailbox Works**  
 1743 Quince Ave. Suite 151  
 Naperville, IL 60540  
 800-824-9885  
 www.MailboxWorks.com

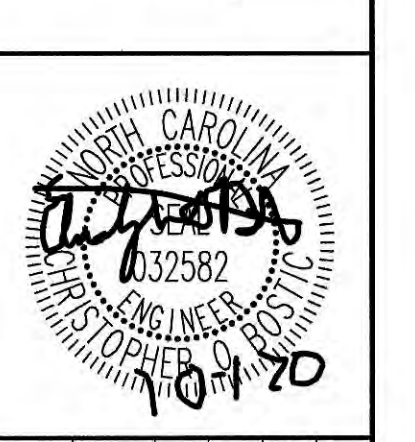
**30" CURB AND GUTTER TRANSITION TO ALLEY CURB**

**NOT TO SCALE**

**ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.**

**Town Certification:** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/8/20  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/9/20  
 Administrator

**Kimley»Horn**  
 © 2019 KIMLEY-HORN AND ASSOCIATES, INC.  
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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #K0102



DATE	DESCRIPTION
11/08/2019 <td>SCALE AS SHOWN</td>	SCALE AS SHOWN
JCB	DESIGNED BY
JCB	DRAWN BY
COB	CHECKED BY

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.

**SITE DETAILS**

NORTH CAROLINA  
 KNIGHTDALE

**SHEET NUMBER C6.1**



Plotted By: M. J. ... Sheet: SKI-PARKSTONE VILLAGE - LOWVOLT-C7.0 STORM DRAINAGE DETAILS - September 24, 2020 06:23:26pm - K:\REAL\_DEVS\017254007\parkstone phase 2\planning phase\15\_cad\_files\plan sheets\C7.0 STORM DRAINAGE DETAILS.dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Results of any engineering calculation and/or analysis are based on the information and assumptions provided to the engineer. The engineer shall not be responsible for any errors or omissions in this document without written authorization and adaptation by the engineer.

**NOTES:**

- A MINIMUM OF 24" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR COMPACTION OF FILL MATERIAL. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED 6" UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.
- ALL BACKFILL MATERIAL SHALL HAVE AN IN PLACE COMPACTION DENSITY OF AT LEAST 80% OF THE STANDARD PROCTOR MAXIMUM DENSITY.
- THE FINAL 24" OF BACKFILL MATERIAL SHALL BE COMPACTED TO 100% OF THE STANDARD PROCTOR MAXIMUM DENSITY.
- ALL TRENCHING OPERATIONS SHALL MEET OSHA STANDARDS.
- BACKFILL MATERIAL BENEATH ROADWAY SHALL BE SELECT BACKFILL MATERIAL.

OUTSIDE DIAMETER  
VARIES (10" MIN)  
PIPE SHALL BE PLACED ON SUITABLE MATERIAL

MINIMUM SLOPE 0.5% MINIMUM

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

TRENCH FOR STORM DRAIN PIPES

STD. NO. 5.02

3/4" SMOOTH BAR  
3/4" RADIUS  
2 - 3/4" 1/4" THICK ROUND OR SQUARE CUT WASHER  
2 HEX NUTS  
TACK WELD  
DETAIL OF HANDLE

SLAB TO BE COUNTER-SUNK 1" DEEP UNDER HANDLE  
1" DIA. X 3" PIPE SLEEVE (TO ALLOW HANDLE TO MOVE FREELY)

EXISTING GRADE  
4" PRECAST CONCRETE SLAB W/NO. 4 BARS @ 6" O.C.E.W.  
OPENING  
ONE COURSE  
35" MIN  
35" MIN  
8"  
6" MIN  
43" MIN  
12" -  
12" -  
HANDLES  
43" MIN

NOTES:

- EITHER SOLID BRICK, SOLID BLOCK OR PRECAST CONCRETE MAY BE USED.
- PRECAST CONCRETE WALLS SHALL BE 6" THICK MINIMUM.
- ALL CONCRETE SHALL BE 3000 P.S.I. FOR 24" PIPE AND LARGER USE PIPE DIA. PLUS 12" AS INSIDE DIMENSIONS.

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD YARD INLET WITH CONCRETE SLAB

STD. NO. 5.03

STANDARD 24" X 24" GRATE AND FRAME  
MORTAR BED (TYP.)  
6 COURSES  
CORBEL BRICK  
1" MAX PER COURSE FOR 6 COURSES  
GROUT INVERT  
PIPE  
6" MIN  
43" MIN  
12" -  
12" -  
HANDLES  
43" MIN

NOTES:

- EITHER SOLID BRICK, SOLID BLOCK, OR PRECAST CONCRETE MAY BE USED.
- PRECAST CONCRETE WALLS SHALL BE 6" THICK MINIMUM.
- ALL CONCRETE SHALL BE 3000 P.S.I. FOR 24" PIPE AND LARGER USE PIPE DIA. PLUS 12" AS INSIDE DIMENSIONS.

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD DROP INLET WITH GRATE AND FRAME

STD. NO. 5.04

TWO 1" DIAMETER HOLES REQUIRED FOR STORM SEWER  
TYPICAL MANHOLE CENTERS  
TOP OF COVER  
BOTTOM OF COVER  
PLAN VIEW

SECTION

MINIMUM AVERAGE WEIGHT  
RING COVER 190  
TOTAL 310

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD MANHOLE RING & COVER

STD. NO. 5.10

END ELEVATION J-J WHERE 30" TO 36" PIPE IS USED  
SIDE ELEVATION M-M WHERE 42" TO 54" PIPE IS USED  
PLAN  
SECTION X-X  
SECTION Y-Y

NOTES:

- MORTAR JOINTS SHALL BE 1/2" THICK.
- ALL CONCRETE SHALL BE 3000 P.S.I.
- BASE SLABS SHALL BE FORMED PRIOR TO PLACING OF CONCRETE.
- USE TYPE "A" GRATE AT SAG POINTS, OTHERWISE USE TYPE "B" OR "C" FOR THE APPROPRIATE FLOW DIRECTION.
- MASONRY UNITS MAY BE JUMBO BRICK, CONCRETE BRICK OR SOLID CONCRETE BLOCK.
- ALL WALLS GREATER THAN 6" IN DEPTH SHALL BE CONSTRUCTED 12" THICK.

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD CURB INLET

1 of 2  
STD. NO. 5.05

SECTION S-S  
SECTION R-R  
PLAN OF TOP SLAB  
ELEVATION  
ELEVATION

GENERAL NOTES:

- USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.
- USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1084 WELDED WIRE FABRIC (W/F).
- FABRICATE, ASSEMBLE AND CAST PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M198.
- ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS STAGED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.
- WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 4" ABOVE THE GROUND AT OTHER LOCATIONS.
- LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.
- THE MIN. SLAB THICKNESS TO BE THE DIMENSION OF THE THINNEST PORTION OF THE TOP BOTTOM SLAB.
- \* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

PIPE DIA.	SPAN	WIDTH	SPAN	HEIGHT	HEIGHT	COVER	REINFORCING	CUBIC YARDS OF CONCRETE IN BOX	BRICK MASONRY	DEDUCTIONS FOR ONE PIPE
D	B	O	O	H1	H2	E	NO. BARS "U"	NO. BARS "V"	NO. BARS "W"	NO. BARS "X"
12	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
15	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
18	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
21	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
24	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
27	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
30	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
33	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
36	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
42	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
48	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
54	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
60	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4
72	2'-0"	2'-2"	2'-0"	12"	12"	6"	4	4	4	4

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD CURB INLET

1 of 2  
STD. NO. 5.05

ALTERNATE CONE SECTION  
FLAT TOP SLAB  
MANHOLE OPTION  
TYPICAL MANHOLE SECTION

GENERAL NOTES:

- USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.
- USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1084 WELDED WIRE FABRIC (W/F).
- FABRICATE, ASSEMBLE AND CAST PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M198.
- ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS STAGED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.
- WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 4" ABOVE THE GROUND AT OTHER LOCATIONS.
- LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.
- THE MIN. SLAB THICKNESS TO BE THE DIMENSION OF THE THINNEST PORTION OF THE TOP BOTTOM SLAB.
- \* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD MANHOLE RING & COVER

STD. NO. 5.10

NOTE:

- STRUCTURAL DESIGN OF END SECTION SHALL CONFORM WITH THAT OF STANDARD REINFORCED CONCRETE.

FLARED END SECTION DETAIL  
NOT TO SCALE

PIPE DIAMETER	WALL THICKNESS	SLOPE	B	C	D	E	UNIT WEIGHT
12	2 1/4	3:1	24	49	73	24	730
15	2 1/4	3:1	27	46	73	30	910
18	2 1/2	3:1	27	46	73	36	1190
21	2 3/4	3:1	36	37	73	42	1370
24	3	3:1	42	31 1/2	73 1/2	48	1770
27	3 1/4	3:1	48	25 1/2	73 1/2	54	2130
30	3 1/2	3:1	54	19 3/4	73 3/4	60	2380
33	3 3/4	3:1	60	36	96	66	3870
36	4	3:1	63	34 3/4	97 3/4	72	5320
42	4 1/2	3:1	63	35	98	78	5920
48	5	3:1	72	26	98	84	7470
54	5 1/2	2.4:1	66	34	100	90	8810
60	6	2:1	60	39	99	96	11180
72	7	2:1	78	21	99	108	13980

DIMENSIONS IN INCHES WEIGHTS IN POUNDS

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD CURB INLET

1 of 2  
STD. NO. 5.05

Existing Downspout  
Transition Boot  
Wire screen for rodents  
Schedule 40 PVC  
6" Schedule 40 45" Bend  
6" Schedule 40 1.00% Min. Slope

Refer to drainage plan for size of storm sewer

NOTE: ALL DOWNSPOUT COLLECTOR PIPE SHALL BE SCHEDULE 40 PVC.

NO SCALE

TYPICAL ROOF DRAIN CONNECTION  
NOT TO SCALE

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: *[Signature]* Date: 10/12/2020  
Town Engineer

These plans are approved by the Town of Knightdale and serve as a contract between the Town and the contractor.

By: *[Signature]* Date: 10/12/2020  
Administrator

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUS AND/OR NODOT STANDARDS AND SPECIFICATIONS.

**Kimley»Horn**

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421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
PHONE: 919-677-2000 FAX: 919-677-2050  
WWW.KIMLEY-HORN.COM  
#K-0102

KHA PROJECT 017254007  
DATE 11/08/2019  
SCALE AS SHOWN  
DESIGNED BY JCB  
DRAWN BY JCB  
CHECKED BY COB

REVISIONS

No.	REVISIONS	DATE
5	REVISED PER TOWN COMMENTS	09-23-20
4	REVISED PER TOWN COMMENTS	07-31-20
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20
2	OWNER UPDATES	03-19-20
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
PRECAST MANHOLE 4", 5" AND 6" DIAMETER  
12" THRU 48" PIPE  
SHEET 1 OF 1  
840.52

PARKSTONE VILLAGE  
PREPARED FOR  
KNIGHTDALE DEVELOPMENT  
OWNERSHIP, LLC.

NORTH CAROLINA  
KNIGHTDALE

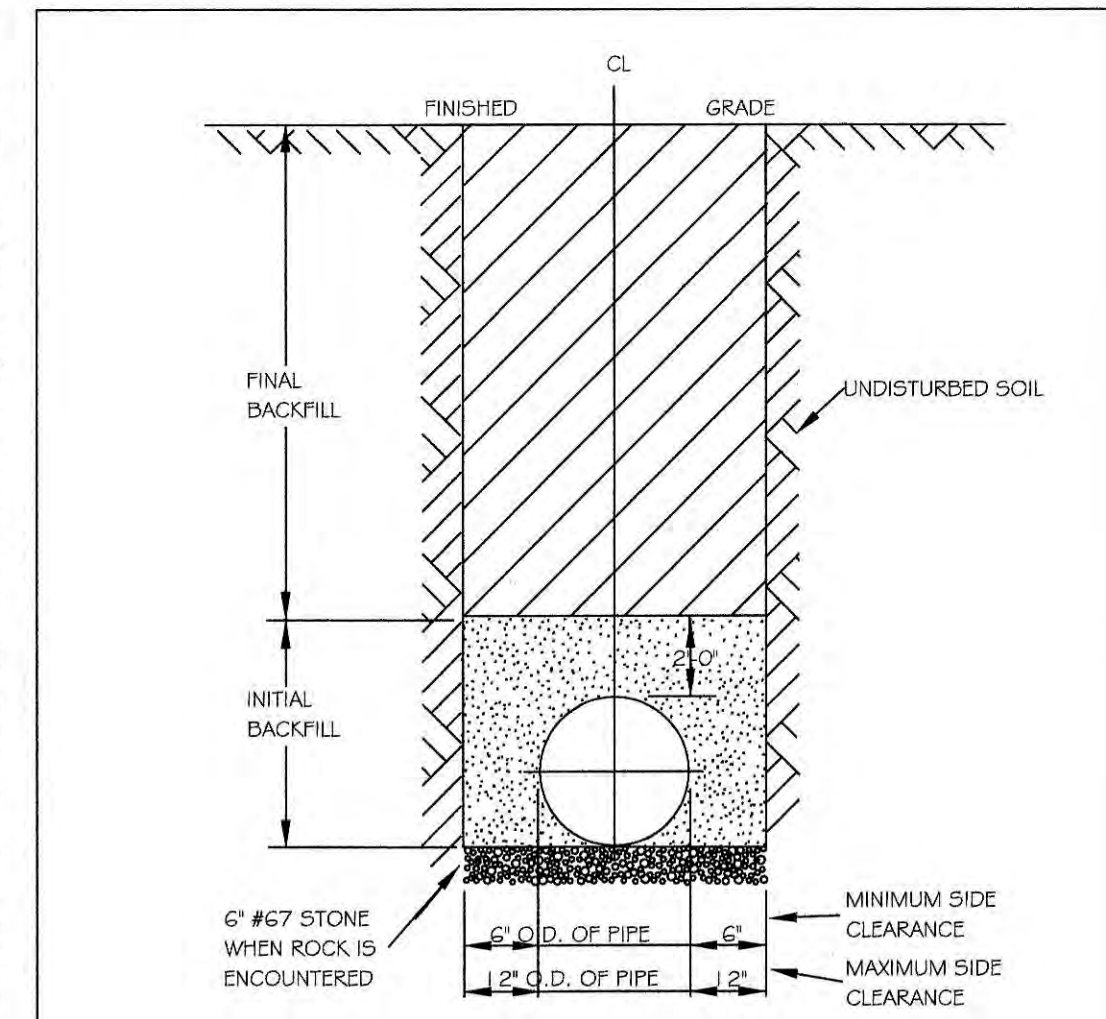
SHEET NUMBER  
C7.0





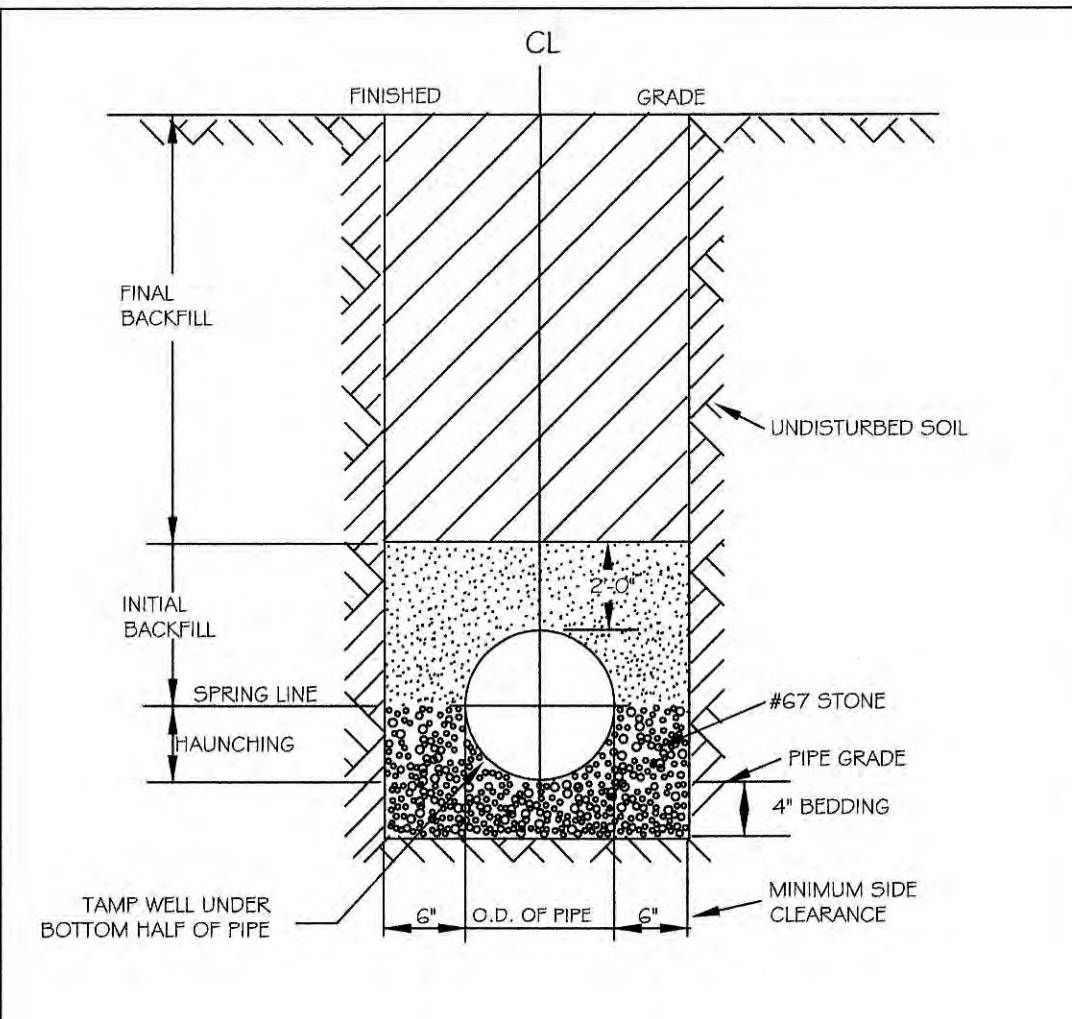


Plotted By: Myers, Christie - Sheet: Set-PARKSTONE VILLAGE - Layout: 2B1 UTILITY DETAILS - September 24, 2020 08:23:55pm - K:\REAL\LEDA\07254007-parkstone phase 2\planning phase\15\_cad files\valentines\2B1 UTILITY DETAILS.dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Release of this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



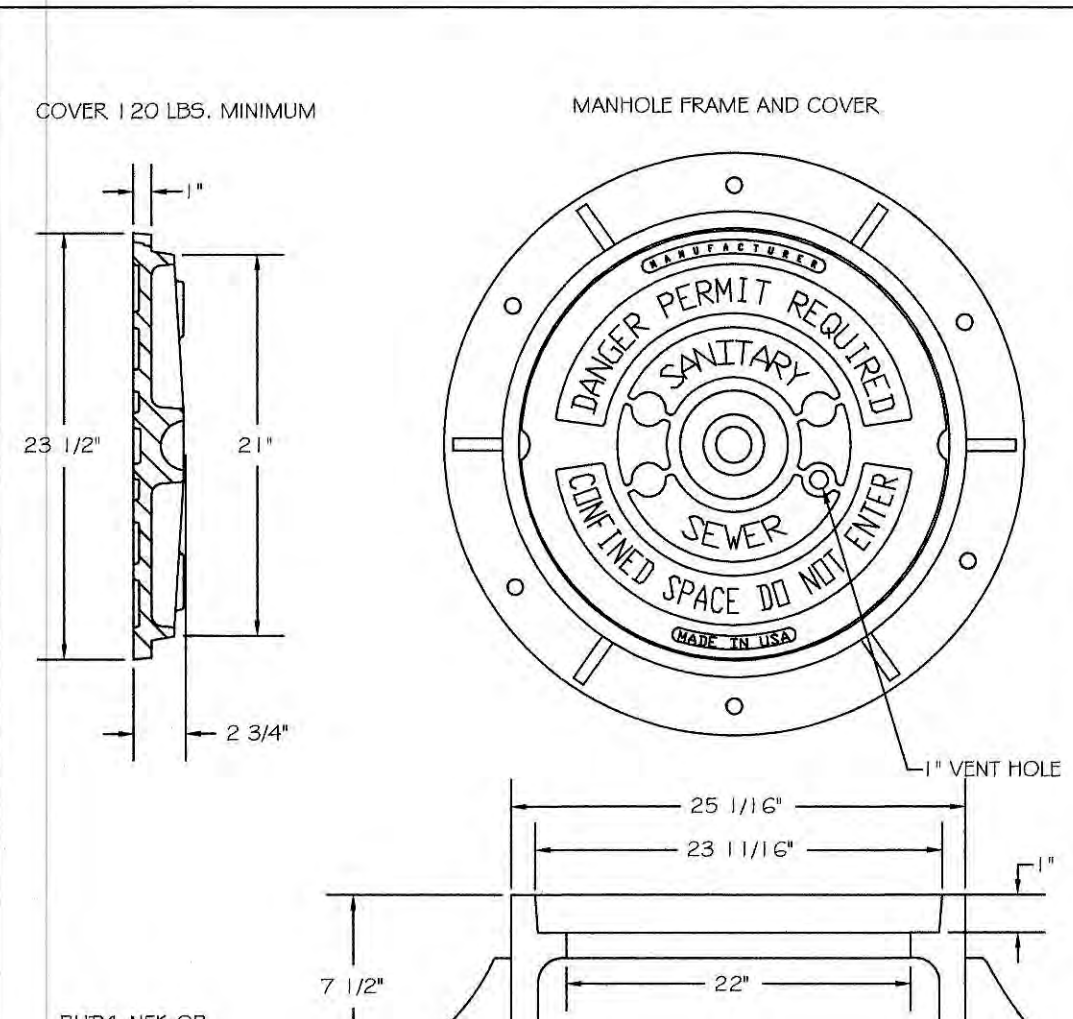
**NOTES:**  
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.  
 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.  
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.  
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.  
 5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.  
 6. IF IN EASEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.  
 7. NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON			
DWG. NO.	REVISIONS	DATE	DATE
S-4	RRH	3-30-00	



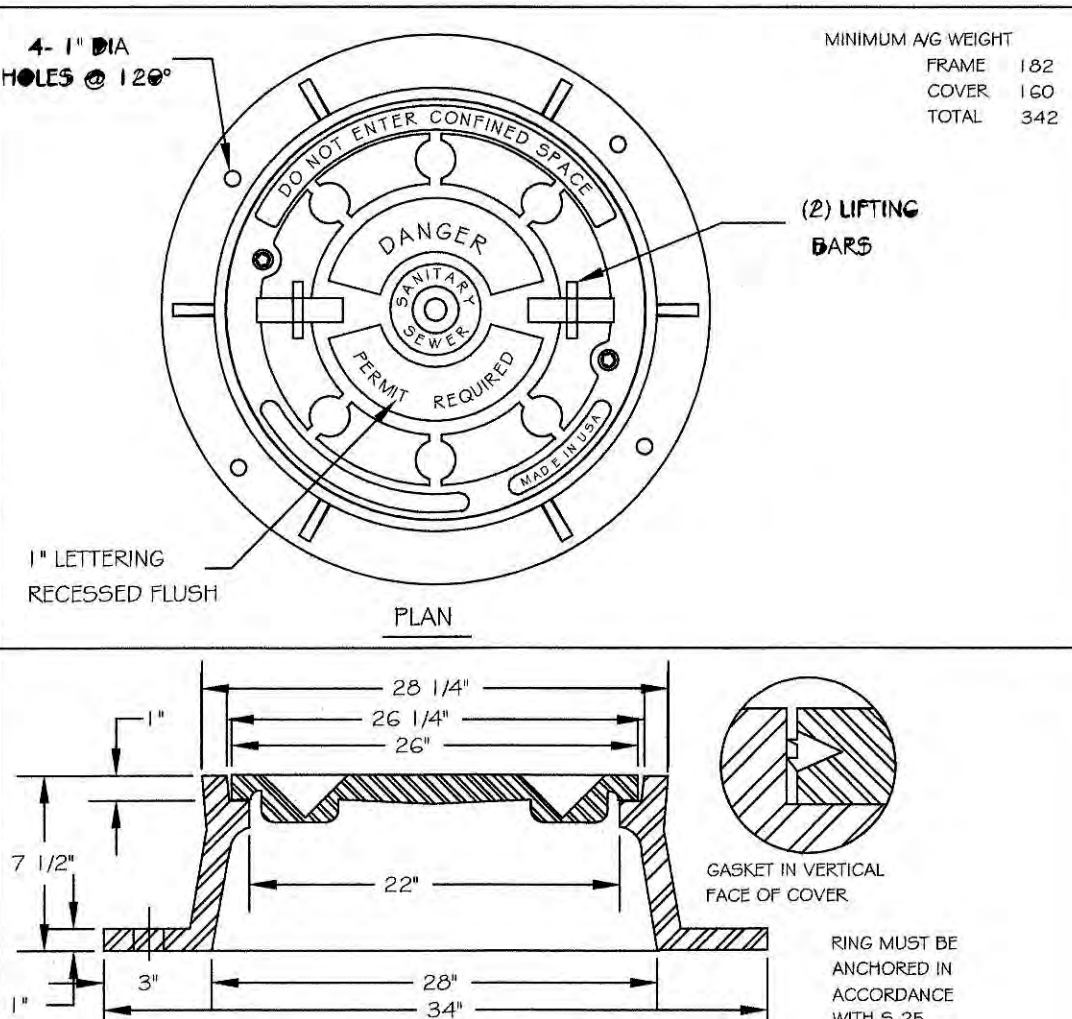
**NOTES:**  
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 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.  
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.  
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MANH			
DWG. NO.	REVISIONS	DATE	DATE
S-5	RRH	7-2-02	3-30-00



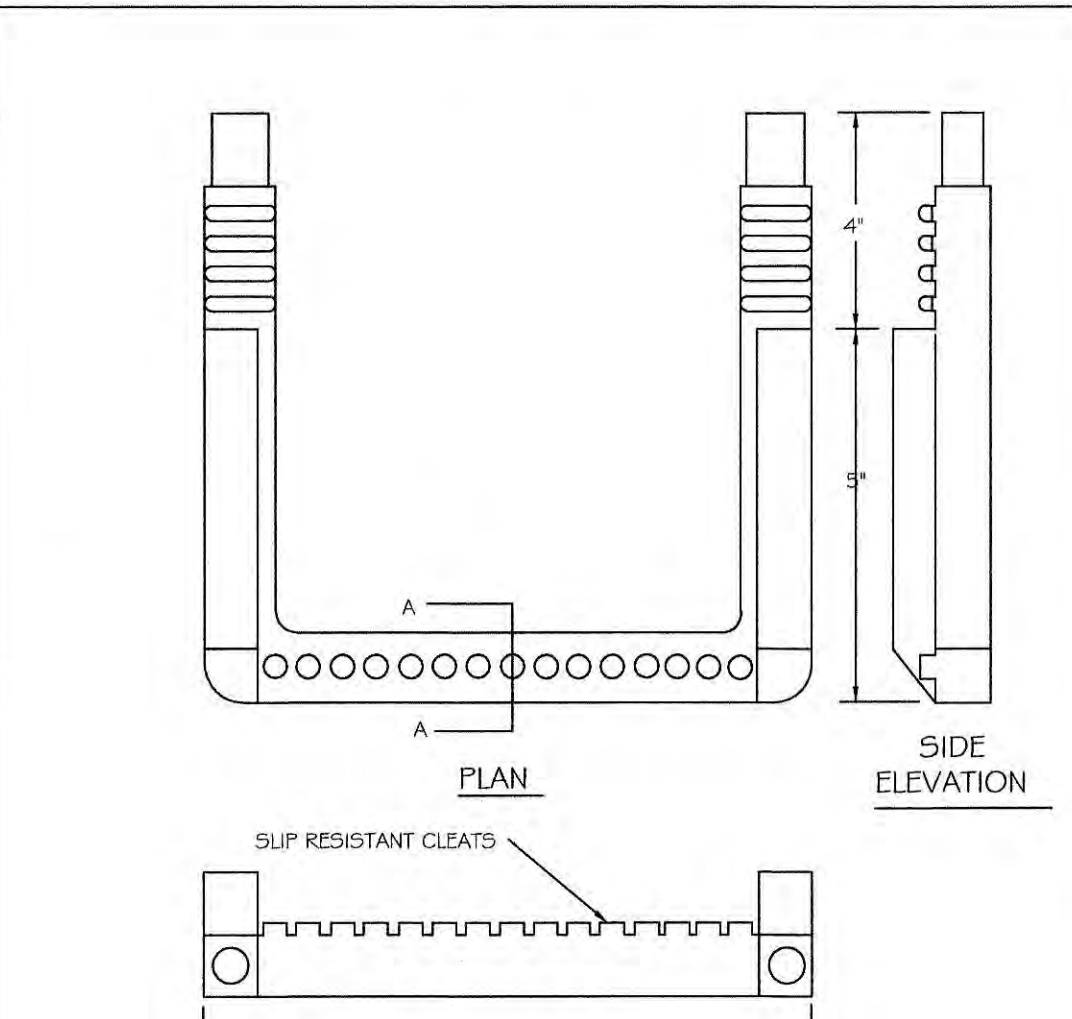
**NOTES:**  
 1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.  
 2) FRAME SHALL BE A MINIMUM WEIGHT OF 162 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.  
 3) COVER SHALL WEIGH A MIN. OF 120 LBS.  
 4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CURB OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD MANHOLE COVER			
DWG. NO.	REVISIONS	DATE	DATE
S-25	RRH	3-1-07	2-9-05
	D.H.L.	3-30-00	6-18-08



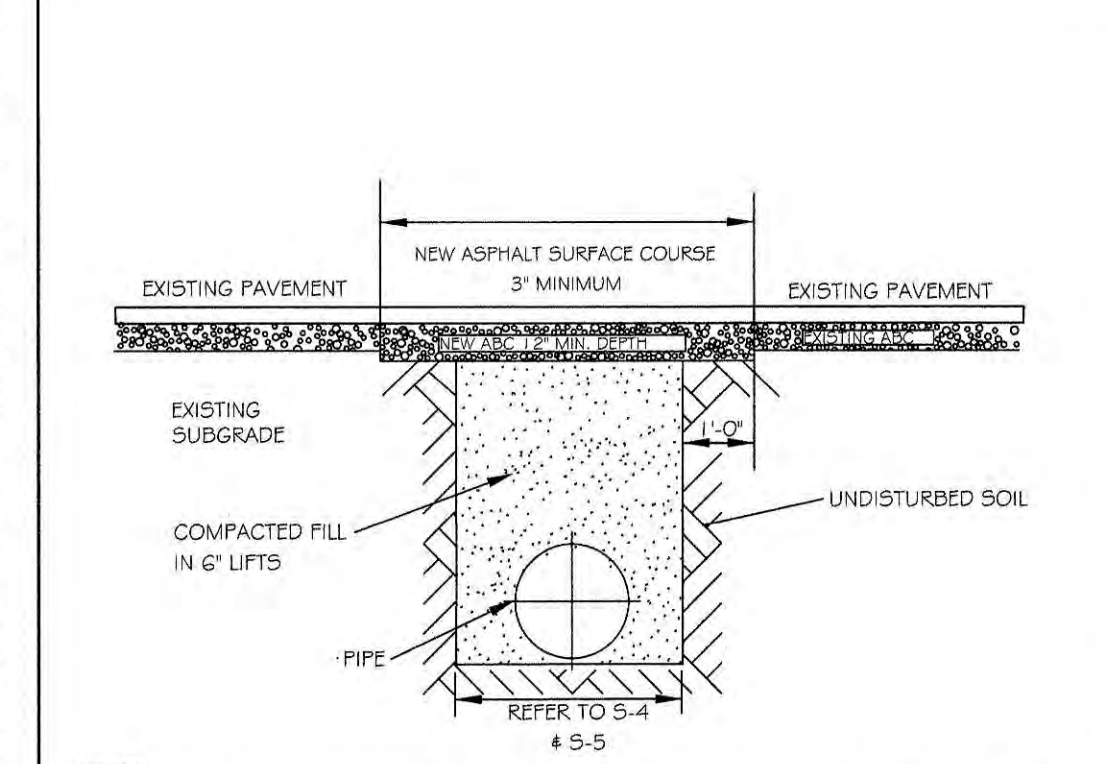
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CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
MANHOLE FRAME AND WATERTIGHT COVER			
DWG. NO.	REVISIONS	DATE	DATE
S-26	RRH	3-1-07	3-29-05
	D.H.L.	3-30-00	6/18/08



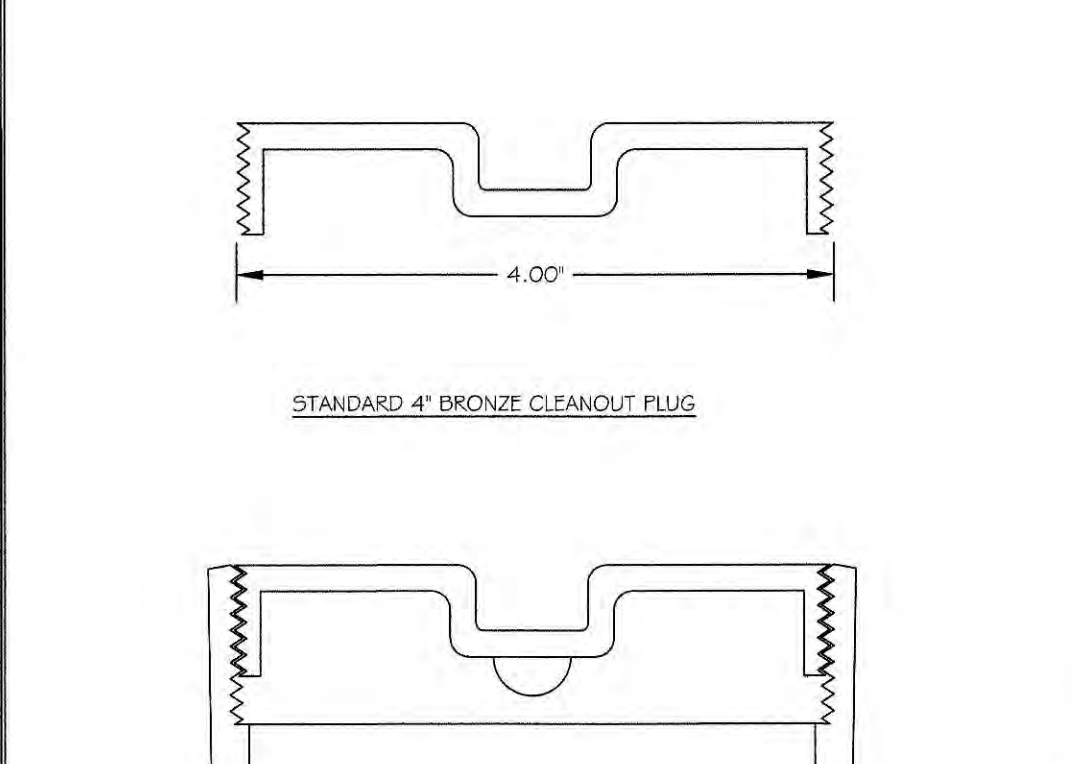
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CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL			
DWG. NO.	REVISIONS	DATE	DATE
S-28	RRH	3-30-00	



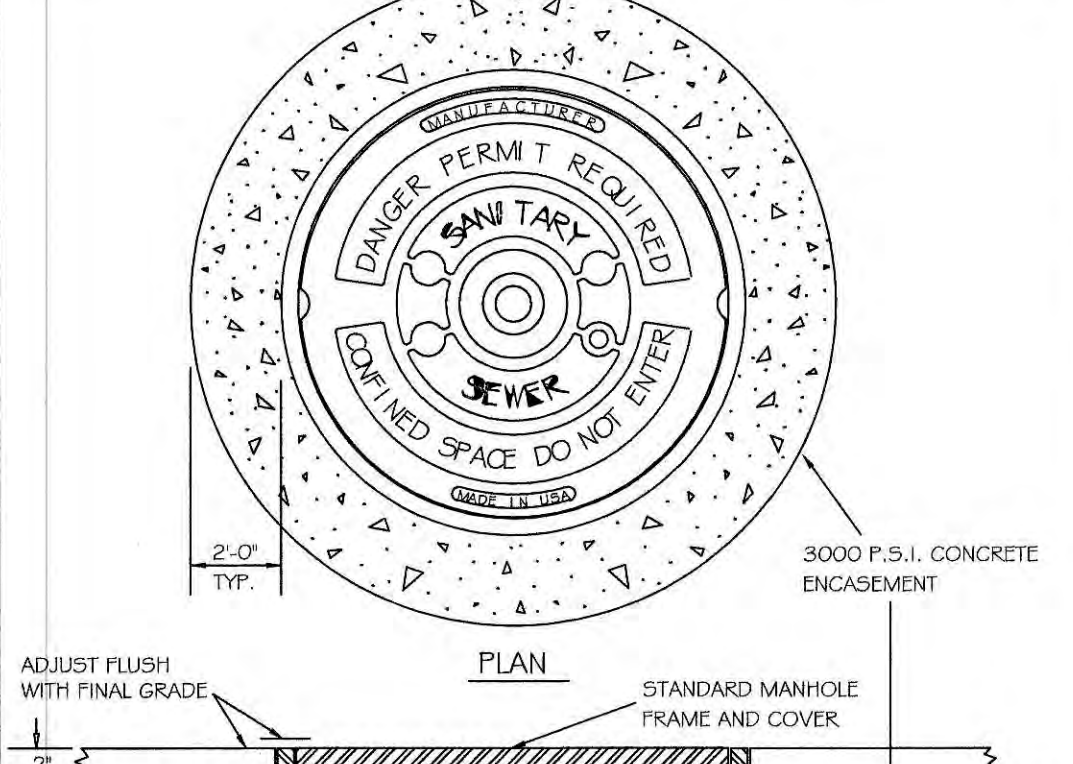
**NOTES:**  
 1. IN NCDOT MAINTAINED ROADWAYS ENCROACHMENT PAVEMENT PATCH REQUIREMENTS SHALL TAKE PRECEDENCE.  
 2. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAWCUT MACHINE.  
 3. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.  
 4. THE FINAL 1" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.  
 5. THE ENTIRE THICKNESS AND VERTICAL EDGE OF CUT SHALL BE TACKED.  
 6. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.  
 7. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.  
 8. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING (S-4 & S-5) FOR ADDITIONAL DETAILS.  
 9. NO HAND PATCHING ALLOWED.  
 10. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD ASPHALT PAVEMENT PATCH DETAIL			
DWG. NO.	REVISIONS	DATE	DATE
S-3	RRH	1-1-99	14-19-04
	A.B.B.	3-30-00	J.P.S.
	J.P.S.	3-30-00	0-8-10



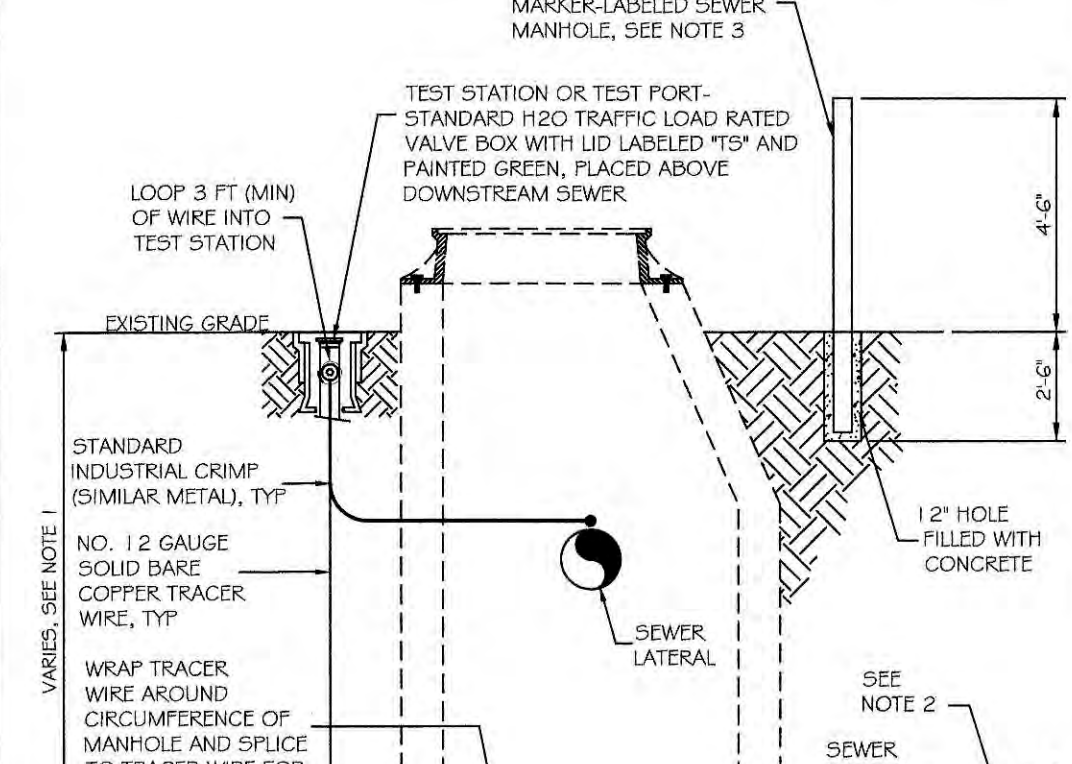
**NOTES:**  
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 2. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAWCUT MACHINE.  
 3. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.  
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 9. NO HAND PATCHING ALLOWED.  
 10. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
4\"/>			
DWG. NO.	REVISIONS	DATE	DATE
S-34	RRH	3-1-07	3-30-00
	D.H.L.	3-27-08	



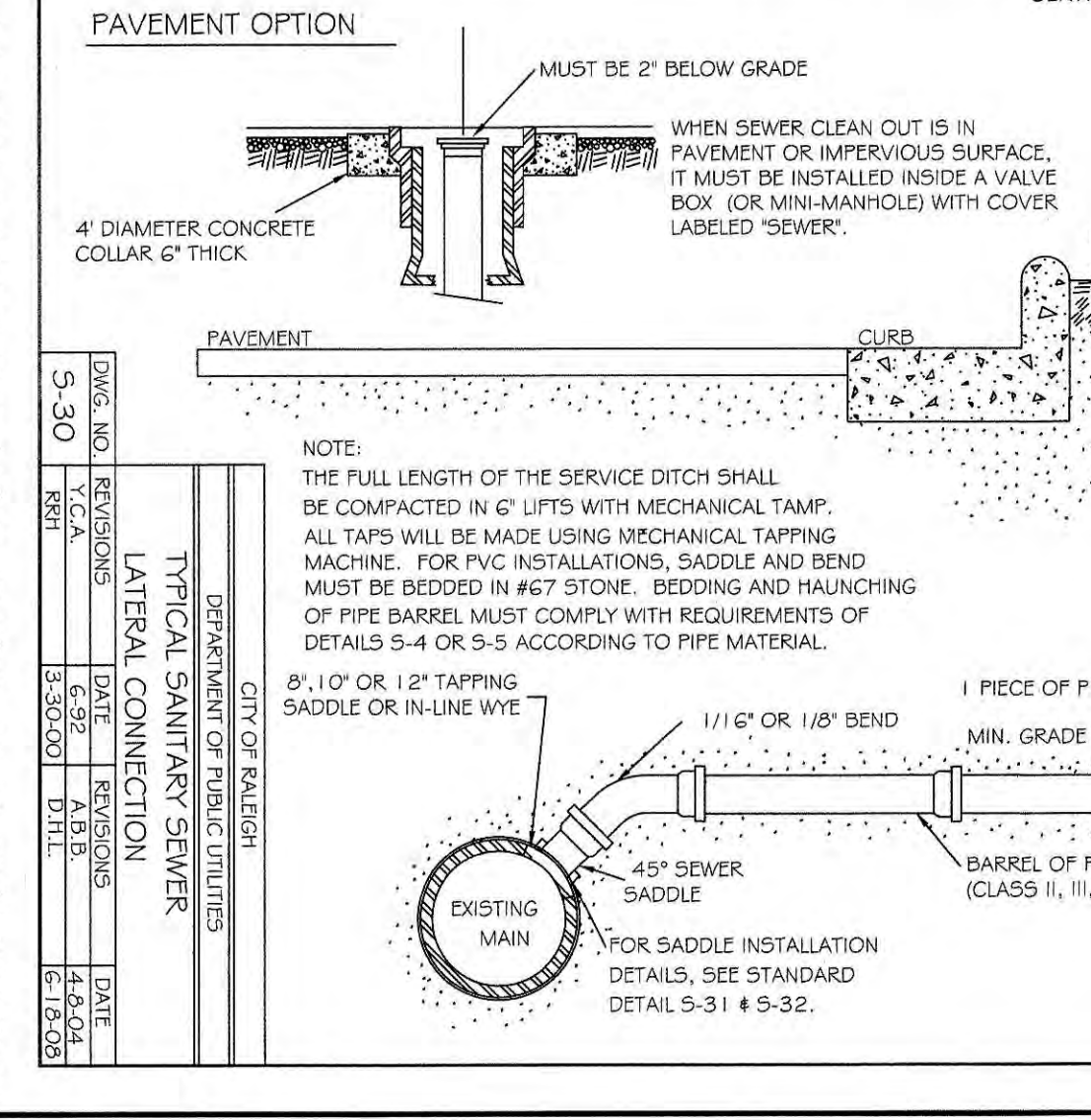
**NOTES:**  
 1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.  
 2) FRAME SHALL BE A MINIMUM WEIGHT OF 162 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.  
 3) COVER SHALL WEIGH A MIN. OF 120 LBS.  
 4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CURB OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES			
DWG. NO.	REVISIONS	DATE	DATE
S-29 Y.C.	RRH	2-31-91	9-20-04
	D.H.L.	3-30-00	1-29-07

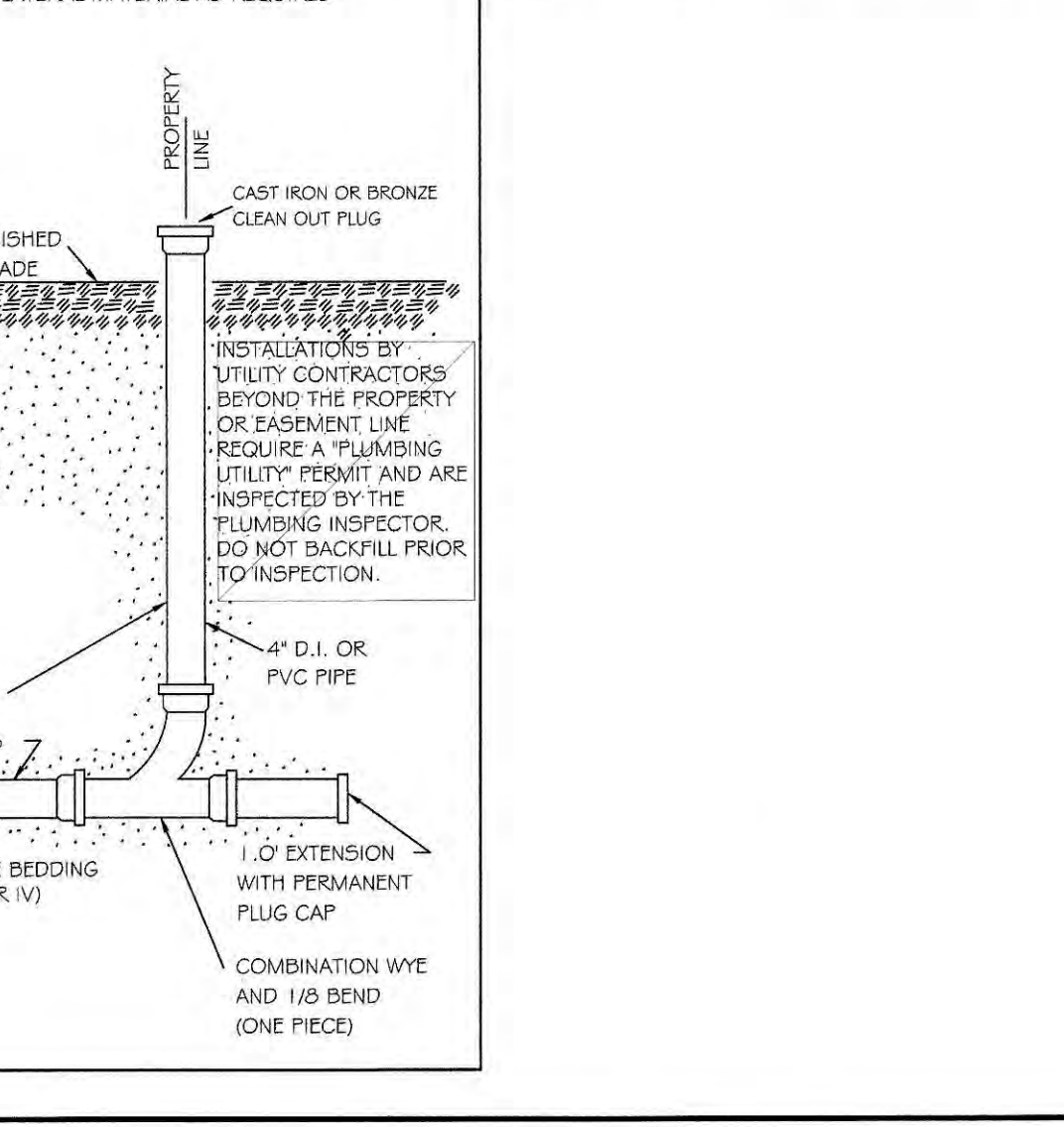


**NOTES:**  
 1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT. THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE Laid FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT. THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OR CUTS IN THE TRACER WIRE SHALL BE PERMITTED.  
 2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.  
 3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNERS REPRESENTATIVE.

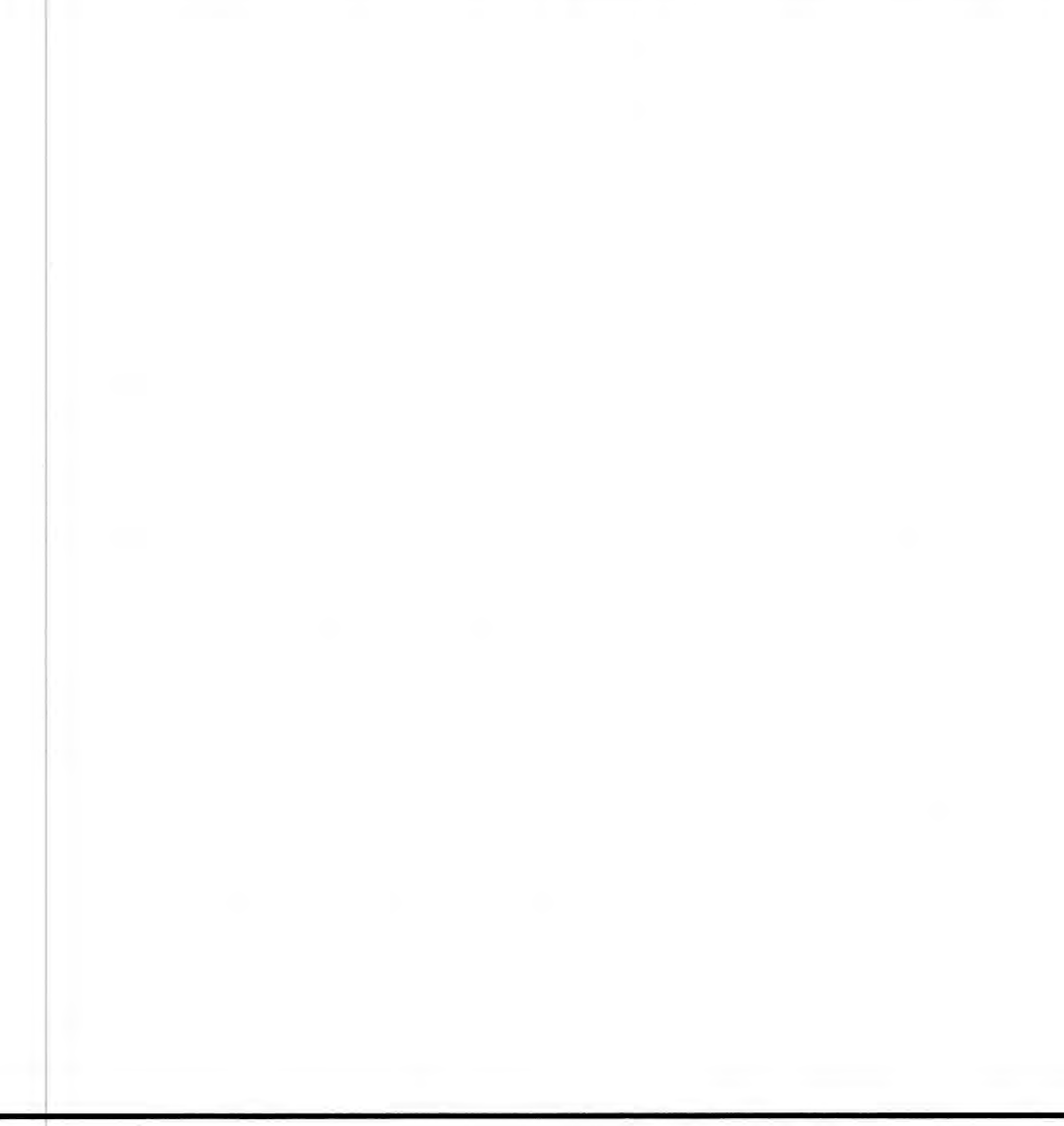
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER			
DWG. NO.	REVISIONS	DATE	DATE
S-20A	RRH	02-14	



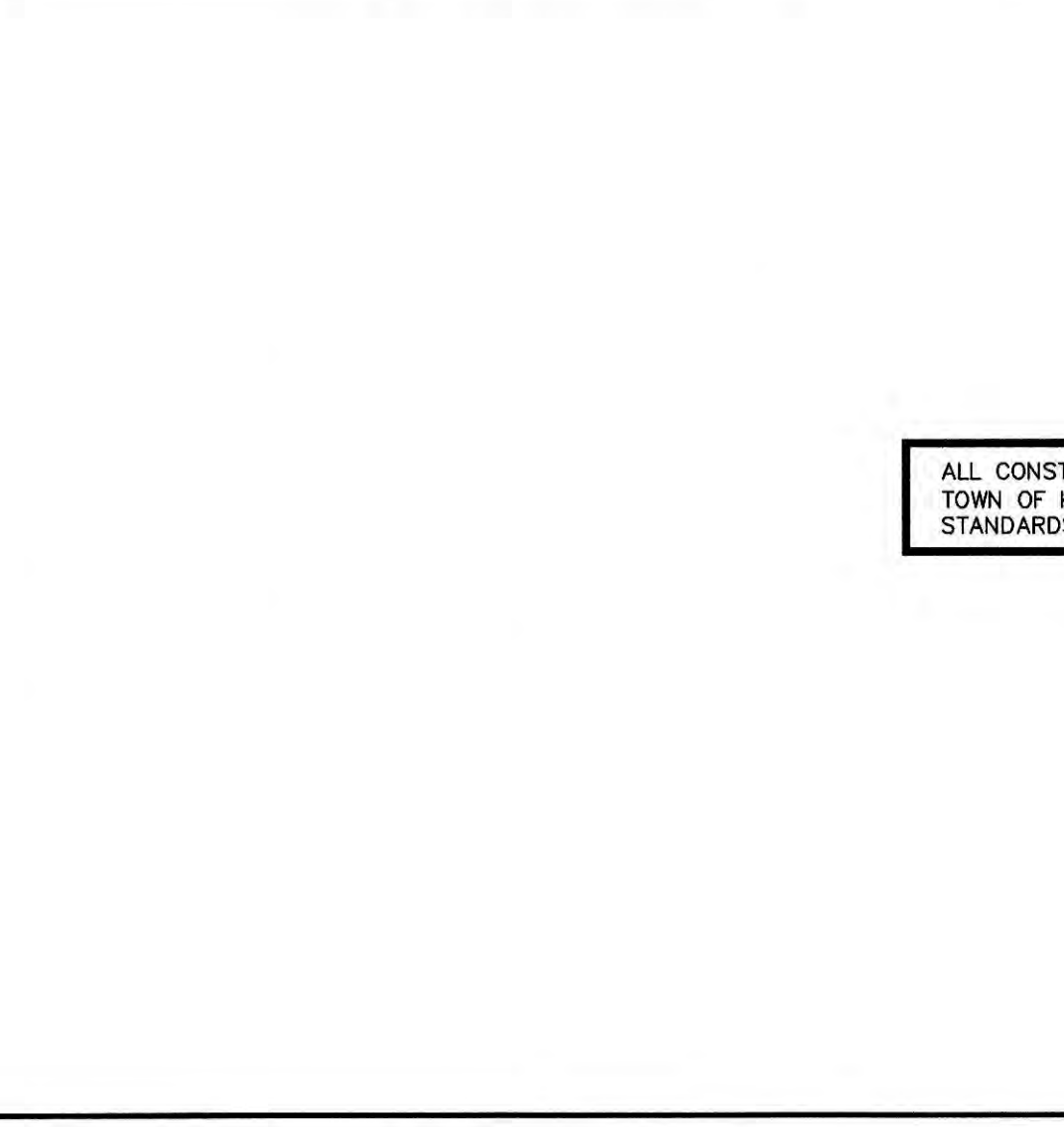
**NOTES:**  
 1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL TAPS WILL BE MADE USING MECHANICAL TAPPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BEDDING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAILS S-4 OR S-5 ACCORDING TO PIPE MATERIAL.



**NOTES:**  
 1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL TAPS WILL BE MADE USING MECHANICAL TAPPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BEDDING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAILS S-4 OR S-5 ACCORDING TO PIPE MATERIAL.



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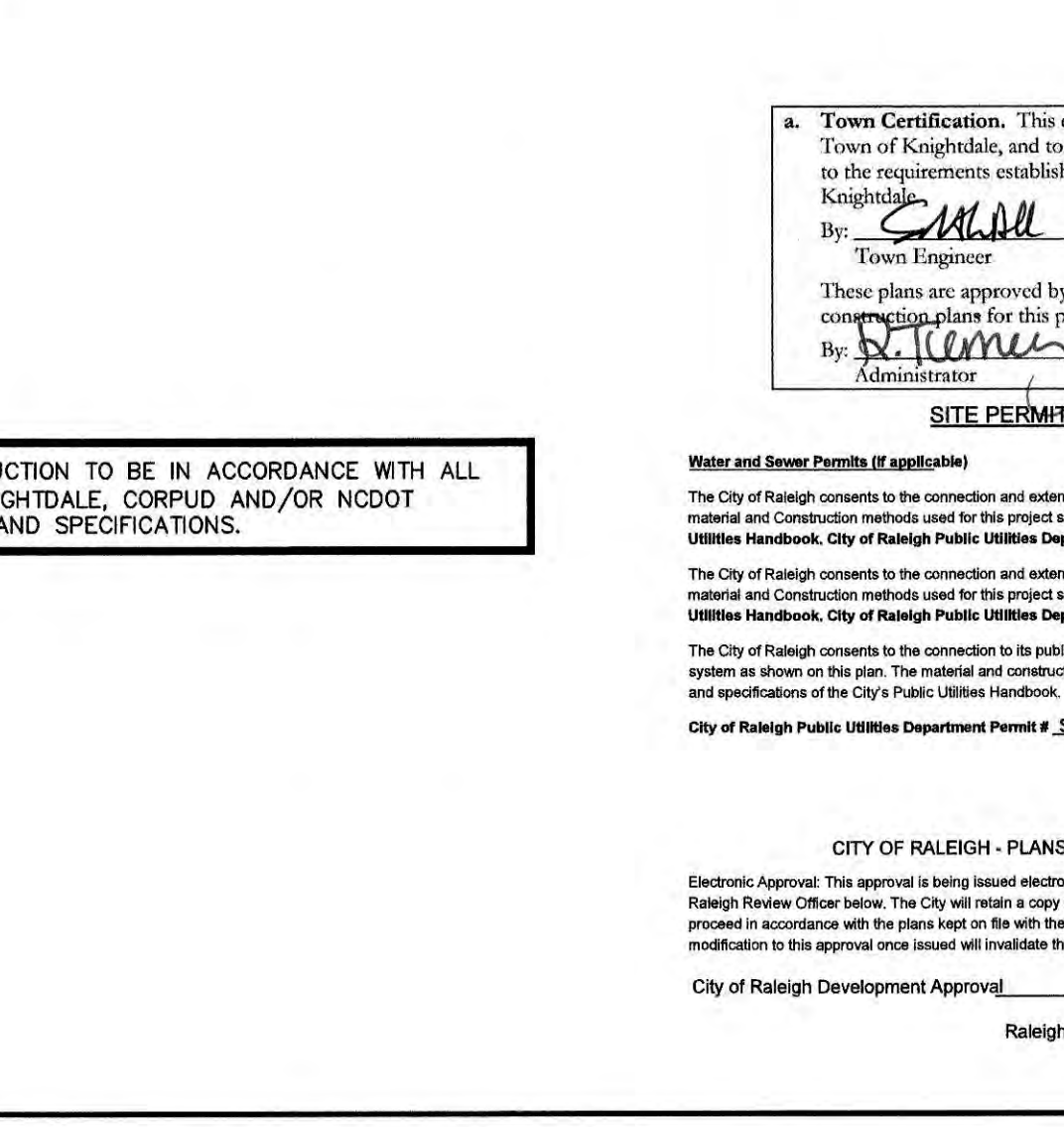


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CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER			
DWG. NO.	REVISIONS	DATE	DATE
S-20A	RRH	02-14	



**NOTES:**  
 1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL TAPS WILL BE MADE USING MECHANICAL TAPPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BEDDING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAILS S-4 OR S-5 ACCORDING TO PIPE MATERIAL.

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
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2	OWNER UPDATES	03-19-20	WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH

**Kimley»Horn**  
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 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #P-0102

NORTH CAROLINA  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA  
 EXPIRES 12/31/2020  
 17370

**UTILITY DETAILS**  
 KHA PROJECT 017254007  
 DATE 11/08/2019  
 SCALE AS SHOWN  
 DESIGNED BY JCB  
 DRAWN BY JCB  
 CHECKED BY COB

**PARKSTONE VILLAGE**  
 PREPARED FOR  
**KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC.**  
 NORTH CAROLINA  
 KNIGHTDALE  
 SHEET NUMBER  
**C8.1**

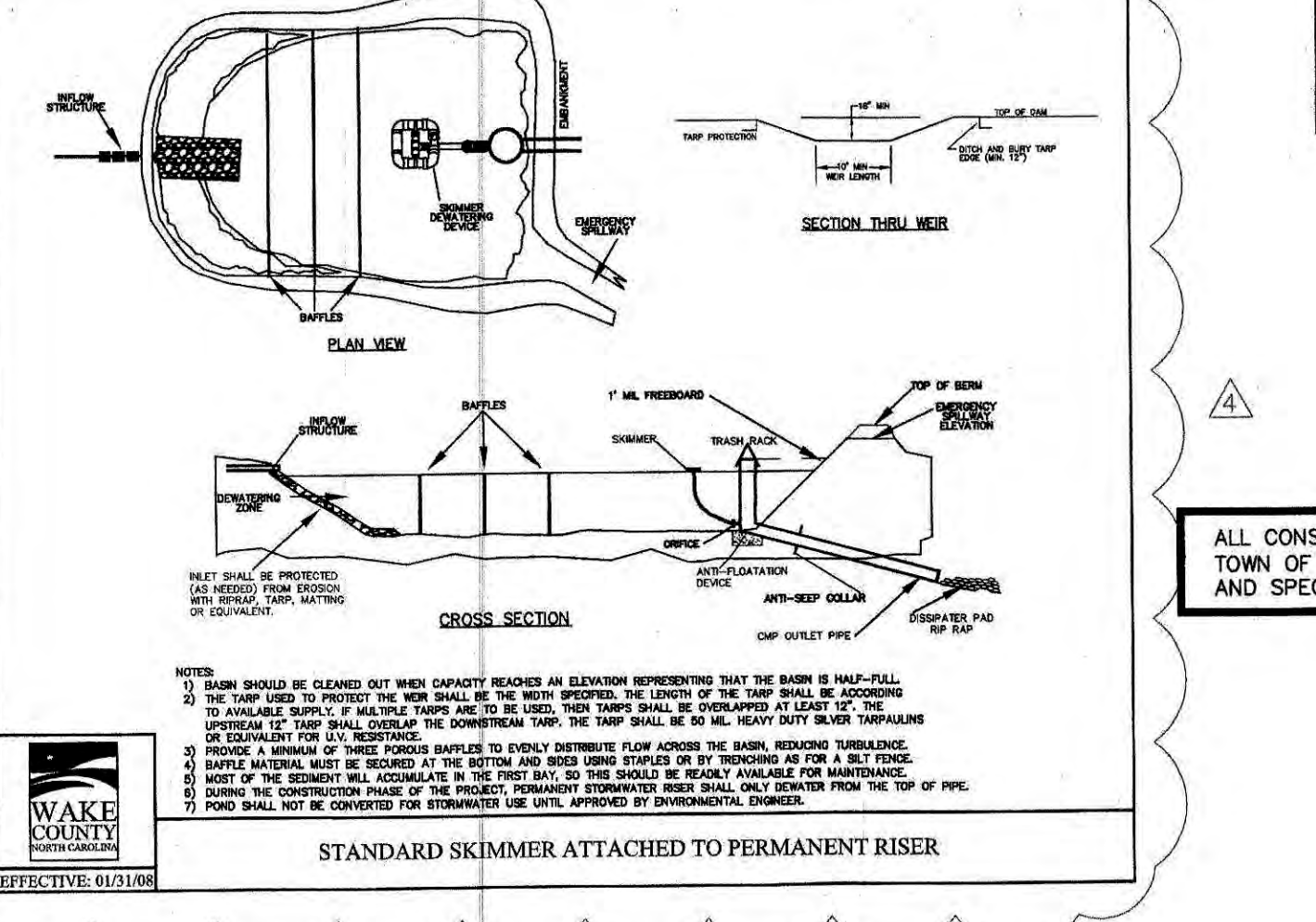
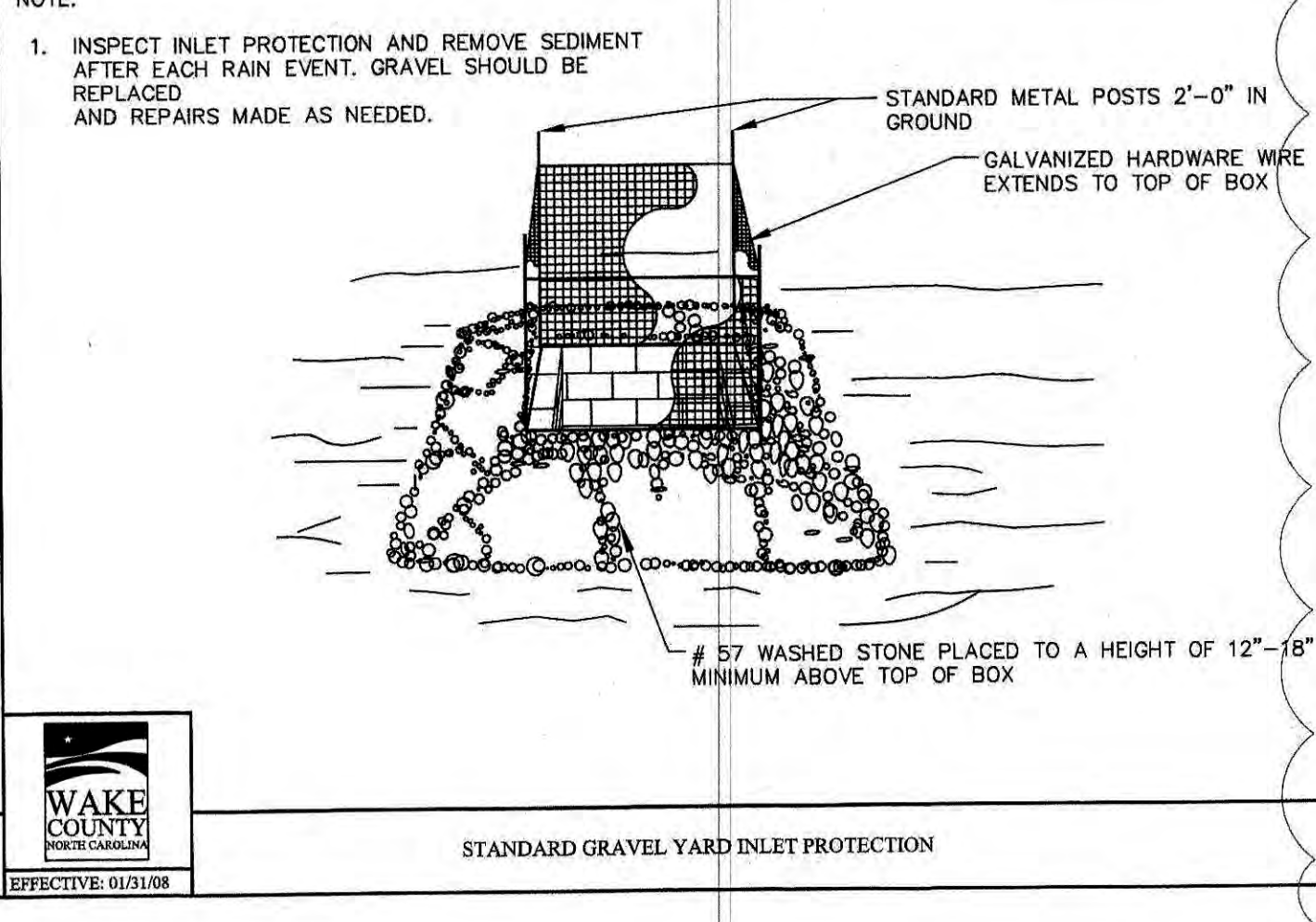
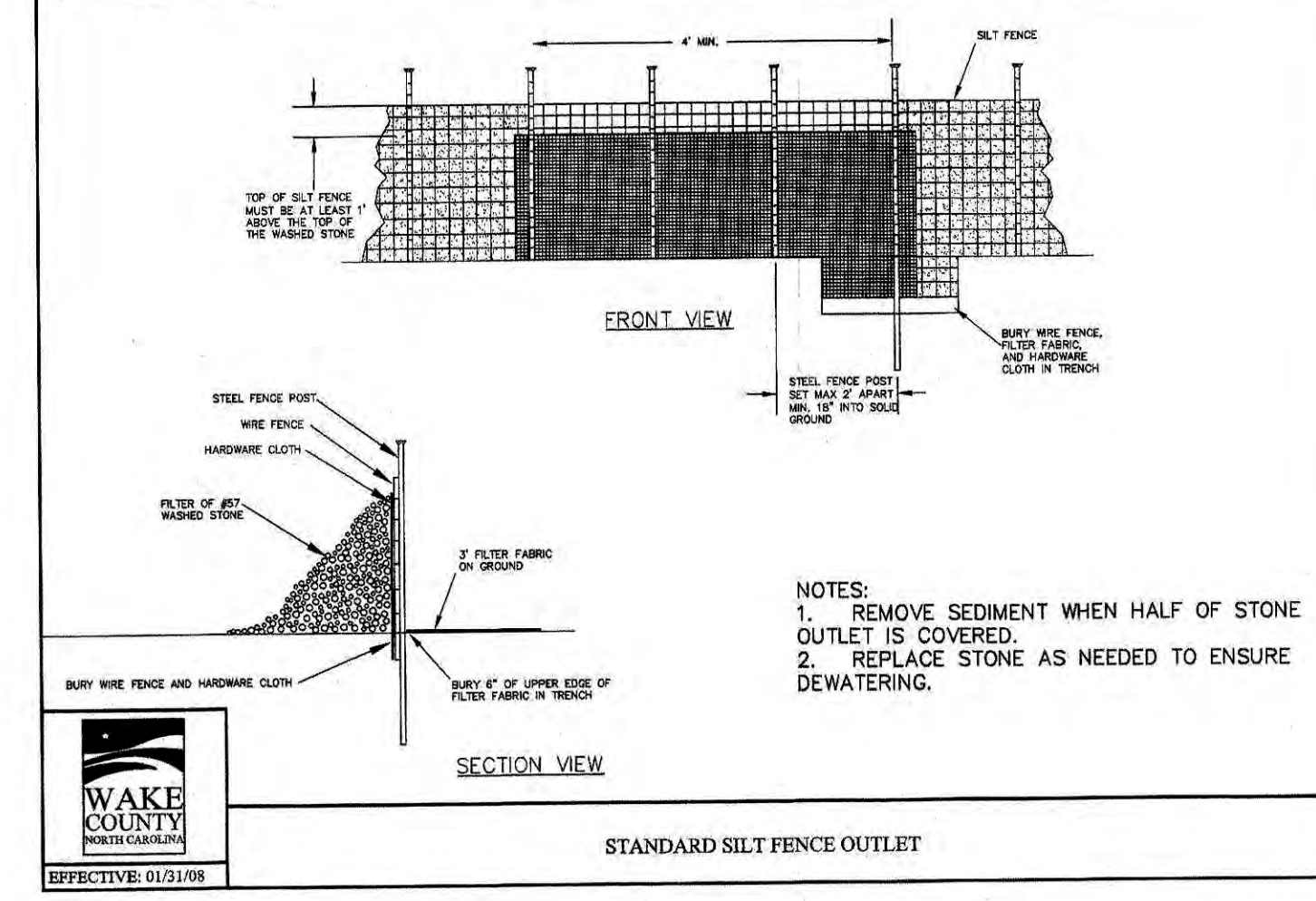
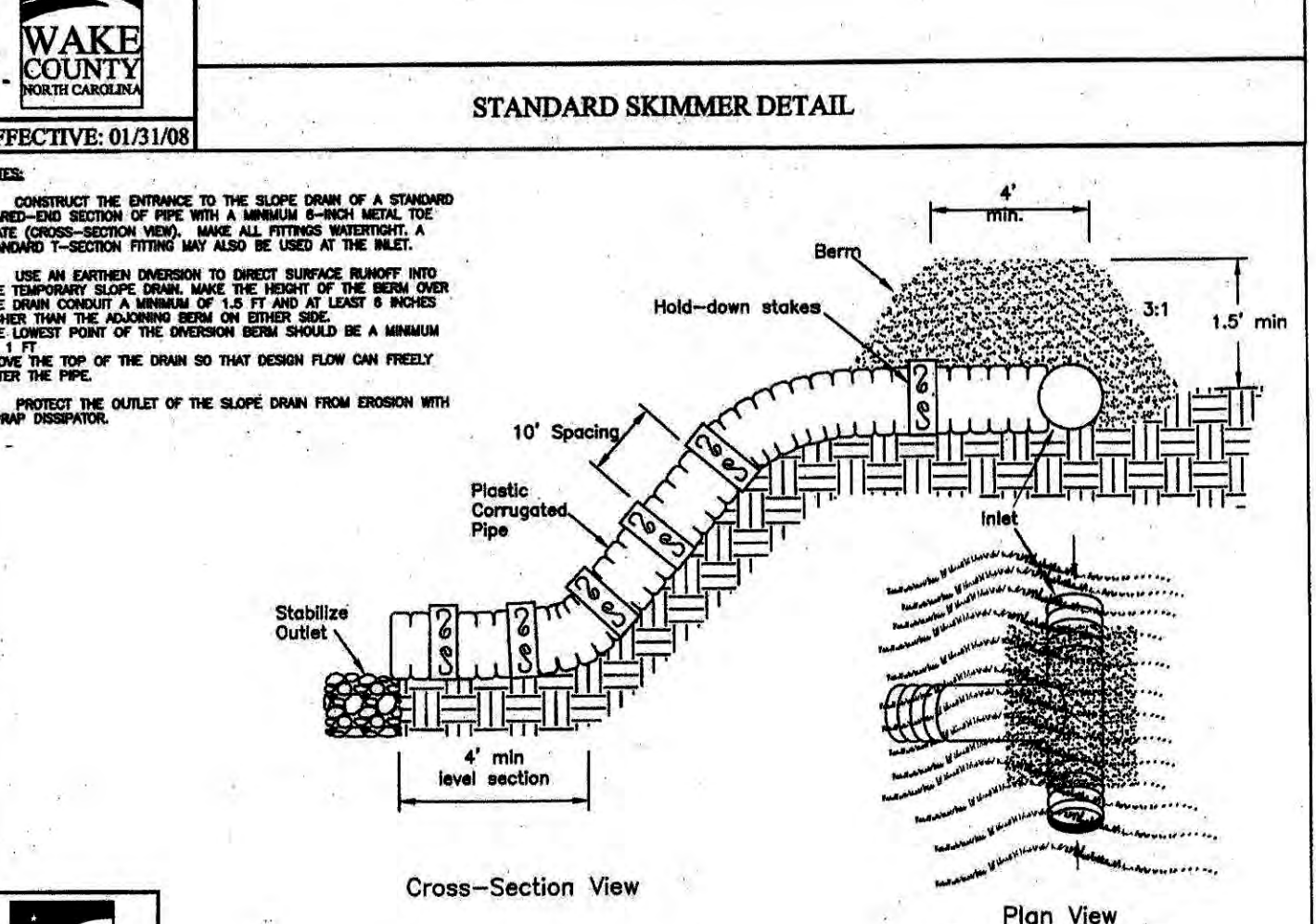
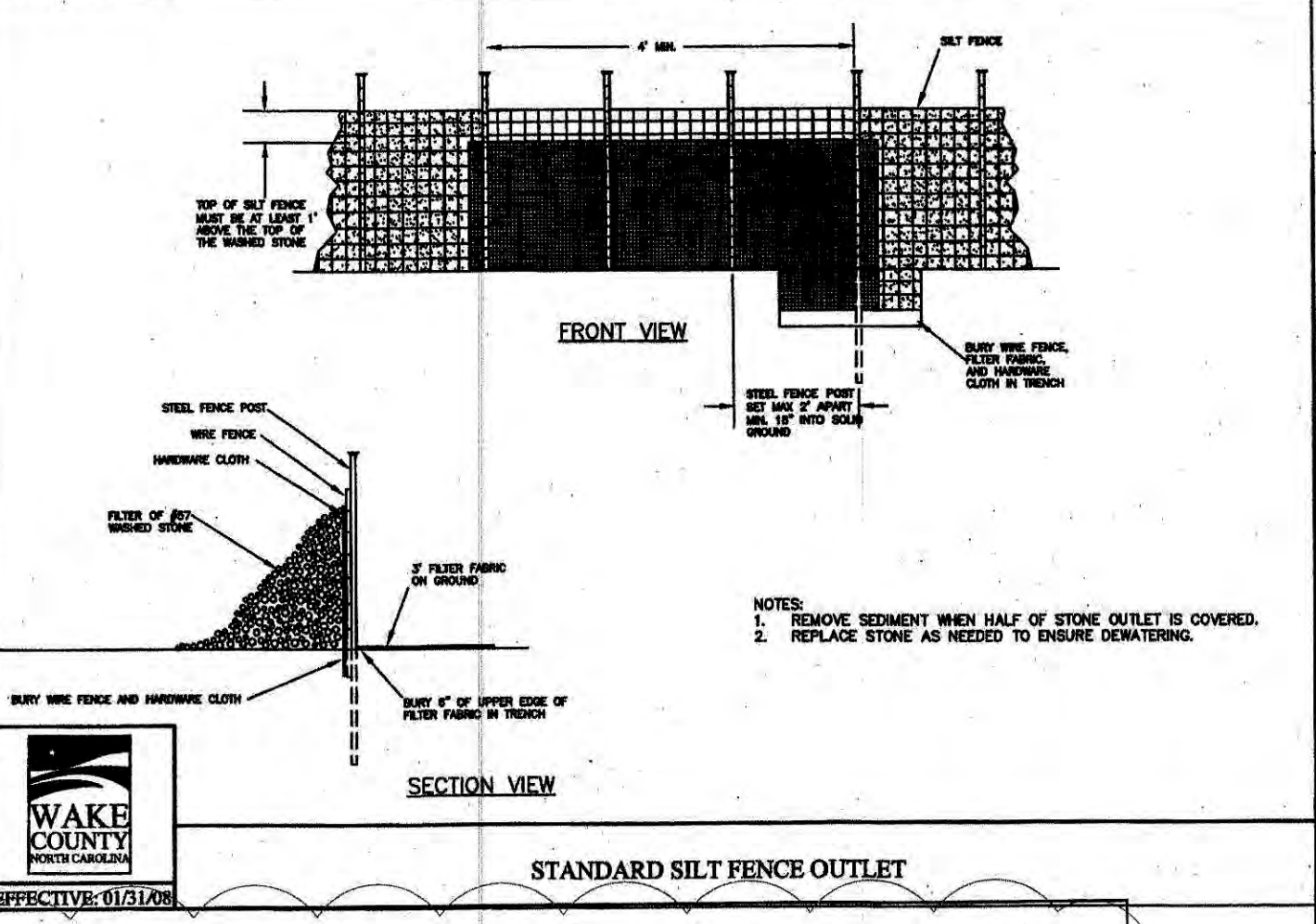
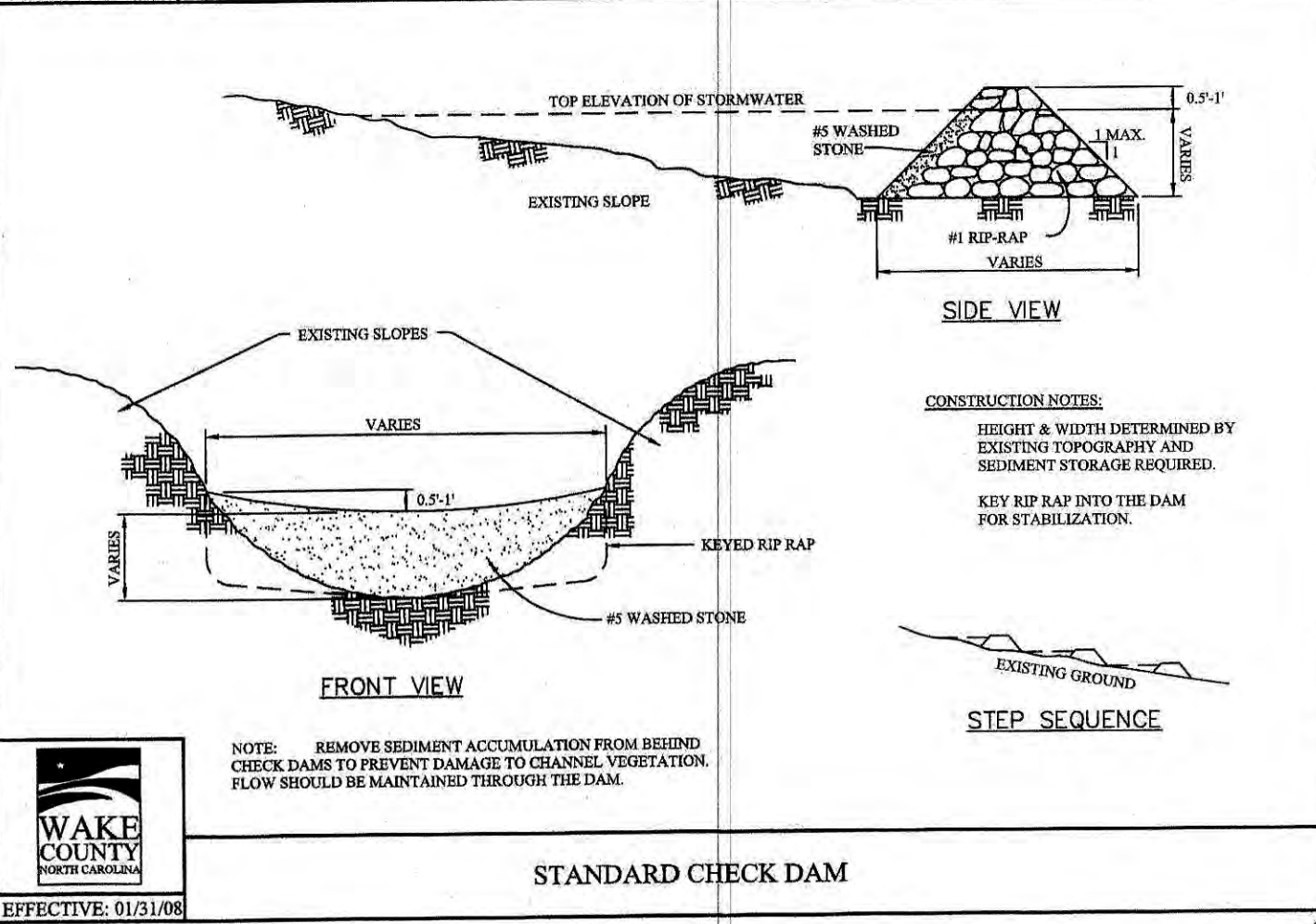
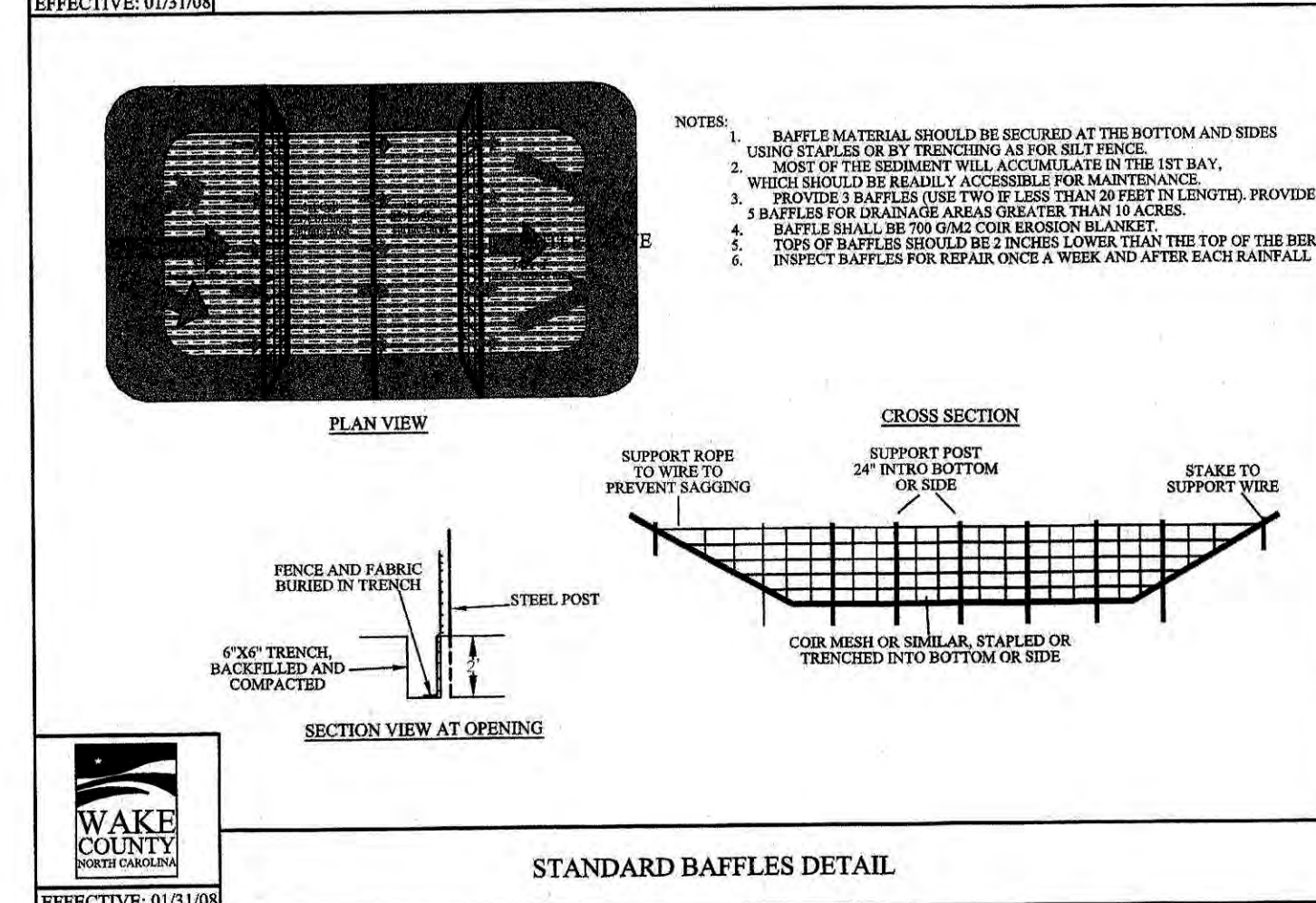
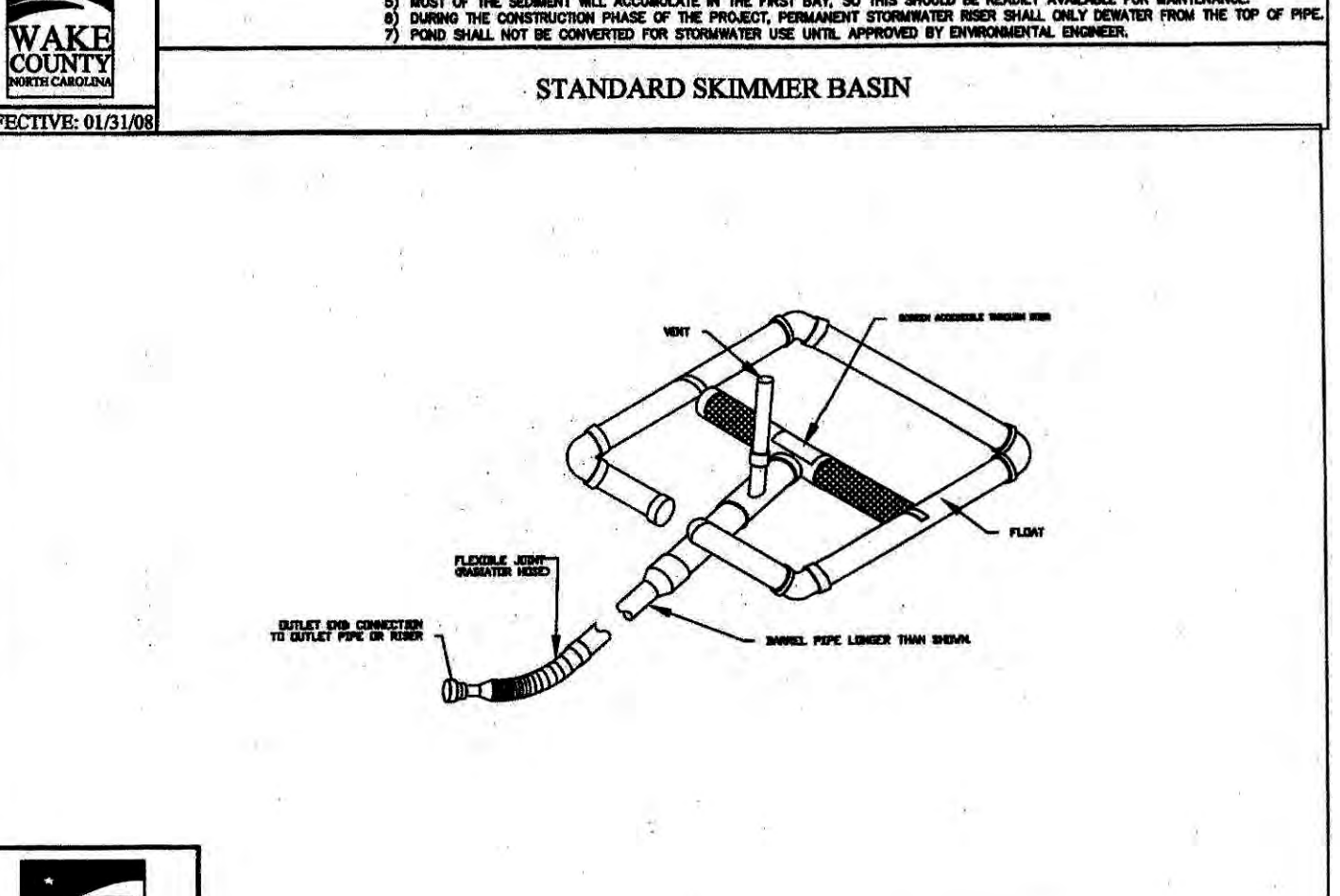
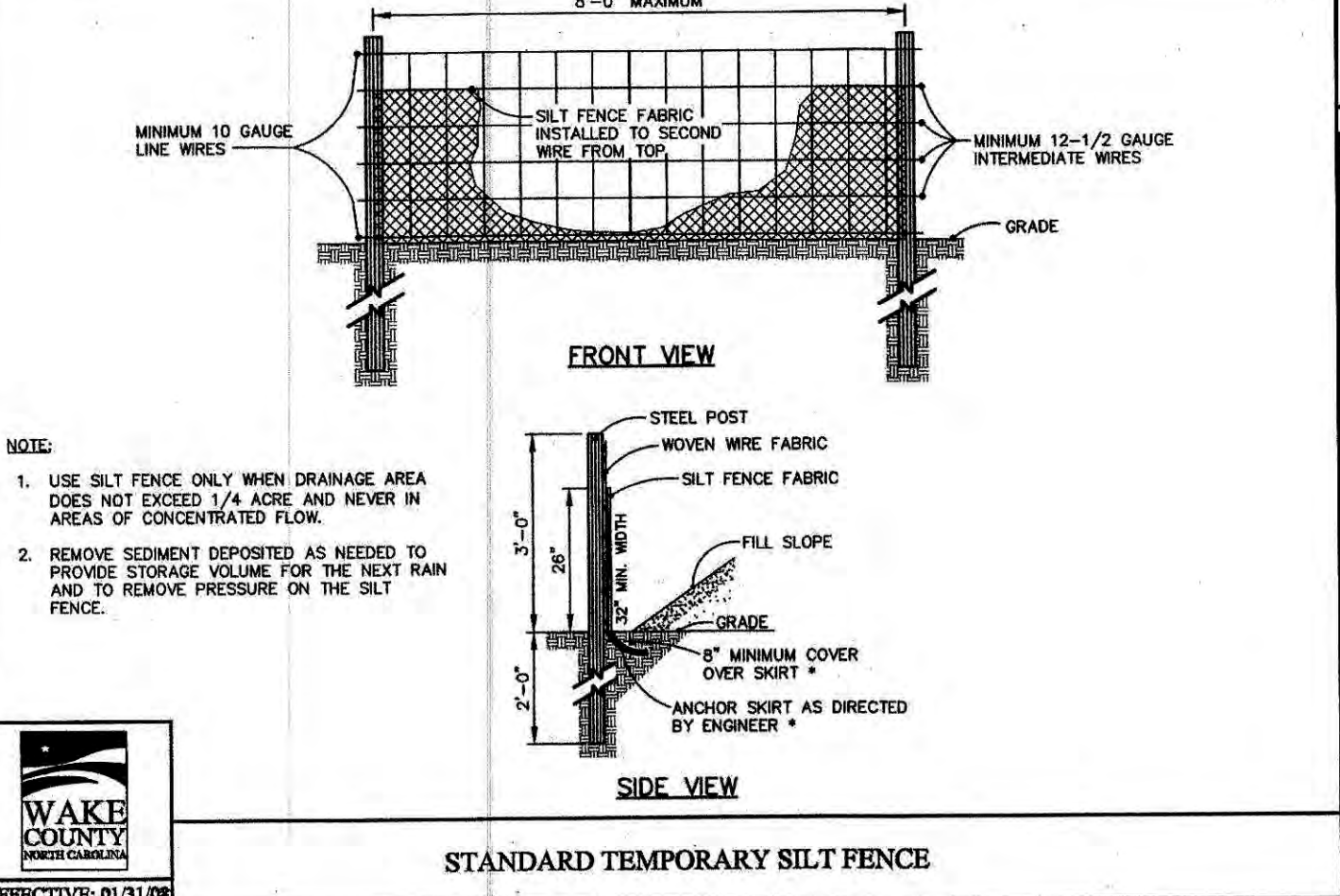
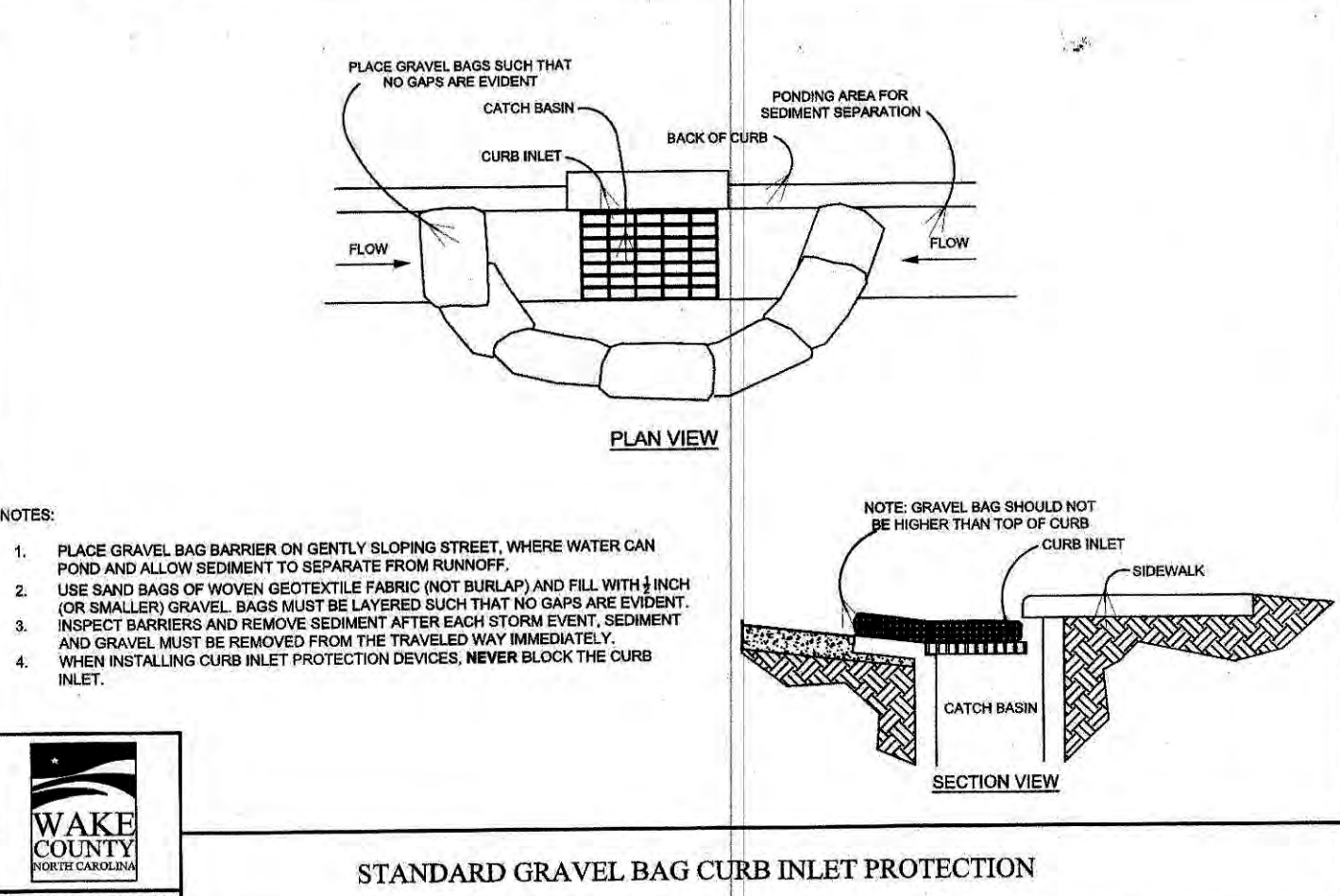
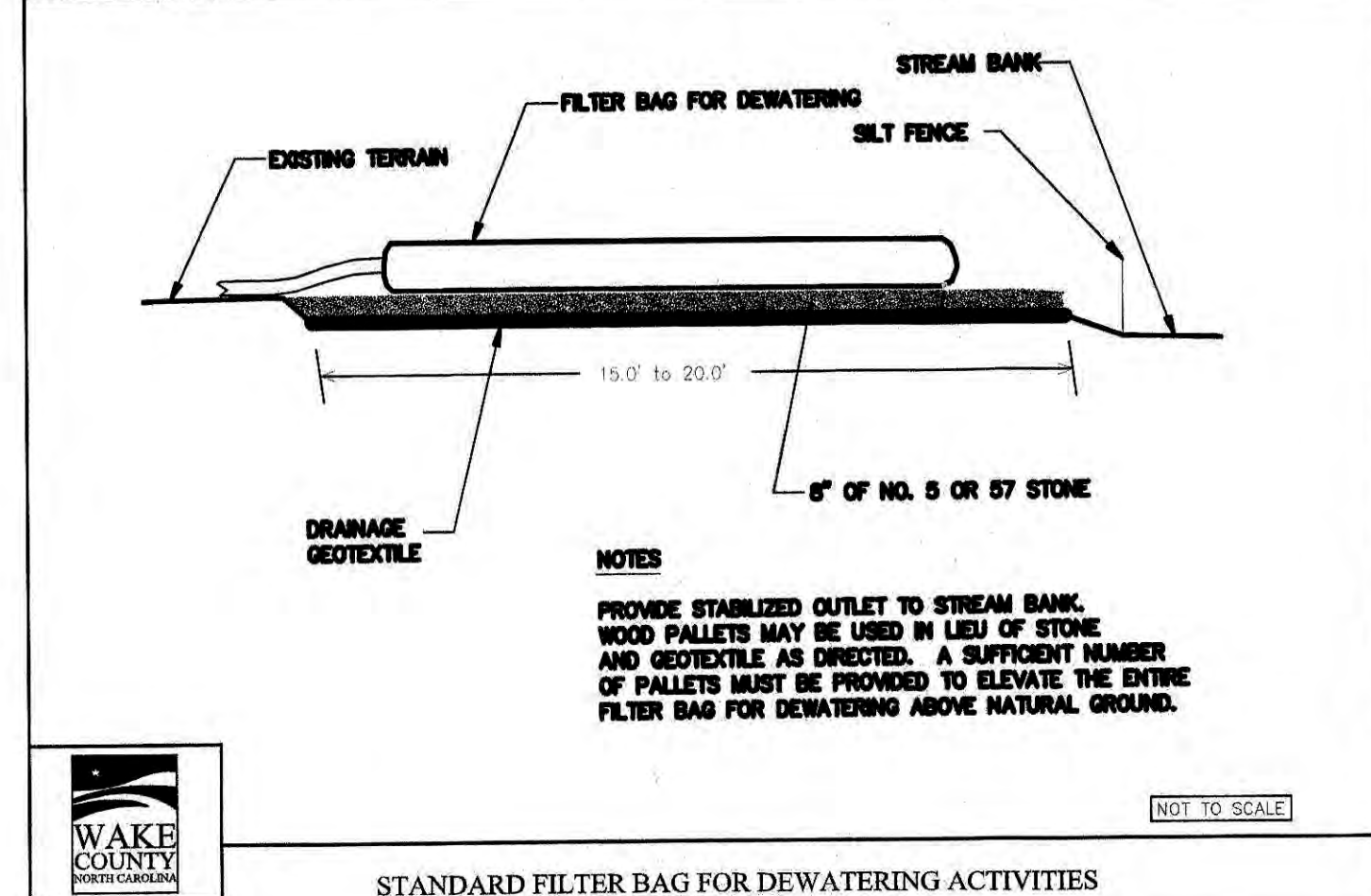
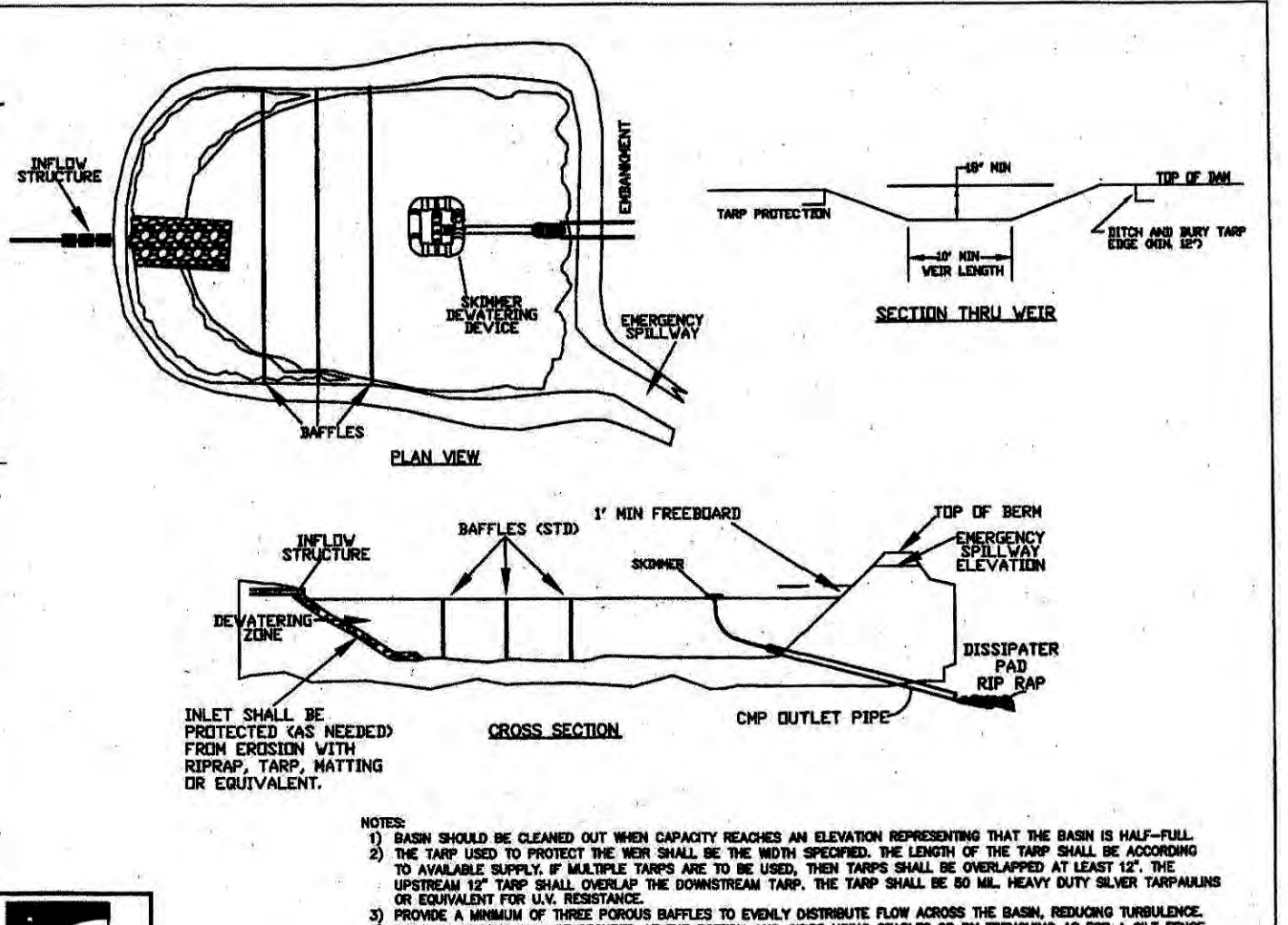
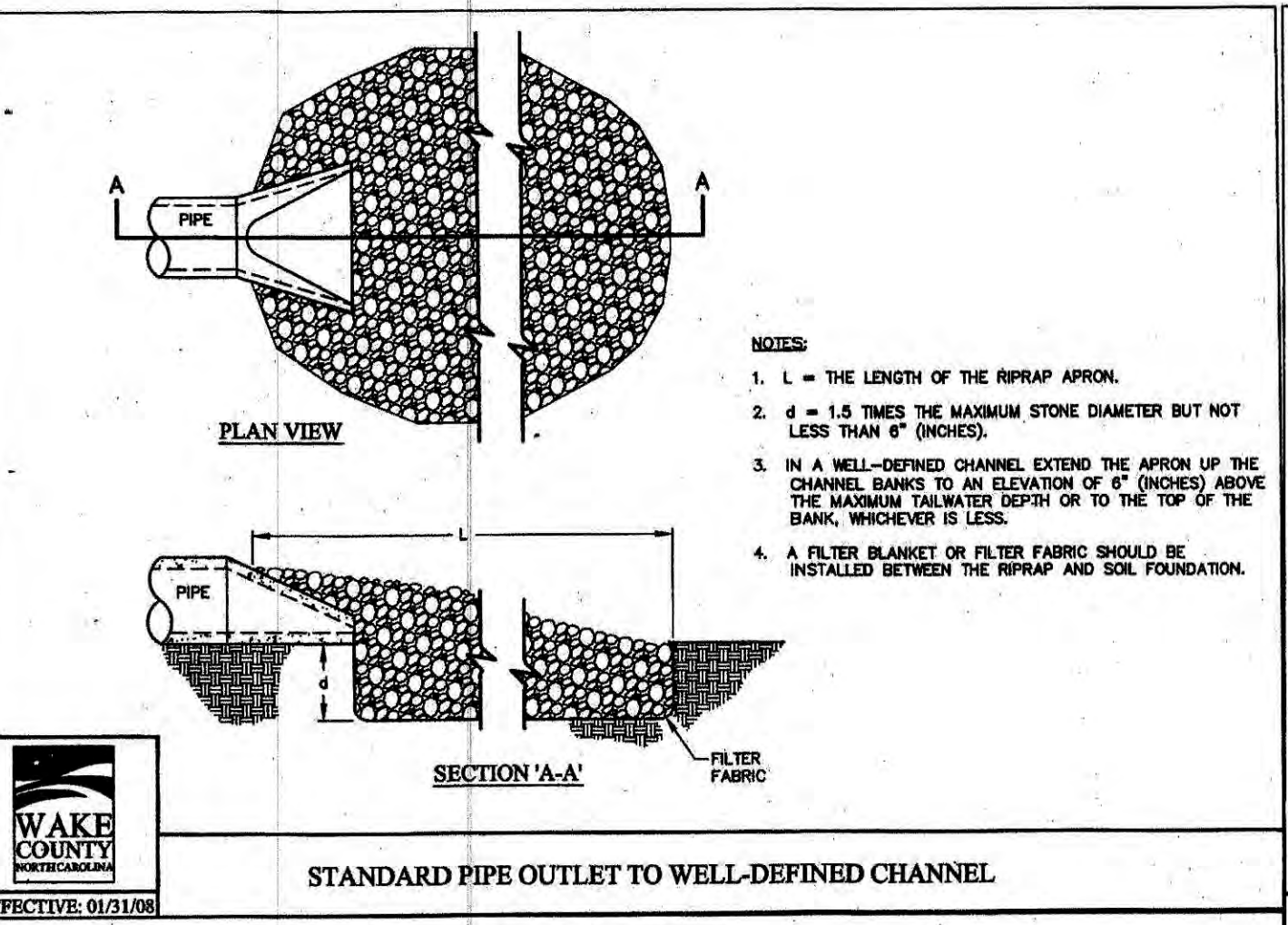
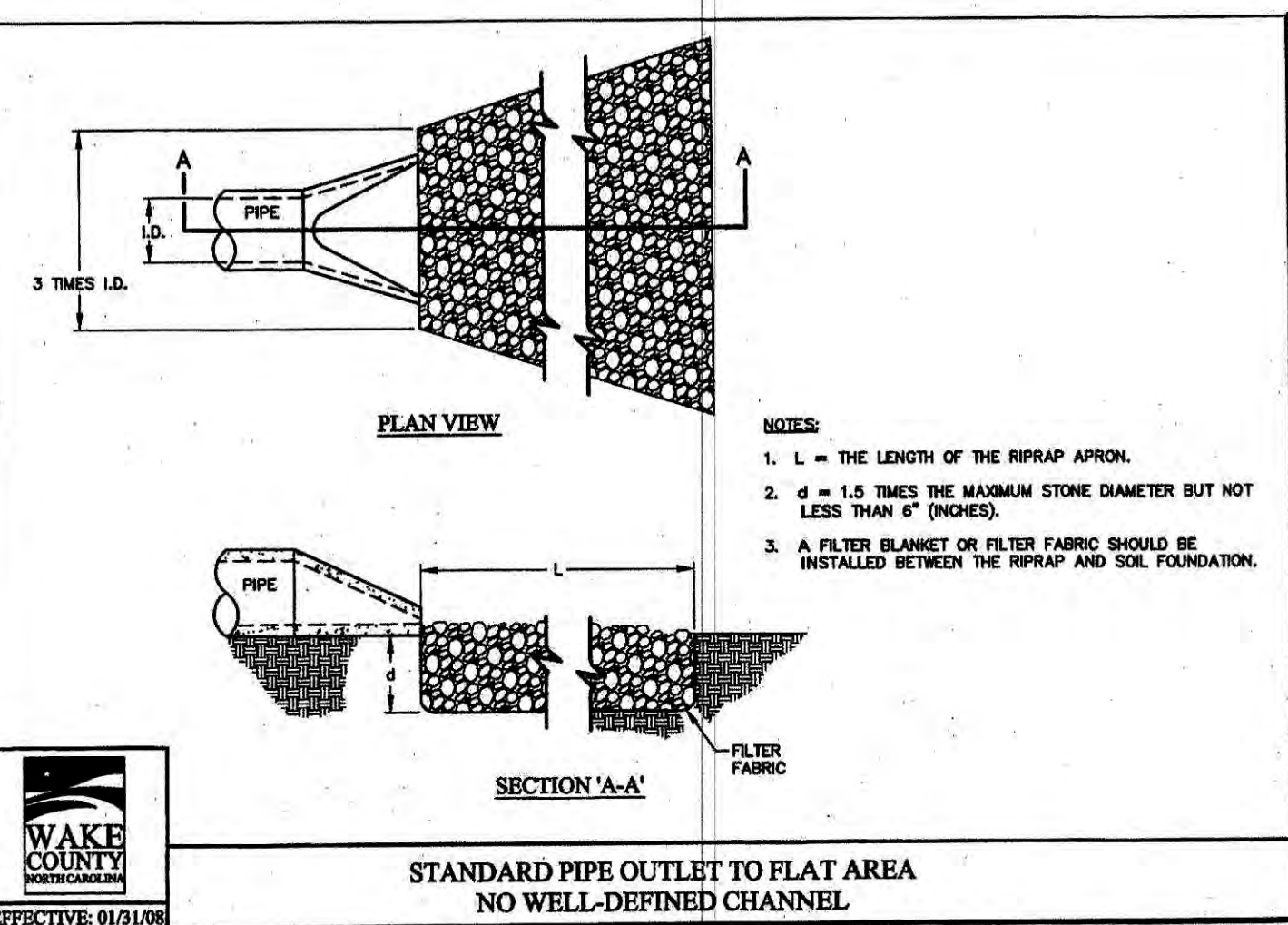
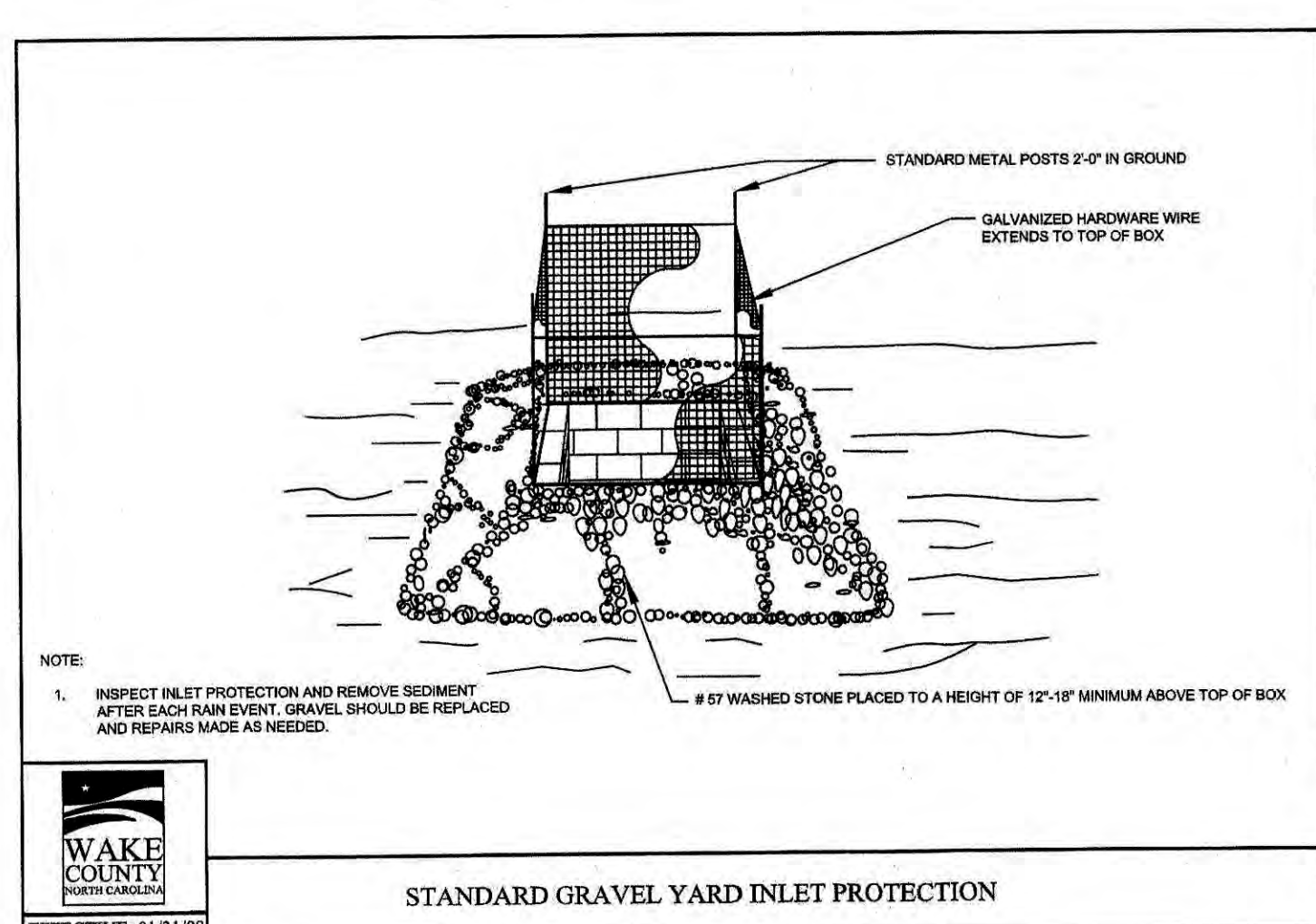
**ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.**

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/16/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/9/2020  
 Administrator

**SITE PERMITTING APPROVAL**  
 Water and Sewer Permits (if applicable)  
 The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # S-4722.  
 The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # S-4722.  
 The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # S-4722(XP).  
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION  
 Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by the approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be added once issued. Any modification to this approval once issued will invalidate this approval.  
 City of Raleigh Development Approval  
 Raleigh Water Review Officer



Printed By: Mera, Chance - Sheet: S-1-PARKSTONE VILLAGE - LAYOUT: C9.0 EROSION CONTROL DETAILS August 21, 2020 05:24:39pm K:\REAL\_DEV\017254007\_parkstone phase 2\planning phase\15 conf files\plan sheets\C9.0 EROSION CONTROL DETAILS.dwg  
 This document, together with the contracts and design transactions herein, is an instrument of service, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Review of and approval of this document by any other party is unauthorized and constitutes an assumption of liability by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



**EROSION AND SEDIMENT CONTROL**

APPROVED PLAN  
DATE: 10/13/2020  
PERMIT NO. S-  
Wake County Environmental Services  
Sedimentation & Erosion Control  
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

Town Certification: This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
By: *S. S. S. S.* Date: 10/13/2020  
Town Engineer  
These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
By: *M. S. S. S.* Date: 10/13/2020  
Administrator

**Kimley»Horn**

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421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
PHONE: 919-877-2000 FAX: 919-877-6777  
WWW.KIMLEY-HORN.COM

**EROSION CONTROL DETAILS**

PARKSTONE VILLAGE  
PREPARED FOR  
KNIGHTDALE DEVELOPMENT  
OWNERSHIP, LLC.

NORTH CAROLINA

NO. DATE

4 REVISED PER TOWN COMMENTS 07-31-20 JCB  
3 TOWNHOME CONSTRUCTION DWG.'S 06-22-20 WHH  
2 OWNER UPDATES 03-19-20 WHH  
1 TOWN OF KNIGHTDALE COMMENTS 12-05-19 WHH

KHA PROJECT 017254007  
DATE 11/08/2019  
SCALE AS SHOWN  
DESIGNED BY JCB  
DRAWN BY JCB  
CHECKED BY COB

SHEET NUMBER  
**C9.0**







Plotted By: Myers, Chonae Sheet: Sst: PARKSTONE VILLAGE Layout: C9.2 EROSION CONTROL DETAILS August 21, 2020 05:25:16pm K:\RAL\LOEVA\0725-0007\proj\erocn\phase 2\drawing\phase 2\erocn\erocn details.dwg

Table with 4 columns: No., REVISIONS, COMMENTS, DATE. Includes revision 4 for 'REVISED PER TOWN COMMENTS' and revision 3 for 'TOWNHOME CONSTRUCTION DWG.'.

© 2019 KIMLEY-HORN AND ASSOCIATES, INC. 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601 PHONE: 919-677-2000 FAX: 919-677-2050 WWW.KIMLEY-HORN.COM

SECTION A: SELF-INSPECTION Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection.

Table with 3 columns: Frequency, Inspection Details, Documentation Requirements. Includes items for rain gauge, E&S measures, stormwater discharge, perimeter of site, and ground stabilization measures.

SECTION B: RECORDKEEPING 1. E&S Plan Documentation The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit.

Table with 3 columns: Item to Document, Documentation Requirements, Reporting Timeframes. Includes items for E&S plan, ground cover, maintenance and repair, and corrective actions.

SECTION C: REPORTING 1. Occurrences That Must Be Reported Permitted shall report the following occurrences: (a) Visible sediment deposition in a stream or wetland.

Table with 3 columns: Occurrence, Reporting Timeframes (After Discovery) and Other Requirements, Reporting Timeframes and Other Requirements. Includes items for visible sediment, oil spills, and hazardous substances.

SECTION D: GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NC001 CONSTRUCTION GENERAL PERMIT

Table with 3 columns: Site Area Description, Required Ground Stabilization Timeframes, Timeframe variations. Includes rows for perimeter ditches, high quality water, slopes, and areas with slopes flatter than 4:1.

EQUIPMENT AND VEHICLE MAINTENANCE 1. Maintain vehicles and equipment to prevent discharge of fluids. 2. Provide drip pans under any stored equipment.

UTLITER, BUILDING MATERIAL AND LAND CLEARING WASTE 1. Never bury or burn waste. Place litter and debris in approved waste containers. 2. Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.

CONCRETE WASHOUTS 1. Do not discharge concrete or cement slurry from the site. 2. Dispose of, or recycle, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.

PAINT AND OTHER LIQUID WASTE 1. Do not dump paint and other liquid waste into storm drains, streams or wetlands. 2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.

PORTABLE TOILETS 1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.

EARTHEN STOCKPILE MANAGEMENT 1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.

HAZARDOUS AND TOXIC WASTE 1. Create designated hazardous waste collection area on-site. 2. Place hazardous waste containers under cover or in secondary containment. 3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

APPROVED PLAN DATE PERMIT NO. S- Wake County Environmental Services Sedimentation & Erosion Control 919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

Project information for PARKSTONE VILLAGE, KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC. Includes sheet number C9.2, project location, and contact information for Kimley-Horn.

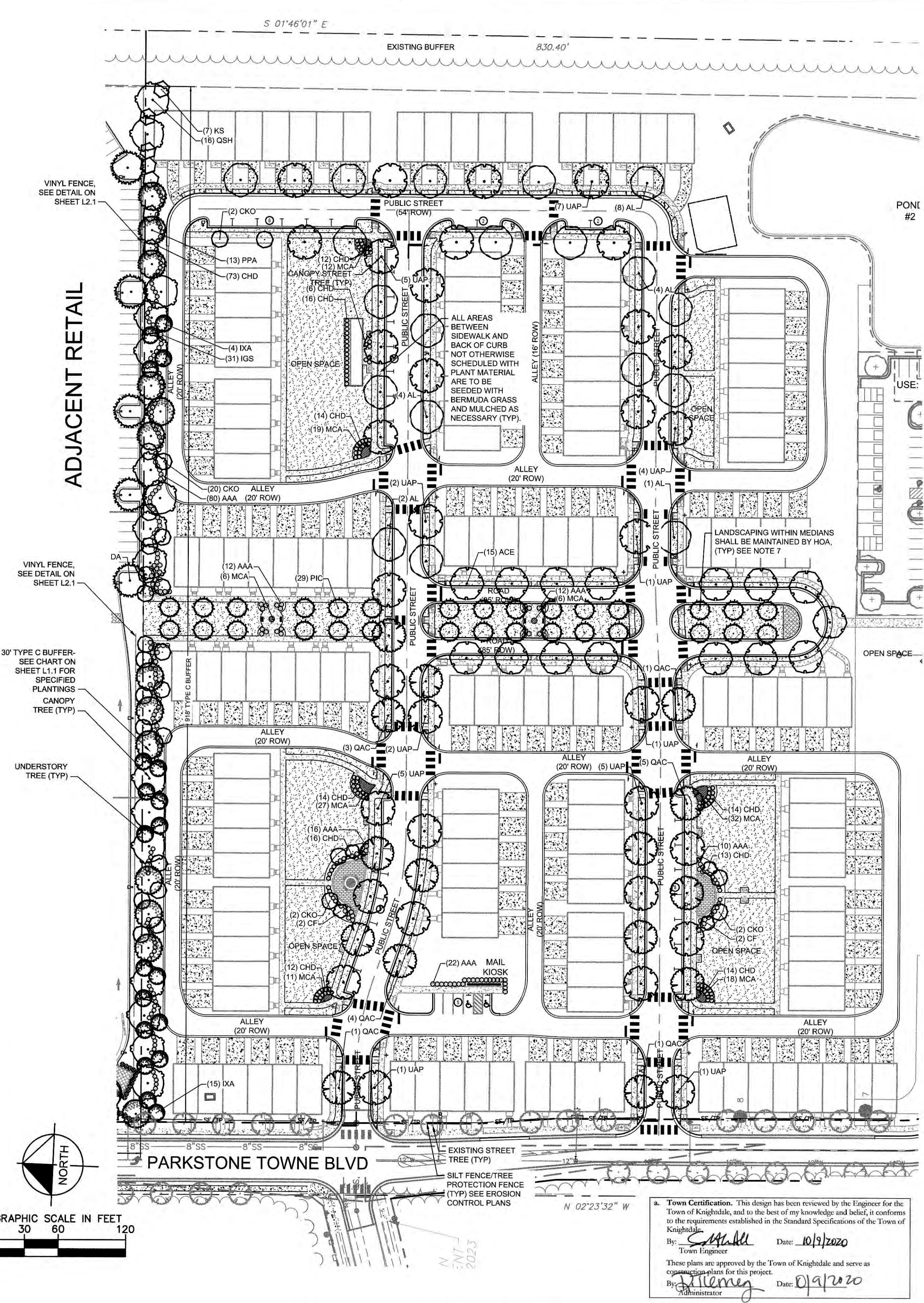


Rotted By: C. Brian, Vol. Sheet: 5 of 10, Parkstone Village - Layout L1.0 - Landscape Plan - September 24, 2020 03:36:21pm  
 K:\V\AL-DEV\017254007 - Parkstone Phase 2\Planning phase 2\Planning phase 2\Layout L1.0 - Landscape Plan.dwg  
 This document together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Review or use of any portion of this document without the written authorization and association of Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

### PLANT SCHEDULE TOWNHOME

CANOPY TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	REMARKS
	AL	19	Acer saccharum 'Legacy'	Legacy Sugar Maple	B&B	2"Cal	12'-14' HT.	
	PPA	12	Pinus palustris	Longleaf Pine	B&B	2"Cal	12'-14' HT.	
	QAC	15	Quercus acutissima	Sawtooth Oak	B&B	2"Cal	12'-14' HT.	
	QSH	16	Quercus shumardii	Shumard Red Oak	B&B	2"Cal	12'-14' HT.	
	UAP	34	Ulmus americana 'Princeton'	American Elm	B&B	2"Cal	12'-14' HT.	
UNDERSTORY TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	REMARKS
	ACE	15	Acer buergerianum	Trident Maple	B&B	1.25"Cal	10'-12' HT.	
	CF	4	Cercis canadensis 'Forest Pansy' TM	Forest Pansy Redbud	B&B	1.25"Cal	10'-12' HT.	
	CKO	21	Cornus kousa	Kousa Dogwood	B&B	1.25"Cal	10'-12' HT.	
	IXA	16	Ilex x attenuata 'Savannah'	Savannah Holly	B&B	1.25"Cal	10'-12' HT.	
	KS	7	Koelreuteria paniculata 'September'	Golden Rain Tree	B&B	1.25"Cal	10'-12' HT.	
	PIC	29	Prunus incisa x campanulata	Okame Flowering Cherry	B&B	1.25"Cal	10'-12' HT.	
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT	SPACING	REMARKS
	AAA	152	Azalea x 'Autumn Angel'	Autumn Angel Azalea	Cont.	18" MIN.	48" o.c.	
	CHD	204	Cephalotaxus harringtonia 'Duke Gardens'	Duke Gardens Plum Yew	Cont.	24" MIN.	48" o.c.	
	IGS	31	Ilex glabra 'Shamrock'	Inkberry	Cont.	18" MIN.	48" o.c.	
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	REMARKS	
	CYN	72,831 sf	Cynodon dactylon	Bermuda Grass	Seed/Sod			
	MCA	131	Muhlenbergia capillaris	Pink Muhly	1 gal	24" o.c.		

- LANDSCAPE PLAN NOTES:**
- ALL TREES PER TOWN OF KNIGHTDALE APPROVED CANOPY/UNDERSTORY TREE LIST.
  - ALL ABOVE GROUND UTILITIES MUST BE SCREENED IN ACCORDANCE WITH UDO CHAPTER 8.7.
  - ALL LANDSCAPING SHALL BE INSTALLED IN ACCORDANCE WITH THE SIZE REQUIREMENTS LISTED IN UDO SECTION 8.4.G.1.a.
  - PER UDO SECTION 8.6.A, AT LEAST 40% BUT NO MORE THAN 60% EACH OF CANOPY TREES AND UNDERSTORY TREES, AND LEAST 80% OF SHRUBS MUST BE EVERGREEN IN BUFFER YARDS. SEE LANDSCAPE CALCULATIONS TABLE ON SHEET L1.1 FOR MORE INFORMATION.
  - ALL AREAS BETWEEN SIDEWALK AND BACK OF CURB NOT OTHERWISE SCHEDULED WITH PLANT MATERIAL ARE TO BE PLANTED WITH BERMUDA SOD (TYP).
  - SOD QUANTITY IS APPROXIMATE AND SUBJECT TO CHANGE AS NECESSARY.
  - ALL LANDSCAPING AND HARDSCAPE FEATURES WITHIN MEDIANS ARE TO BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.
  - ALL EXISTING STREET TREES ARE TO BE PROTECTED IN PLACE. CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY TREES THAT ARE DAMAGED DURING CONSTRUCTION.



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

- EXISTING CONDITION NOTES:**
- EXISTING INFORMATION SHOWN FROM AN ALTA/ACSM LAND TITLE SURVEY PROVIDED BY CHANDLER LAND SURVEYING, INC., 83 ADAMS POINT DRIVE, GARNER, N.C. 27529, PHONE: 919-291-9163 AND DATED NOVEMBER 21, 2017 AND TAKEN FROM TOWN OF KNIGHTDALE APPROVED CONSTRUCTION PLANS FOR PARKSTONE AT KNIGHTDALE (KHA #017254001) DATED NOVEMBER 15, 2016 AND PROVIDED BY KIMLEY-HORN AND ASSOCIATES, 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601, PHONE: 919-677-2000.
  - THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA. IT IS LOCATED IN ZONE X BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720174400J DATED MAY 2, 2006.

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/9/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 09/19/2020  
 Administrator

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
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1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH

**Kimley»Horn**  
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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



KHA PROJECT	017254007
DATE	11/08/2019
SCALE	AS SHOWN
DESIGNED BY	VAO
DRAWN BY	VAO
CHECKED BY	RLB

## LANDSCAPE PLAN

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 NORTH CAROLINA  
 KNIGHTDALE



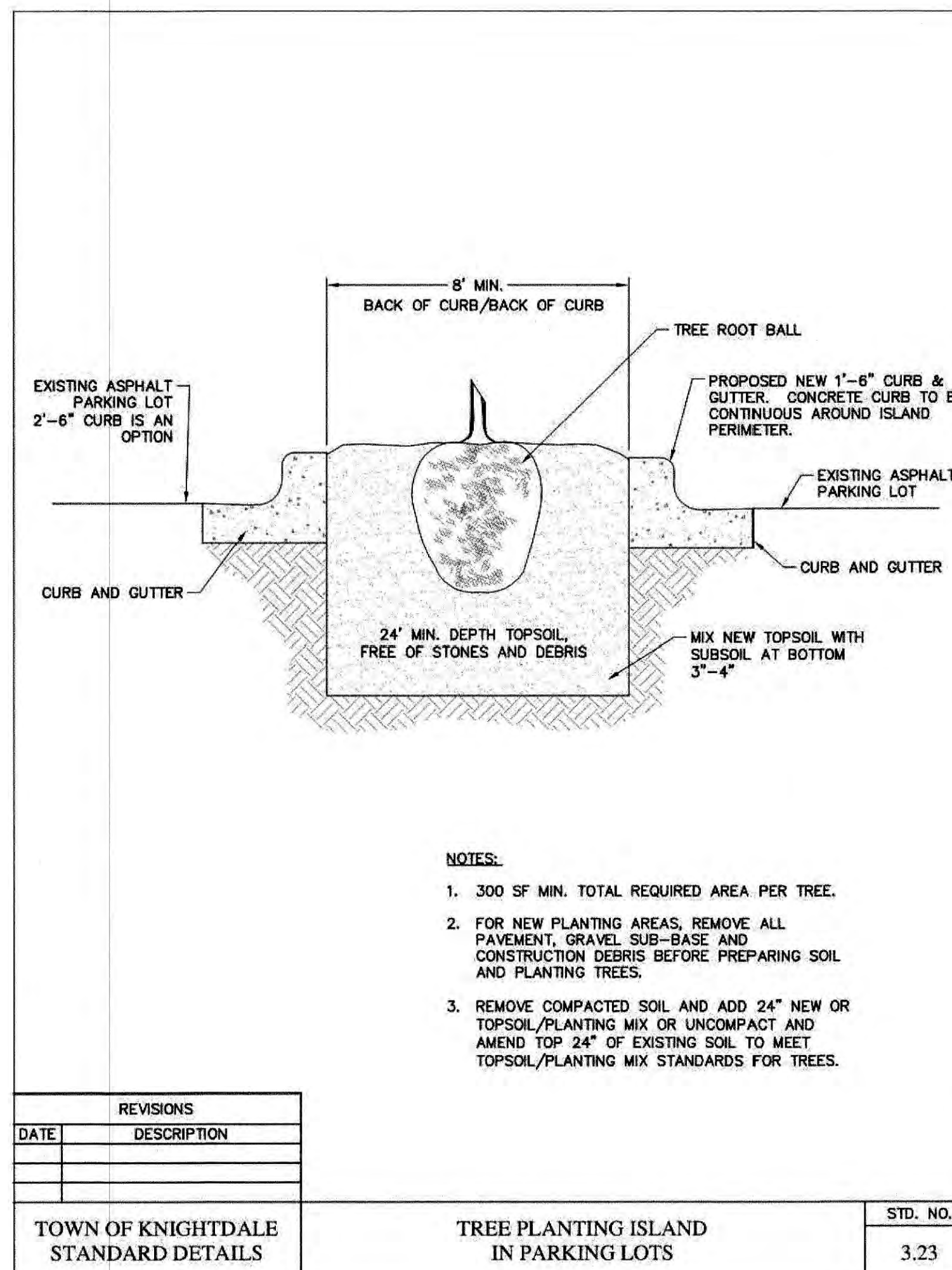
**GENERAL LANDSCAPE NOTES:**

- ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL, FREE OF PESTS AND DISEASE.
- ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED IN THE PLANT SCHEDULE.
- ALL TREES MUST HAVE A STRAIGHT TRUNK AND FULL HEADED AND MEET ALL REQUIREMENTS SPECIFIED.
- ALL PLANTS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE, DURING, AND AFTER INSTALLATION.
- ALL TREES MUST BE GUYED OR STAKED AS SHOWN IN THE DETAILS.
- CONTRACTOR SHALL TAG ALL TREES (AS DESIGNATED IN THE MASTER PLANT LIST) AT THE NURSERY FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO PURCHASE OF THESE MATERIALS.
- ALL SHADE TREES ADJACENT TO PEDESTRIAN WALKWAYS SHALL BE BRANCHED 6-7' PER ANSI Z60.1 STANDARDS FOR HEIGHT OF BRANCHING - STREET TREES. ALL SHADE TREES LOCATED WITHIN VEHICLE SIGHT TRIANGLES SHALL BE BRANCHED MIN. 6' (MEASURED FROM ADJACENT PROJECTED CURB LINE ELEVATION) PER ANSI Z60.1 STANDARDS FOR HEIGHT OF BRANCHING - STREET TREES.
- ALL PLANTING BEDS AND TREE RINGS MUST BE COMPLETELY MULCHED AS SPECIFIED.
- THE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR BEGINNING ON THE DATE OF SUBSTANTIAL COMPLETION. THE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS BEFORE OR AT THE END OF THE GUARANTEE PERIOD.
- STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY STOCK" REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.
- LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF UTILITY LINES AND ADJACENT TO THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING TREES AND SHRUBS THAT WILL MEET BOTH MINIMUM SIZE AND SPACING FOR TREE AND ZONING ORDINANCE COMPLIANCE. FAILURE TO INSTALL PLANT MATERIAL PER THIS PLAN WILL JEOPARDIZE ISSUANCE OF FINAL CERTIFICATE OF OCCUPANCY. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING INSPECTIONS OF PLANT MATERIAL.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES & ORDINANCES REGARDING LANDSCAPING. GENERAL CONTRACTOR IS TO CLEAN THE ENTIRE SITE OF ALL CONSTRUCTION DEBRIS AND TO RAKE ENTIRE SITE.
- WHERE EXISTING OR PROPOSED VEGETATION FAILS TO FUNCTION ADEQUATELY AS REQUIRED, THE TOWN OF KNIGHTDALE SITE INSPECTOR RESERVES THE RIGHT TO REQUIRE SUPPLEMENTAL PLANTINGS IN ADDITION TO THOSE SHOWN ON THE LANDSCAPE PLAN BASED ON ACTUAL FIELD CONDITIONS.
- NO TREE SHALL BE LOCATED WITHIN FIVE FEET OF A SIDEWALK, OR WITHIN TEN FEET OF A LIGHTING LOCATION.

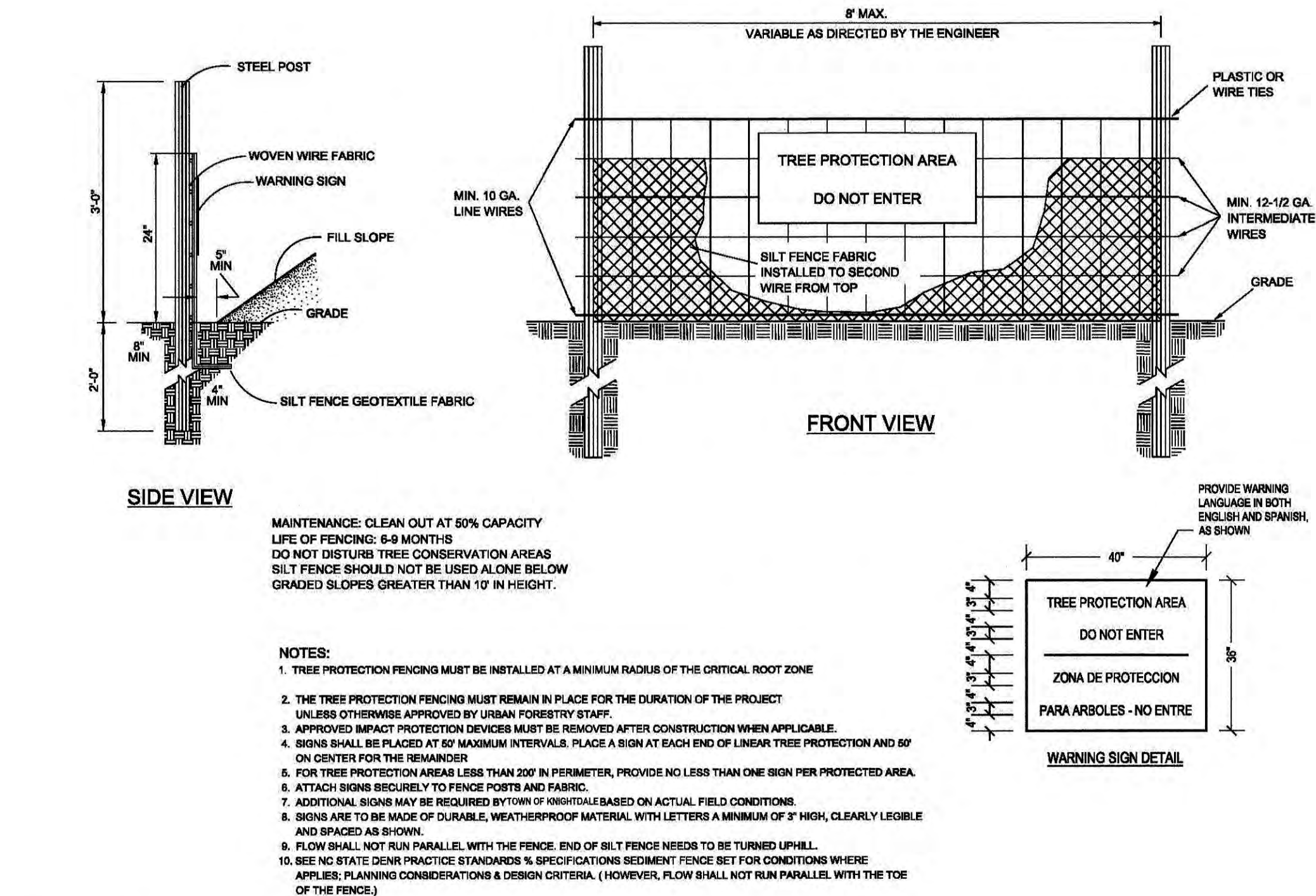
**LANDSCAPE REQUIREMENTS & CALCULATIONS**

Knightsdale, NC Unified Development Ordinance

AREA TO BE LANDSCAPED	LOCATION	CODE REQUIREMENT	SQUARE FEET/ LINEAR FEET	TOTAL QUANTITY REQUIRED	TOTAL QUANTITY PROVIDED	EVERGREEN PERCENTAGE	CODE SECTION
TYPE A BUFFER	VILLAGE PARK DR	10' WIDE MINIMUM. FOR EVERY 100 LINEAR FEET, THERE SHALL BE AT LEAST THREE (3) CANOPY TREES, TWO (2) UNDERSTORY TREES AND 20 SHRUBS.	887 LF	887 / 100 LF = 8.87 X 3 = 27 CANOPY TREES 8.87 X 2 = 18 UNDERSTORY TREES 8.87 X 20 = 178 SHRUBS	27 CANOPY TREES 18 UNDERSTORY TREES 178 SHRUBS	11 EVERGREEN CANOPY TREES (40%) 8 EVERGREEN UNDERSTORY TREES (44%) 178 EVERGREEN SHRUBS (100%)	8.6 (B (1))
	PARKSTONE TOWNE BLVD		293 LF	293 / 100 LF = 2.93 X 3 = 9 CANOPY TREES 2.93 X 2 = 6 UNDERSTORY TREES 2.93 X 20 = 59 SHRUBS	9 CANOPY TREES 6 UNDERSTORY TREES 59 SHRUBS	4 EVERGREEN CANOPY TREES (44%) 3 EVERGREEN UNDERSTORY TREES (50%) 59 EVERGREEN SHRUBS (100%)	8.6 (B (1))
TYPE B BUFFER	HB TO NMX EASTERN BORDER	20' WIDE MINIMUM. FOR EVERY 100 LINEAR FEET, THERE SHALL BE AT LEAST THREE (3) CANOPY TREES, FIVE (5) UNDERSTORY TREES AND 20 SHRUBS.	192 LF	192 / 100 LF = 1.92 X 3 = 6 CANOPY TREES 1.92 X 2 = 4 UNDERSTORY TREES 1.92 X 20 = 39 SHRUBS	6 CANOPY TREES 10 UNDERSTORY TREES 39 SHRUBS	3 EVERGREEN CANOPY TREES (50%) 4 EVERGREEN UNDERSTORY TREES (40%) 39 EVERGREEN SHRUBS (100%)	8.6 (B (2))
TYPE C BUFFER	HB TO RMX TRANSITION	50' WIDE MINIMUM. FOR EVERY 100 LINEAR FEET, THERE SHALL BE AT LEAST THREE (3) CANOPY TREES, FIVE (5) UNDERSTORY TREES AND 20 SHRUBS.	918 LF	918 / 100 LF = 9.18 X 3 = 28 CANOPY TREES 9.18 X 2 = 18 UNDERSTORY TREES 9.18 X 20 = 184 SHRUBS	30' WIDE BUFFER 6' OPAQUE FENCE 28 CANOPY TREES 46 UNDERSTORY TREES 184 SHRUBS	12 EVERGREEN CANOPY TREES (42%) 19 EVERGREEN UNDERSTORY TREES (41%) 184 EVERGREEN SHRUBS (100%)	8.6 (B (3))
STREET TREES	PUBLIC STREETS	CANOPY TREES INSTALLED A MINIMUM AVERAGE DISTANCE OF 40' O.C. IN A PLANTING STRIP A MINIMUM OF FIVE FEET IN WIDTH. STREET TREES SHALL BE PLACED AT LEAST 10 FEET FROM LIGHT POLES AND 12 FEET FROM ELECTRICAL TRANSFORMERS.	N/A	CANOPY TREES SPACED 40' O.C. AS NEEDED	AS REQUIRED	N/A	8.10.B
PARKING LOT	PARKING SPACES	NO PARKING SPACE SHALL BE MORE THAN 60 FEET FROM THE BASE OF A DECIDUOUS CANOPY TREE.	N/A	AS NEEDED	AS REQUIRED	N/A	8.8 (C)



**1** TREE PLANTING IN PARKING LOT ISLANDS  
L1.1 NOT TO SCALE SECTION



**2** PLANT PROTECTIVE FENCING  
L1.1 NOT TO SCALE DETAIL

Town Certification. This design has been reviewed by the Engineer for the Town of Knightsdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightsdale.

By: *[Signature]* Date: 10/19/2020  
Town Engineer

These plans are approved by the Town of Knightsdale and serve as construction plans for this project.

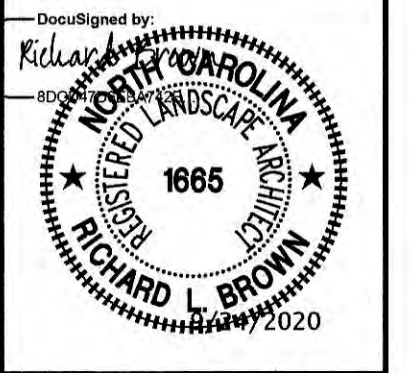
By: *[Signature]* Date: 10/19/2020  
Administrator

NO.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20 JCB	
4	REVISED PER TOWN COMMENTS	07-31-20 JCB	
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20 WWH	
2	OWNER UPDATES	03-19-20 WWH	
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19 WWH	

**Kimley»Horn**

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421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601  
PHONE: 919-677-2000 FAX: 919-677-2050  
WWW.KIMLEY-HORN.COM

#F-0102



KHA PROJECT	DATE	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
017254007	11/08/2019	AS SHOWN	RLB	VAC	RLB

**LANDSCAPE DETAILS**

**PARKSTONE VILLAGE**  
PREPARED FOR  
**KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC.**

NORTH CAROLINA  
KNIGHTDALE

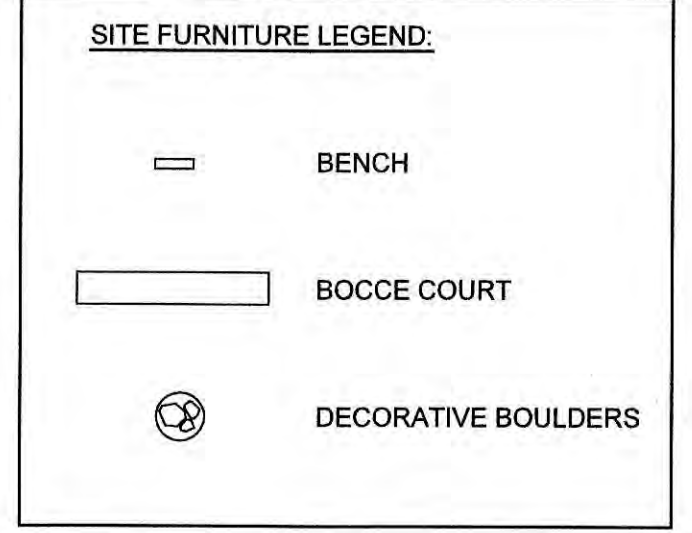
SHEET NUMBER  
**L1.1**







Plotted By: OBrien, Val Sheet: Sst: PARKSTONE VILLAGE Layout: L2.0 OPEN SPACE PLAN September 24, 2020 03:26:45pm K:\REAL\DEV\17254007\_parkstone phase 2\planning phase 2\planing phase 15\_cod files\plan sheets\L2.0 OPEN SPACE PLAN.dwg  
 This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Results of and any other reliance on this document without written authorization and association by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

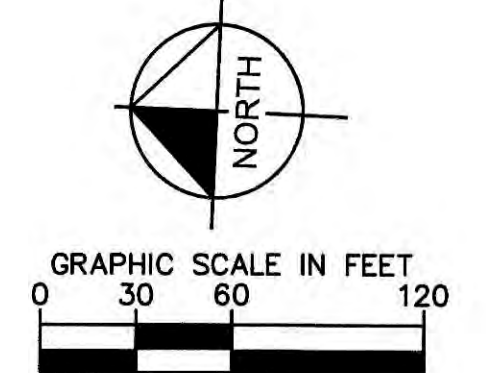
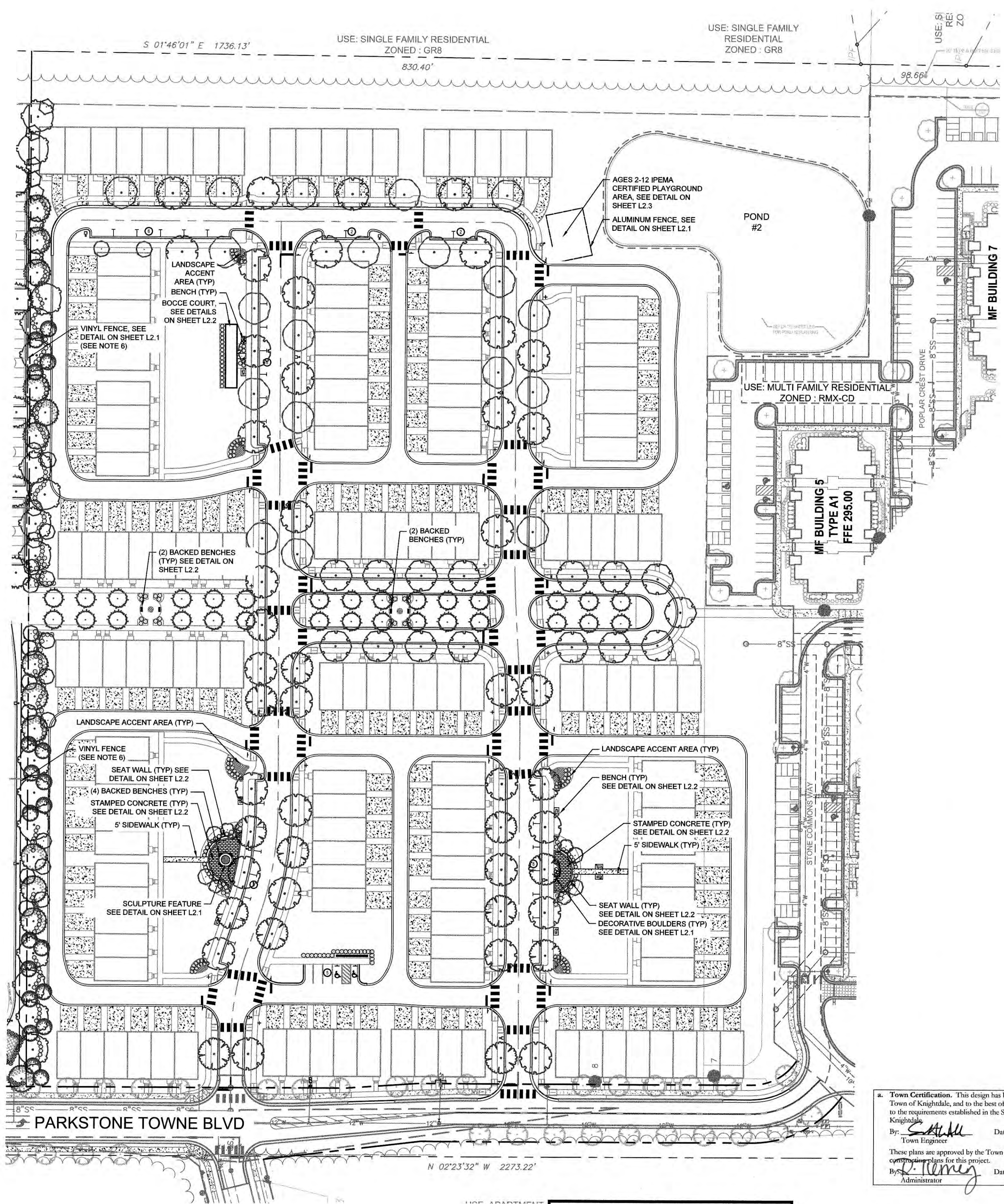


**RECREATIONAL OPEN SPACE CALCULATIONS:**

SITE AREA:	681,880 SF (15.65 ACRES)
MF UNITS	148 RESIDENTIAL UNITS
BEDROOMS	370 (ACTUAL)
OUTSIDE 1/2 MILE = 370 BR *580	214,600 SF
TOTAL REQUIRED OPEN SPACE	214,600 SF
REQUIRED ACTIVE OPEN SPACE (50% MIN)	107,300 SF
TOTAL PROVIDED ACTIVE OPEN SPACE:	89,375 SF (42% OF REQUIRED)
REQUIRED PASSIVE OPEN SPACE (UPTO 50%)	107,300 SF
TOTAL PROVIDED PASSIVE OPEN SPACE:	116,450 SF (54% OF REQUIRED)
TOTAL PROVIDED OPEN SPACE:	205,825 SF (96% OF REQUIRED)

- KEY OPEN SPACE NOTES:**
- THE RECREATIONAL AND ACTIVE OPEN SPACE AREAS, LOCATIONS AND SIZES SHOWN ON THIS PLAN ARE PRELIMINARY IN NATURE AND ARE SUBJECT TO CHANGE PENDING THE FINAL SITE PLAN LAYOUT FOR THE TOWN HOME DEVELOPMENT.
  - THE ACTIVE OPEN SPACE AREAS MAY INCLUDE PROGRAM ELEMENTS SUCH AS PLAY AREA(S), PICNIC AREA(S), AND FLEX LAWN SPACE.
  - THE MAXIMUM AVERAGE GRADIENT WITHIN THE ACTIVE OPEN SPACE AREAS WILL NOT EXCEED 7.5%.
  - OPEN SPACE CALCULATIONS AND PERCENTAGES WILL COMPLY WITH THE APPROVED MASTER PLAN, ALTHOUGH EXACT CONFIGURATIONS, LOCATION AND SIZE OF EACH INDIVIDUAL AREA WILL BE CONFIRMED AND APPROVED IN CONJUNCTION WITH THE FINAL SITE PLAN APPLICATION.
  - ALL PATHS DELINEATED WITHIN ACTIVE OPEN SPACE AREAS ARE TO BE DECOMPOSED GRANITE OR SIMILAR MATERIAL.
  - VINYL FENCE IS INTENDED TO SCREEN THE DRIVEWAYS OF ALLEY LOADED TOWNHOMES WITH DRIVEWAYS FACING THE FENCE. THE FENCE CAN BE CONSTRUCTED IN PHASES WITH EACH FENCE SECTION COMPLETE PRIOR TO THE FIRST CERTIFICATE OF OCCUPANCY FOR THAT GROUPING OF AFFECTED TOWNHOMES.

ADJACENT RETAIL



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CORPLUD AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

- EXISTING CONDITION NOTES:**
- EXISTING INFORMATION SHOWN FROM AN ALTA/ACSM LAND TITLE SURVEY PROVIDED BY CHANDLER LAND SURVEYING, INC., 83 ADAMS POINT DRIVE, GARNER, N.C. 27529, PHONE: 919-291-9183 AND DATED NOVEMBER 21, 2017 AND TAKEN FROM TOWN OF KNIGHTDALE APPROVED CONSTRUCTION PLANS FOR PARKSTONE AT KNIGHTDALE (KHA #017254001) DATED NOVEMBER 15, 2016 AND PROVIDED BY KIMLEY-HORN AND ASSOCIATES, 421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601, PHONE: 919-677-2000.
  - THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA. IT IS LOCATED IN ZONE X BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720174400J DATED MAY 2, 2006.

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: *[Signature]* Date: 10/19/2020  
 Town Engineer

These plans are approved by the Town of Knightdale and serve as certification for this project.

By: *[Signature]* Date: 10/19/2020  
 Administrator

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.

NORTH CAROLINA  
 KNIGHTDALE

**OPEN SPACE PLAN**

KHA PROJECT  
017254007

DATE  
11/08/2019

SCALE AS SHOWN

DESIGNED BY JCB

DRAWN BY JCB

CHECKED BY COB

**Kimley-Horn**

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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20	WWH
2	OWNER UPDATES	03-19-20	WWH
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19	WWH



Plotted By: OBrien, Jol. Sheet: Sct: PARKSTONE VILLAGE Layout: L2.1 OPEN SPACE DETAILS September 24, 2020 03:27:07pm K:\PAL\_LDE\017254007\_parkstone phase 2\Planning phase\15\_cod files\plansheets\L2.1 OPEN SPACE DETAILS.dwg



**ALUMINUM FENCE REQUIREMENTS**  
 STYLE: 2 RAIL  
 MATERIAL: ALUMINUM  
 HEIGHT: 4'  
 COLOR: BLACK  
 NOTE: OWNER TO APPROVE FENCE PRIOR TO ORDERING. FENCE FOOTING TO BE DESIGNED PER MANUFACTURER'S SPECIFICATIONS.

**1 ALUMINUM FENCE**  
 L2.1 NOT TO SCALE

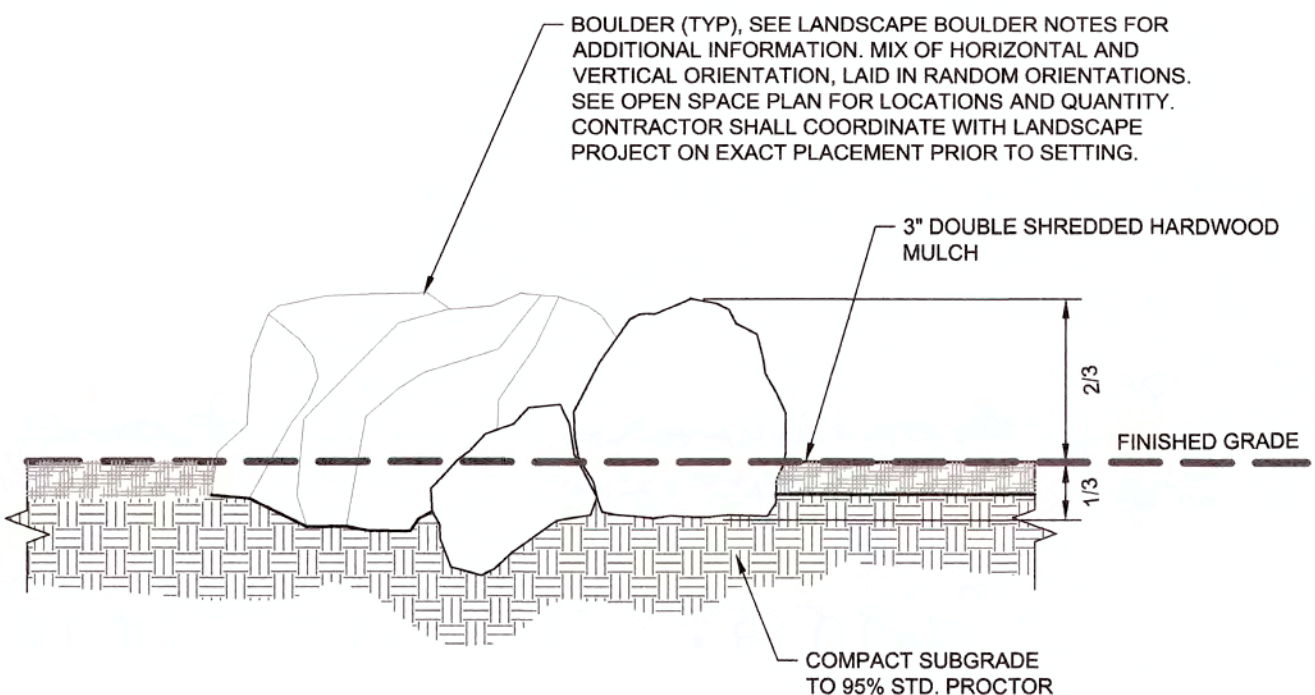


**VINYL FENCE REQUIREMENTS**  
 STYLE: STOCKADE, OPAQUE  
 MATERIAL: VINYL  
 HEIGHT: 6'  
 COLOR: WHITE  
 NOTE: OWNER TO APPROVE FENCE PRIOR TO ORDERING. FENCE FOOTING TO BE DESIGNED PER MANUFACTURER'S SPECIFICATIONS.

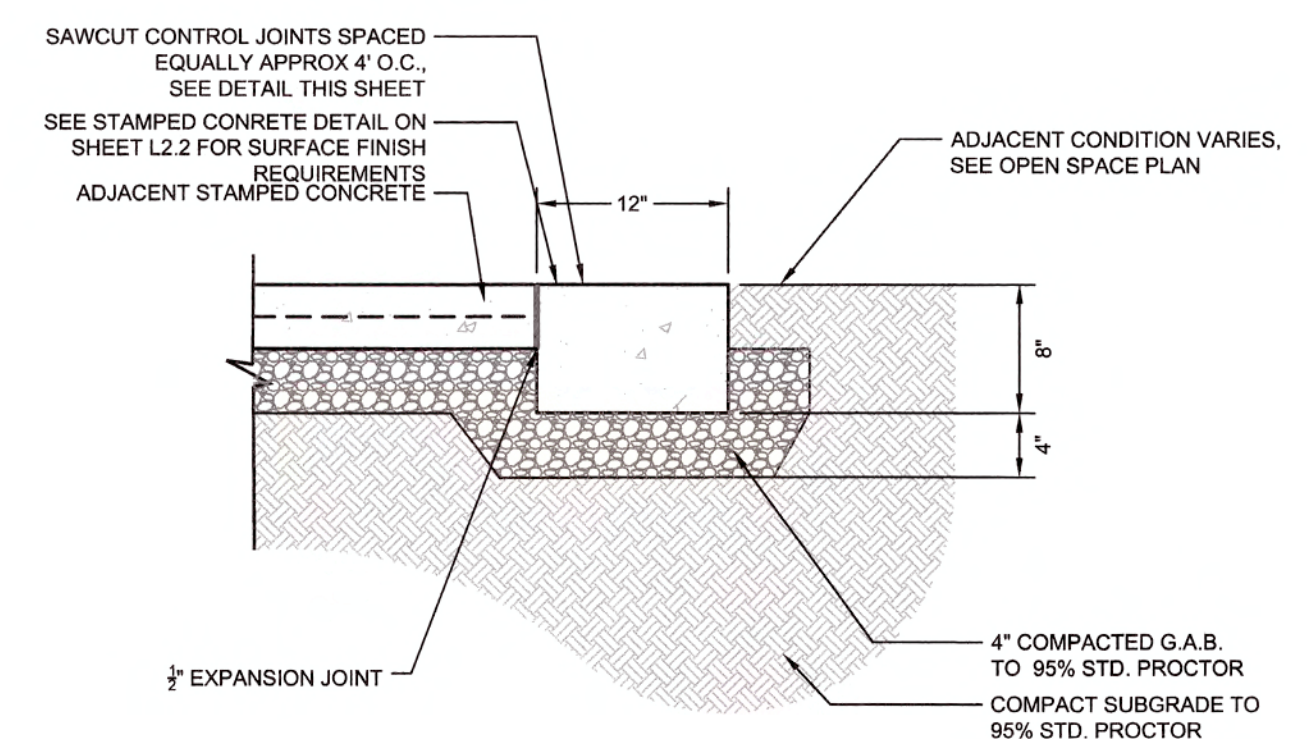
**2 SCREENING FENCE**  
 L2.1 NOT TO SCALE

**LANDSCAPE BOULDER PRODUCT INFO:**  
 TYPE: FIELDSTONE BOULDERS OR APPROVED EQUAL  
 SIZE: VARIETY OF SIZES, RANGING FROM LARGE: ~36"H x 36"W x 24"D  
 MEDIUM: ~30"H x 24"W x 24"D  
 SMALL: ~18"H x 24"W x 24"D

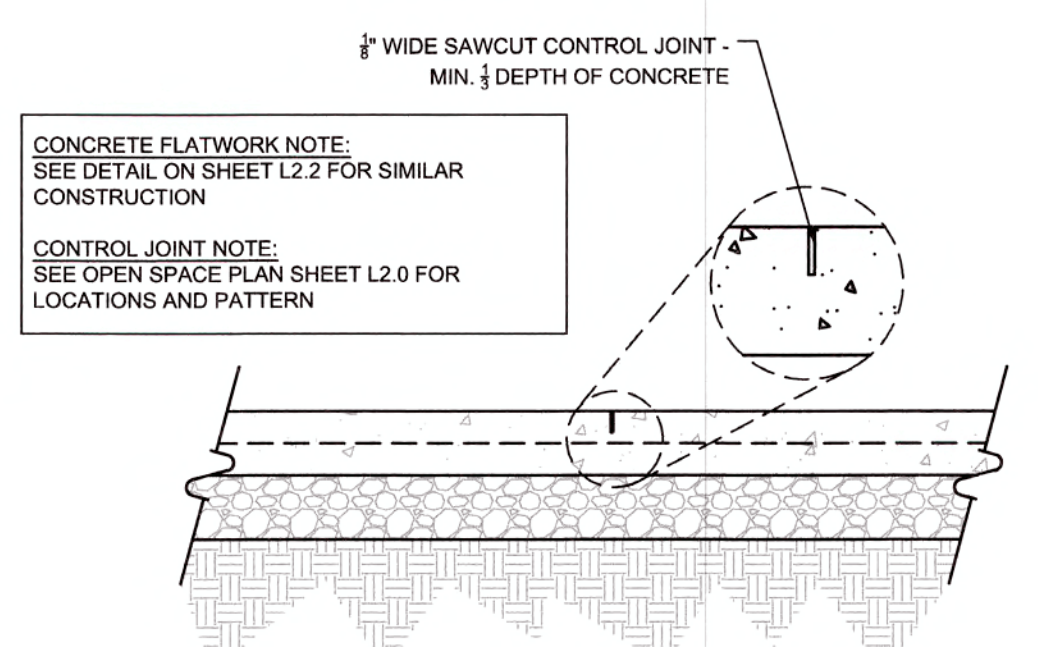
**LANDSCAPE BOULDER NOTES:**  
 1. CONTRACTOR TO SUBMIT SAMPLE (APPROX. 8" X 8" X 3") AND DIGITAL PHOTOGRAPHS OF ACTUAL BOULDERS TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO ORDERING AND INSTALLATION.  
 2. NO BLAST OR SHOT ROCK.  
 3. ALL STONE SHALL BE CLEANED PRIOR TO PLACEMENT.



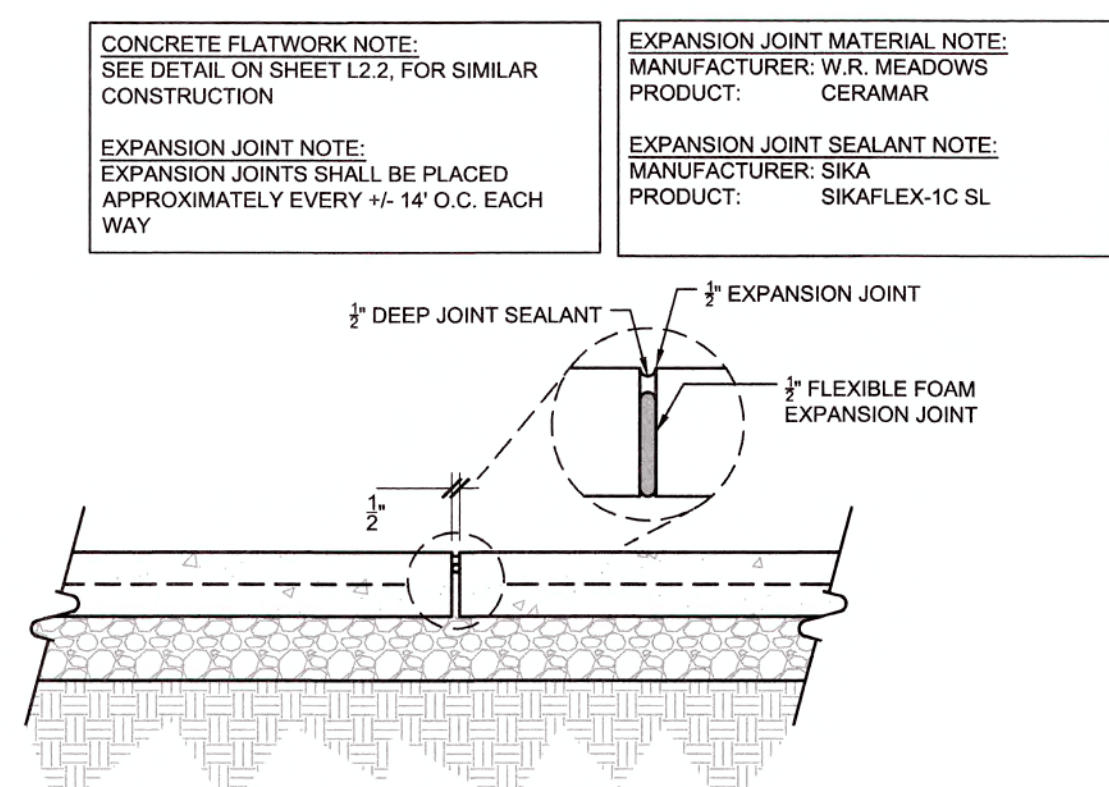
**3 DECORATIVE BOULDER DETAIL**  
 L2.1 SCALE: 1/2" = 1'-0"



**4 12" CONCRETE RIBBON CURB**  
 L2.1 SCALE: 1" = 1'-0"



**5 SAWCUT CONTROL JOINT**  
 L2.1 SCALE: 1" = 1'-0"



**6 EXPANSION JOINT**  
 L2.1 SCALE: 1" = 1'-0"

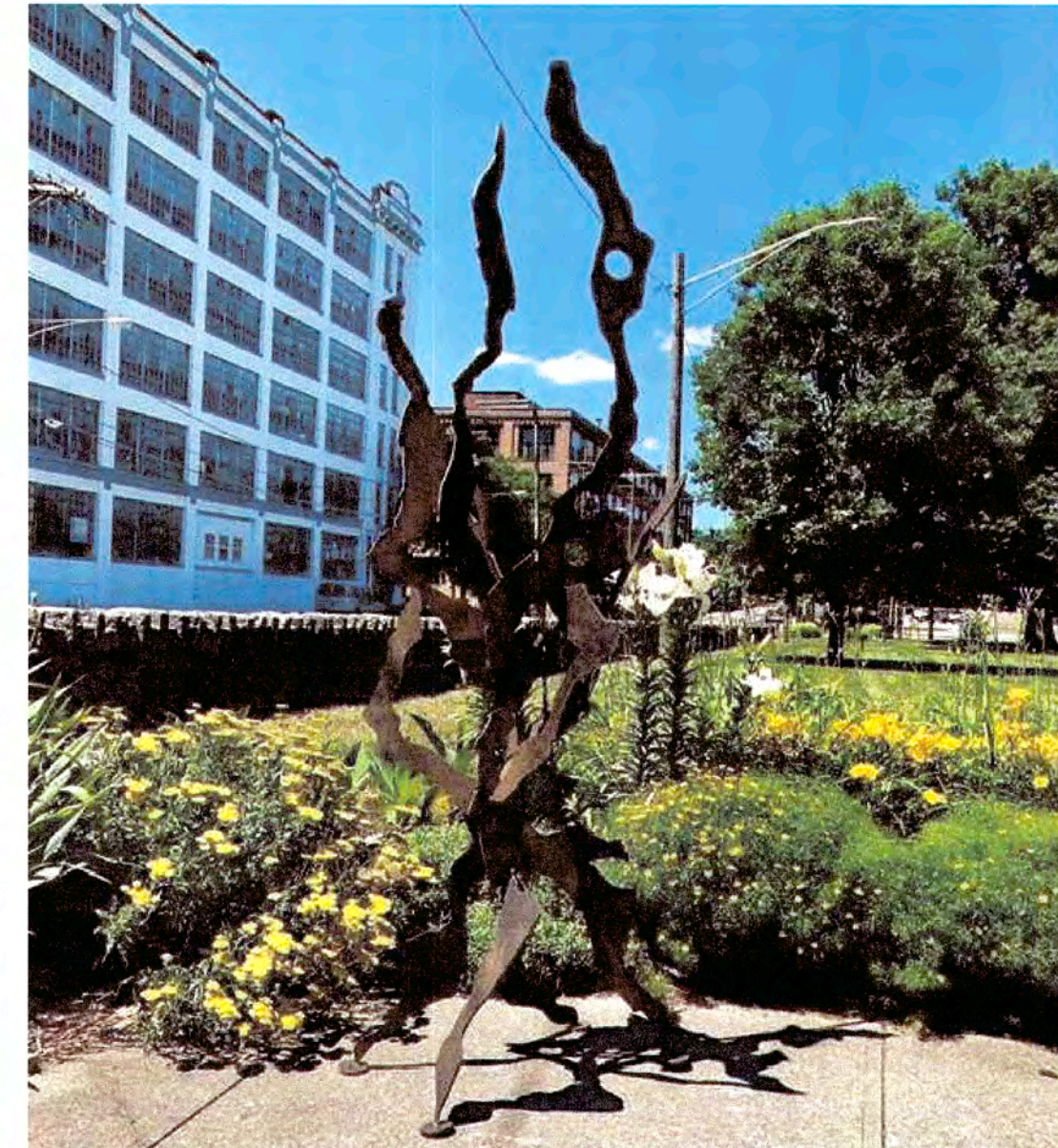


IMAGE IS FOR DESIGN INTENT ONLY

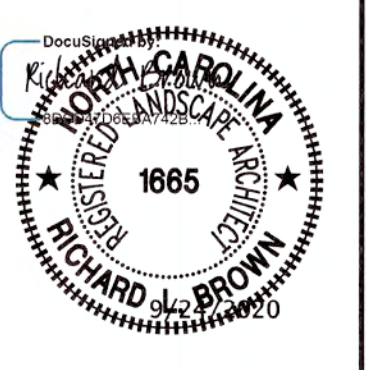
**SCULPTURE INFO**  
 MATERIAL: CORTEN STEEL  
 HEIGHT: APPROX. 8'  
 NOTES:  
 1. OWNER TO APPROVE SCULPTURE PRIOR TO ORDERING. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.  
 2. SCULPTURE TO BE INSTALLED ONTO A CONCRETE PEDESTAL. SEE PLAN FOR LOCATIONS. CONCRETE PEDESTAL TO BE DESIGNED UPON FINAL SCULPTURE SELECTION.

**7 SCULPTURE**  
 L2.1 NOT TO SCALE

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 09/24/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/14/2020  
 Administrator

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20 JCB	
4	REVISED PER TOWN COMMENTS	07-31-20 JCB	
3	TOWNHOME CONSTRUCTION DWG.'S	06-22-20 WWH	
2	OWNER UPDATES	03-19-20 WWH	
1	TOWN OF KNIGHTDALE COMMENTS	12-05-19 WWH	

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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-0102



KHA PROJECT	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
017254007	11/06/2019	AS SHOWN	JCB	COB

**OPEN SPACE DETAILS**

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 KNIGHTDALE NORTH CAROLINA



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### Creekside Bench

Configure: 4 ft. Cedar Slats

Your SKU: **PB 4CEDCRK**

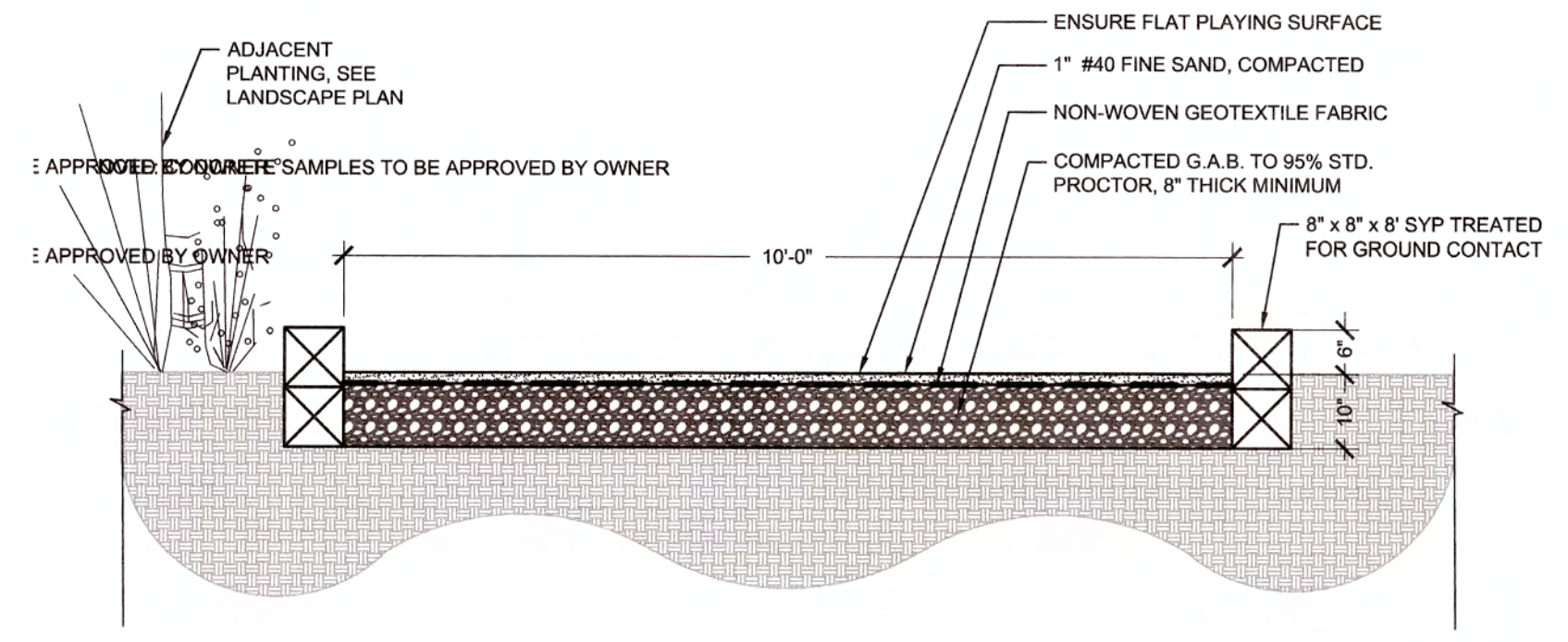
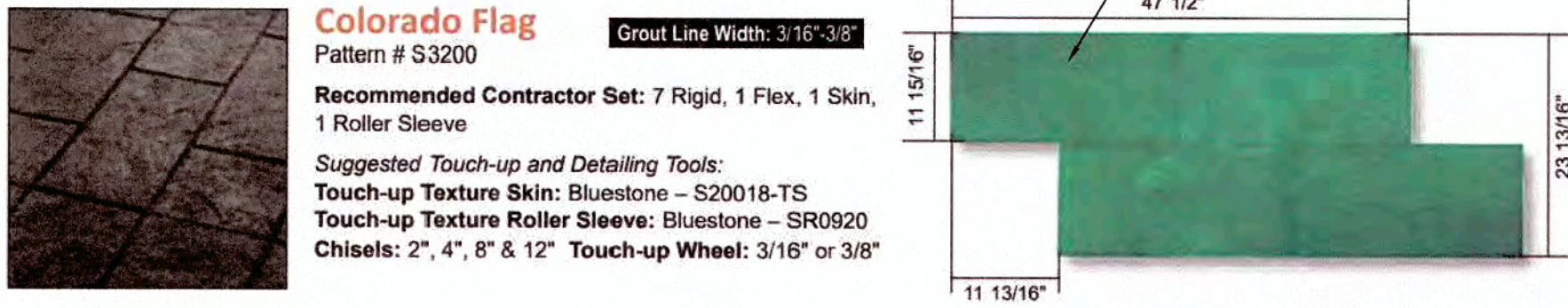
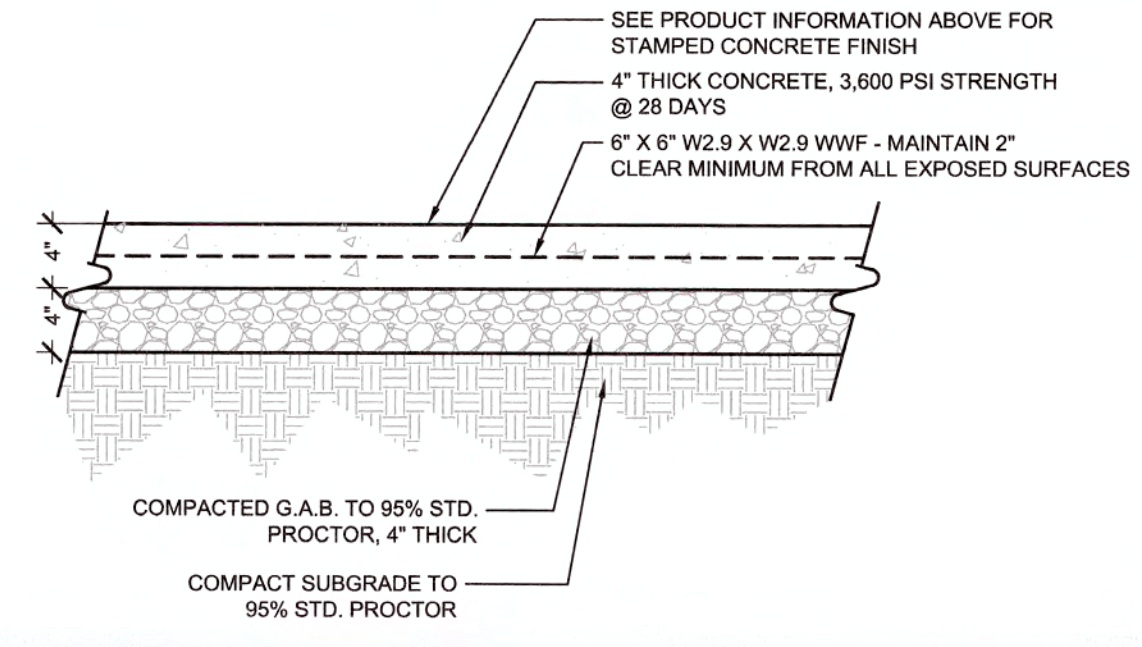
**PRODUCT INFORMATION**  
 MANUFACTURER: DISCOUNT PLAYGROUND SUPPLY  
 MODEL: 4' CREEKSIDE RECYCLED PLASTIC PARK BENCH  
 LENGTH: 4'  
 SLAT COLOR: CEDAR  
 MOUNT: SURFACE MOUNT

**CONCRETE COLOR HARDENER:**  
 MANUFACTURER: SCOFIELD / SIKA CORPORATION, 4155 SOCFIELD ROAD, DOUGLASVILLE, GA 30134, (800) 900-9900, WWW.SCOFIELD.COM  
 PRODUCT: LITHOCHROME COLOR HARDENER  
 COLOR: PLATINUM GRAY  
 NOTE: CONCRETE SAMPLES TO BE APPROVED BY OWNER

**CONCRETE SEALER:**  
 MANUFACTURER: SCOFIELD / SIKA CORPORATION, 4155 SOCFIELD ROAD, DOUGLASVILLE, GA 30134, (800) 900-9900, WWW.SCOFIELD.COM  
 PRODUCT: SCOFIELD SELECTSEAL PLUS  
 TYPE: WATER BASED, SEMI-GLOSS  
 NOTE: CONCRETE SAMPLES TO BE APPROVED BY OWNER

**CONCRETE RELEASE COLOR:**  
 MANUFACTURER: SCOFIELD / SIKA CORPORATION, 4155 SOCFIELD ROAD, DOUGLASVILLE, GA 30134, (800) 900-9900, WWW.SCOFIELD.COM  
 PRODUCT: LITHOCHROME ANTIQUING RELEASE PRO  
 COLOR: CLASSIC GRAY  
 NOTE: CONCRETE SAMPLES TO BE APPROVED BY OWNER

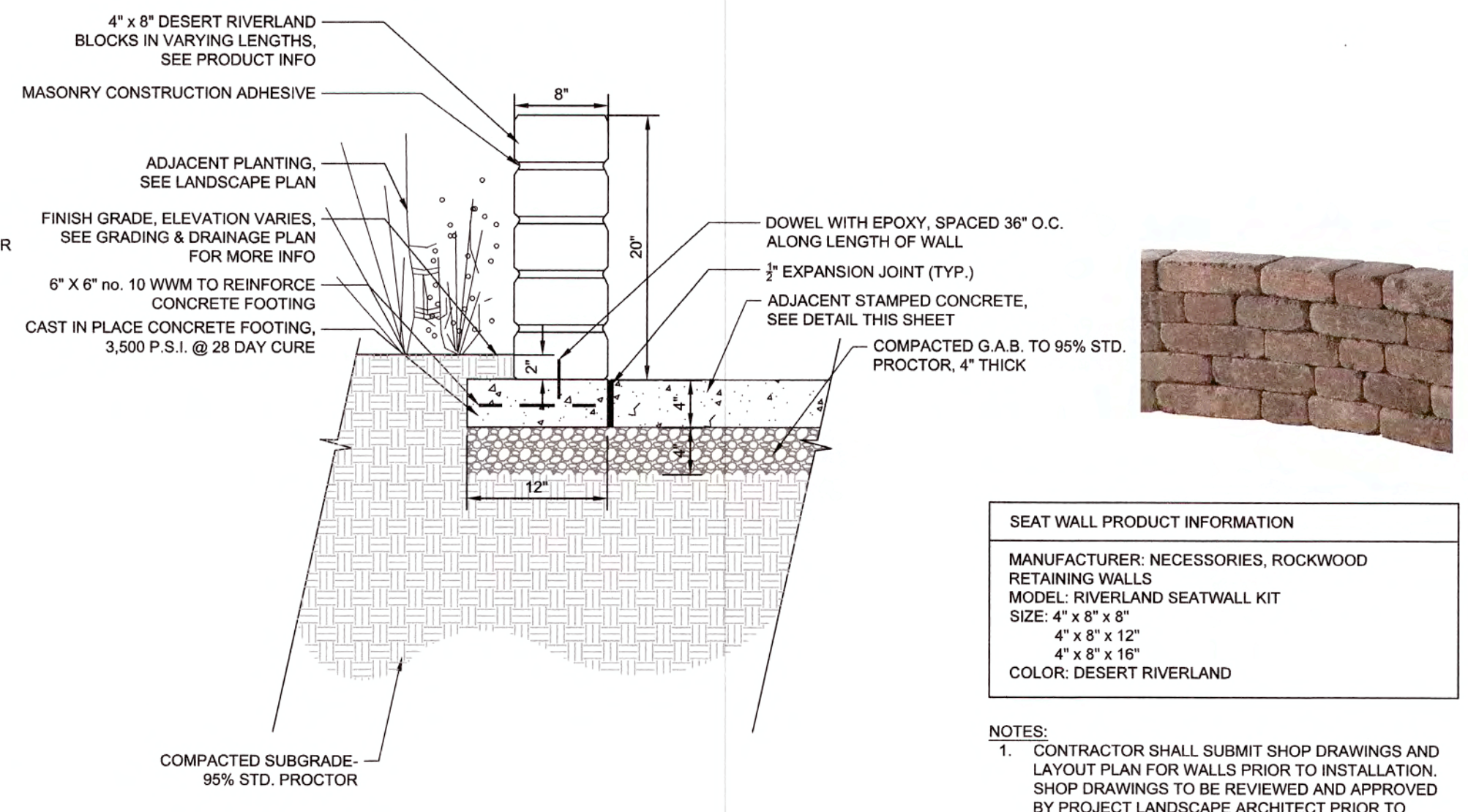
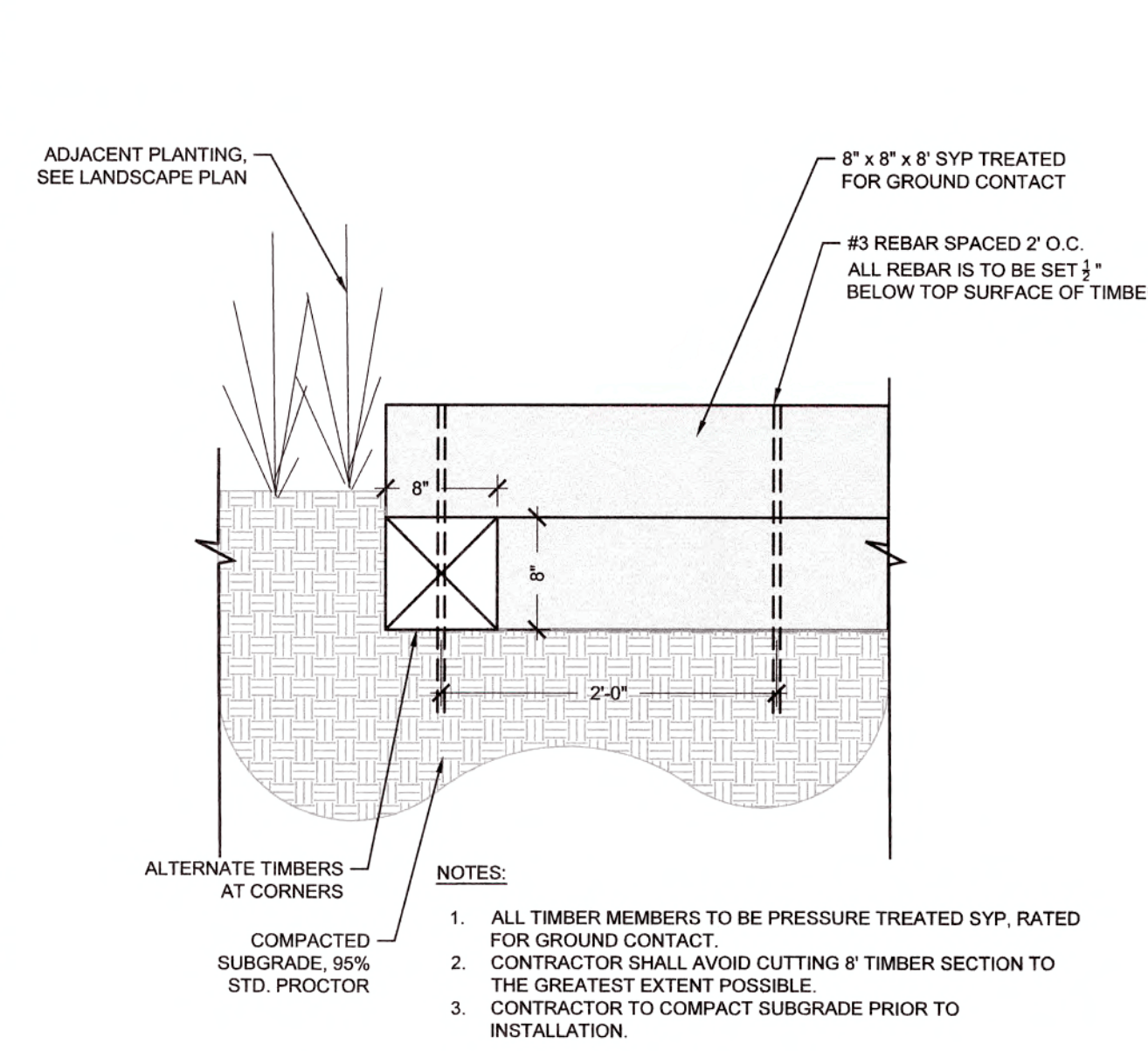
**CONCRETE STAMP PATTERN:**  
 MANUFACTURER: SCOFIELD / SIKA CORPORATION, 4155 SOCFIELD ROAD, DOUGLASVILLE, GA 30134, (800) 900-9900, WWW.SCOFIELD.COM  
 PRODUCT: LITHOTEX PAVECRAFTERS CONCRETE PATTERNS  
 PATTERN: COLORADO FLAG #S3200  
 SEE OPEN SPACE PLAN FOR PATTERN LOCATIONS AND ORIENTATION  
 NOTE: CONCRETE SAMPLES TO BE APPROVED BY OWNER



**1 BENCH**  
 L2.2 NOT TO SCALE

**2 STAMPED CONCRETE**  
 L2.2 SCALE: 1" = 1'-0" SECTION

**3 BOCCO COURT**  
 L2.2 SCALE: 1" = 1'-0" SECTION



**4 BOCCO COURT EDGING**  
 L2.2 SCALE: 1" = 1'-0" SECTION

**5 SEAT WALL**  
 L2.2 NOT TO SCALE DETAIL



**6 BACKED BENCH**  
 L2.2 NOT TO SCALE DETAIL

**SEAT WALL PRODUCT INFORMATION**  
 MANUFACTURER: NECESSORIES, ROCKWOOD RETAINING WALLS  
 MODEL: RIVERLAND SEATWALL KIT  
 SIZE: 4' x 8' x 8"  
 4' x 8' x 12"  
 4' x 8' x 16"  
 COLOR: DESERT RIVERLAND

**PRODUCT INFORMATION**  
 MANUFACTURER: GLOBAL INDUSTRIAL  
 MODEL: 4' OUTDOOR PARK BENCH W/ BACK, STEEL SLAT  
 LENGTH: 4'  
 COLOR: BLACK  
 MOUNT: SURFACE MOUNT  
 NOTE: OWNER TO APPROVE BENCH PRIOR TO ORDERING, REFER TO PLAN FOR BENCH LOCATIONS

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/17/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/17/2020  
 Administrator

No.	REVISIONS	DATE	BY
5	REVISED PER TOWN COMMENTS	09-23-20	JCB
4	REVISED PER TOWN COMMENTS	07-31-20	JCB
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 PHONE: 919-677-2000 FAX: 919-677-2050  
 WWW.KIMLEY-HORN.COM  
 #F-1012



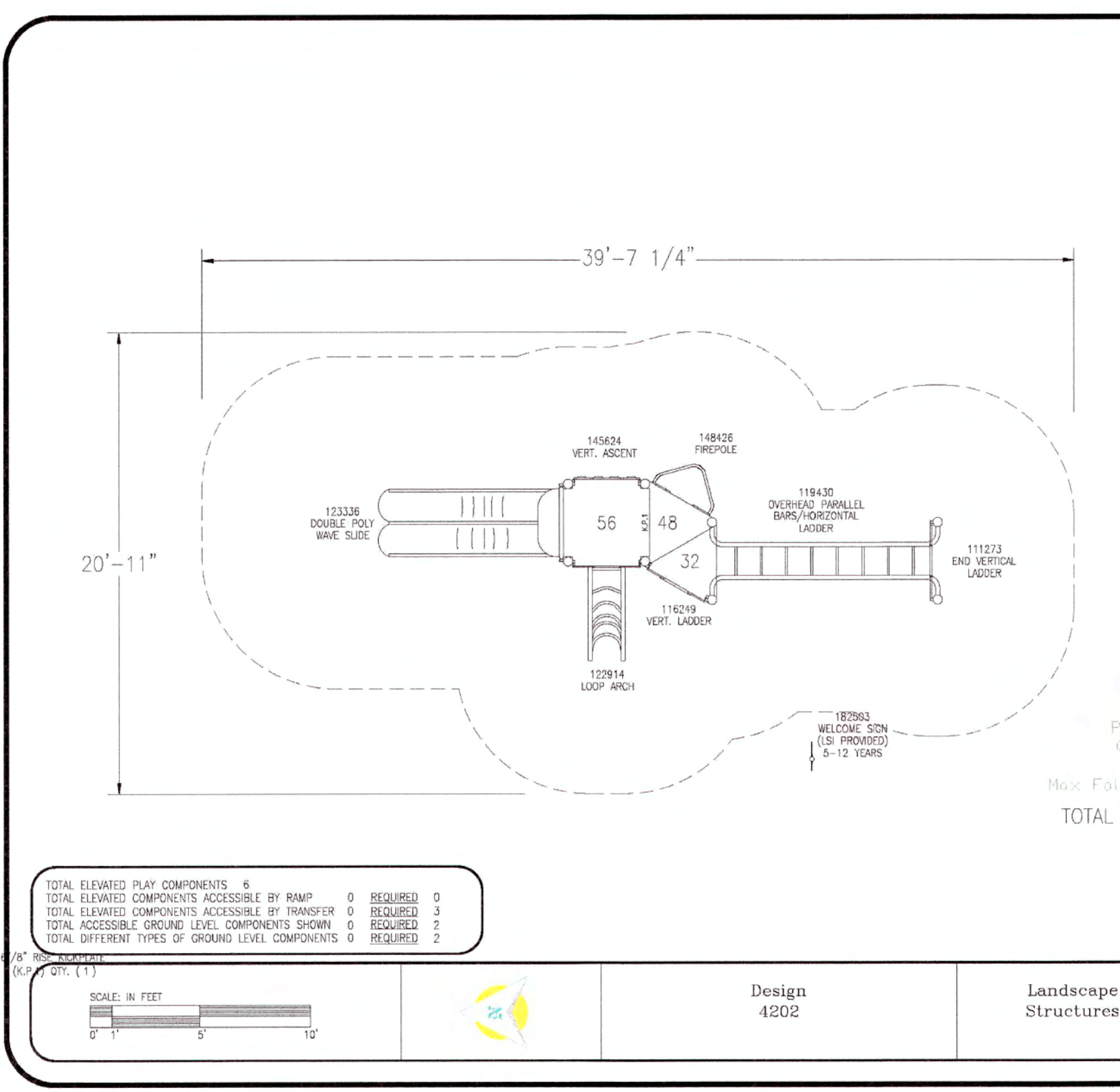
KHA PROJECT	017254007
DATE	11/08/2019
SCALE	AS SHOWN
DESIGNED BY	JCB
DRAWN BY	JCB
CHECKED BY	COB

## OPEN SPACE DETAILS

**PARKSTONE VILLAGE**  
 PREPARED FOR  
 KNIGHTDALE DEVELOPMENT  
 OWNERSHIP, LLC.  
 NORTH CAROLINA  
 KNIGHTDALE



Plotted By: OBrien, Val Sheet Set: PARKSTONE VILLAGE Layout: L2.3 OPEN SPACE DETAILS September 24, 2020 03:27:09pm K:\PAL\_LDE\017254007-parkstone phase 2\planning phase\15\_cod\_files\planstrets\L2.1 OPEN SPACE DETAILS.dwg



**landscape structures**

**INSPECTION CERTIFIED**

THE PLAY AREA IS FOR EXCLUSIVE USE OF THE CHILDREN OF THE TOWN OF KNIGHTDALE AND IS TO BE MAINTAINED AS SUCH. THE TOWN OF KNIGHTDALE IS NOT RESPONSIBLE FOR THE SAFETY OF THE CHILDREN WHILE THEY ARE PLAYING IN THIS PLAY AREA.

IT IS THE MANUFACTURER'S RESPONSIBILITY TO PROVIDE THE NECESSARY SAFETY INFORMATION TO THE USER. THE USER SHOULD READ THE SAFETY INFORMATION CAREFULLY AND FOLLOW THE INSTRUCTIONS.

THE MANUFACTURER'S SAFETY INFORMATION IS THE ONLY SOURCE OF INFORMATION ON THE SAFETY OF THIS EQUIPMENT. THE USER SHOULD READ THE SAFETY INFORMATION CAREFULLY AND FOLLOW THE INSTRUCTIONS.

DESIGNED BY:

COMPANY: 11/17/18

LANDSCAPE STRUCTURES, INC.

11000 WOODBURN ROAD, SUITE 100

RALEIGH, NC 27601

PH: 919-877-2000 FAX: 919-877-2050

WWW.KIMLEY-HORN.COM



**NOTE:**  
A SEPARATE BUILDING PERMIT WILL BE REQUIRED FOR PLAYGROUND.

**1** PLAYGROUND LAYOUT  
L2.3 NOT TO SCALE

**2** PLAYGROUND ELEVATION  
L2.3 NOT TO SCALE

DETAIL

DETAIL

**Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: [Signature] Date: 10/7/2020  
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: [Signature] Date: 10/9/2020  
Administrator

REVISED PER TOWN COMMENTS	DATE	BY
5	09-23-20	JCB
4	07-31-20	JCB
3	06-22-20	WWH
2	03-19-20	WWH
1	12-05-19	WWH
No.		

**Kimley»Horn**

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#F-0102



KHA PROJECT	017254007
DATE	11/08/2019
SCALE	AS SHOWN
DESIGNED BY	JCB
DRAWN BY	JCB
CHECKED BY	COB

**OPEN SPACE DETAILS**

**PARKSTONE VILLAGE**  
PREPARED FOR  
**KNIGHTDALE DEVELOPMENT OWNERSHIP, LLC.**  
KNIGHTDALE NORTH CAROLINA

SHEET NUMBER  
**L2.3**





UNIT C ELEV 2      UNIT C ELEV 3      UNIT D ELEV 1      UNIT C ELEV 1      UNIT D ELEV 3      UNIT D ELEV 2

Town Certification. This design has been reviewed by the Engineer for the Town of Kinghills, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Kinghills.  
 By: *S. A. Hill* Date: 10/17/2020  
 Town Engineer  
 These plans are approved by the Town of Kinghills and serve as construction plans for this project.  
 By: *R. Henry* Date: 01/19/2020  
 Administrator

**lessard**  
 DESIGN  
 8521 LEESBURG PIKE, SUITE 700, VIENNA, VA 22182  
 P: 571.830.1800 | F: 571.830.1801 | LESSARDDESIGN.COM

2ST/2CAR -22X50 TOWNHOME ELEVATION  
 SCHEMATIC DESIGN

22' PRODUCT DEV.      12.06.2019  
 MURL 002A      **22CD**  
 Mungo Homes      SCALE: 3/16" = 1'-0"

THIS SCHEMATIC DESIGN HAS BEEN PREPARED BY THE ARCHITECT FOR THE CLIENT'S USE ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT. THE ARCHITECT ASSUMES NO LIABILITY FOR ANY DAMAGE OR INJURY TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS SCHEMATIC DESIGN.





UNIT C  
ELEV 2

UNIT C  
ELEV 3

UNIT D  
ELEV 1

UNIT C  
ELEV 1

UNIT D  
ELEV 3

UNIT D  
ELEV 2

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/1/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as conceptual plans for this project.  
 By: *[Signature]* Date: 11/16/20  
 Administrator

**lessard**  
DESIGN  
 8551 LEESSBURG PIKE, SUITE 700, VIENNA, VA 22182  
 P: 571.822.1800 | F: 571.822.1801 | LESSARDDESIGN.COM

2ST/2CAR -22X50 TOWNHOME ELEVATION  
 SCHEMATIC DESIGN

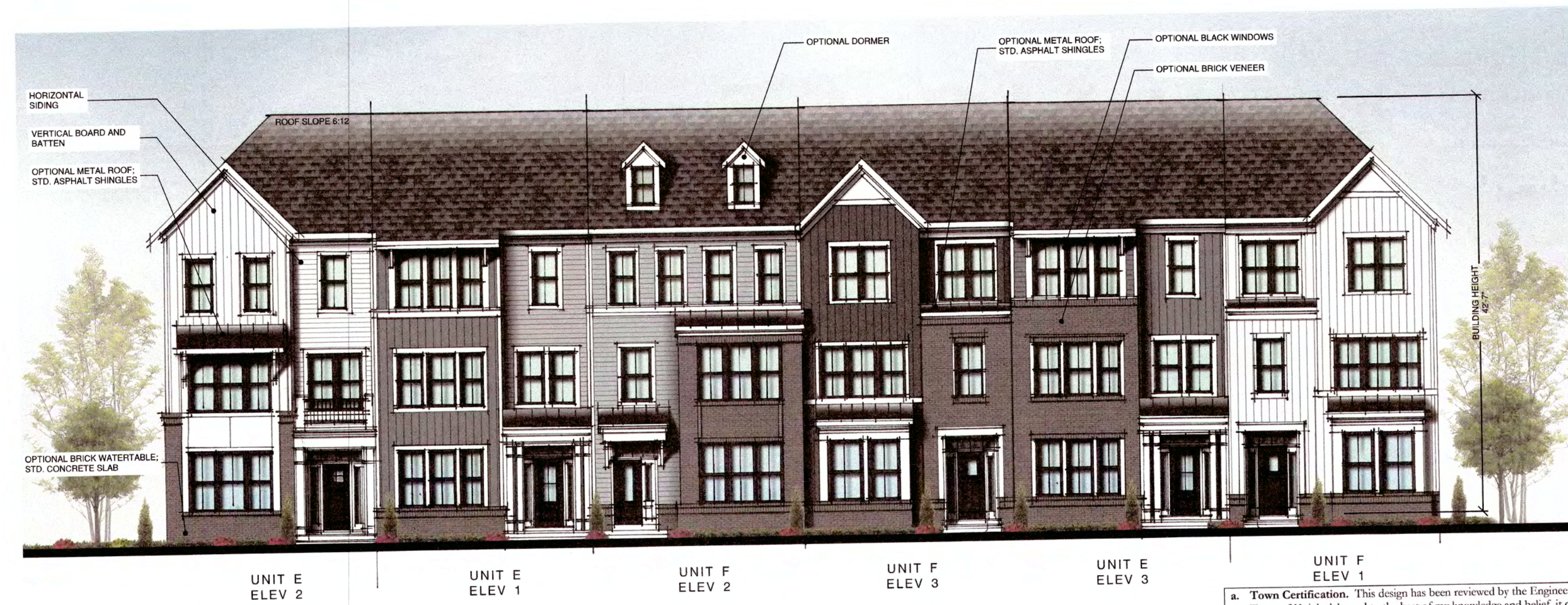
22' PRODUCT DEV.  
 Mungo Homes

12.06.2019  
 18JUN2020

SCALE: 3/16" = 1'-0"

22CD





Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: *[Signature]* Date: *10/16/20*  
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: *[Signature]* Date: *10/19/20*  
Administrator

**lessard**  
DESIGN  
8521 LEESBURG PIKE, SUITE 700, VIENNA, VA 22182  
P: 571.830.1800 | F: 571.830.1901 | LESSARDDDESIGN.COM

3ST/2CAR -22X44 TOWNHOME ELEVATION  
SCHEMATIC DESIGN

22' PRODUCT DEV. 12.06.2019 MUN.005A  
Mungo Homes SCALE: 3/16" = 1'-0"

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UNIT E ELEV 2      UNIT E ELEV 1      UNIT F ELEV 2      UNIT F ELEV 3      UNIT E ELEV 3      UNIT F ELEV 1

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: *10/1/2020*  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: *10/1/2020*  
 Administrator

**lessard**  
 DESIGN  
 8521 LEESSBURG PIKE, SUITE 700, VIENNA, VA 22182  
 P: 571.850.1800 | F: 571.850.1801 | L@LESSARDDESIGN.COM

3ST/2CAR -22X44 TOWNHOME ELEVATION  
 SCHEMATIC DESIGN

22' PRODUCT DEV.      12.06.2019  
 MUR 0025A      22EF  
 Mungo Homes      SCALE: 3/16" = 1'-0"

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UNIT B  
ELEV 3

UNIT A  
ELEV 1

UNIT B  
ELEV 2

UNIT A  
ELEV 2

UNIT B  
ELEV 1

UNIT A  
ELEV 3

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.  
 By: *[Signature]* Date: 10/17/2020  
 Town Engineer  
 These plans are approved by the Town of Knightdale and serve as construction plans for this project.  
 By: *[Signature]* Date: 10/19/2020  
 Manufacturer

**lessard**  
DESIGN  
 8521 LEEBSBURG PIKE, SUITE 700, VIENNA, VA 22182  
 P: 571.830.1800 | F: 571.830.1801 | LESSARDDESIGN.COM

STRIP ELEVATION  
 SCHEMATIC DESIGN

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24' PRODUCT DEV.  
 Mungo Homes

12.06.2019  
 MGR/001A

0 5 10'  
 SCALE: 3/16" = 1'-0"

24AB





### Outdoor Lighting Roadway LED



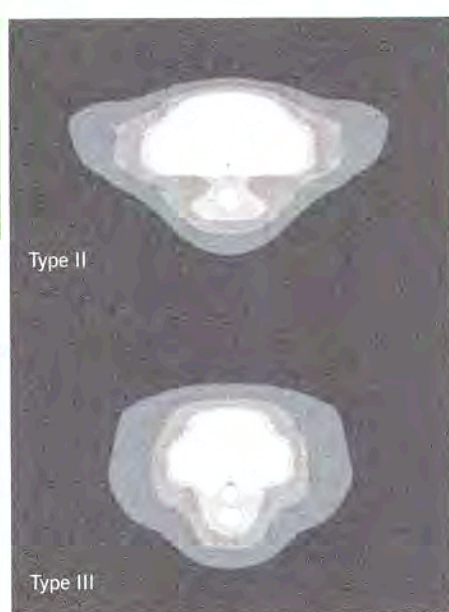
The Roadway LED is a green solution and great fit for streets, roads, long, narrow areas and parking lots. This energy-efficient luminaire delivers the light where it is needed while increasing visibility and reducing spill light to adjoining properties. Choose low to medium light output on wood or fiberglass poles (or mount on an existing pole). Available with one to four fixtures per pole, depending on the fixture/pole combination selected.

LED (Light Emitting Diode)	50   75   105   150   215   280 watts
Mounting heights	25', 30', 35'
Color	Gray, Black
Poles	Fiberglass Metal (special conditions) Wood

For additional information, visit us at [duke-energy.com/OutdoorLighting](http://duke-energy.com/OutdoorLighting) or call us toll free at 866.769.6417.



### Outdoor Lighting Roadway LED



Light source: LED (white)  
Lumens: 4,807 - 25,050 (fixture dependent)

Wattage	Light Pattern	IESNA Backlight/Uplight - Glare (BUG) Rating
LED 50	IESNA Type III (medium oval)	B1-U0-G1
LED 75	IESNA Type II (long oval)	B1-U0-G2
LED 105	IESNA Type II (long oval)	B2-U0-G3
LED 150	IESNA Type III (medium oval)	B2-U0-G2
LED 215	IESNA Type III (medium oval)	B3-U0-G3
LED 280	IESNA Type III (medium oval)	B3-U0-G4

Color temperature: 4,000K  
Warm-up and restrike time: Instant on (no warm-up or restrike time)

Poles available:

Name	Mounting height	Color
Fiberglass	25', 30', 35'	Gray
Fiberglass	25', 30', 35'	Black (additional cost)
Wood	25', 30', 35'	Standard
Metal (special conditions)*	25', 30', 35'	Gray

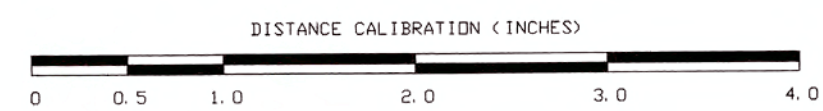
Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

\*2" raised foundation available when required.

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**LIGHTING DESIGN TOLERANCE**  
The calculated footcandle light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy Progress. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (foliage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.

Customer approval \_\_\_\_\_ Date \_\_\_\_\_



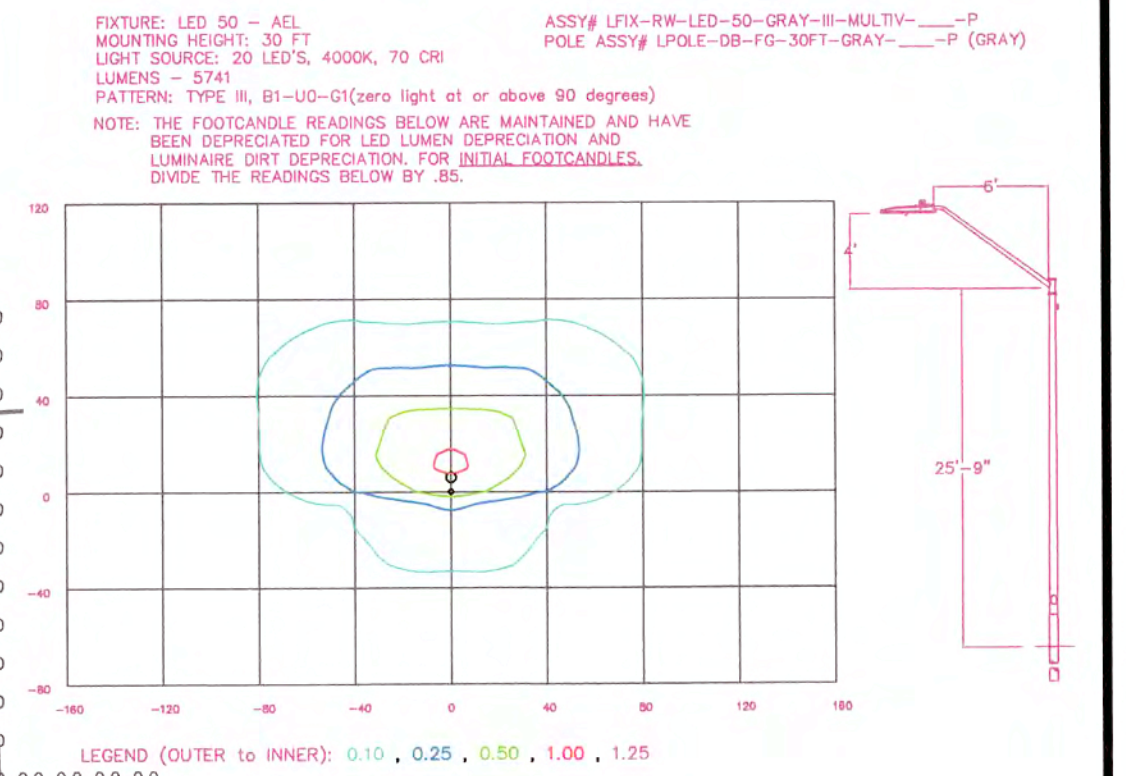
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PARKSTONE TOWNHOMES Knightdale, NC	
SITE LIGHTING PLAN	
Designed by	DEP LIGHTING SOLUTIONS
Reviewed by	N. Johnson Scale: 1" = 50'
Date	10/05/2020 Size: "Arch D"
Description	LED 50w Roadway
Drawing No.	20-0304E Sht. 1 OF 1

10/9/2020: Lighting plan subject to change. Still in review w/ TOK

#### ISOFOOTCANDLE CURVES



#### Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Overall Grid	+	0.1 fc	7.0 fc	0.0 fc	N/A	N/A
Roadway	X	0.5 fc	7.0 fc	0.0 fc	N/A	N/A

#### Schedule

Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
+	50w Rdwy	15	LED 50w Roadway - Type III - 4000K	1	5742	0.85
X	50w Rdwy	2	LED 50w Roadway - Type III - 4000K	1	5742	0.85