Z:\26688\26688.0001\Engineering\Drawings\Construction Plans\26688.0001-04-01-Dwg - Mar 4, 2019 - 3:32:04 PM

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
SILT FENCE	
CLEARING LIMITS	CL CL
LIMITS OF DISTURBANCE	LOD
SUBSURFACE DRAIN	SSD
TREE PROTECTION	
TEMPORARY SEEDING	TS
PERMANENT SEEDING	PS
SODDING	SO
RIPRAP	
OUTLET PROTECTION - RIP RAP	
SEDIMENT TRAP	
ROCK CHECK DAM	OR
STABILIZED CONSTRUCTION ENTRANCE	
STORM DRAIN INLET PROTECTION - TYPE A FILTER FABRIC	A
STORM DRAIN INLET PROTECTION - TYPE E SURFACE COURSE CURB INLET FILTER	E

DRAINAGE LEGEND

DESCRIPTION	EXISTING	PROPOSED
PIPE		
DITCH		
CURB INLET		
GRATE INLET		
JUNCTION BOX		
OUTLET STRUCTURE		

SEWER LEGEND

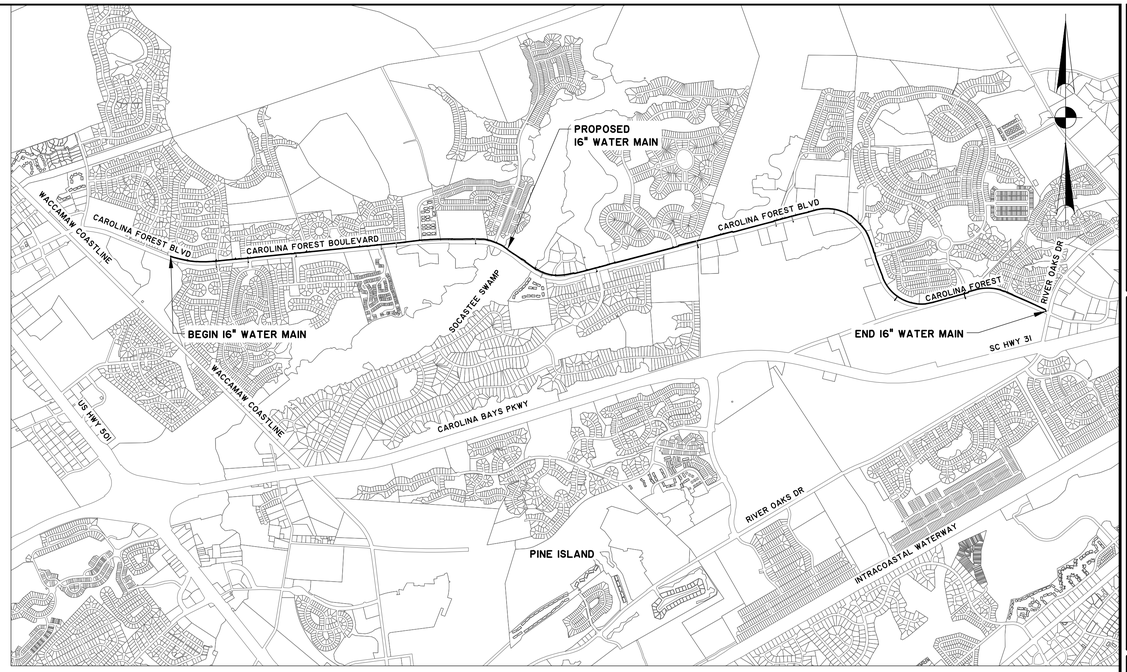
DESCRIPTION	EXISTING	PROPOSED
GRAVITY PIPE	SS	
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
MANHOLE		
CLEANOUT		
FORCEMAIN	10"FM 10"FM	10"FM 10"FM
VALVE AND BOX		
FLUSH HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
PLUG \ CAP		

WATER LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN	10"W	10"W
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
VALVE AND BOX		
FIRE HYDRANT W/VALVE & BOX		
POST HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
CAP		

ABBREVIATIONS

HDPE	HIGH DENSITY POLYETHYLENE		JB	JUNCTION BOX		SDMH	STORM DRAINAGE MANHOLE
BOT	BOTTOM		LF	LINEAR FEET		SF	SQUARE FEET
CI	CURB INLET		MAX	MAXIMUM		SS	SANITARY SEWER
CPP	CORRUGATED PLASTIC PIPE		MIN	MINIMUM		TC	TOP OF CURB
DIP	DUCTILE IRON PIPE		MH	MANHOLE		TG	TOP OF GUTTER
EL	ELEVATION		OC	ON CENTER		TP	TOP OF PAVEMENT
FG	FINISH GRADE		PC	POINT OF CURVE		TW	TOP OF WALK
FH	FIRE HYDRANT		PH	POST HYDRANT		TYP	TYPICAL
FM	FORCE MAIN (SANITARY SEWER)		PT	POINT OF TANGENT		W	WATER
FP	FINISH PAD		PVC	POLYVINYL CHLORIDE		W/	WITH
FR	FRAME		RCP	REINFORCED CONCRETE PIPE		WV	WATER VALVE
GI	GRATE INLET		RJP	RESTRAINED JOINT PIPE		YI	YARD INLET
GV	GATE VALVE		R/W	RIGHT-OF-WAY			
INV	INVERT ELEVATION		SD	STORM DRAINAGE			



VICINITY MAP

1"=2000'

OTHER UTILITIES LEGEND

DESCRIPTION	EXISTING
NATURAL GAS	UGG UGG
TELEPHONE	OHT OHT
UNDERGROUND TELEPHONE	UTL UTL
ELECTRICITY	OHP OHP
UNDERGROUND ELECTRICITY	UGP UGP

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE TIE-IN OF NEW WATER AND SEWER FACILITIES TO GRAND STRAND WATER AND SEWER AUTHORITY
2. CONTRACTOR SHALL MAINTAIN MINIMUM COVER OVER THE WATER MAIN PIPE BARREL OF 3'-0" UNLESS OTHERWISE INDICATED. TOP OF PIPE ELEVATIONS ARE SHOWN FOR CASES WHERE FUTURE STORM SEWERS ARE TO BE INSTALLED. IN NO CASE SHALL THE WATER MAIN BE INSTALLED AT A LOWER ELEVATION THAN THAT SHOWN.
3. SHOULD PIPE, FITTINGS, AND OTHER MATERIALS BE NEEDED IN ADDITION TO THAT SHOWN ON THE DRAWINGS BECAUSE PIPELINE WAS NOT INSTALLED TO THE ALIGNMENT AND PROFILE SHOWN, THEN THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THOSE NECESSARY MATERIALS AND PROVIDING THE EQUIPMENT AND LABOR TO INSTALL THEM TO MEET THE DESIGN INTENT OF THE WATERMAIN AT NO ADDITIONAL COST TO THE OWNER.
4. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER 48 HOURS IN ADVANCE OF ALL REQUIRED TESTS AND INSPECTIONS.
5. THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
6. ALL WATERMAINS SHALL BE POLYVINYL CHLORIDE (PVC C900) UNLESS OTHERWISE INDICATED.
7. ALL GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE (PVC SDR35) UNLESS OTHERWISE INDICATED.
8. SURVEYING AND BOUNDARY INFORMATION BY THOMAS AND HUTTON
9. ALL ELEVATIONS SHOWN ARE BASED ON NAVD88.
10. TOPOGRAPHIC SURVEY BY THOMAS AND HUTTON.
11. CONTRACTOR IS TO VERIFY ACCURACY OF ANY TEMPORARY BENCHMARKS SHOWN PRIOR TO UTILIZING THEM FOR CONSTRUCTION.
12. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES OTHER THAN THOSE SHOWN ARE ENCOUNTERED DURING CONSTRUCTION , THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND TAKE STEPS TO PROTECT THE LINE(S) AND ENSURE CONTINUED SERVICE. DAMAGE CAUSED TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.
13. IF WORK IS SUSPENDED OR DELAYED FOR 14 DAYS, THE CONTRACTOR SHALL TEMPORARILY STABILIZE THE DISTURBED AREA AT NO ADDITIONAL COST TO THE OWNER.
14. THE CONTRACTOR SHALL INSTALL ANY BARRICADES PRIOR TO BEGINNING CONSTRUCTION
15. THE FOLLOWING NOTES ARE SPECIFIED BY THE COUNTY ENGINEER AND ARE TO BE EXECUTED BY THE CONTRACTOR FOR STREETS IN THE PROJECT WHICH ARE TO BE DEEDED TO THE COUNTY:
    a. ANY DAMAGE TO EXISTING PAVEMENT MUST BE REPAIRED AT CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE COUNTY ENGINEER AND THE PROJECT ENGINEER.
    b. ALL RIGHT-OF-WAY AND DRAINAGE EASEMENT CONSTRUCTION SHALL MEET SCDOT STANDARD SPECIFICATIONS UNLESS SPECIFIED ELSEWHERE AND APPROVED IN WRITING BY THE COUNTY ENGINEER.
    c. ALL LOTS WITHIN THE DEVELOPMENT SHALL BE FILLED AND HAVE POSITIVE DRAINAGE TO THE APPROPRIATE EASEMENT OR RIGHT-OF-WAY AS APPROVED ON THE PLANS PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS OR FINAL ACCEPTANCE OF THE RIGHT-OF-WAYS BY THE COUNTY
    d. WHERE FIELD INSPECTIONS ARE REQUIRED BY THE COUNTY, THE CONTRACTOR SHALL NOTIFY THE ENGINEERING DIVISION A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE SUCH INSPECTIONS.
    e. A COMPLETE SET OF APPROVED DRAWINGS AND SPECIFICATIONS MUST BE MAINTAINED ON SITE AT ALL TIMES THAT THE CONTRACTOR IS PERFORMING WORK. THESE DRAWINGS SHALL BE MADE AVAILABLE UPON REQUEST.
    f. ANY REVISIONS DURING CONSTRUCTION WHICH ALTER THE ROAD LAYOUT, CONSTRUCTION METHODS, RIGHT-OF-WAY LOCATION OR DRAINAGE MUST BE SUBMITTED AND APPROVED IN WRITING BY THE COUNTY ENGINEER.
    g. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS NECESSARY FROM OTHER RESPONSIBLE AGENCIES.
    h. ALL TREES SHOWING DISTURBANCE WITHIN THE PROTECTED ROOT ZONE SHALL BE PRUNED AND FERTILIZED BY A CERTIFIED ARBORIST PRIOR TO RECEIVING FINAL PLAT APPROVAL (THIS WORK WILL BE DONE BY THE OWNER OUTSIDE OF THE CONTRACT.)
    i. LAKE CONTOURS SHOWN HEREIN WILL PROVIDE A DEPTH ONE FOOT GREATER THAN NECESSARY FOR STORM WATER MANAGEMENT. THIS IS TO PROVIDE FOR ONE FOOT OF SILT BUILDUP DURING CONSTRUCTION OF ANY AREA OF ANY POND WHICH SILTS MORE THAN ONE FOOT ABOVE DESIGNED BOTTOM ELEVATION SHALL BE RESTORED TO THE MINIMUM ACCEPTABLE DEPTH OF ONE FOOT LESS THAN ORIGINAL CONSTRUCTED DEPTH.
    j. ALL ABOVE GROUND UTILITIES ARE TO BE OUTSIDE OF THE R/W AND ALL AT GRADE UTILITIES ARE TO BE OUT OF THE CURB LINE.
16. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL AND PREVENTION STRUCTURES SHOWN ON THE PLANS. BOTH MUST BE APPROVED BY HORRY COUNTY PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES.
17. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
18. CONTRACTOR WILL BE REQUIRED TO ADJUST MANHOLE FRAMES TO MATCH FINAL GRADE AT NO ADDITIONAL COST.
19. THE FOLLOWING NOTES ARE SPECIFIED BY THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL - OFFICE OF OCEAN AND COASTAL RESOURCES MANAGEMENT (SCDHEC-OCRM) AND ARE TO BE EXECUTED BY THE CONTRACTOR:
    a. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED.
    b. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 14 DAYS.
    c. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING LOT CONSTRUCTION OR PROVIDE AN INDIVIDUAL PLAN MEETING SECTION R.72-307 OF THE STORM WATER MANAGEMENT AND SEDIMENT REDUCTION ACT REQUIREMENTS.
20. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE DISTURBANCE OF THE LAND AND SHALL REMAIN FUNCTIONAL UNTIL THE CONTRIBUTING DISTURBED AREAS ARE STABILIZED. SILT BARRIERS WILL BE INSTALLED AS NECESSARY TO PREVENT EXCESSIVE SEDIMENTATION OF DOWNSTREAM AREAS. DEVICES SHALL BE IN ACCORDANCE WITH THE MANUAL OF "EROSION AND SEDIMENT CONTROL PRACTICES FOR DEVELOPING AREAS" BY THE S.C. LAND RESOURCES CONSERVATION COMMISSION.
21. CONTRACTOR SHALL GRADE AREAS TO DRAIN FOR POSITIVE FLOW PRIOR TO FINAL APPROVAL.
22. ALL TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND "SOUTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BOTH CURRENT EDITIONS.
23. ALL AREAS DISTURBED WILL BE GRASSED IMMEDIATELY AFTER THE INSTALLATION. GRASSING SHALL BE IN ACCORDANCE WITH SECTION 810 OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION. PAYMENT SHALL BE AS SHOWN IN THE BID FORM AND SHALL BE COMPENSATION FOR ALL NECESSARY WORK AND MATERIALS TO COMPLETE THE SEEDING IN ACCORDANCE WITH THESE SPECIFICATIONS. (SEE SPECIFICATIONS BELOW)
24. ALL DRAINAGE WILL BE MADE FUNCTIONAL DAILY AS WORK PROGRESSES.
25. EACH EXISTING ROAD WILL BE CLEANED UP AND RESTORED DAILY.
26. NEW PAVEMENT TO BE FLUSH WITH EDGE OF EXISTING PAVEMENT.
27. ALL STORM DRAIN PIPE INVERTS IN AND OUT ARE THE SAME AS THE BOX INVERT UNLESS OTHERWISE NOTED ON THE PLAN SHEETS AND/OR PROFILES.
28. OMITTED
29. ALL WATER VALVES SHALL COMPLY WITH SECTION 4.6 OF THE GSWSA WATER SYSTEM STANDARDS AND SPECIFICATIONS.
30. OMITTED
31. OMITTED

GENERAL INFORMATION

COUNTY	HORRY
TOWN	MYRTLE BEACH
ZONING	RESIDENTIAL, BUSINESS/COMMERCIAL, PLANNED UNIT DEVELOPMENT

OWNER:
GRAND STRAND WATER AND SEWER AUTHORITY
166 JACKSON BLUFF ROAD
CONWAY, SC 29526
843-347-4641

ENGINEER:
THOMAS & HUTTON
611 BURROUGHS & CHAPIN BLVD.
SUITE 202
MYRTLE BEACH, SC 29577
(843) 839-3545

PREPARED FOR:

GRAND STRAND WATER AND SEWER AUTHORITY
166 JACKSON BLUFF ROAD
CONWAY, SC 29526
843-347-4641

SURVEYOR:
THOMAS & HUTTON
611 BURROUGHS & CHAPIN BLVD.
SUITE 202
MYRTLE BEACH, SC 29577
(843) 839-3545

SOUTH CAROLINA NOLLY WORTHINGTON THOMAS & HUTTON ENGINEERING CO. No. C002689 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JOHN H. RICHARDS JR. PROFESSIONAL ENGINEER 29577 REGISTERED

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

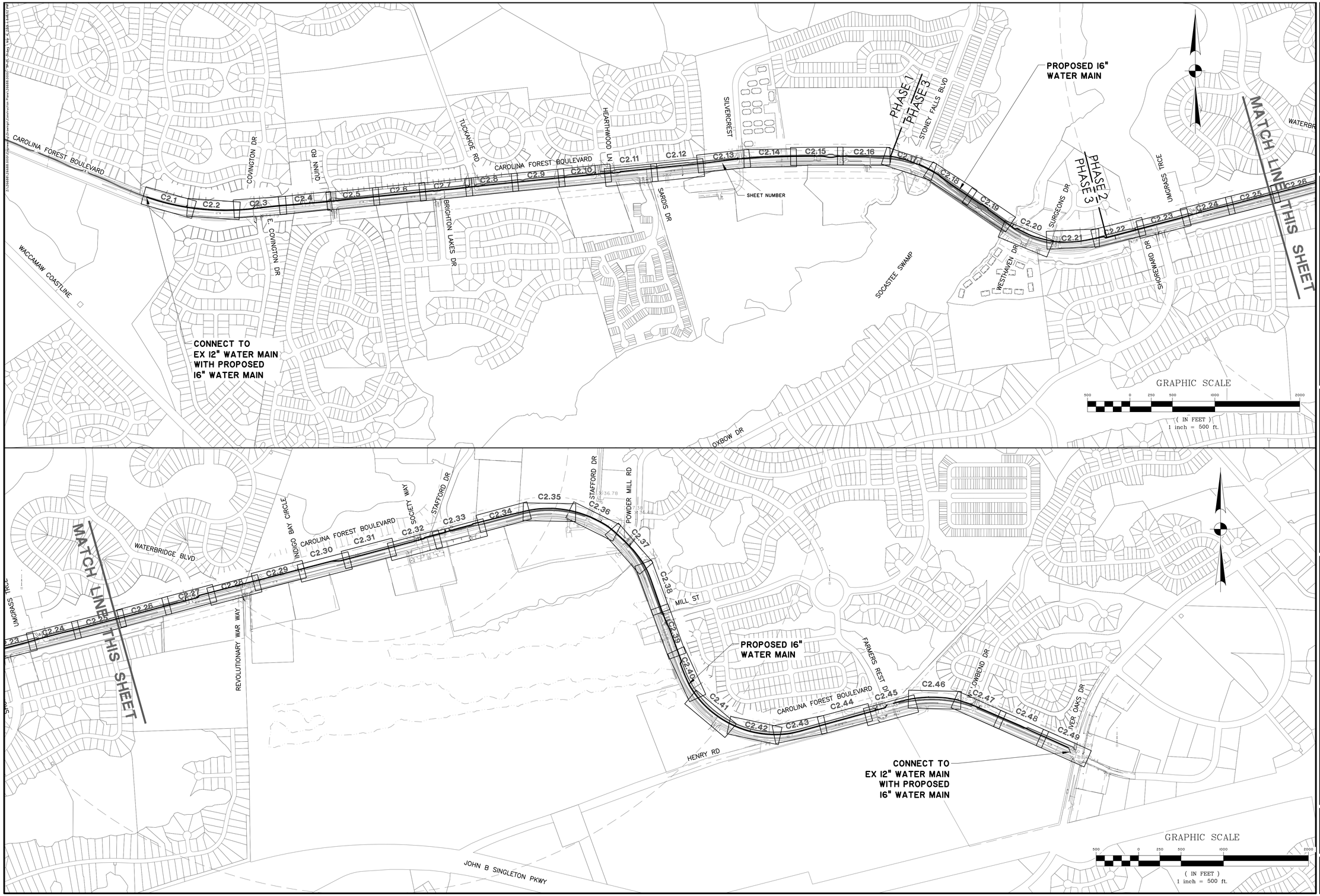
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

WATER MAIN GENERAL NOTES AND VICINITY MAP

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C1.1



SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN R. HUTCHINS — 6/13/2019

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GRAND STRAND WATER AND SEWER AUTHORITY

HORRY COUNTY, SOUTH CAROLINA

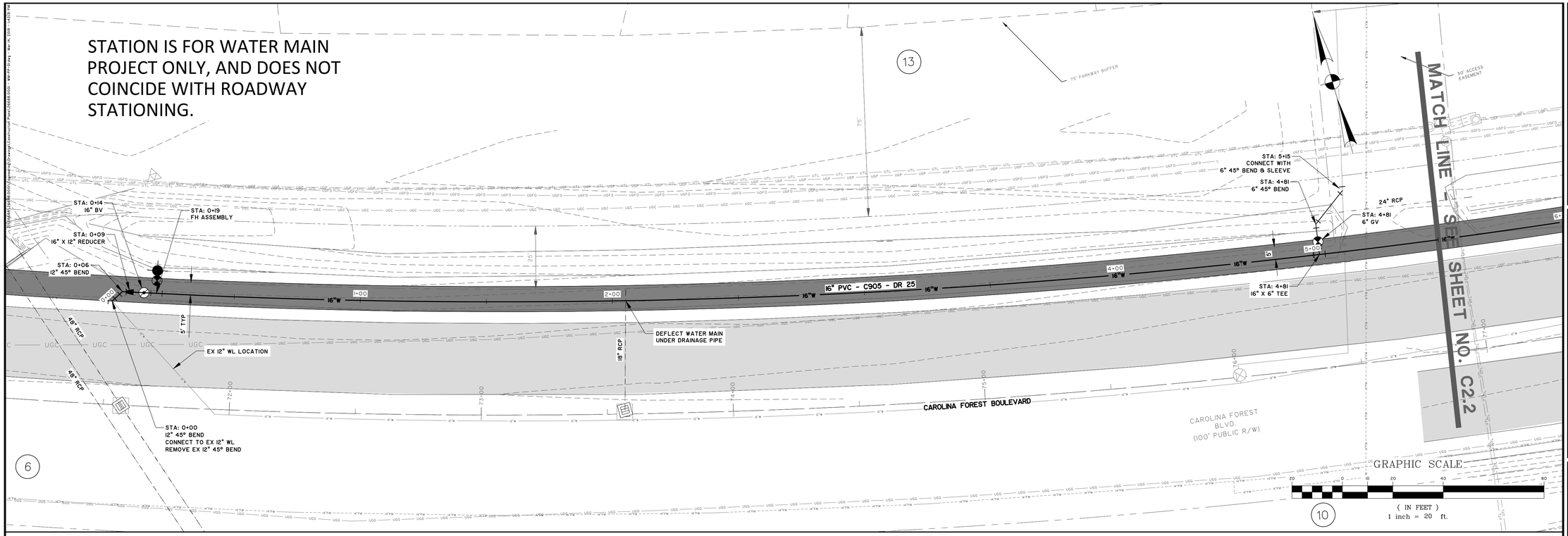
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

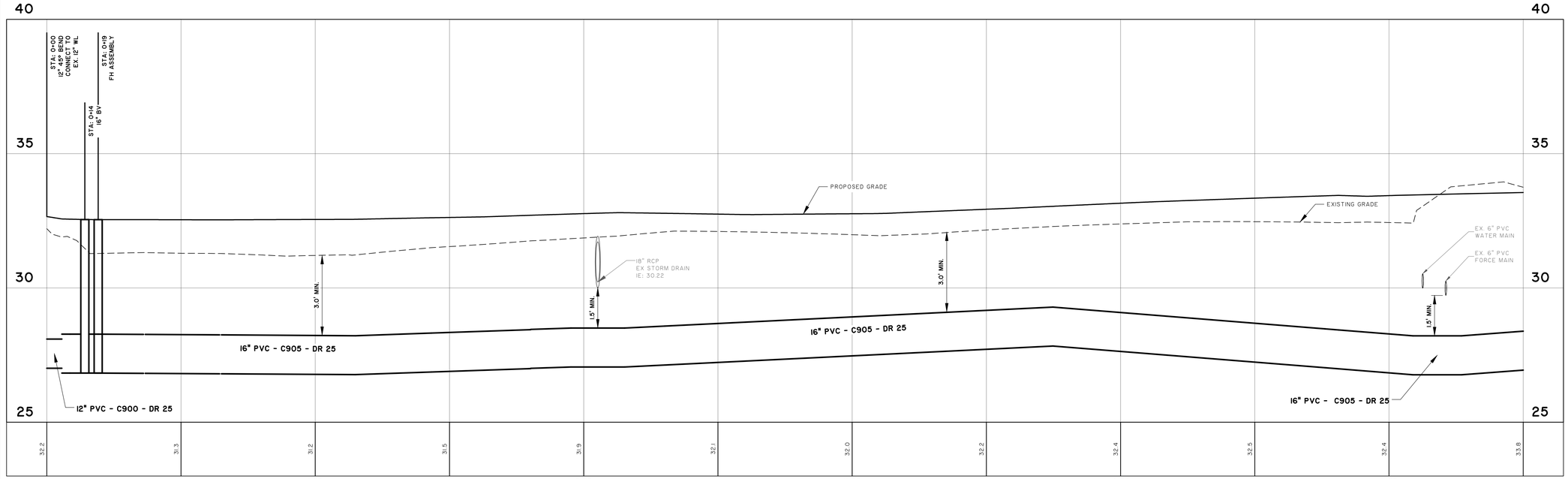
WATER MAIN INDEX SHEET

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	1" = 500'

C1.2

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 0+00 – 5+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. RICHARDS — REGISTERED PROFESSIONAL ENGINEER — No. 16004 — 10MAR19

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

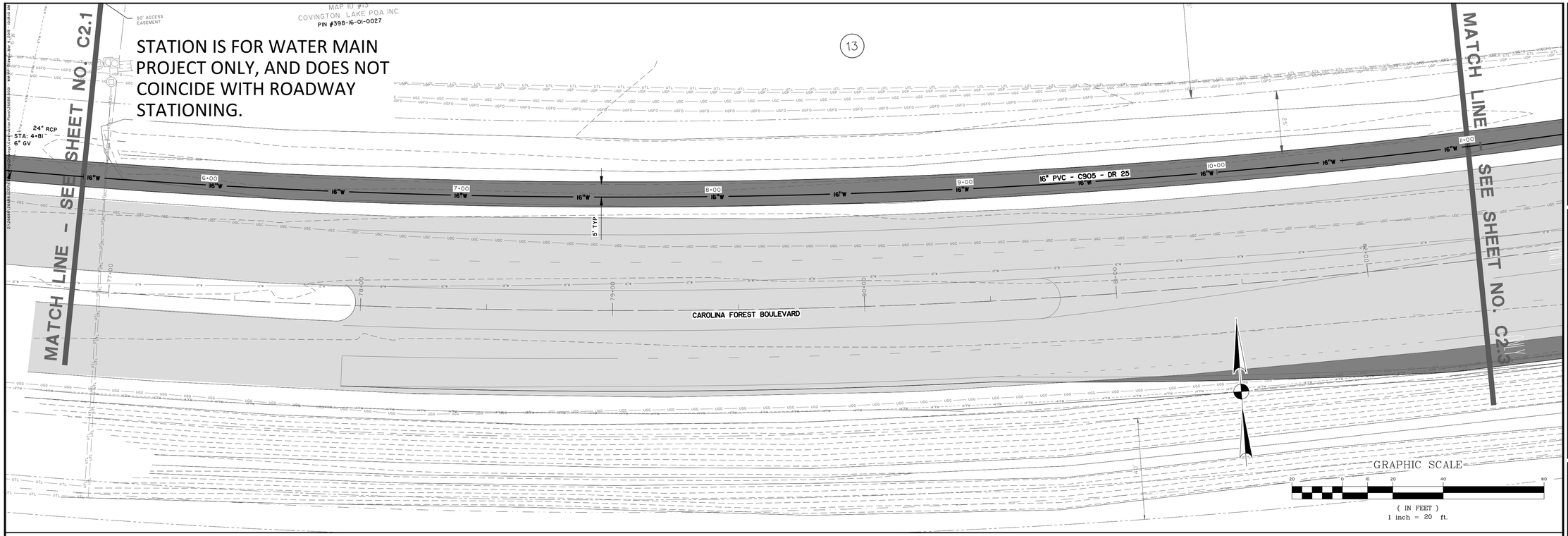
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

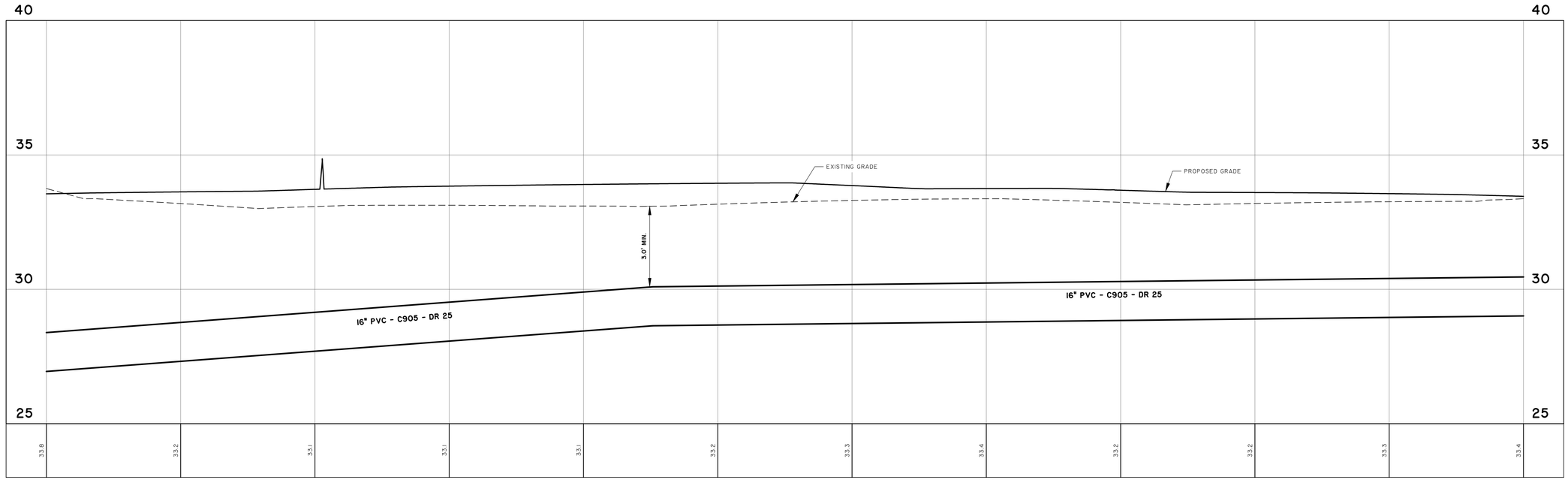
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.1

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN
STATIONS: 5+50 – 11+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — JOSHUA H. RICHARDS — 18MAR19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

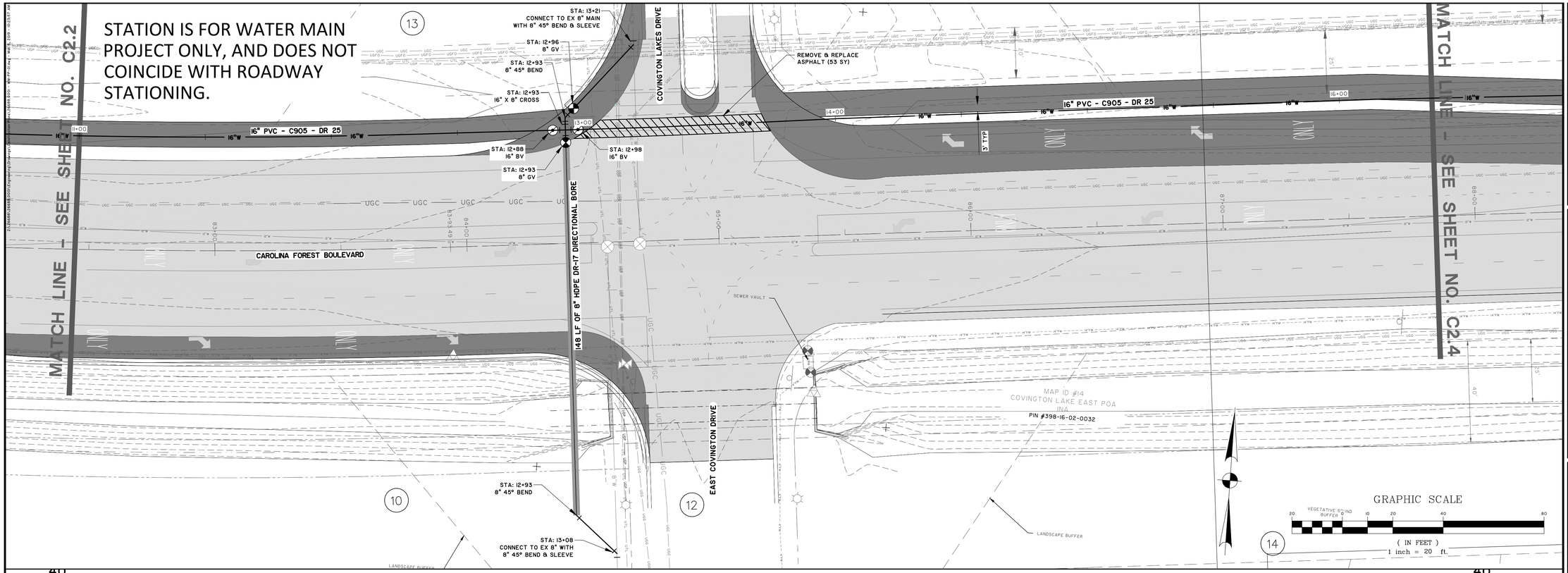
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

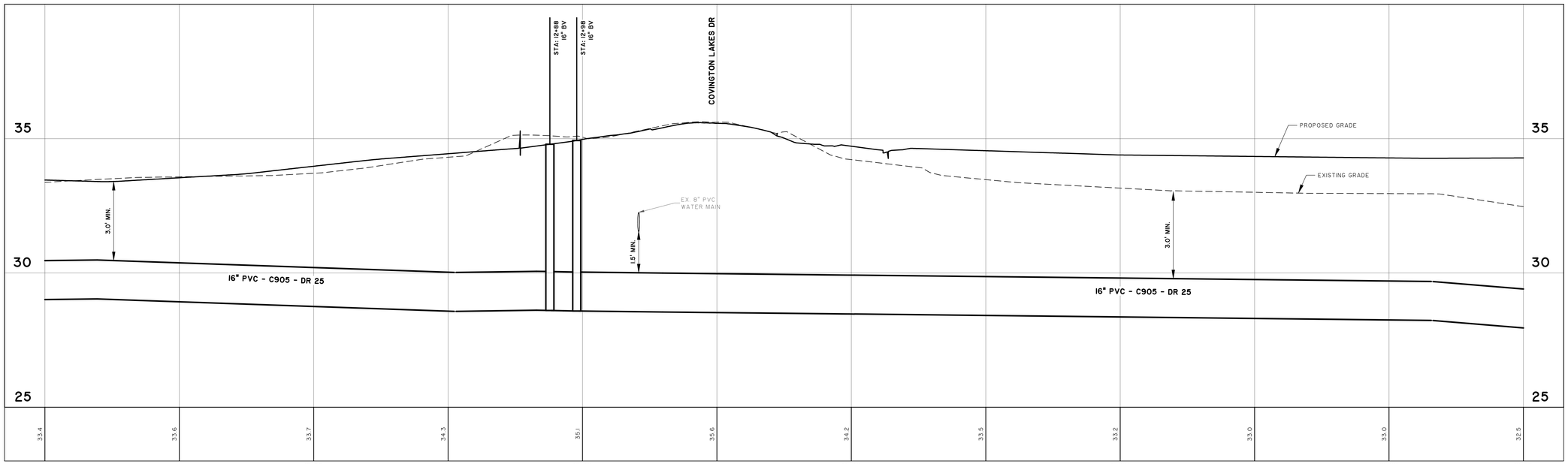
PLAN AND PROFILE

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DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.2

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 11+00 – 16+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

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DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.3

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.3

MATCH LINE - SEE SHEET NO. C2.5

EX FH IS TO BE REMOVED AFTER NEW WL IS OPERATIONAL

STA: 18+57 FH

FH LEAD UNDER STORM

STA: 18+58 6" GV

STA: 18+58 16" X 6" TEE

RECONNECT EX 1" WATER SERVICE

REMOVE & REPLACE ASPHALT (23 SY)

REMOVE & REPLACE ASPHALT (18 SY)

28' STEEL SIGNAL POLE, CONDUIT, AND 8 PULL BOX INSTALL 4P & 6P SIGNAL HEAD W/ PUSHBUTTONS

18" RCP

16"W

17+00

STA: 17+39 16" 45° BEND (VERTICAL) BEGIN 16" R.J. CL 250 DIP

STA: 17+41 16" 45° BEND (VERTICAL)

18+00

STA: 17+99 16" 45° BEND (VERTICAL) END 16" R.J. CL 250 DIP

STA: 18+33 16" 45° BEND (VERTICAL)

16" PVC - C905 - DR 25

20+00

STA: 19+63 CONNECT SERVICE TO NEW 16" MAIN

21+00

STA: 21+98 16" BV

STA: 22+03 16" X 8" CROSS

CAROLINA FOREST BOULEVARD

42" RCP

107 LF OF 8" HDPE DR-11 DIRECTIONAL BORE

28' STEEL SIGNAL POLE, CONDUIT, & PULL BOX

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

RECONNECT EX 1" WATER SERVICE

STA: 22+05 8" 45° BEND

16

35
30
25
20

STA: 17+39 45° BEND VERTICAL BEGIN 16" RJ CL 250 DIP.

STA: 17+93 RJ 16" 45° BEND (VERTICAL) END 16" RJ CL 250 DIP

STA: 18+33 16" 45° BEND RJ (VERTICAL)

STA: 18+58 FH ASSEMBLY

STA: 21+98 16" BV

EXISTING GRADE

PROPOSED GRADE

EX. 6" PVC HYDRANT LEAD

3.0' MIN.

1.0' MIN.

1.5' MIN.

16" PVC - C905 - DR 25

42" RCP IE: 28.37

42" RCP IE: 28.45

16" DIP CL 250

STA: 17+41 16" 45° BEND RJ (VERTICAL)

32.5 32.5 31.2 31.9 33.3 33.8 33.6 33.7 33.4 33.5 33.6 33.2

17+00 18+00 19+00 20+00 21+00 22+00

26688.0001 – 16 INCH WATER MAIN

STATIONS: 16+50 – 22+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/HUTTON THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JAMES HUTTON REGISTERED PROFESSIONAL ENGINEER

8/7/19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON

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GRAND STRAND WATER AND SEWER AUTHORITY

HORRY COUNTY, SOUTH CAROLINA

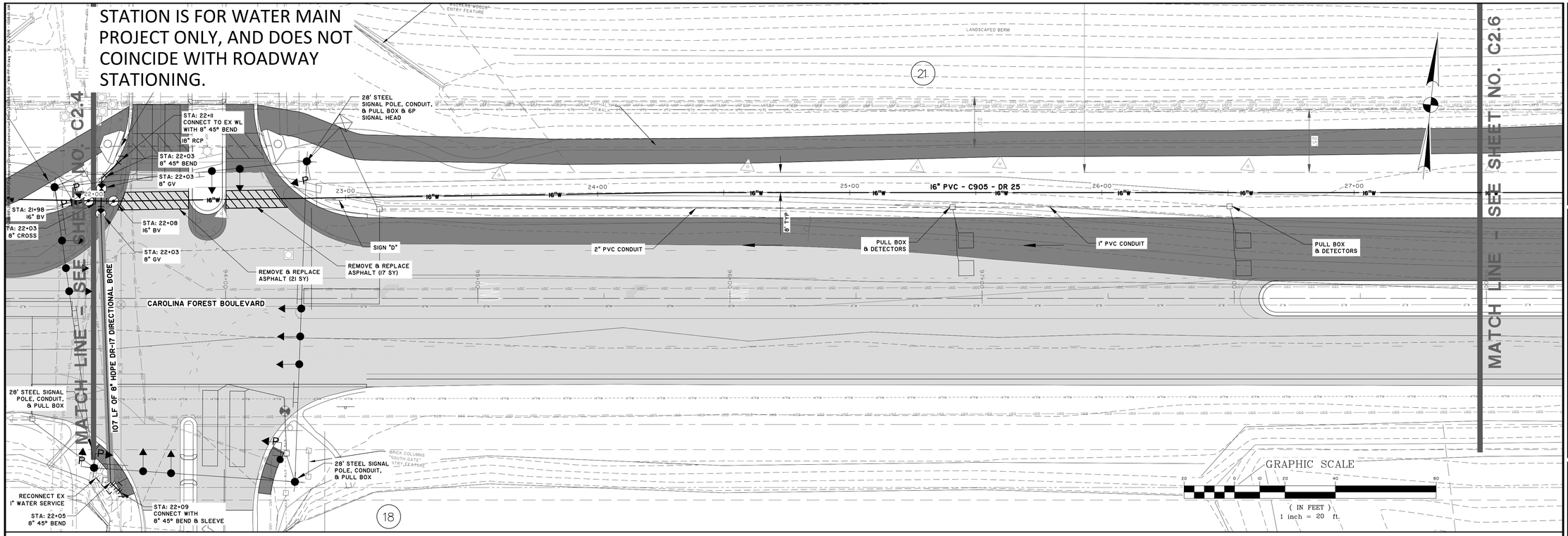
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

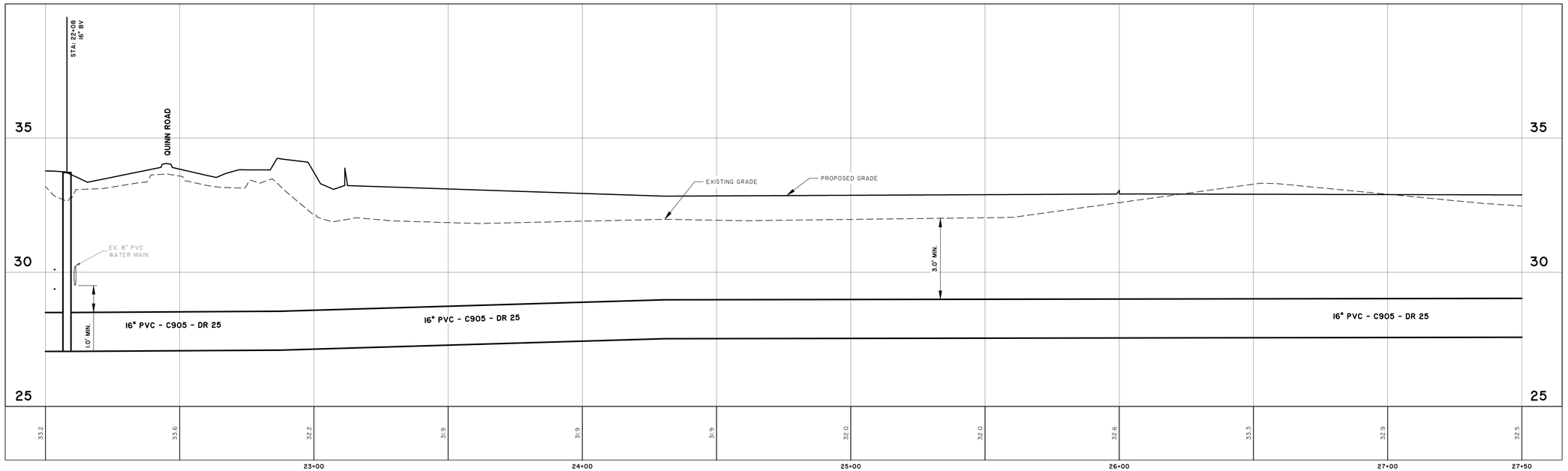
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DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.4

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.



GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.



26688.0001 – 16 INCH WATER MAIN
STATIONS: 22+00 – 27+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/WORTHINGTON THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JAMES H. HUTCHINS 19MR19 PROFESSIONAL ENGINEER

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

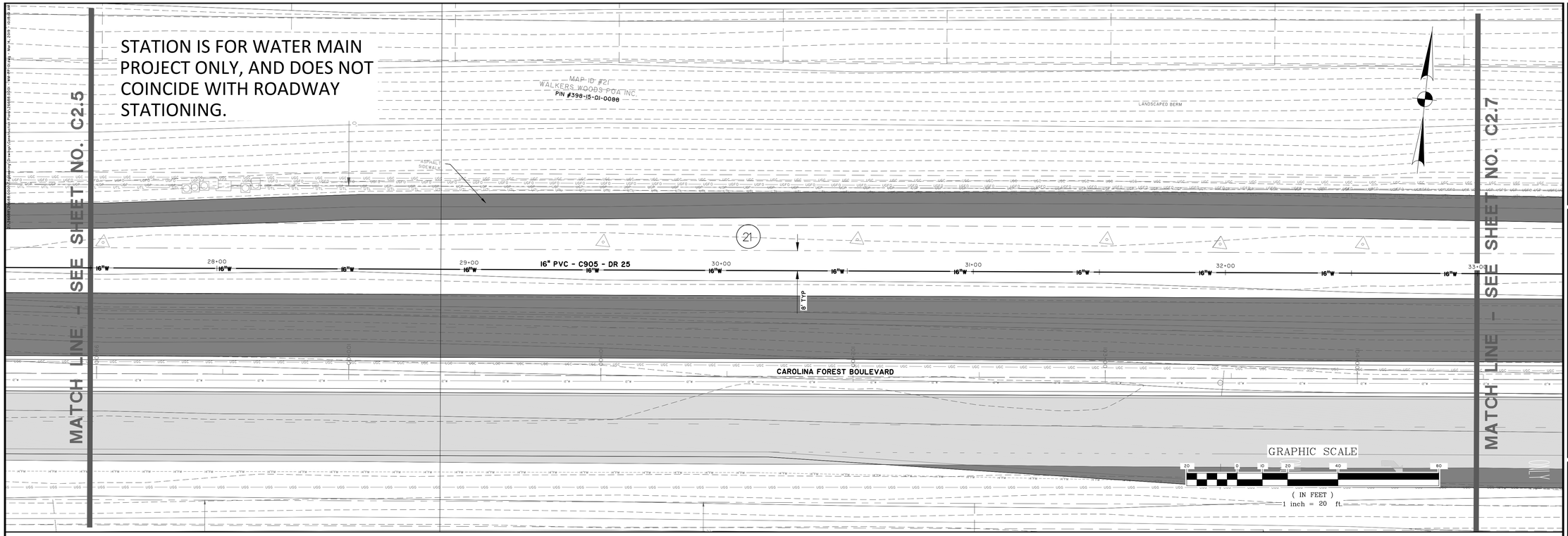
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

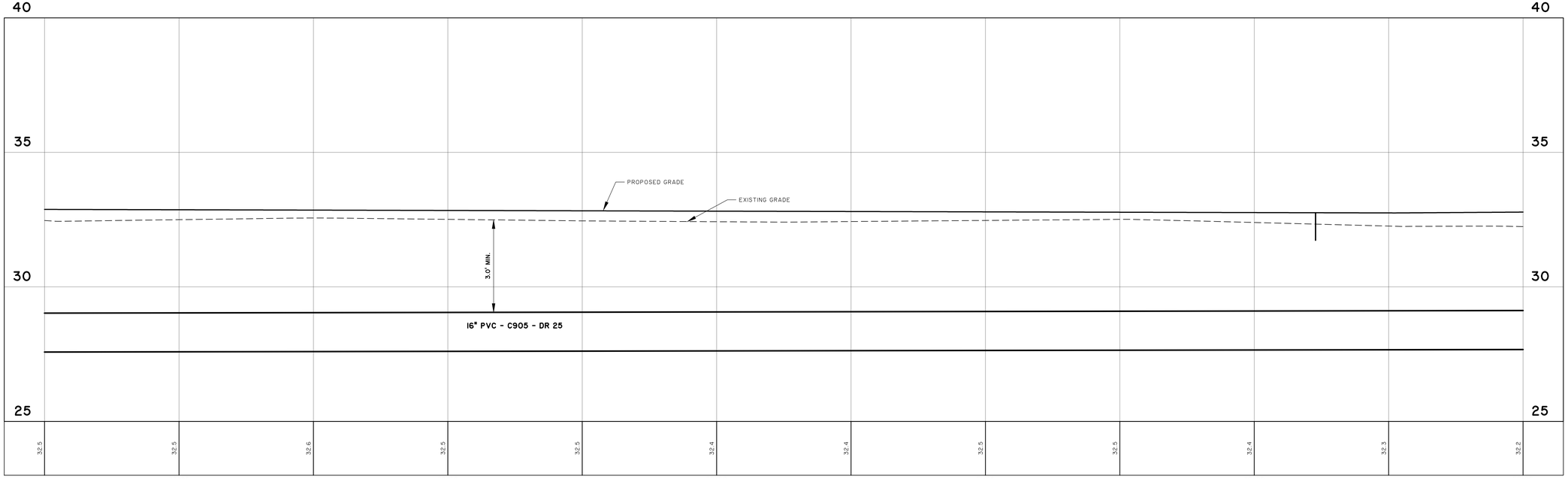
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.5

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 27+50 – 33+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOSHUA H. RICHARDS — No. 32004 — 8/7/19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.6

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.6

MATCH LINE - SEE SHEET NO. C2.8

CAROLINA FOREST BOULEVARD

50' LANDSCAPE BUFFER

LANDSCAPED BERM

STONE WALKER'S WOODS ENTRY FEATURE

LANDSCAPE TRIANGLE

ASPHALT SIDEWALK

INSTALL 8" WL UNDER PROPOSED STORM

RECONNECT 1" WATER SERVICE

CONNECT SERVICE TO 16" MAIN

STA: 34+26
16" 45° BEND (ROTATE)
BEGIN RJ 16" CL 250 DIP.

STA: 34+33
16" 45° BEND (ROTATE)

STA: 35+08
16" 45° BEND (ROTATE)

STA: 35+15
16" 45° BEND (ROTATE)
END RJ 16" CL 250 DIP.

STA: 35+53
16" BV

STA: 35+58
16" X 8" TEE

STA: 35+58
8" GV

STA: 35+61
8" 45° BEND

TIE TO EX 8" WL WITH SLEEVE

STA: 38+39
16" BV

STA: 38+45
16" X 8" TEE

STA: 38+45
8" 45° BEND

STA: 38+45
8" GV

STA: 38+50
16" BV

STA: 38+59
FH ASSEMBLY

16"W — 16" PVC - C905 - DR 25 — 16"W

16" CLASS 250 DIP

16" PVC - C905 - DR 25

8" - C900 - DR 25

81 LF OF 8" HDPE DR-17 DIRECTIONAL BORE

24" RCP

42" RCP

END 36" RCP IE: 27.67

END 36" RCP IE: 28.84

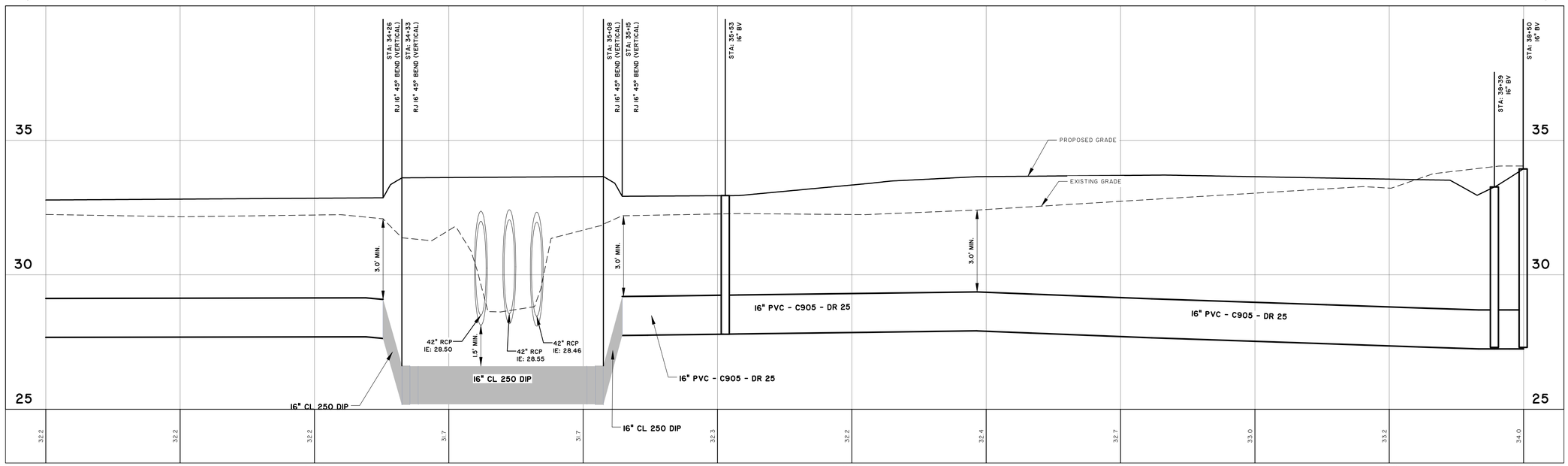
END 36" RCP IE: 27.41

END 36" RCP IE: 29.20

8' TYP.

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.



26688.0001 – 16 INCH WATER MAIN
STATIONS: 33+00 – 38+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — 29004 — 8/7/19

NO.	REVISIONS	BY	DATE

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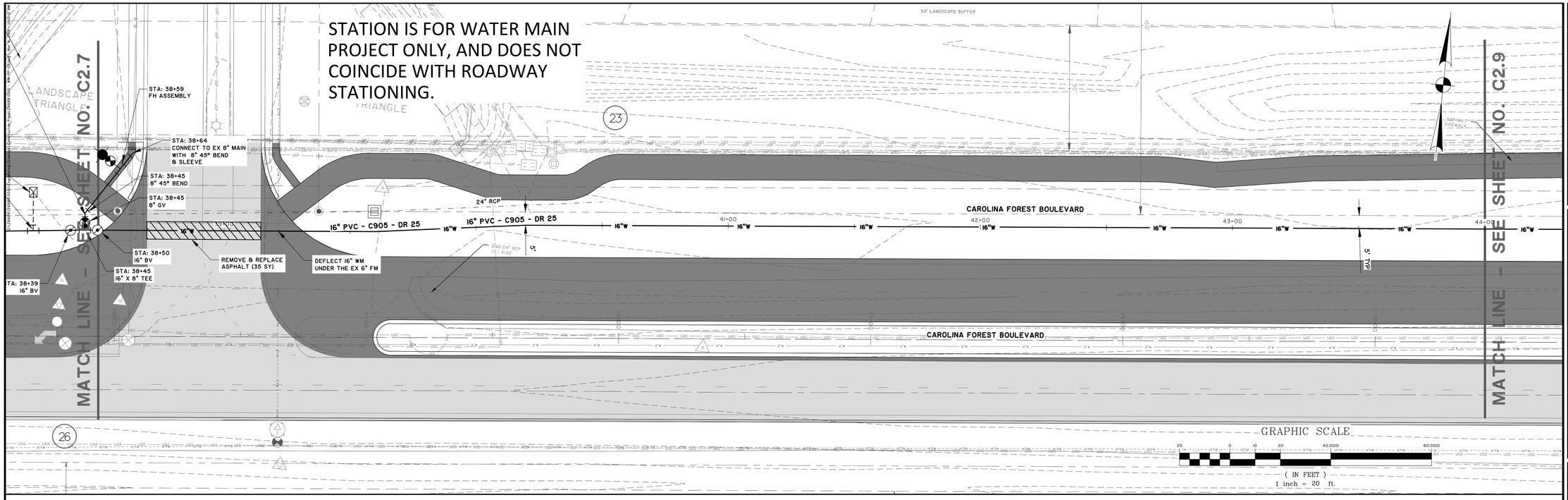
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

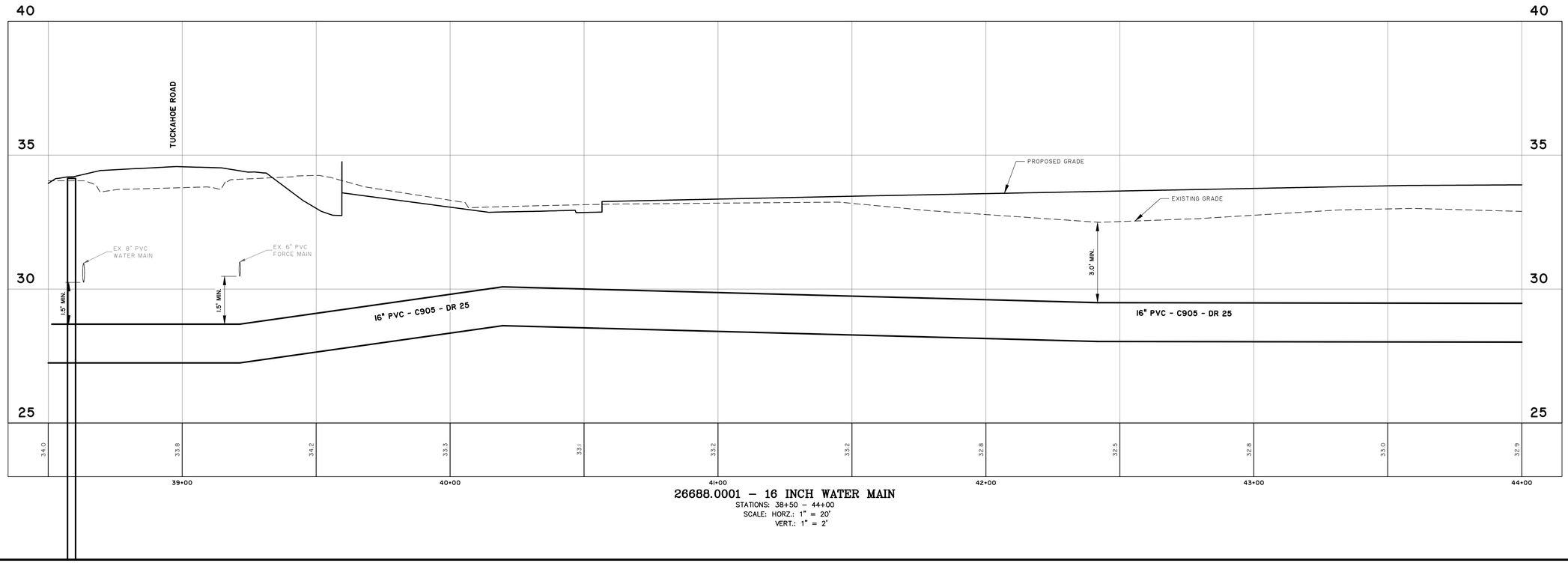
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.7

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 38+50 – 44+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

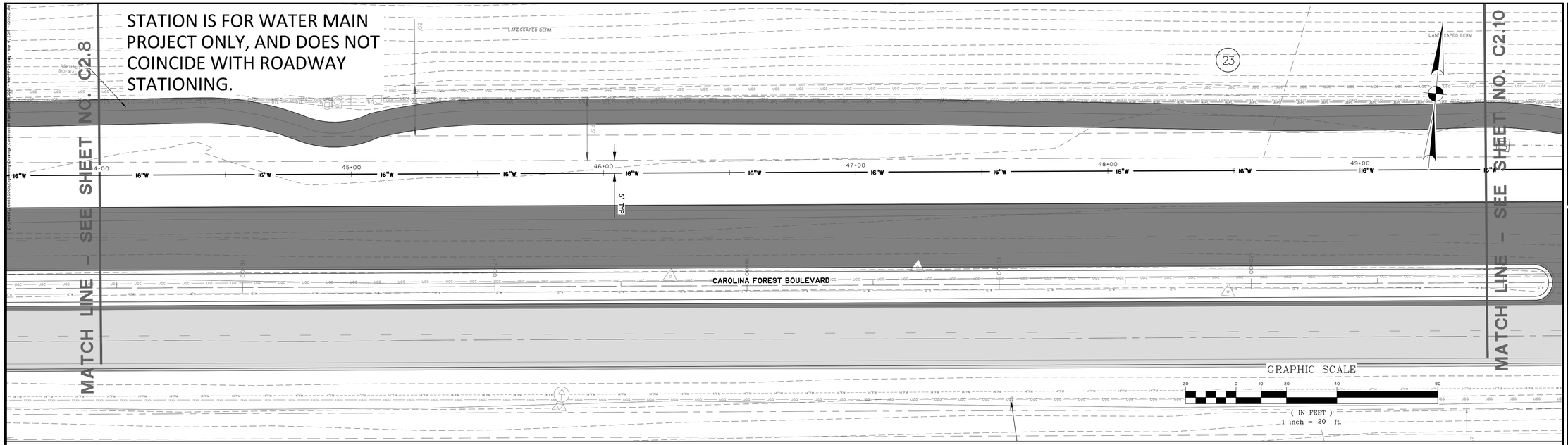
JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

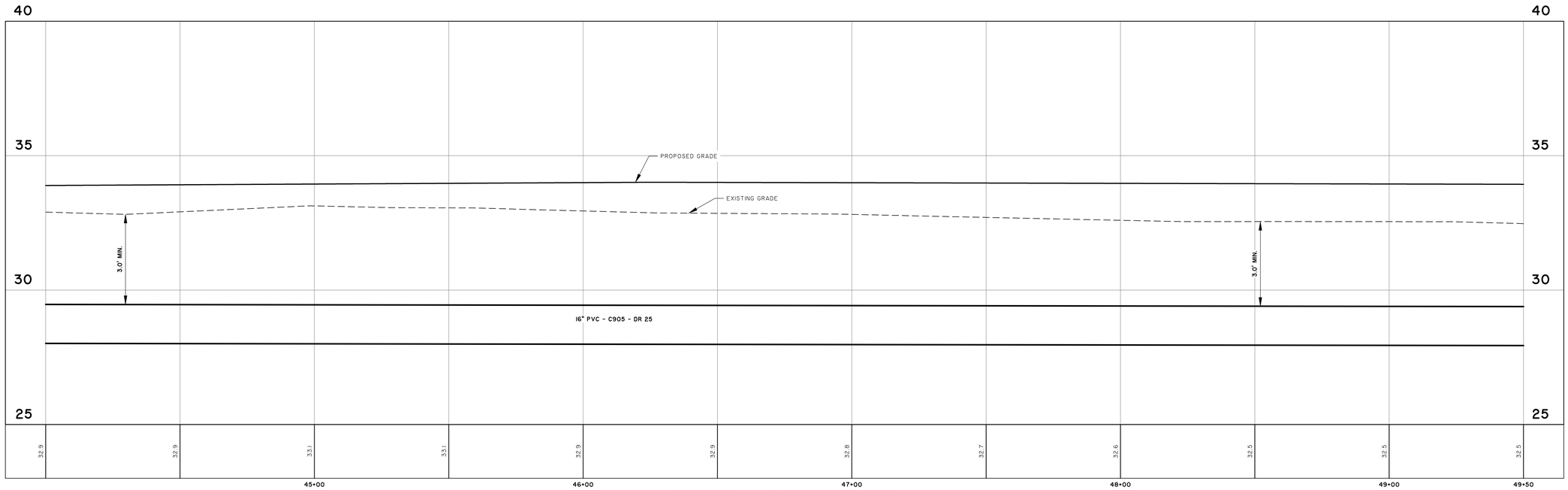
C2.8

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.8

MATCH LINE - SEE SHEET NO. C2.10





26688.0001 – 16 INCH WATER MAIN

STATIONS: 44+00 – 49+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 19MAR19

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	6/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.9

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE – SEE SHEET NO. C2.9

MATCH LINE – SEE SHEET NO. C2.11

CAROLINA FOREST BOULEVARD

HEARTWOOD LANE

LANDSCAPED BERM

ASPHALT SIDEWALK

LANDSCAPE TRIANGLE

24" RCP

16"W

8" PVC - C900 - DR 25

16" PVC - C905 - DR 25

REMOVE & REPLACE ASPHALT (17 SY)

REMOVE & REPLACE ASPHALT (9 SY)

STA: 53+54
CONNECT TO EX MAIN WITH 8" 45° BEND & SLEEVE

STA: 53+37
8" 45° BEND

STA: 53+37
8" GV

STA: 53+32
16" BV

STA: 53+37
16" X 8" TEE

ONLY

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

40
35
30
25

PROPOSED GRADE

EXISTING GRADE

EX. 8" PVC WATER MAIN

3.0' MIN.

1.5' MIN.

32.5 32.3 32.3 32.2 32.1 32.0 32.2 32.5 34.2 34.4 33.6 32.4

50+00 51+00 52+00 53+00 54+00 55+00

26688.0001 – 16 INCH WATER MAIN
STATIONS: 49+50 – 55+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

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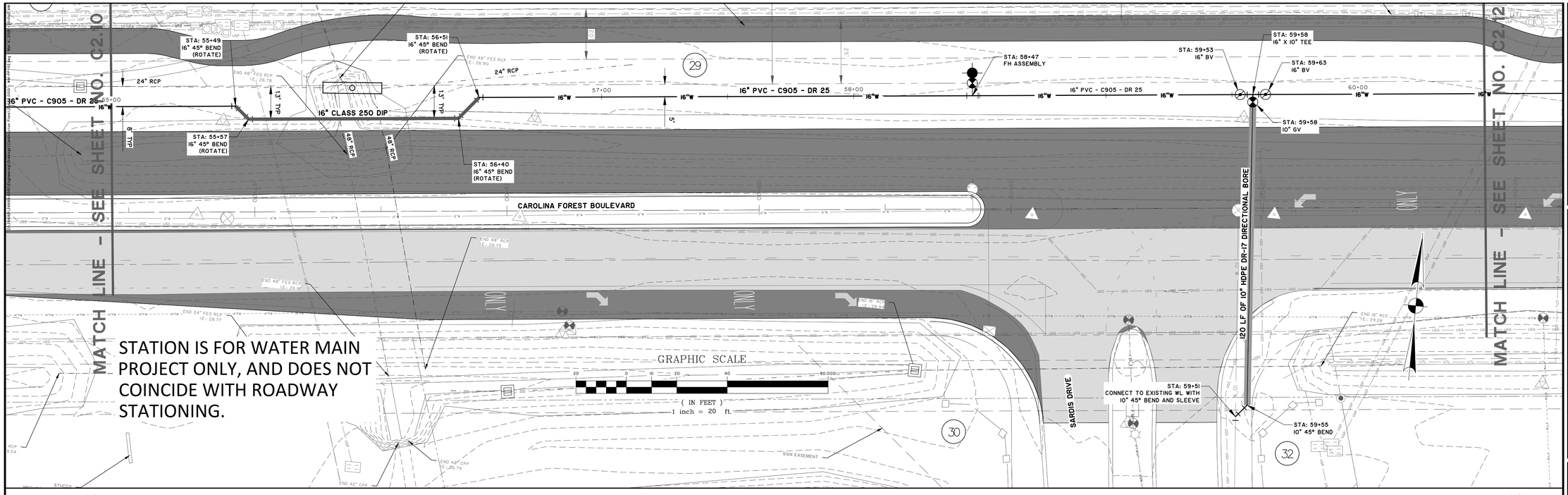
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

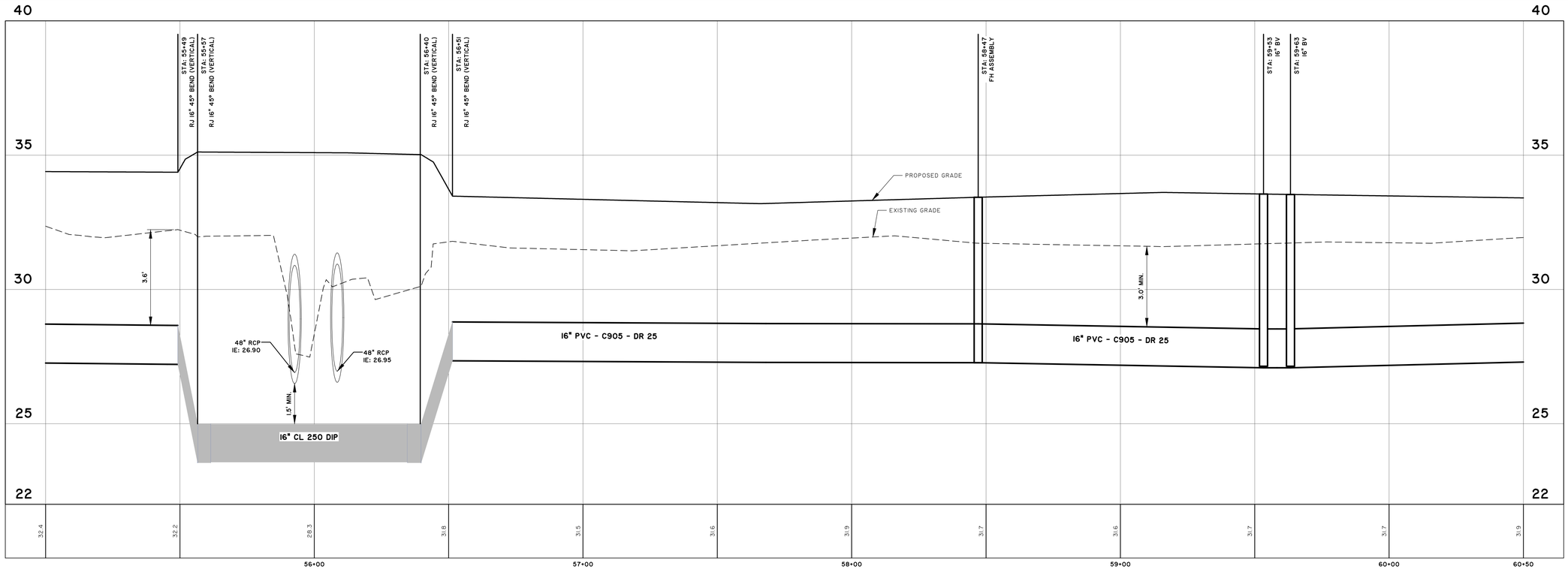
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.10





26688.0001 – 16 INCH WATER MAIN

STATIONS: 55+00 – 60+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

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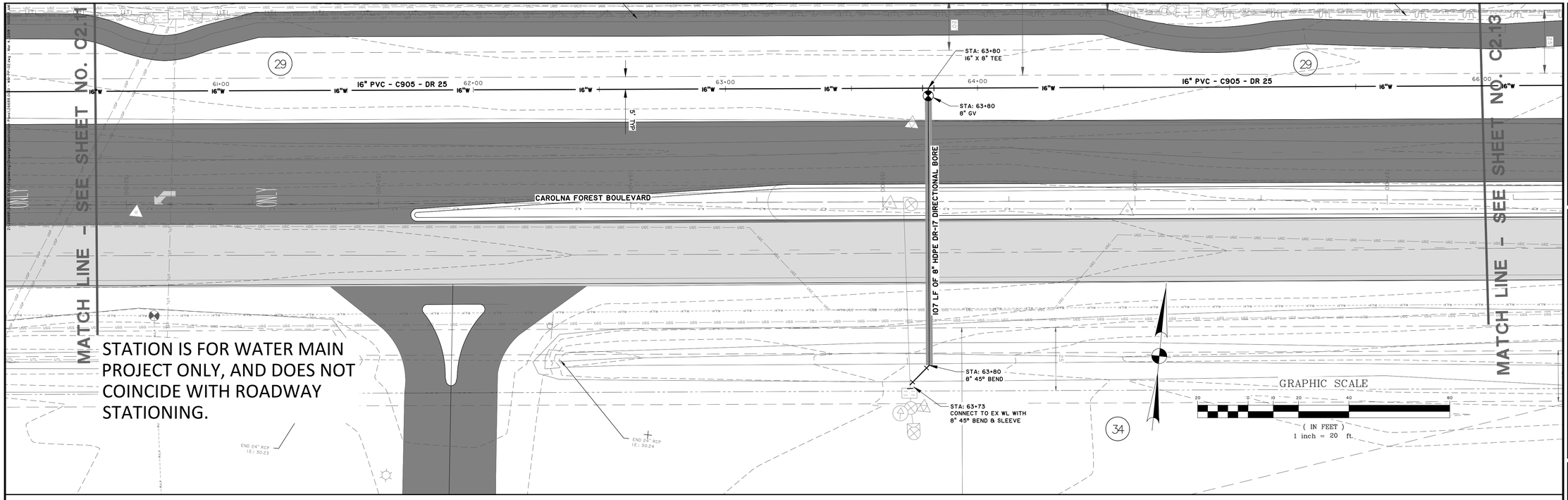
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

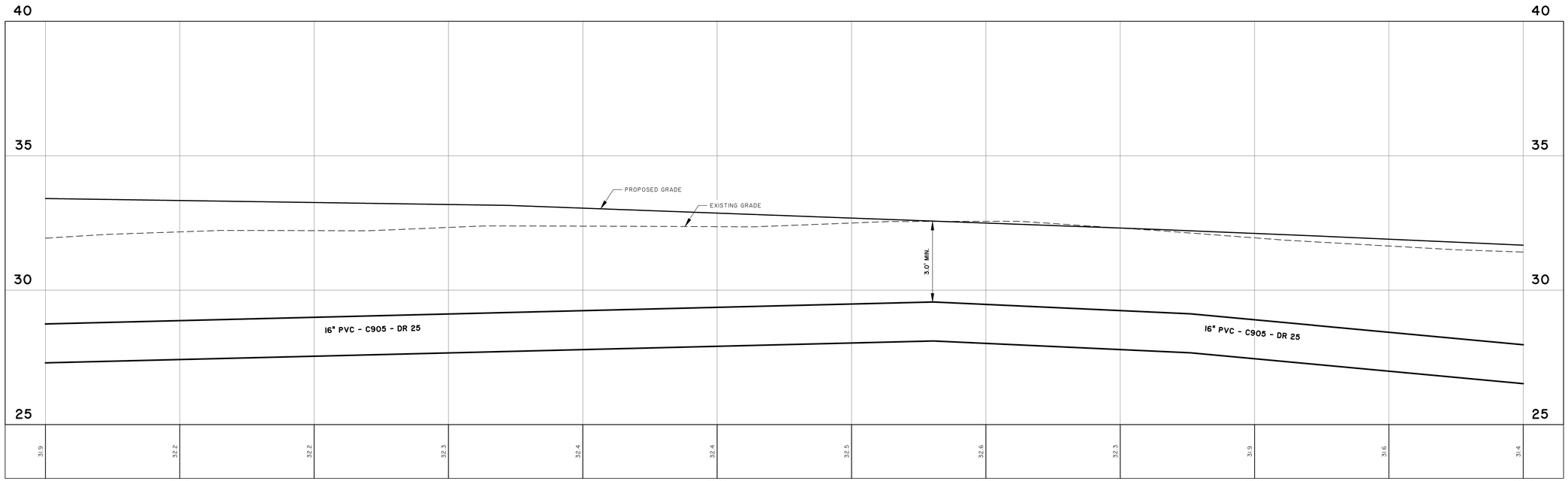
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.11





26688.0001 – 16 INCH WATER MAIN
STATIONS: 60+50 – 66+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — No. 29040 — KEVIN E. HUGHES

8/7/19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.12

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.12

MATCH LINE - SEE SHEET NO. C2.14

CAROLINA FOREST BOULEVARD

SILVERCREST DR

75' LANDSCAPED BUFFER

LANDSCAPED BERM

STA: 70+43
CONNECT TO EX WL WITH
6" 45° BEND & SLEEVE

STA: 70+31
6" 45° BEND

STA: 70+31
6" GV

STA: 70+26
16" BV

STA: 70+31
16" X 6" TEE

STA: 70+36
16" BV

REMOVE & REPLACE
ASPHALT (19 SY)

16"W

16" PVC - C905 - DR 25

24" RCP

66+00 67+00 68+00 69+00 70+00 71+00

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

40 35 30 25 20

EXISTING GRADE

PROPOSED GRADE

3.0' MIN.

1.5' MIN.

EX. 6" PVC
WATER MAIN

EX. 4" PVC
FORCE MAIN

16" PVC - C905 - DR 25

SILVERCREST DR

31.4 30.6 31.6 31.6 31.5 31.1 30.8 31.0 31.2 31.0 31.0 31.3

67+00 68+00 69+00 70+00 71+00 71+50

26688.0001 – 16 INCH WATER MAIN
STATIONS: 66+00 – 71+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00289
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
JAMES HUTCHINSON HAIR
No. 29577
REGISTERED PROFESSIONAL ENGINEER
8/7/19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
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DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.13

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE – SEE SHEET NO. C2.13

MATCH LINE – SEE SHEET NO. C2.15

REPLACE (19 SY)

75' LANDSCAPE BUFFER

LANDSCAPED BERM

33

STA: 75+46
16" 45° BEND (VERTICAL)

STA: 75+69
END 16" R.J.
CL 250 DIP

STA: 75+43
BEGIN 16" R.J.
CL 250 DIP

STA: 75+66
16" 45° BEND (VERTICAL)

16" PVC - C905 - DR 25

16" CLASS 250 DIP

24" RCP

8' TYP

ONLY

CAROLINA FOREST BOULEVARD

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

EXISTING GRADE

PROPOSED GRADE

3.0' MIN.

16" PVC - C905 - DR 25

16" PVC - C905 - DR 25

.5' MIN.

36" RCP
EX STORM DRAIN
IE: 26.49

16" CL 250 DIP

STA: 75+43
RJ 16" 45° BEND (VERTICAL)

STA: 75+69
RJ 16" 45° BEND (VERTICAL)

STA: 75+46
RJ 16" 45° BEND (VERTICAL)

STA: 75+66
RJ 16" 45° BEND (VERTICAL)

35
30
25
20
18

31.3 31.2 31.4 31.5 31.6 31.5 31.4 31.1 31.2 30.9 30.9 30.8

72+00 73+00 74+00 75+00 76+00 77+00

26688.0001 – 16 INCH WATER MAIN
STATIONS: 71+50 – 77+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA PROFESSIONAL ENGINEER THOMAS B HUTTON ENGINEERING CO. No. C002689 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER JAMES H. RICHARDS

18MAR19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

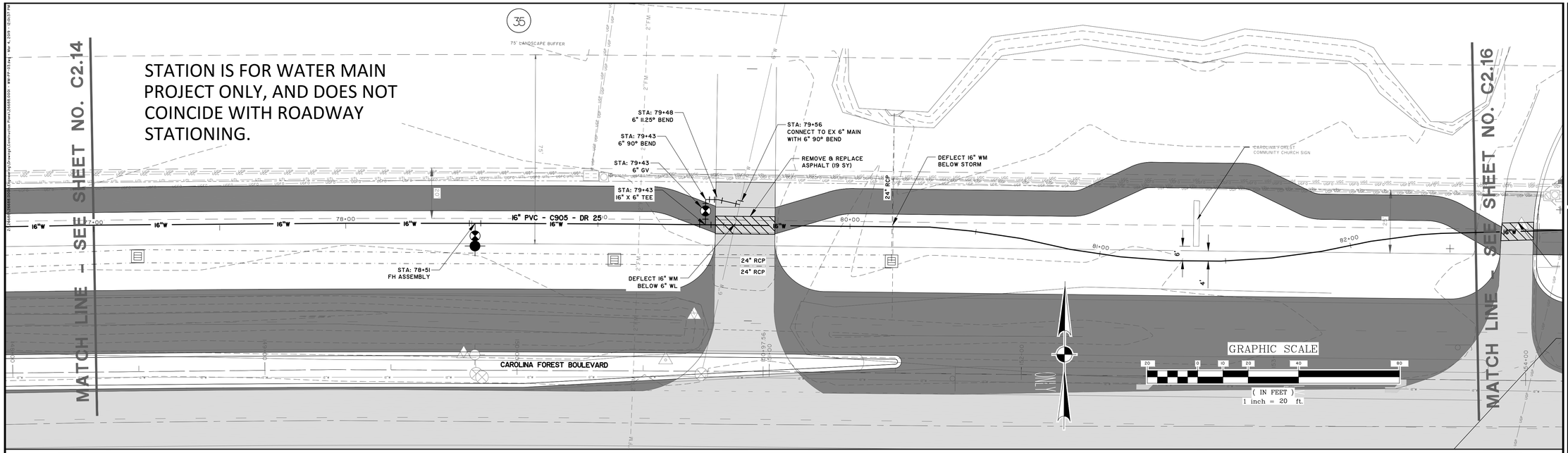
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

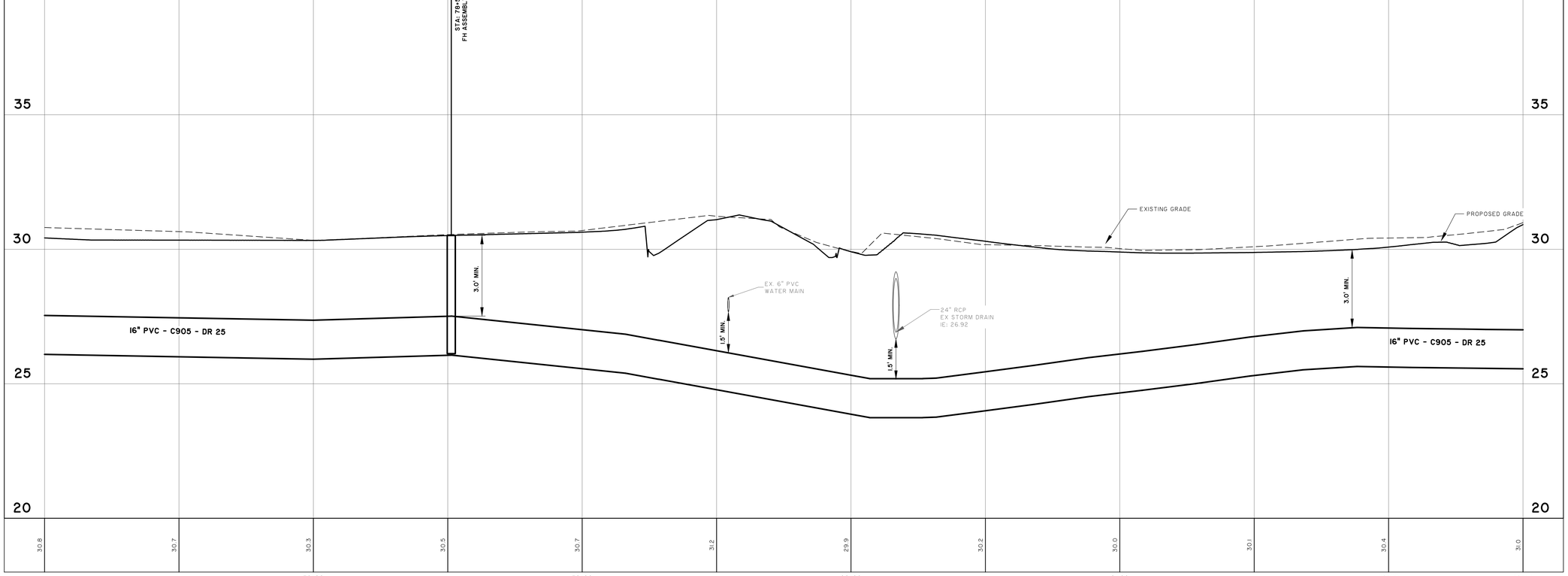
PLAN AND PROFILE

JOB NO:	J-26688.0001
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REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.14

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 77+00 – 82+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

NO.	REVISIONS	BY	DATE

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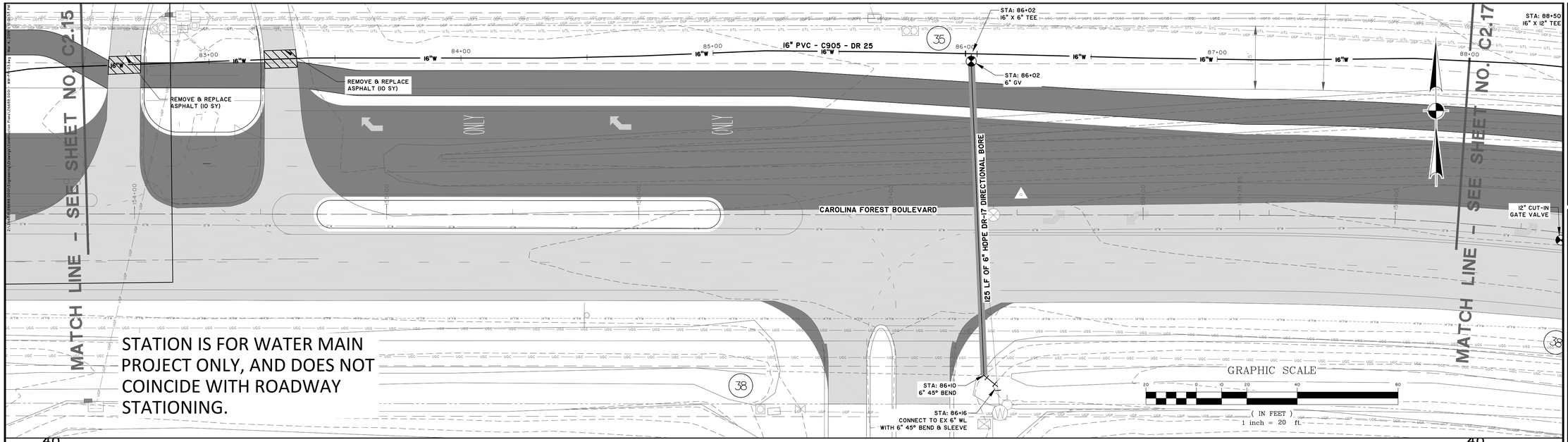
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

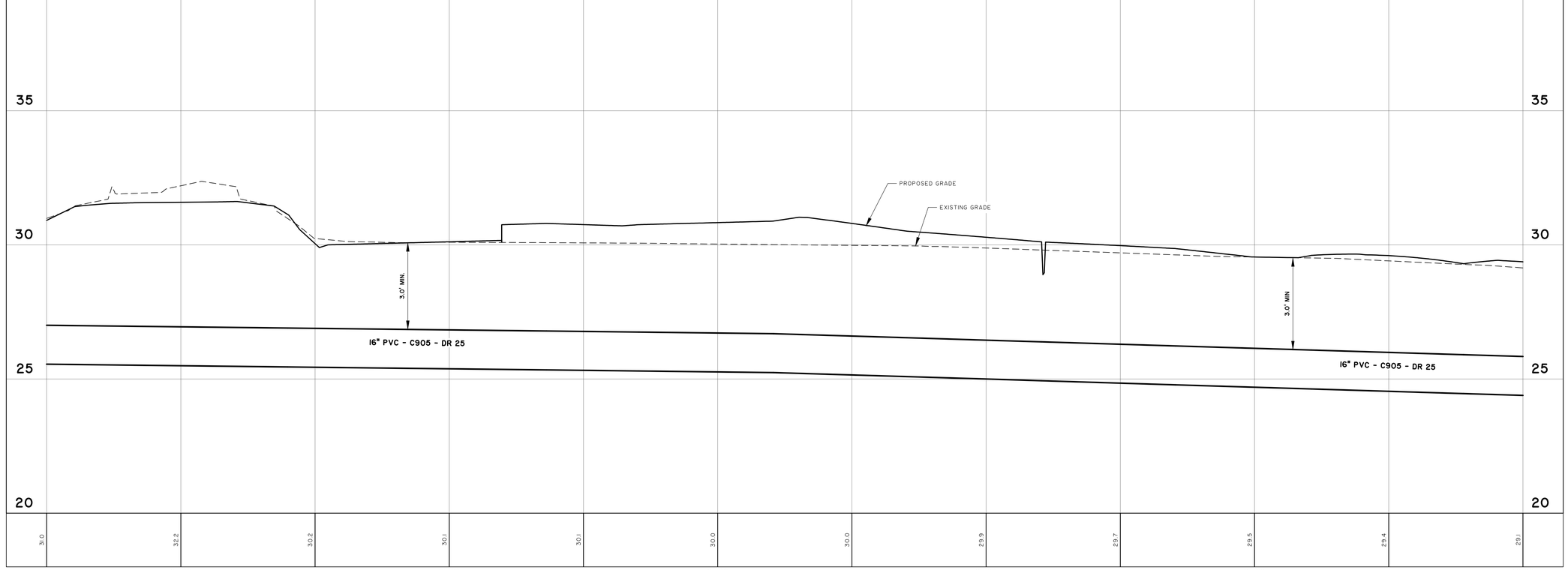
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.15





26688.0001 – 16 INCH WATER MAIN
STATIONS: 82+50 – 88+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE CORPORATION THOMAS & HUTTON ENGINEERING CO. No. C00268 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN H. RICHARDS No. 29404 CERTIFICATE OF AUTHORIZATION

19MAR19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

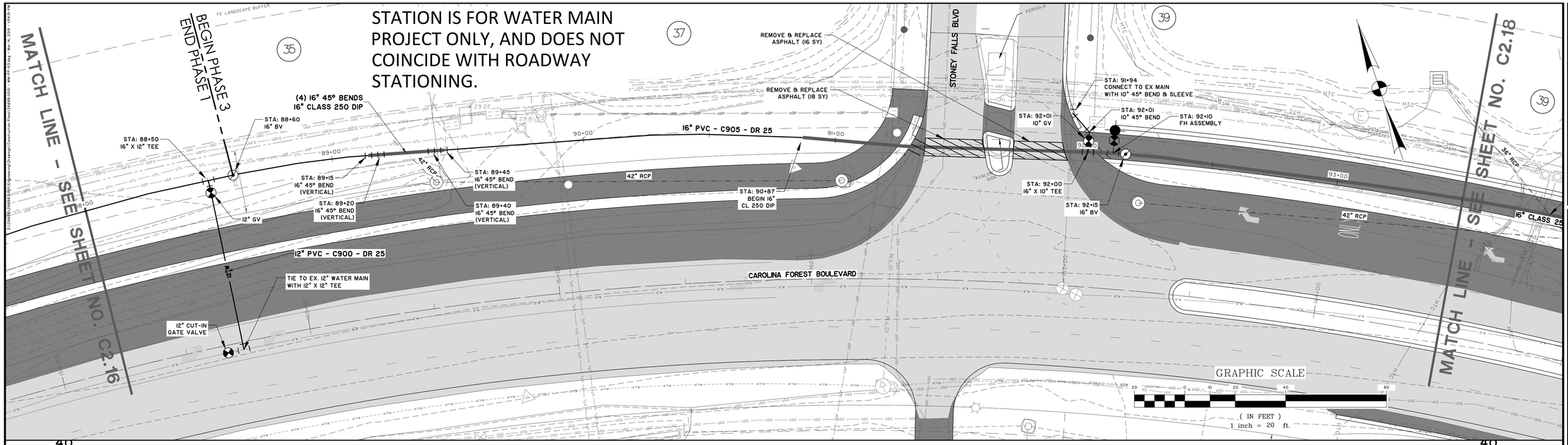
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

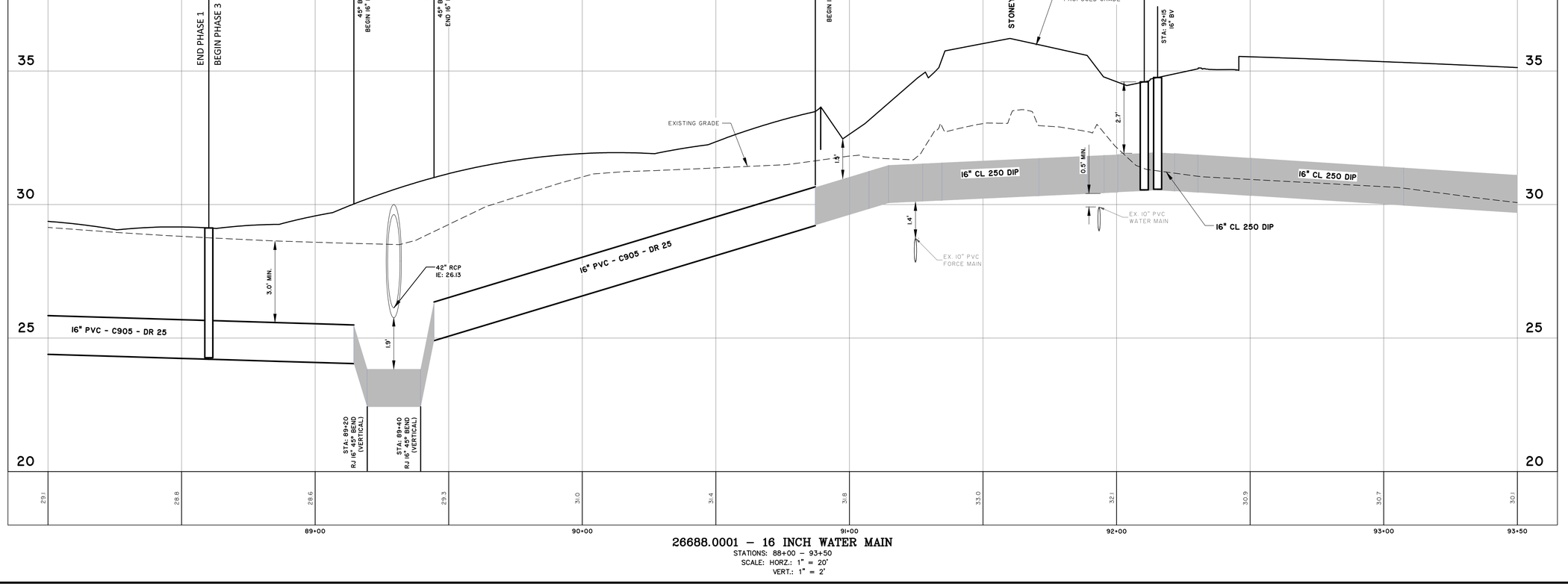
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.16

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 88+00 – 93+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00289
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
JOSEPH H. HUTCHINSON, III
No. 29577
REGISTERED PROFESSIONAL ENGINEER
16MAR19

NO.	REVISIONS	BY	DATE

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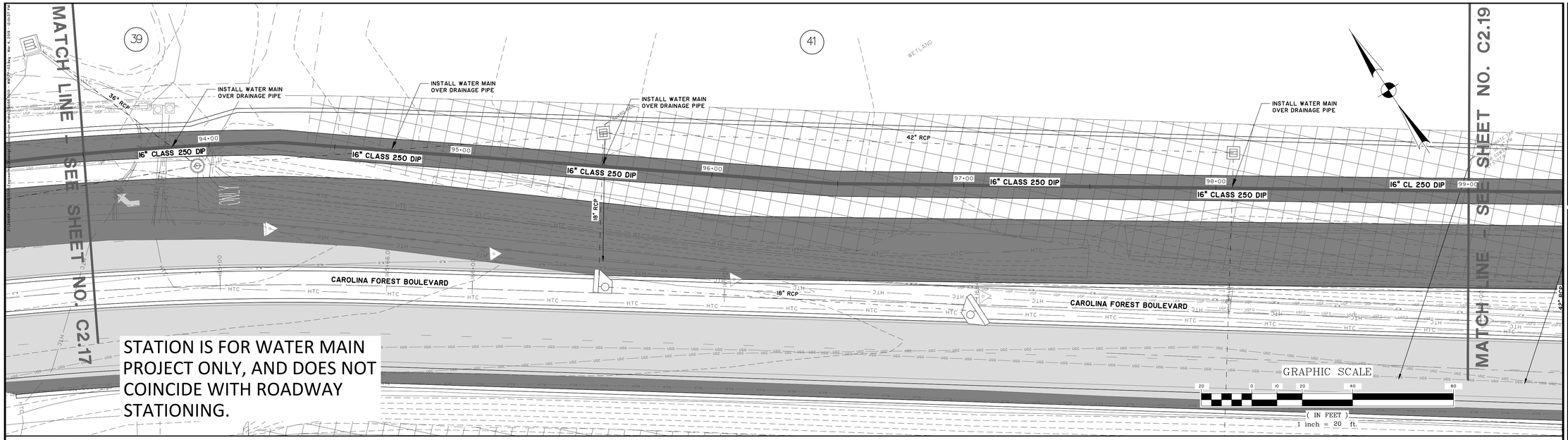
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

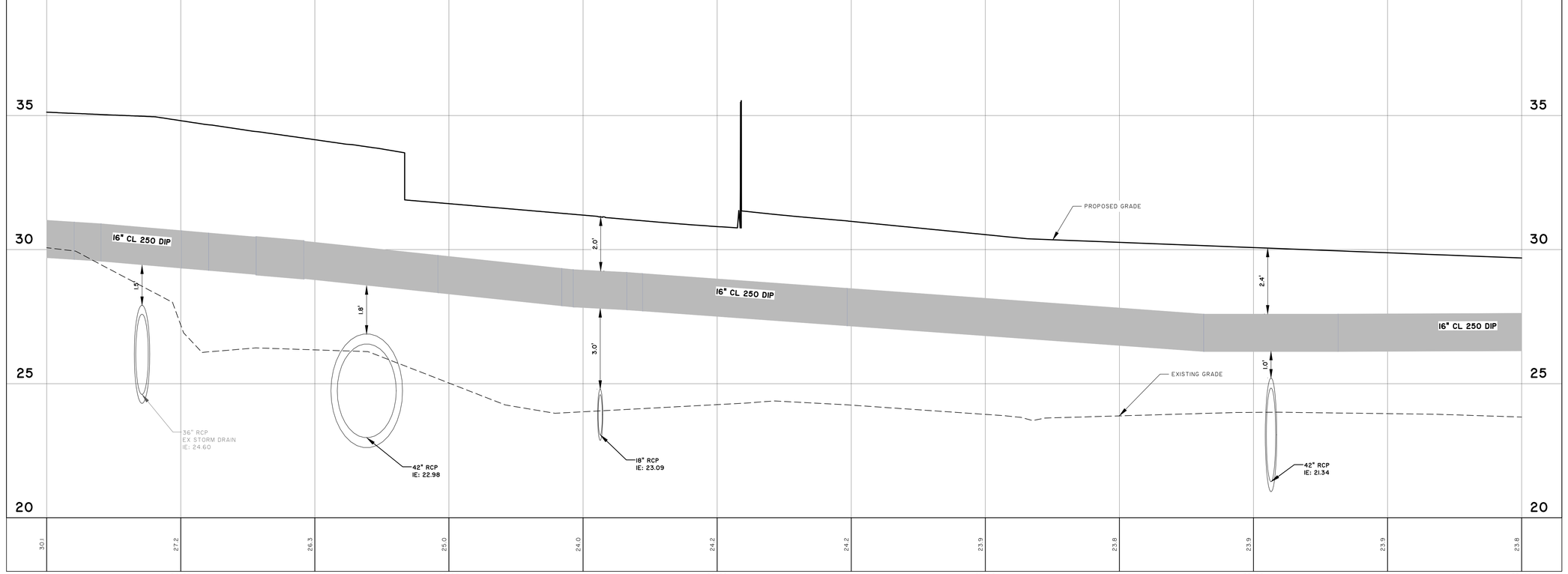
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.17





26688.0001 – 16 INCH WATER MAIN

STATIONS: 93+50 – 99+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/HUTTON THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER KEVIN E. NOLTE 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

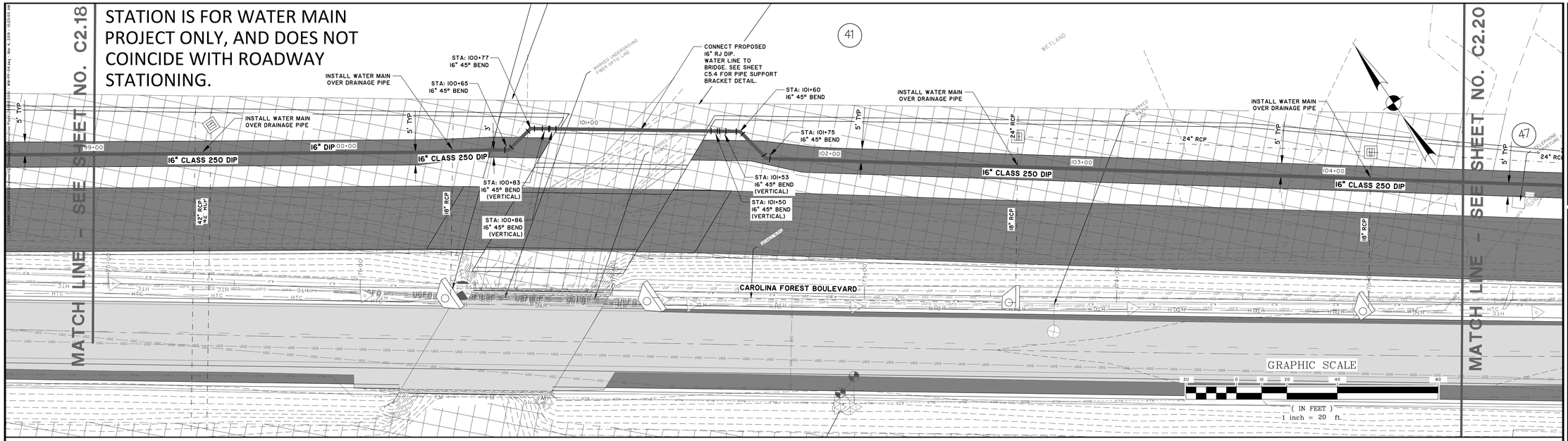
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

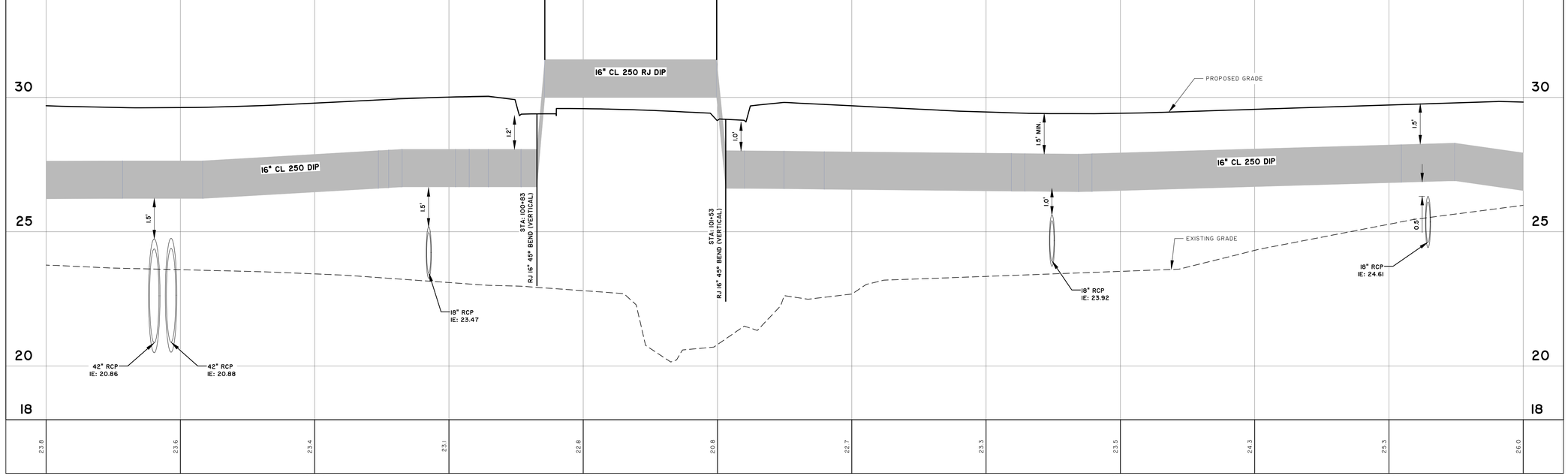
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.18

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 99+00 – 104+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN E. HUTTON, JR. — REGISTERED PROFESSIONAL ENGINEER — 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
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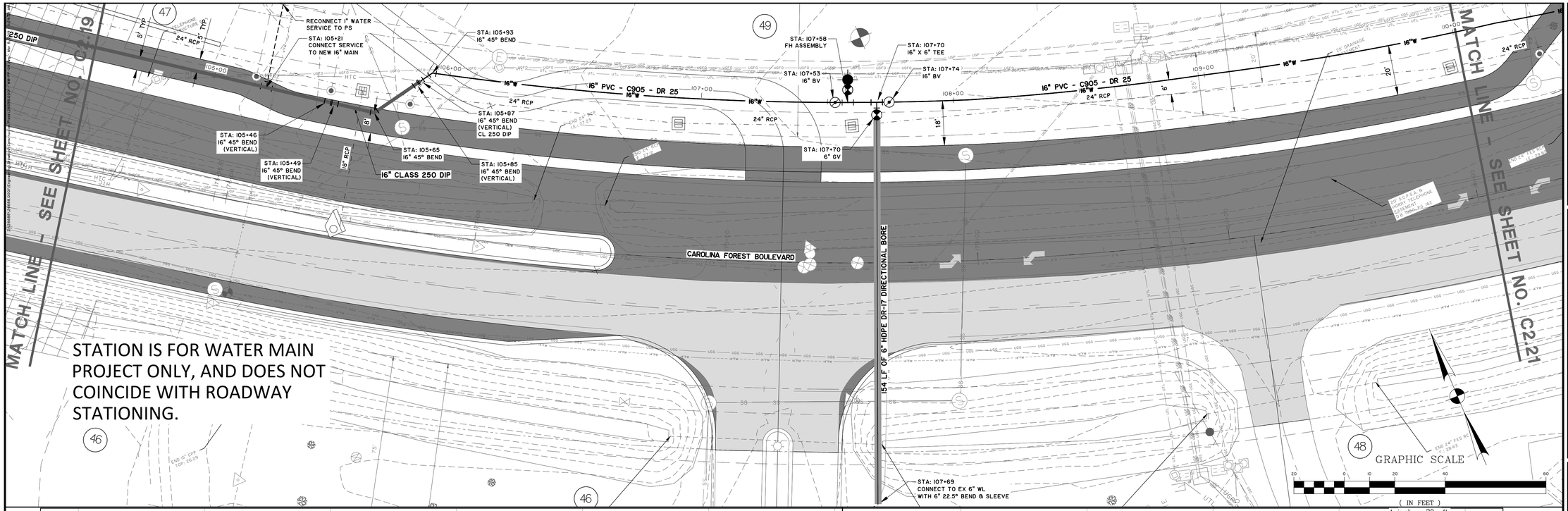
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

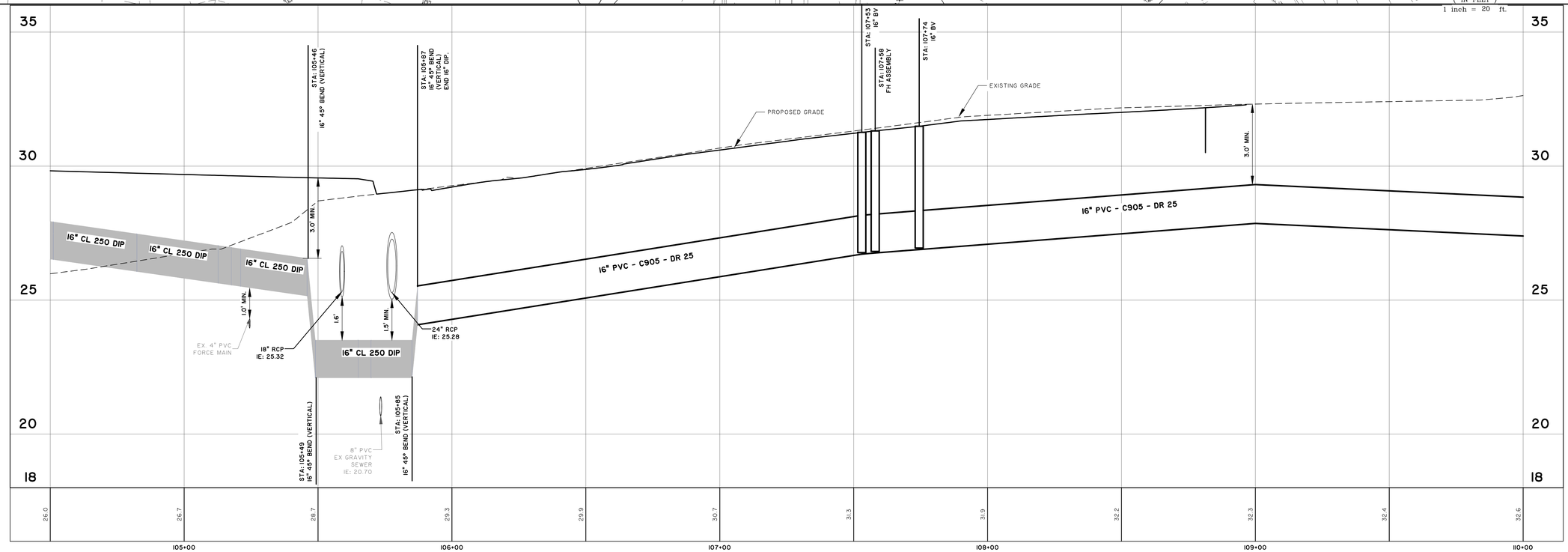
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.19





26688.0001 – 16 INCH WATER MAIN
STATIONS: 104+50 – 110+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN H. RICHARDS No. 22903 CERTIFICATE OF AUTHORIZATION THOMAS & HUTTON ENGINEERING CO. No. C00288

NO.	REVISIONS	BY	DATE

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611 Burroughs & Chapin Boulevard • Suite 202
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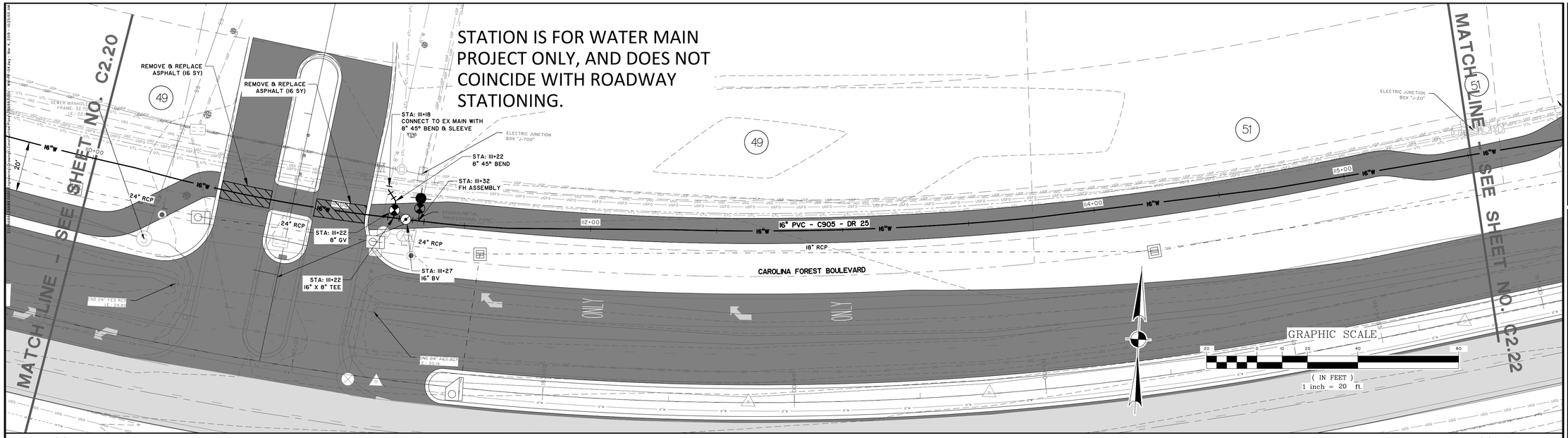
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

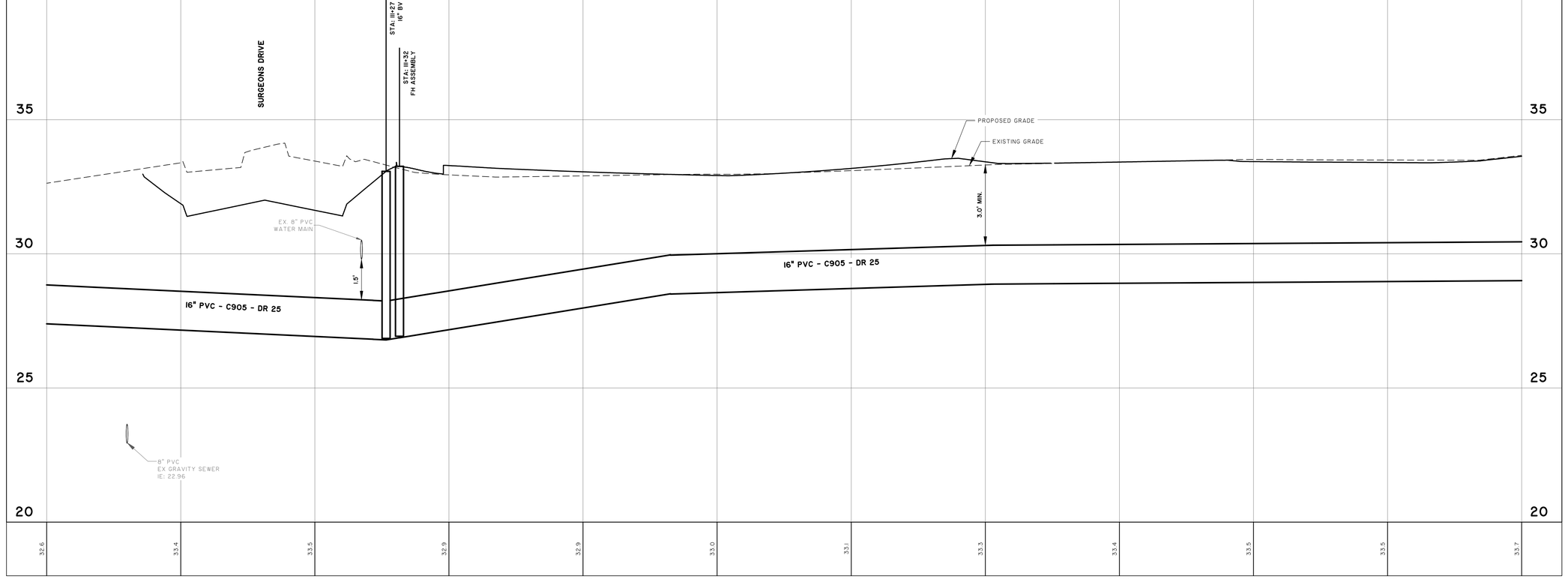
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.20





26688.0001 – 16 INCH WATER MAIN
STATIONS: 110+00 – 115+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 24660 — 8/7/19

NO.	REVISIONS	BY	DATE

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www.thomasandhutton.com

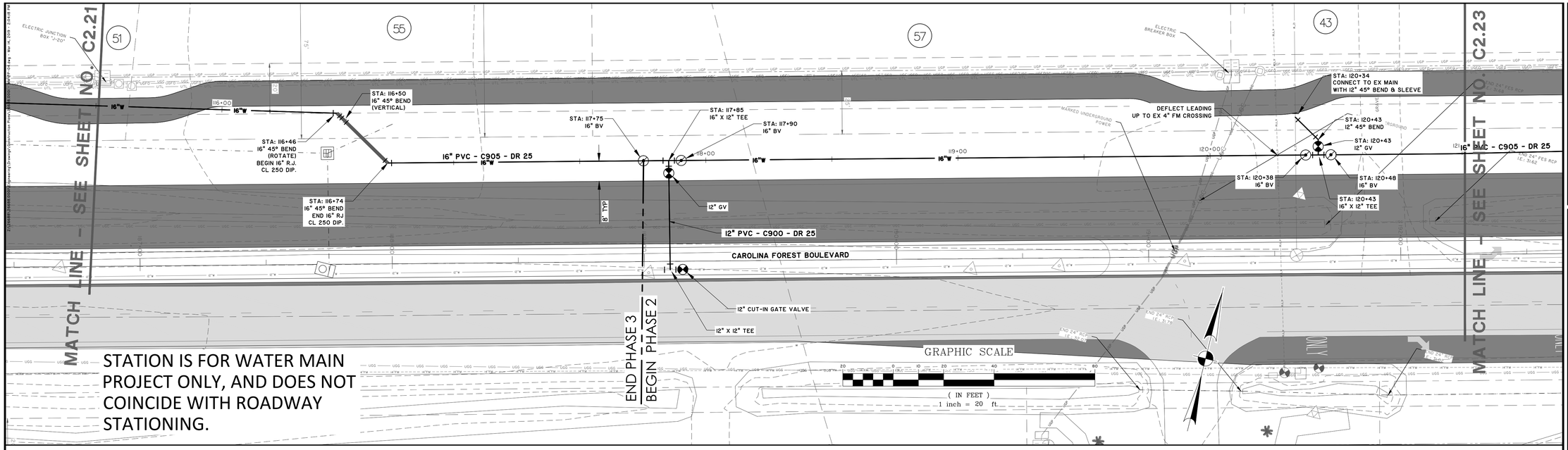
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

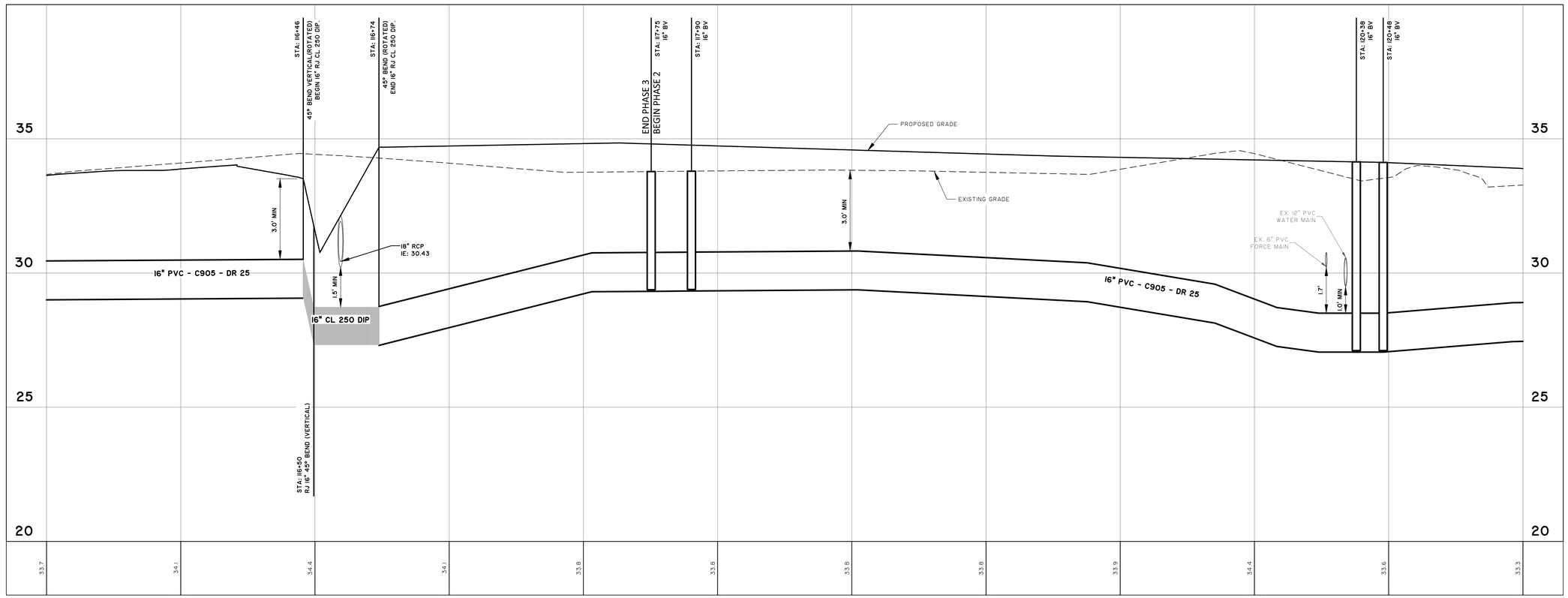
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.21



STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.



26688.0001 – 16 INCH WATER MAIN

STATIONS: 115+50 – 121+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/THOMAS & HUTTON ENGINEERING CO. No. C00268 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER KEVIN E. NOLTE 16MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3345
www.thomasandhutton.com

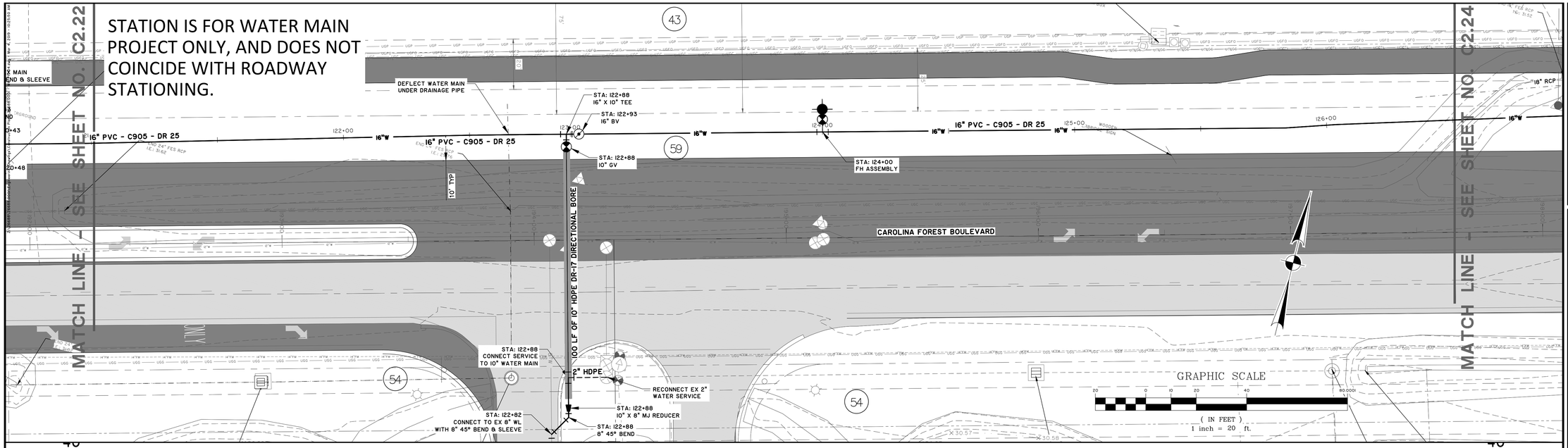
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.22



26688.0001 – 16 INCH WATER MAIN
STATIONS: 121+00 – 126+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION — NOLTY WORTHINGTON

SOUTH CAROLINA — PROFESSIONAL ENGINEER — KEN E. NOLTY WORTHINGTON — 19MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

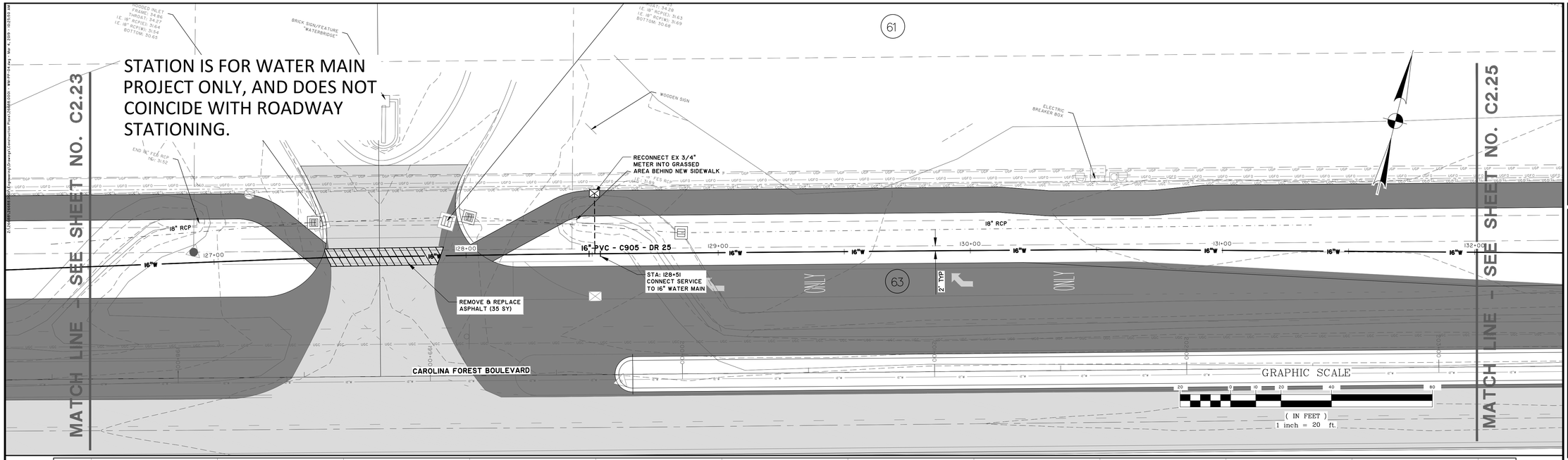
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

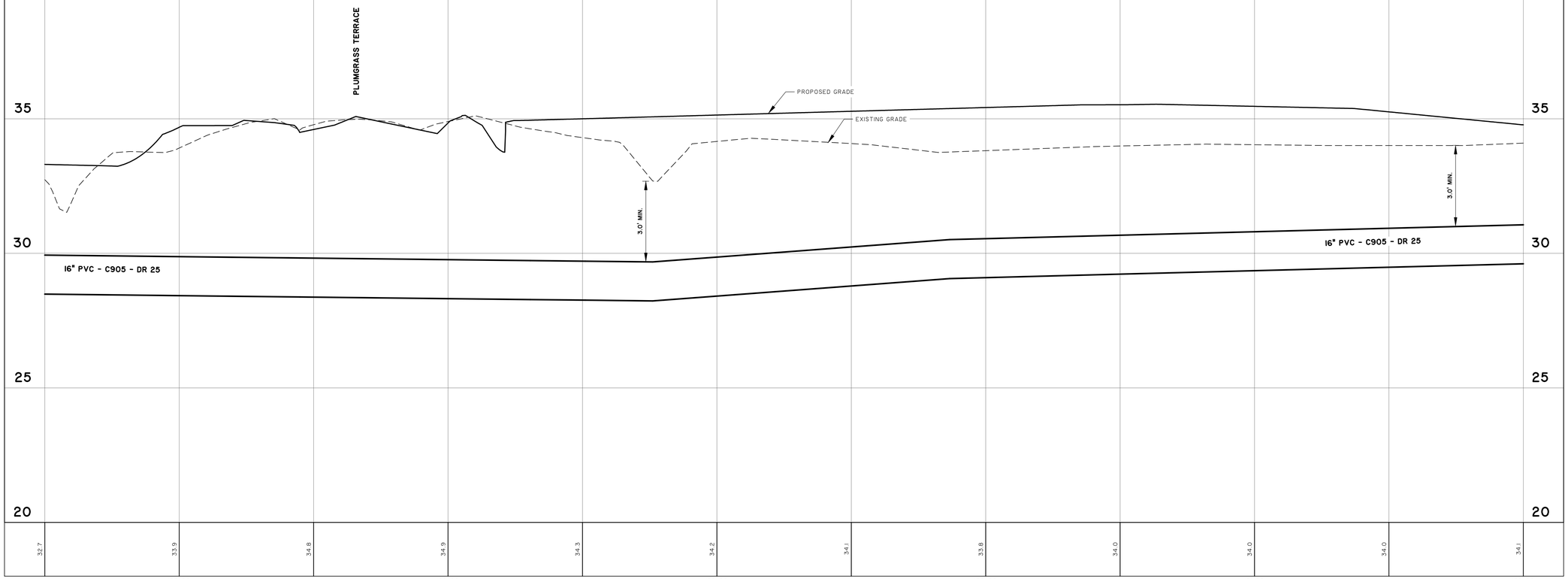
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.23

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN
STATIONS: 126+50 – 132+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE VORHOFF THOMAS & HUTTON ENGINEERING CO. No. C00268 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER JAMES H. RICHARDS 18MAR19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

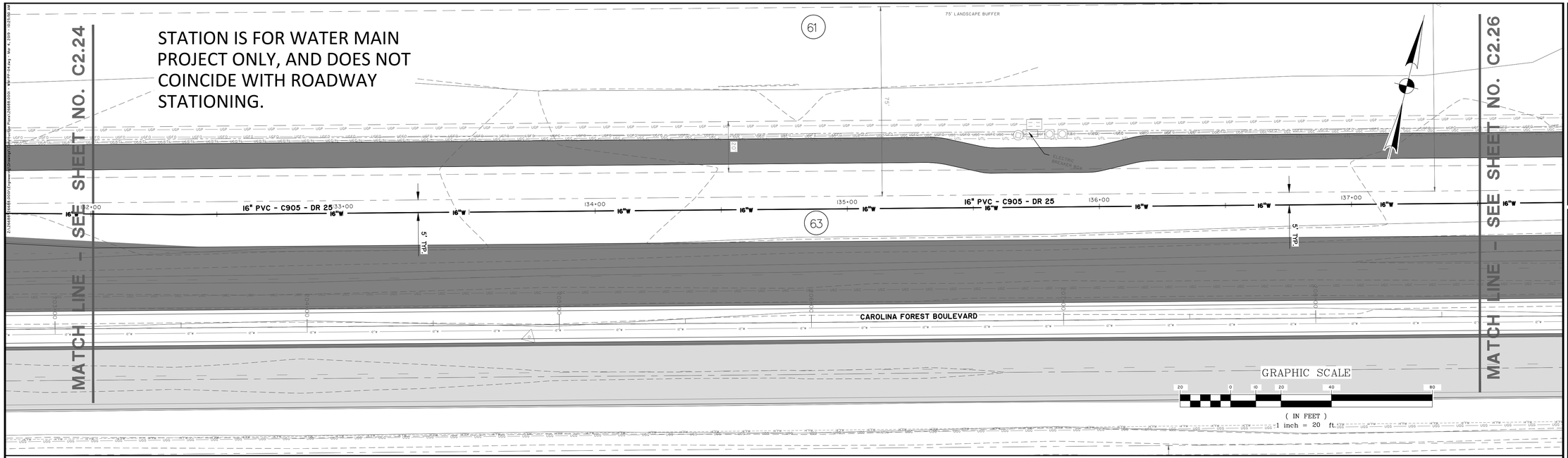
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

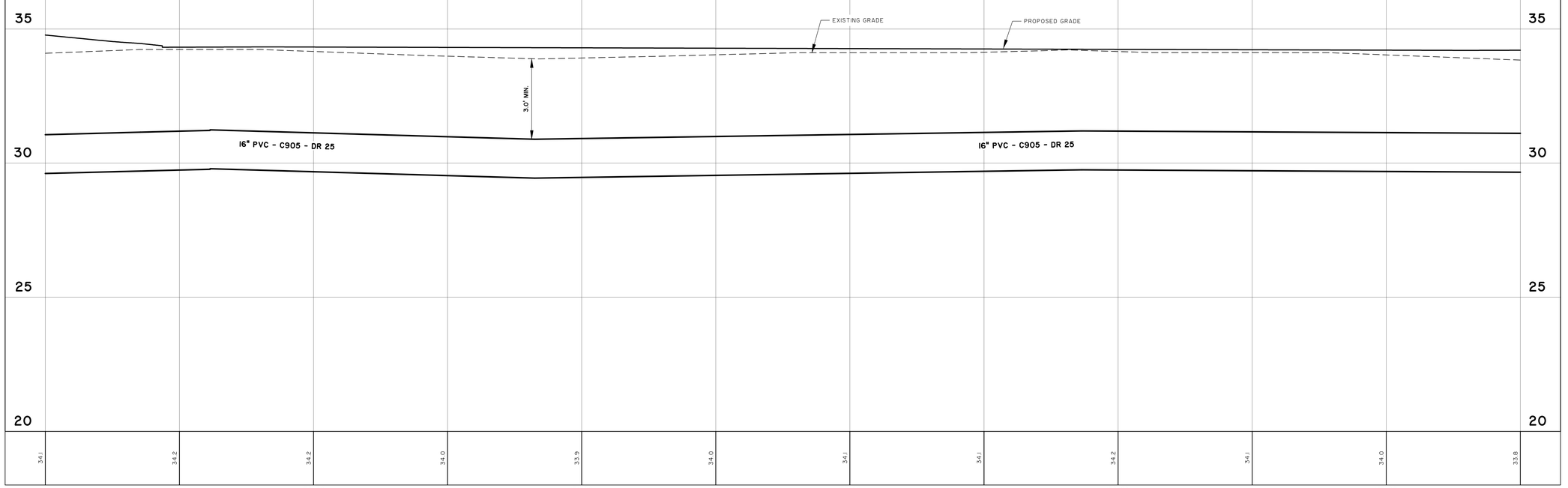
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.24

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 132+00 – 137+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — KEN R. HARRIS — 29684 — REGISTERED PROFESSIONAL ENGINEER

8/7/19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

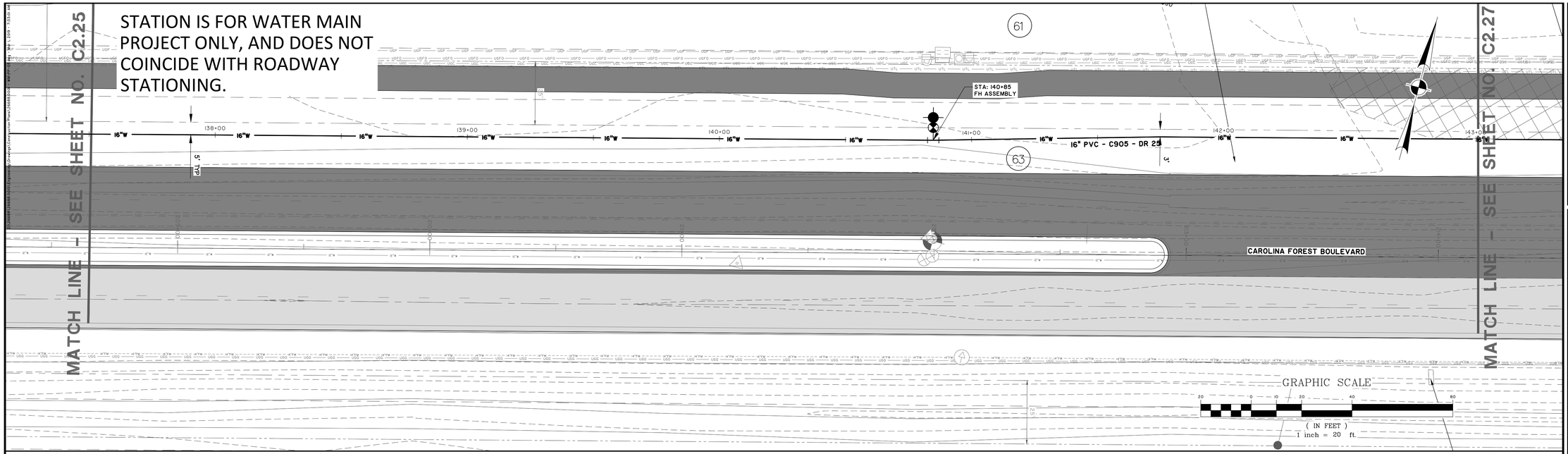
JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.25

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.25

MATCH LINE - SEE SHEET NO. C2.27





26688.0001 – 16 INCH WATER MAIN

STATIONS: 137+50 – 143+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. RICHARDS — REGISTERED PROFESSIONAL ENGINEER

8/7/19

NO.	REVISIONS	BY	DATE

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Myrtle Beach, SC 29577 • 843.839.3545
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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

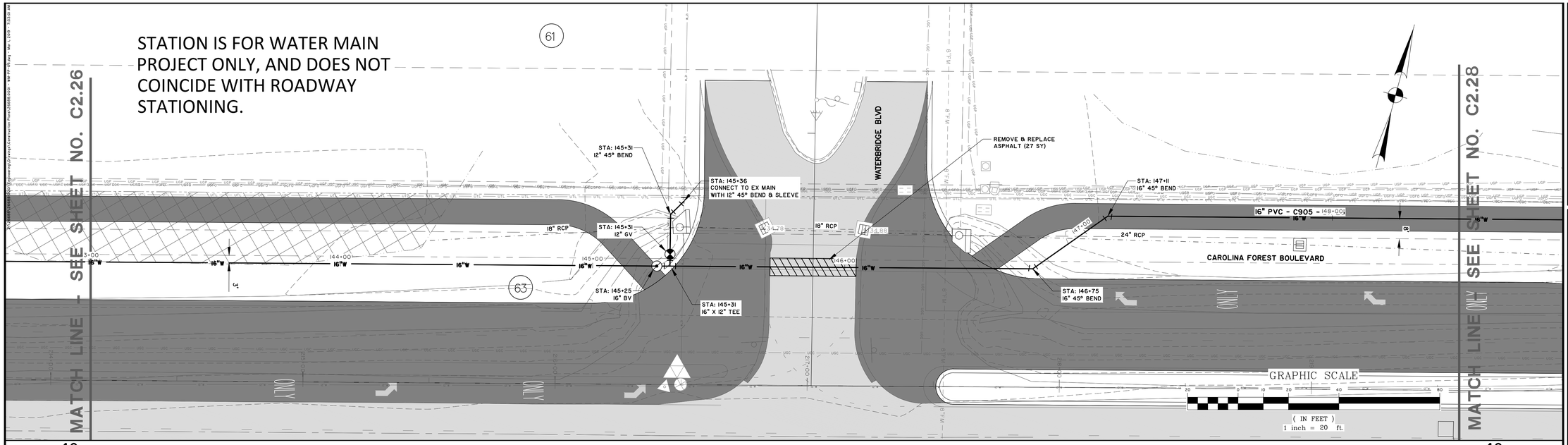
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

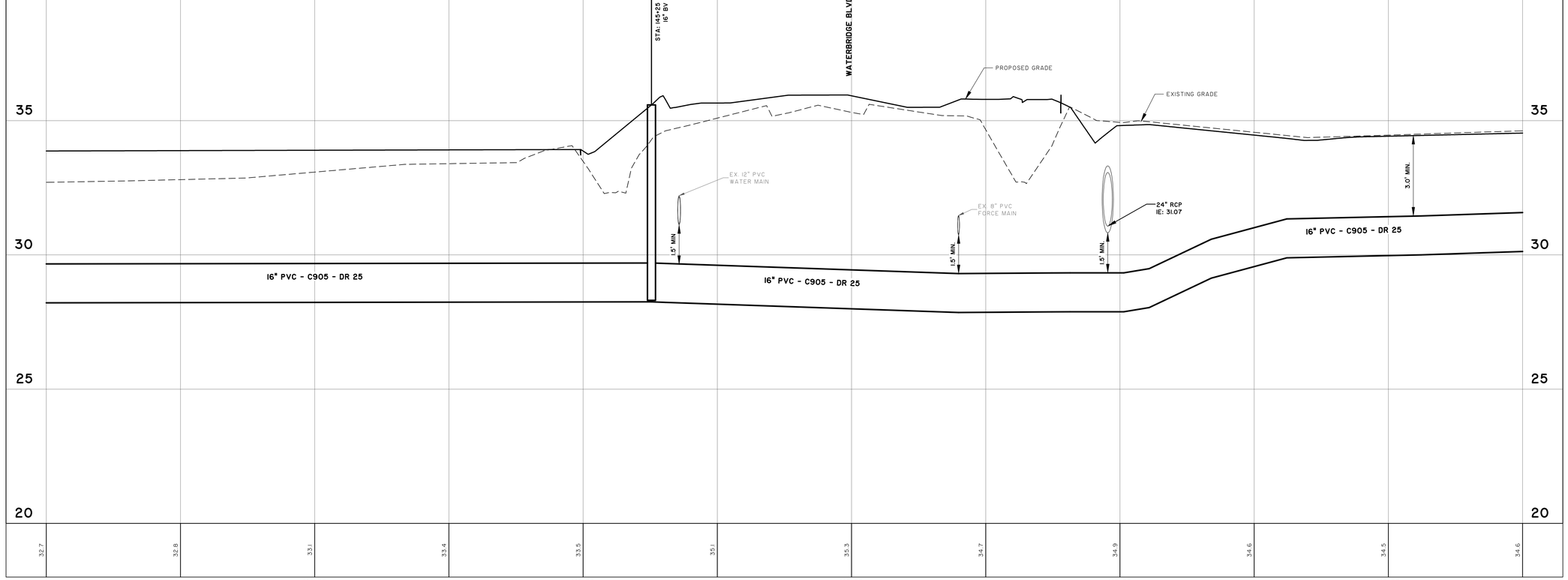
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/19
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.26

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 143+00 – 148+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/HORTON THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JAMES HARRISON HORTON 26688 REGISTERED PROFESSIONAL ENGINEER

8/7/19

NO.	REVISIONS	BY	DATE

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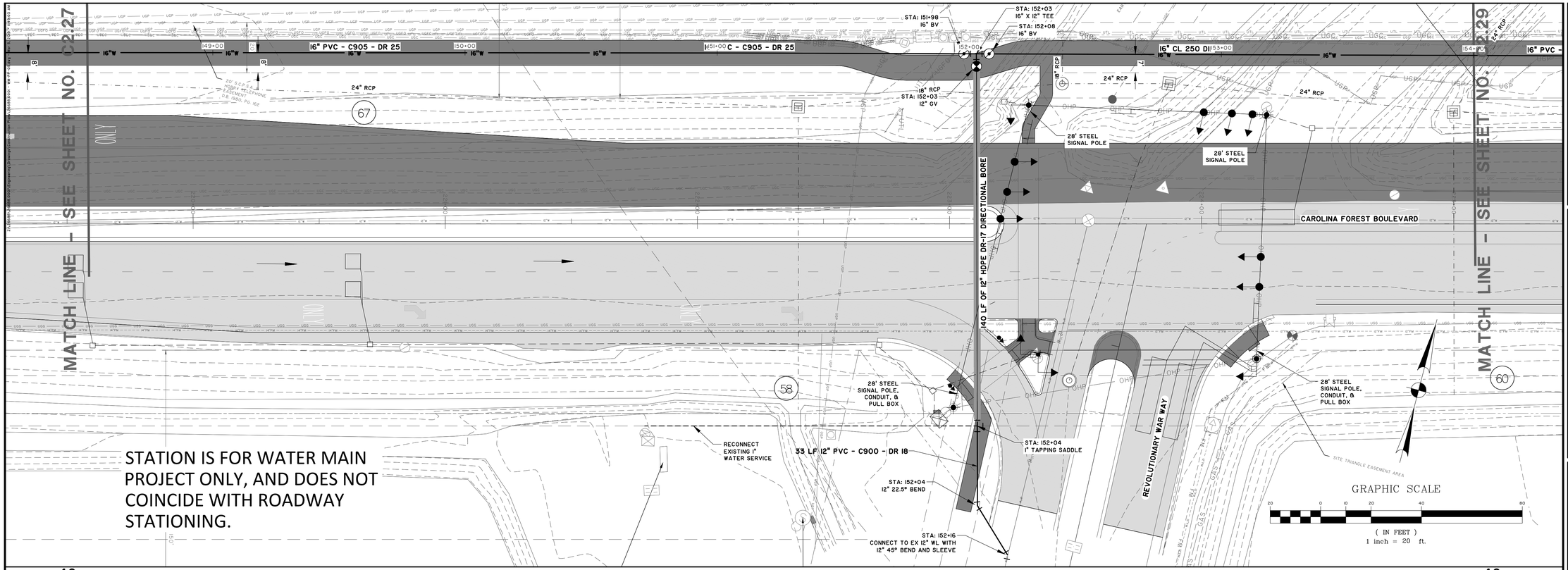
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

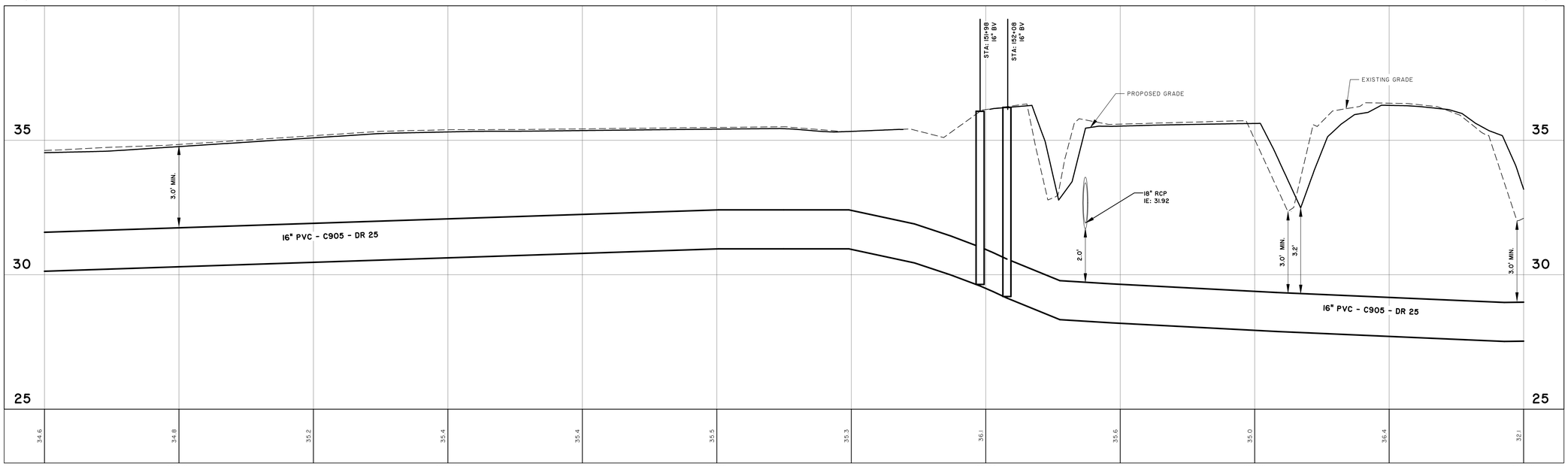
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.27



STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.



26688.0001 – 16 INCH WATER MAIN
STATIONS: 148+50 – 154+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.28

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.28

MATCH LINE - SEE SHEET NO. C2.30

16" PVC - C905 - DR 25

24" RCP

30" RCP

24" RCP

24" RCP

CAROLINA FOREST BLVD. (100' PUBLIC R/W)

CAROLINA FOREST BOULEVARD

INDIGO BAY CIRCLE

STA: 159+16 CONNECT TO EX MAIN WITH 8" 45° BEND

STA: 159+11 8" 45° BEND

STA: 159+11 8" GV

STA: 159+11 16" X 8" TEE

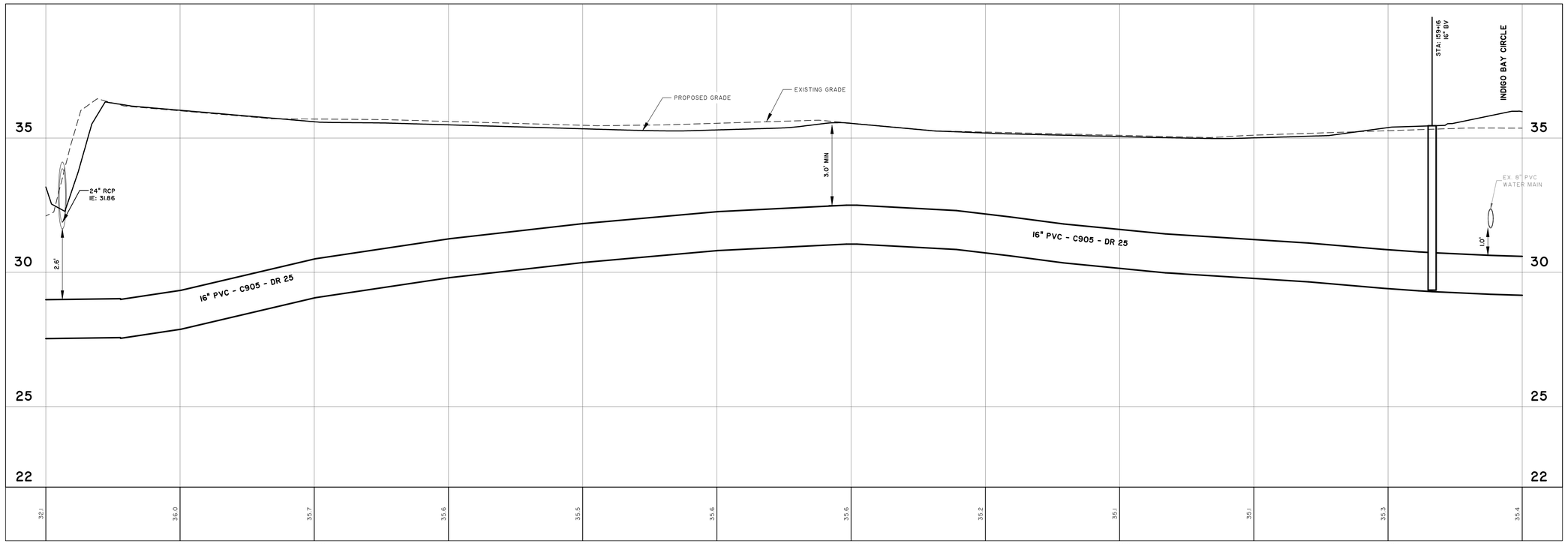
STA: 159+16 16" BV

REMOVE & REPLACE ASPHALT (17 SY)

REMOVE & ASPHALT (

GRAPHIC SCALE

(IN FEET)
1 inch = 20.0003



26688.0001 – 16 INCH WATER MAIN

STATIONS: 154+00 – 159+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTENIUS THOMAS & HUTTON ENGINEERING CO. No. C00268 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JAMES HUTTON REGISTERED PROFESSIONAL ENGINEER

1 8 MAR 19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

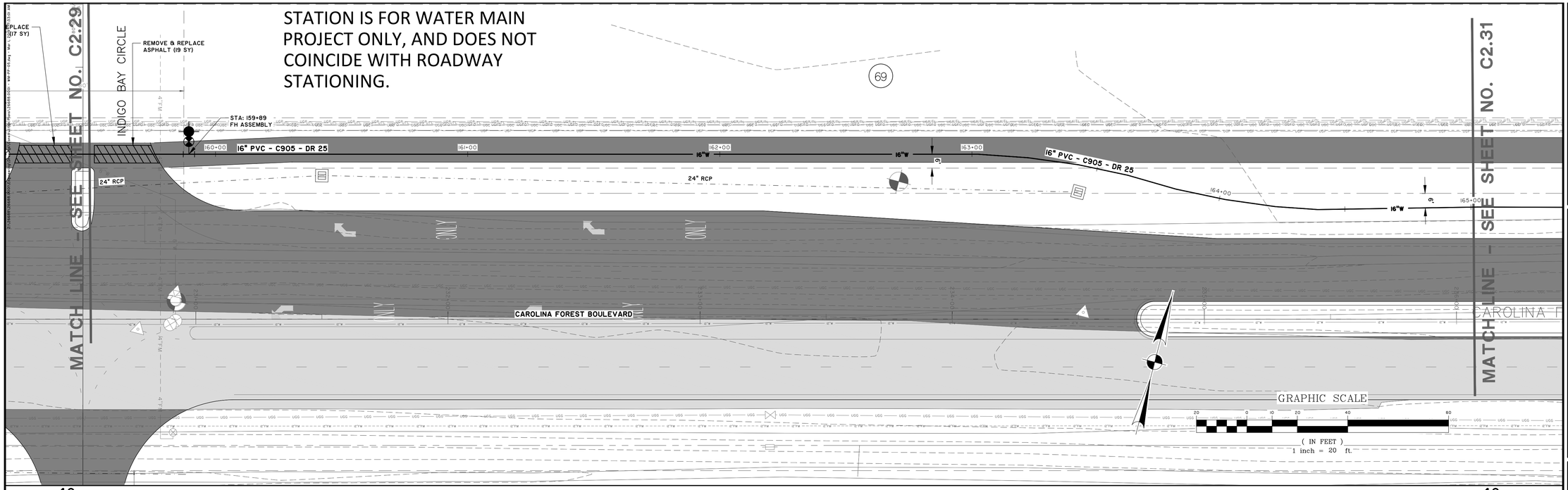
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

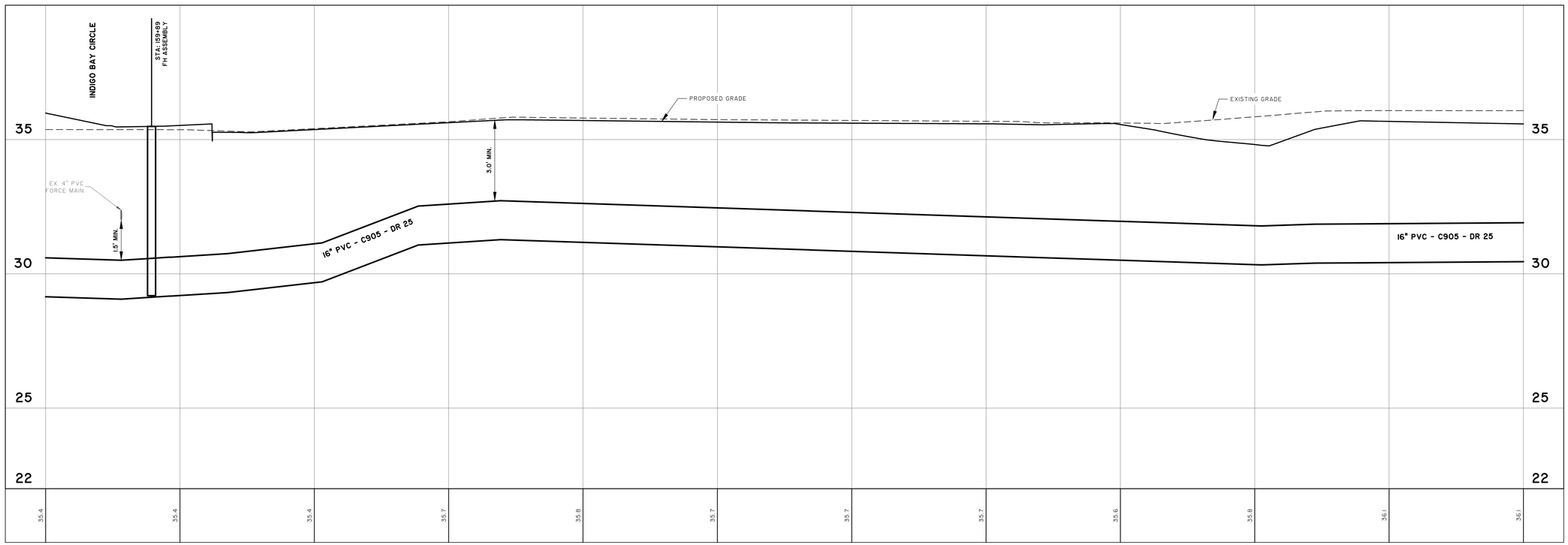
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.29

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN
STATIONS: 159+50 – 165+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOSHUA H. RICHARDS — No. 29893 — 8/7/19

NO.	REVISIONS	BY	DATE

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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.30

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE – SEE SHEET NO. C2.30

MATCH LINE – SEE SHEET NO. C2.32

69

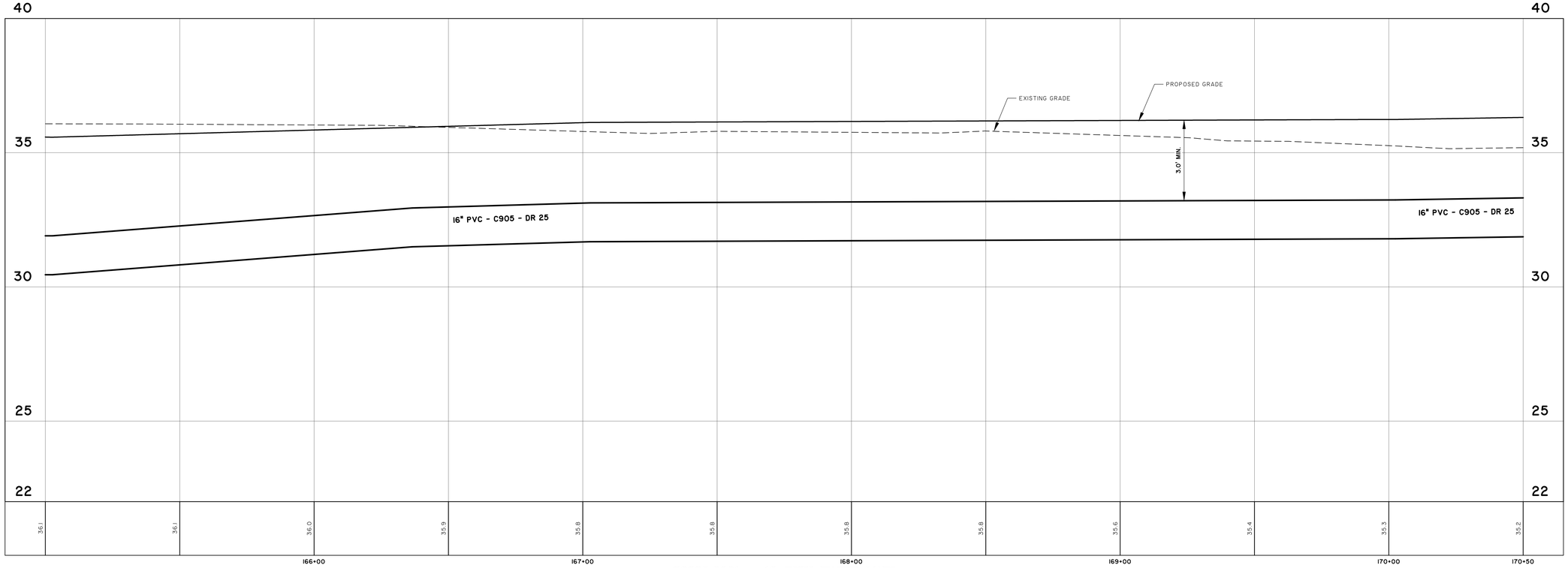
165+00 166+00 167+00 168+00 169+00 170+00

16"W 16"W 16"W 16"W 16"W 16"W 16"W 16"W 16"W 16"W 16"W 16"W

16" PVC - C905 - DR 25

CAROLINA FOREST BOULEVARD

GRAPHIC SCALE
20 0 10 20 40 80.000
(IN FEET)
1 inch = 20 ft.



26688.0001 – 16 INCH WATER MAIN
STATIONS: 165+00 – 170+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/HUTTON THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER H. HUTTON 18MAR19

NO.	REVISIONS	BY	DATE

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Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

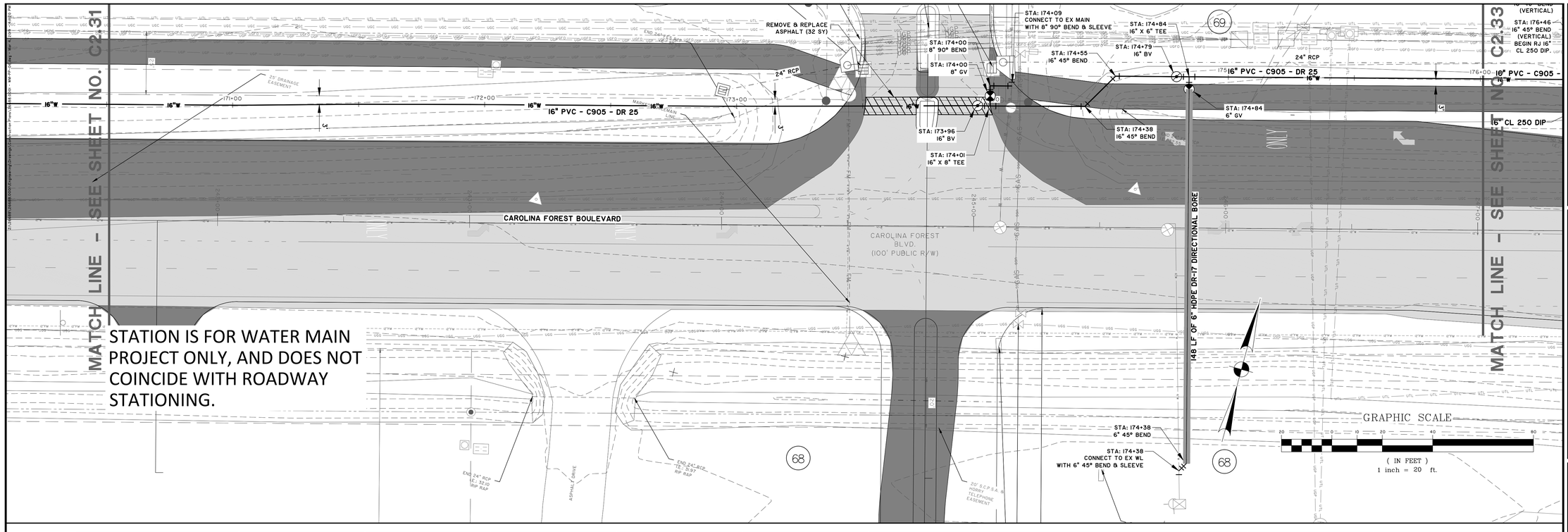
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

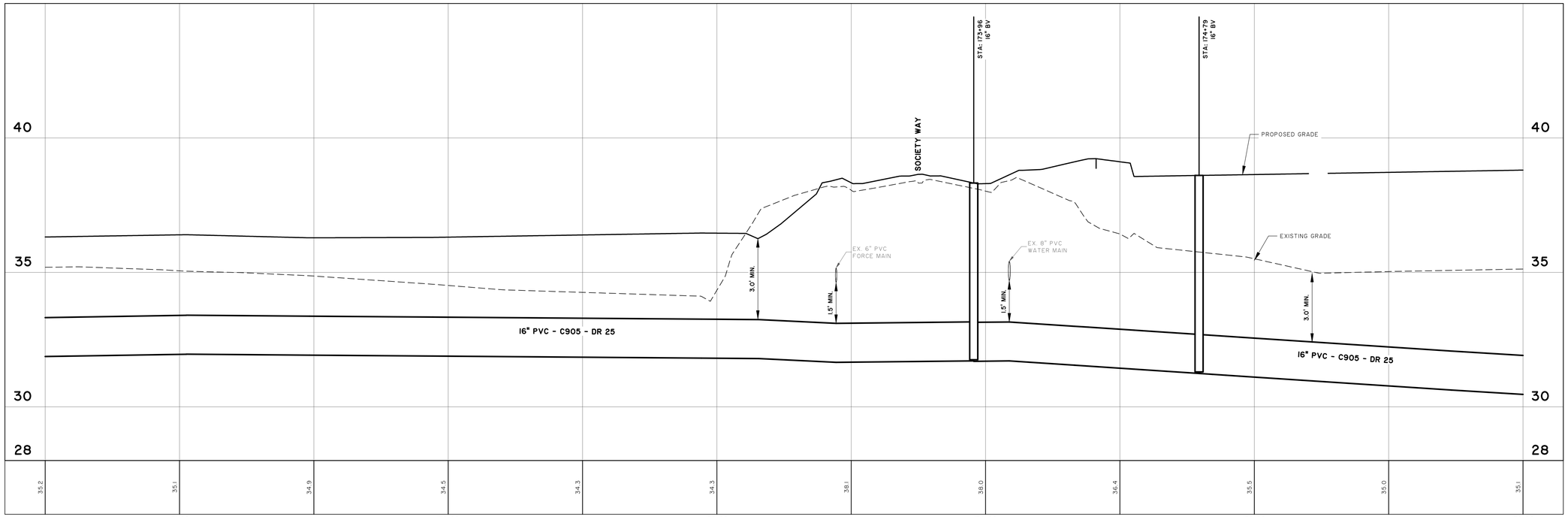
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.31





26688.0001 – 16 INCH WATER MAIN
STATIONS: 170+50 – 176+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/THOMAS & HUTTON ENGINEERING CO. No. C002689 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JAMES H. RICHARDSON, JR. 24844 REGISTERED PROFESSIONAL ENGINEER

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

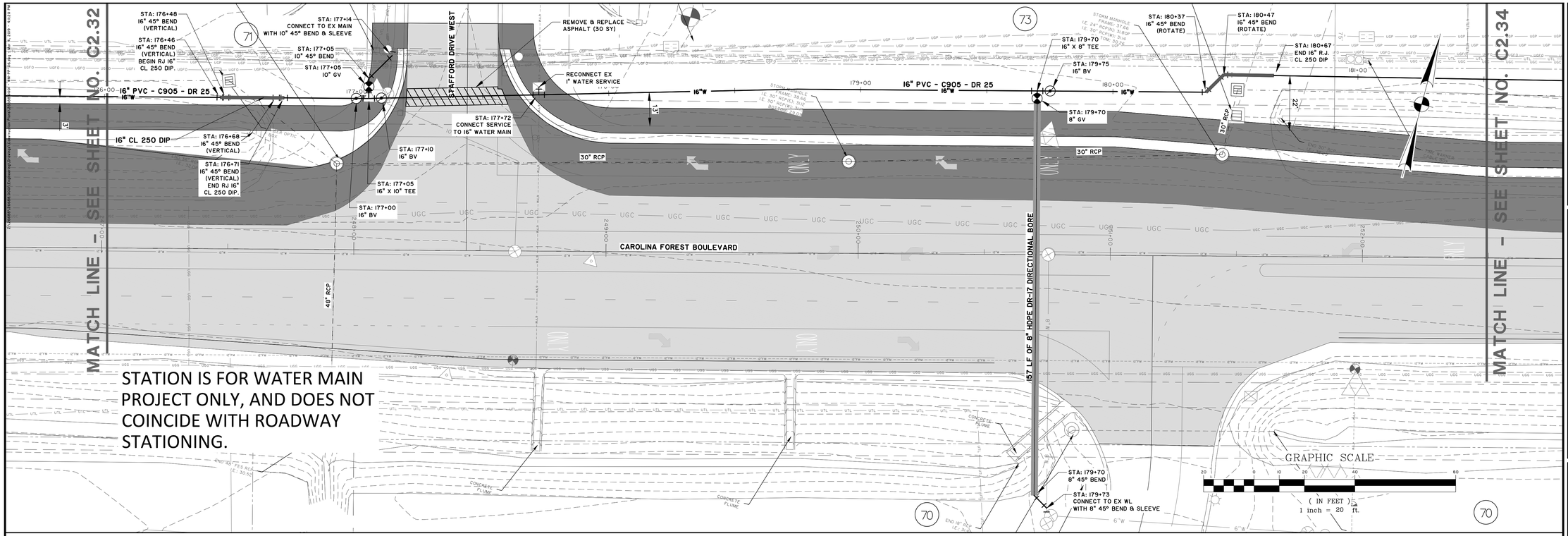
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

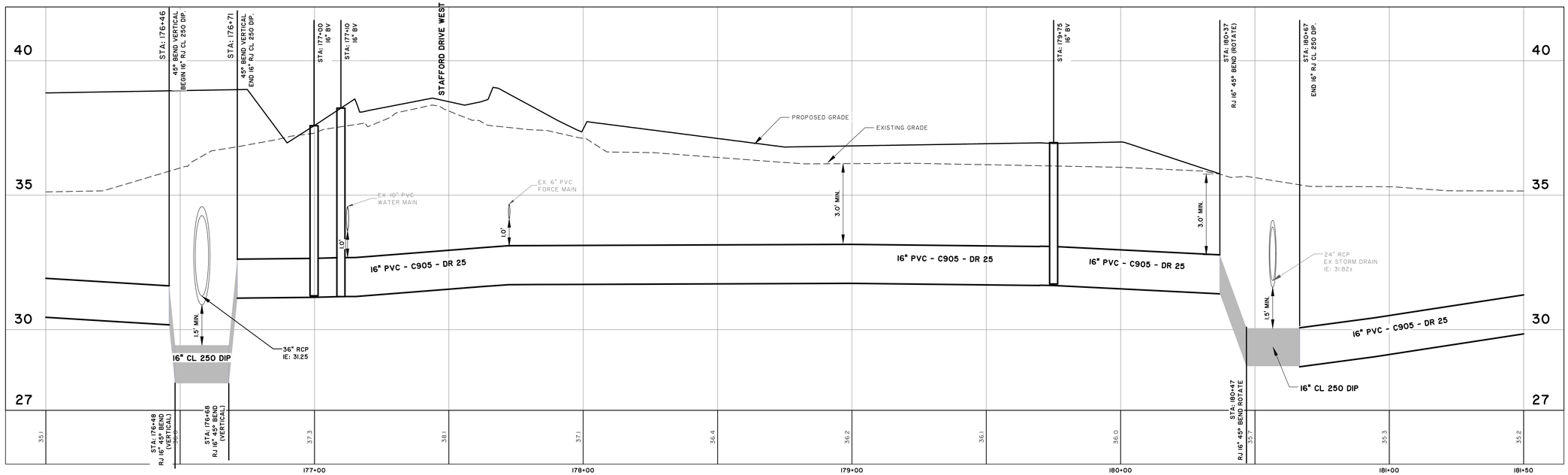
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.32





26688.0001 – 16 INCH WATER MAIN

STATIONS: 176+00 – 181+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING CO. — No. C002289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOSEPH H. HUTCHINSON, III — 19MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

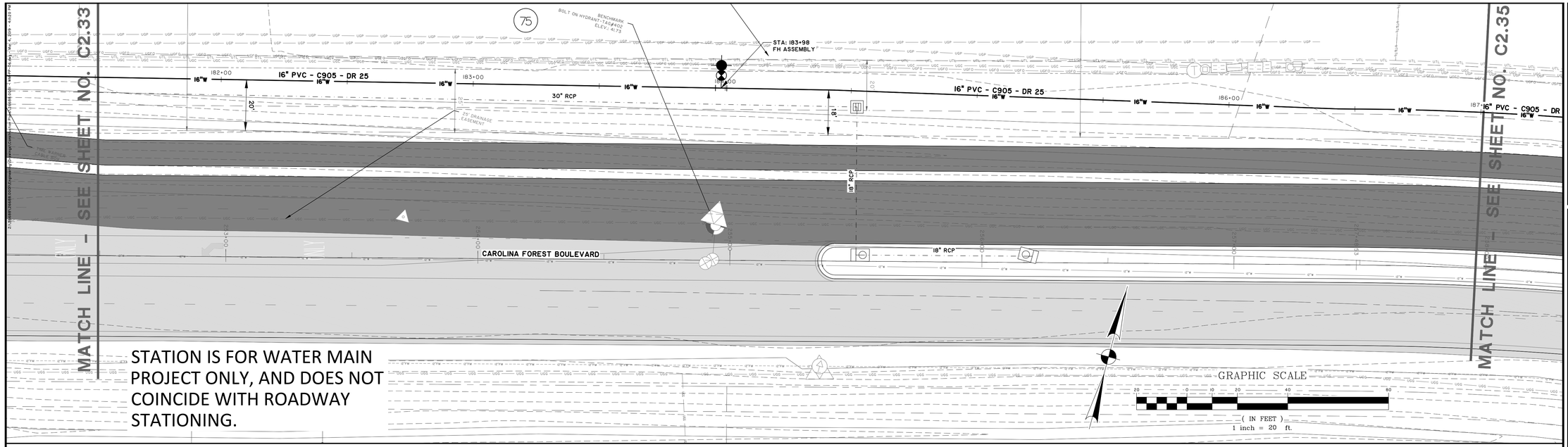
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

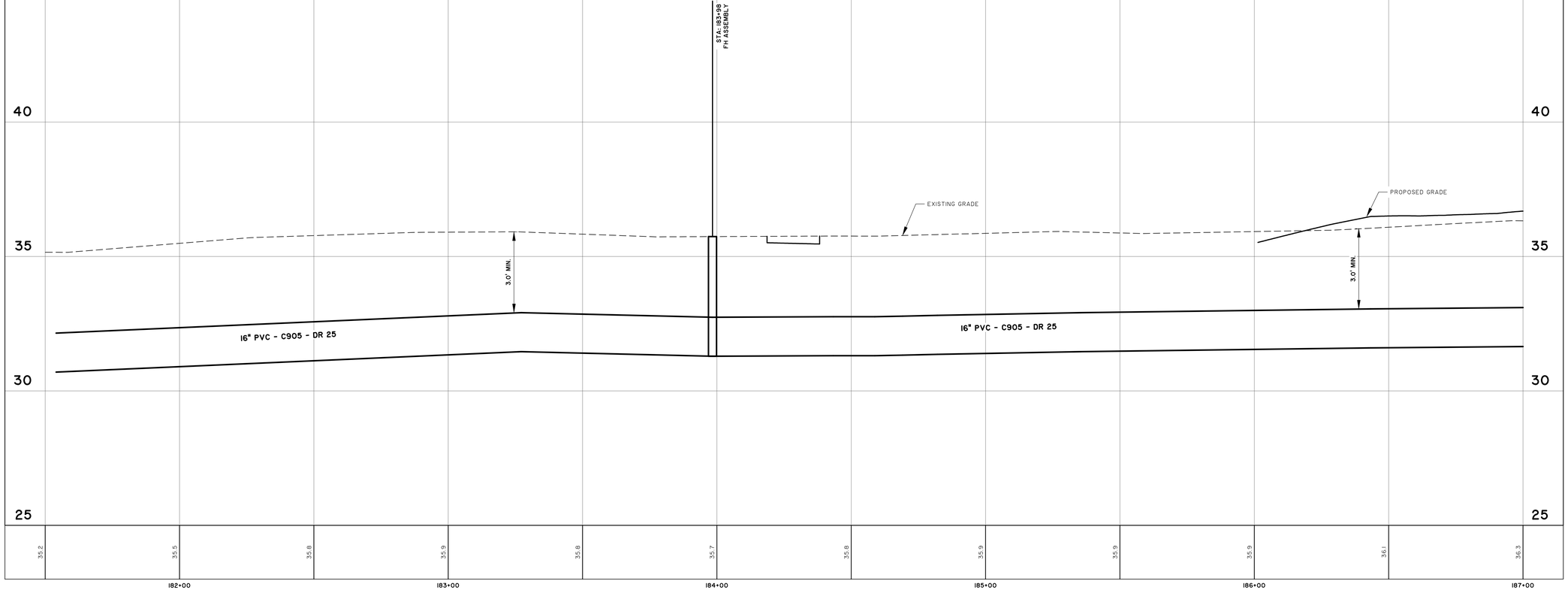
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.33





26688.0001 – 16 INCH WATER MAIN
STATIONS: 181+50 – 187+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — NOLTE VORHOFF — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

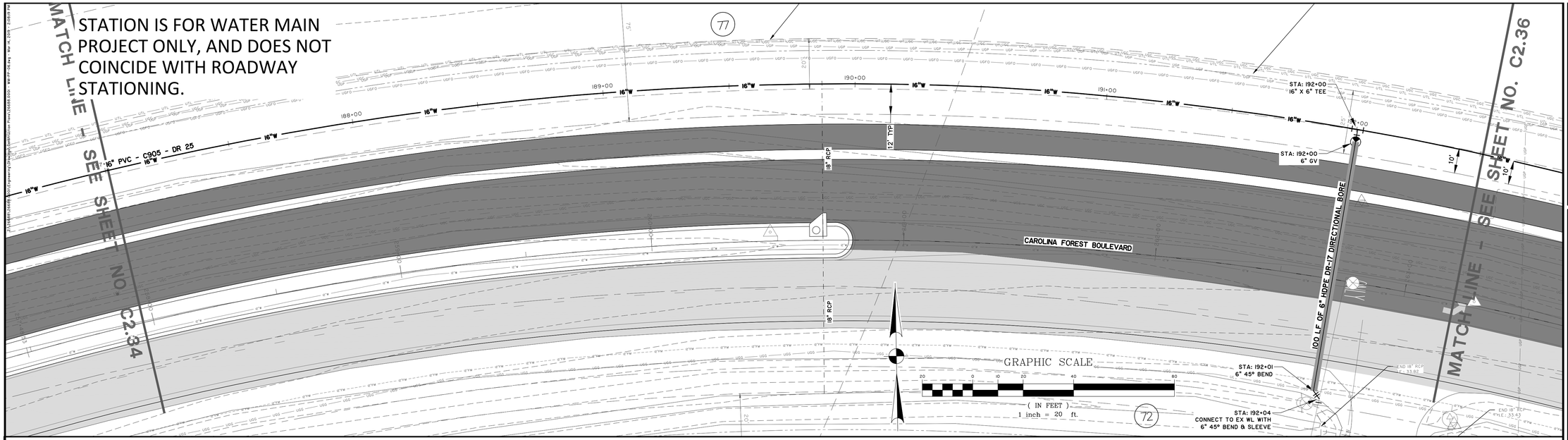
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

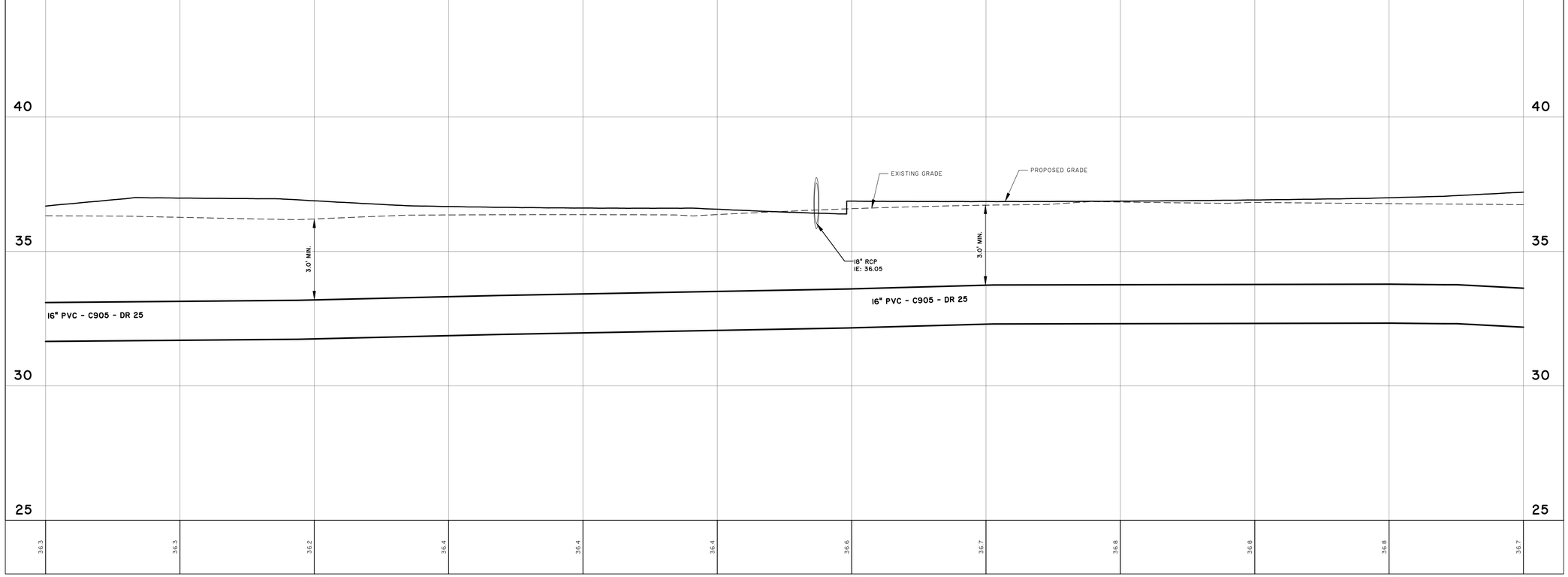
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.34

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN
STATIONS: 187+00 – 192+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTE/THOMAS & HUTTON ENGINEERING CO. No. C00268 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER KENNETH H. NOLTE 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
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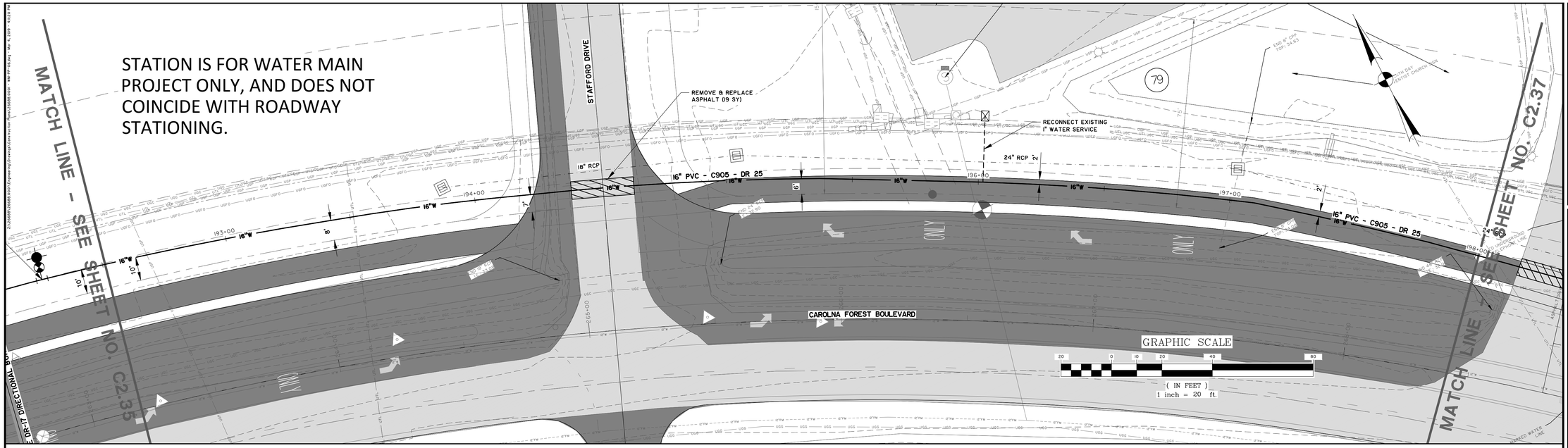
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

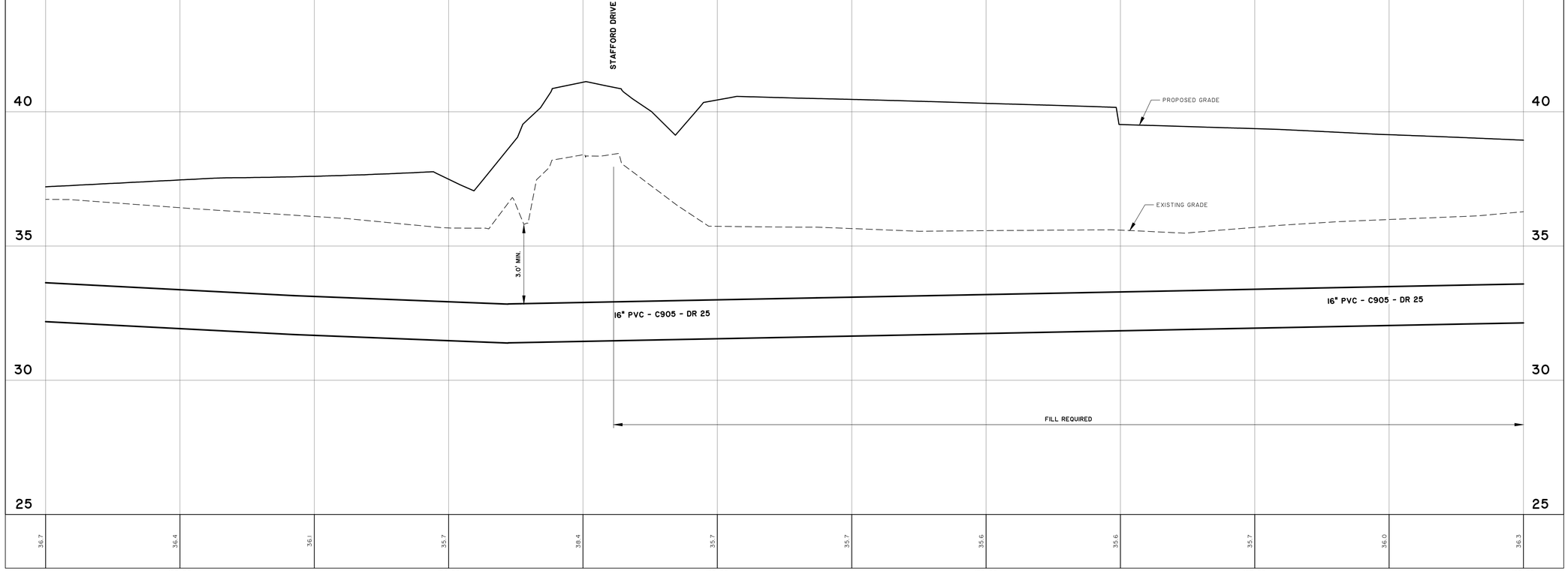
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.35





26688.0001 – 16 INCH WATER MAIN
STATIONS: 192+50 – 198+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. HUTCHINSON — 26880 — REGISTERED PROFESSIONAL ENGINEER

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

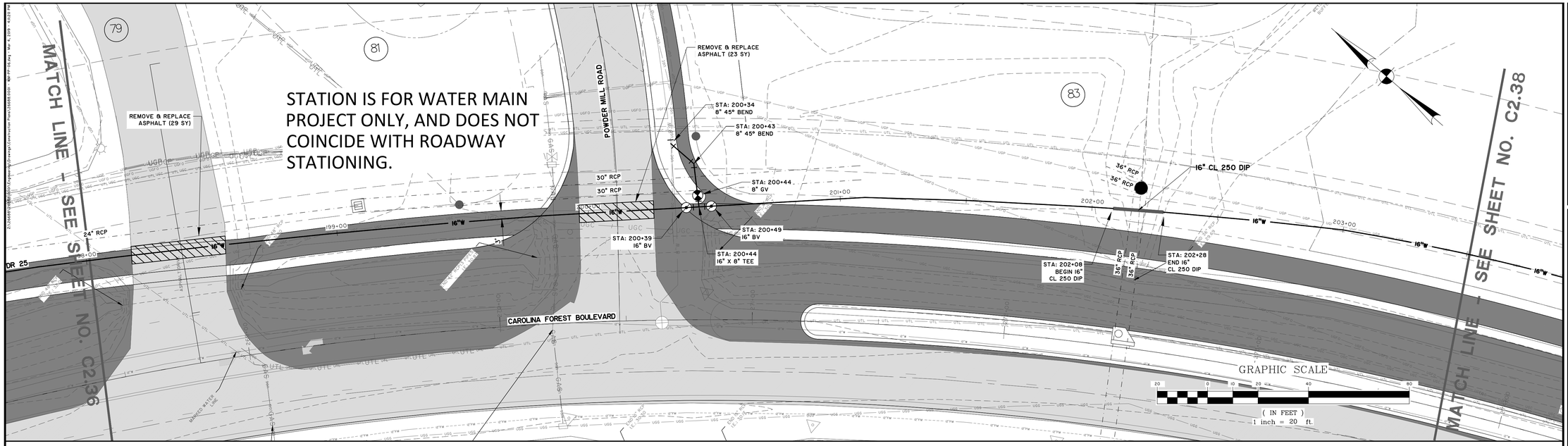
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

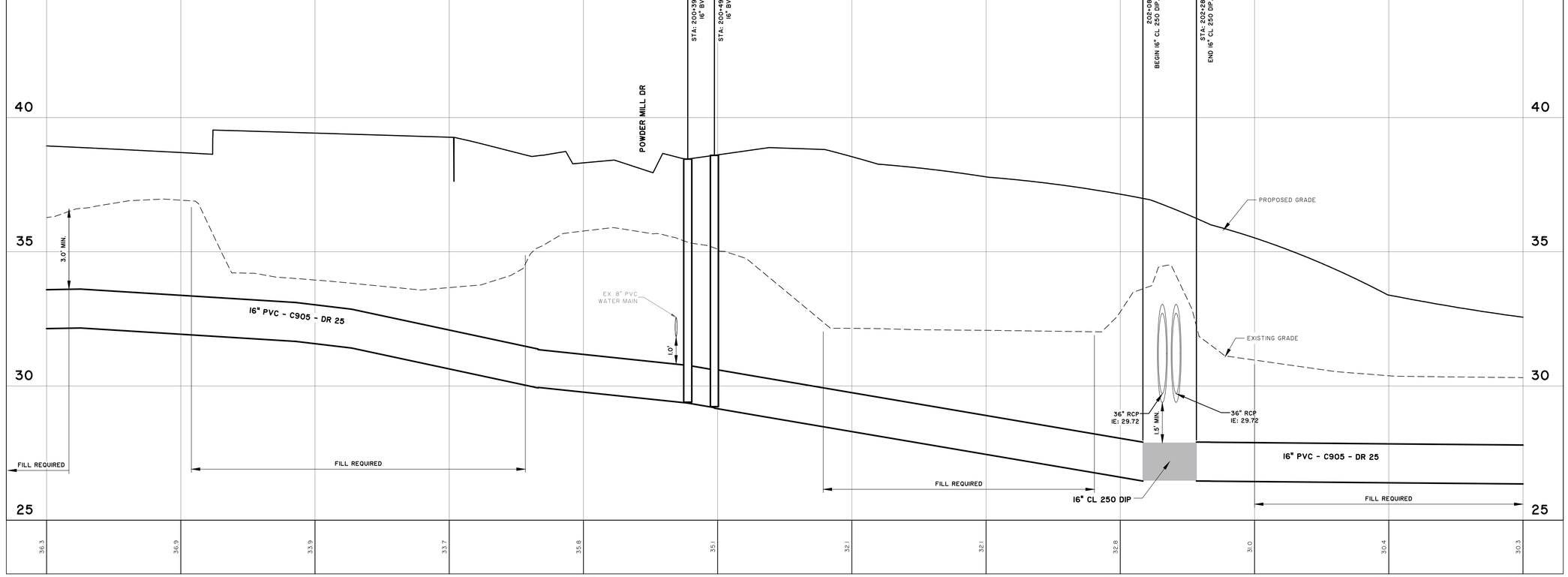
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.36





26688.0001 – 16 INCH WATER MAIN
STATIONS: 198+00 – 203+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00269 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. RHODES, IV — 29577 — REGISTERED PROFESSIONAL ENGINEER

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.37

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.37

MATCH LINE - SEE SHEET NO. C2.39

STA: 205+14
FH ASSEMBLY

16" PVC - C905 - DR 25

16" CL 250 DIP

STA: 208+99
16" 45° BEND
(VERTICAL)

STA: 208+79
16" 45° BEND
(VERTICAL)

STA: 209+48
12" 45° BEND

STA: 209+0
16" 45° BEN
(VERTICAL)
END 16" R.J.
CL 250 DIP

STA: 208+79
16" 45° BEND
(VERTICAL)
BEGIN 16" R.J.
CL 250 DIP

STA: 209+42
16" BV

36" RCP

MAP ID #85
FARM AT CAROLINA FOREST
HOLDINGS INC
PIN #339-09-04-0040

WETLAND

CAROLINA FOREST BOULEVARD

CAROLINA FOREST BLVD
(100' PUBLIC R/W)

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

35
30
25
20
18

STA: 205+14
FH ASSEMBLY

STA: 208+77
45° BEND VERTICAL(ROTATED)
BEGIN 16" RJ CL 250 DIP.

PROPOSED GRADE

EXISTING GRADE

3.0' MIN.

3.0' MIN.

16" PVC - C905 - DR 25

16" PVC - C905 - DR 25

16" PVC - C905 - DR 25

36" RCP
EX STORM DRAIN
IE: 25.75

1.5' MIN.

16" CL 250 DIP

FILL REQUIRED

STA: 208+79
16" 45° BEND RJ (VERTICAL)

STA: 208+99
16" 45° BEND RJ (VERTICAL)

30.3 30.3 30.4 30.6 30.0 29.2 28.8 28.7 28.9 29.2 29.3 29.4

204+00 205+00 206+00 207+00 208+00 209+00

26688.0001 – 16 INCH WATER MAIN
STATIONS: 203+50 – 209+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00288
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
JAMES H. RICHARDS
No. 29004
8/7/18

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
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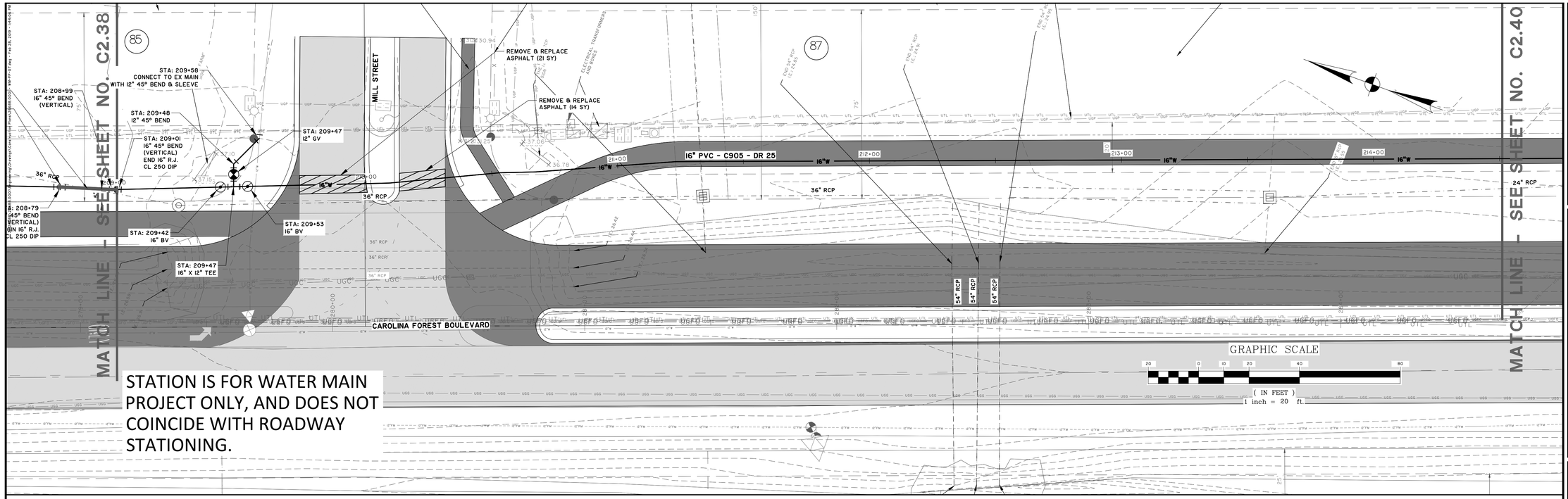
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

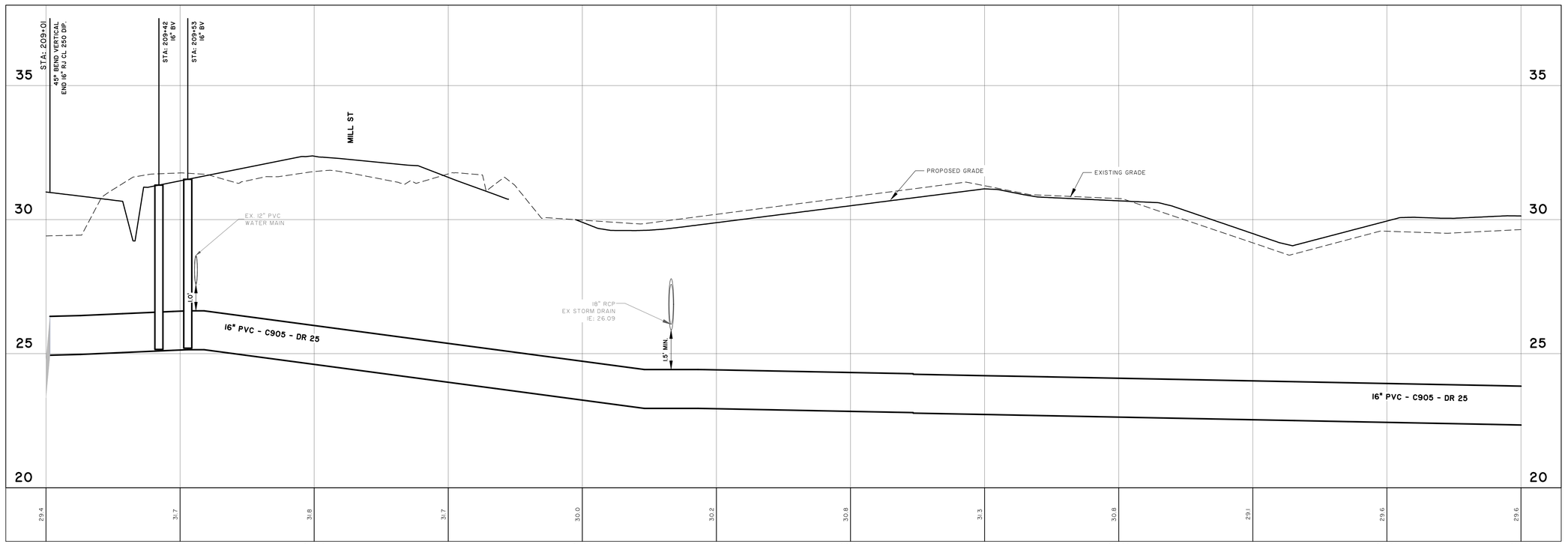
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.38



STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.



26688.0001 – 16 INCH WATER MAIN

STATIONS: 209+00 – 214+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

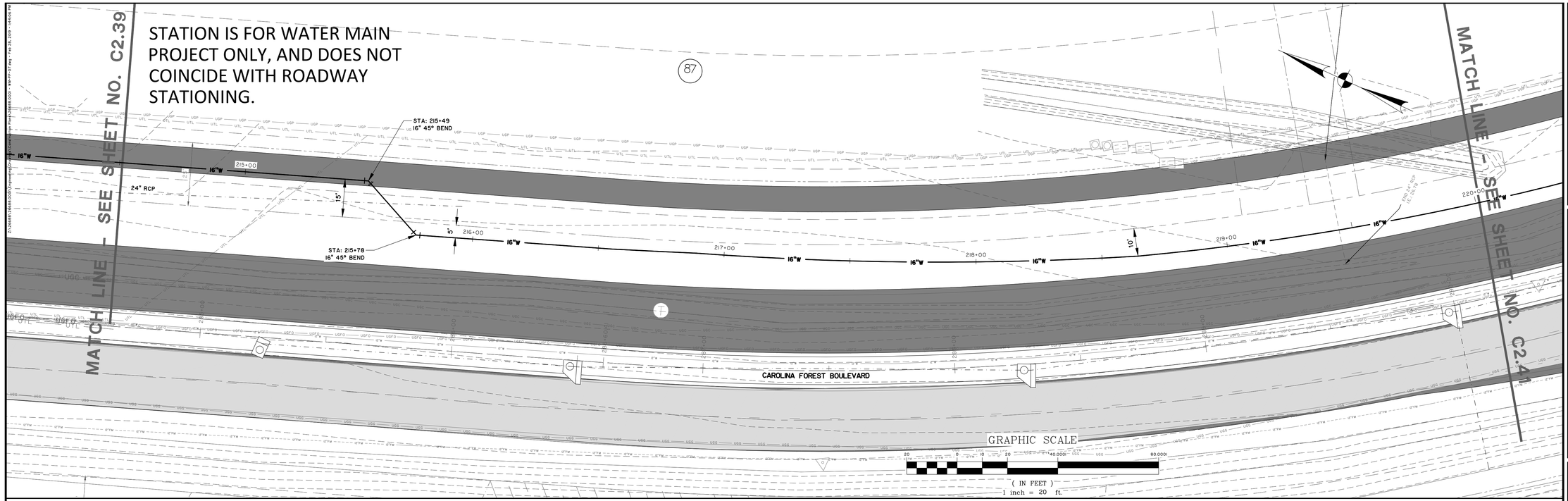
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

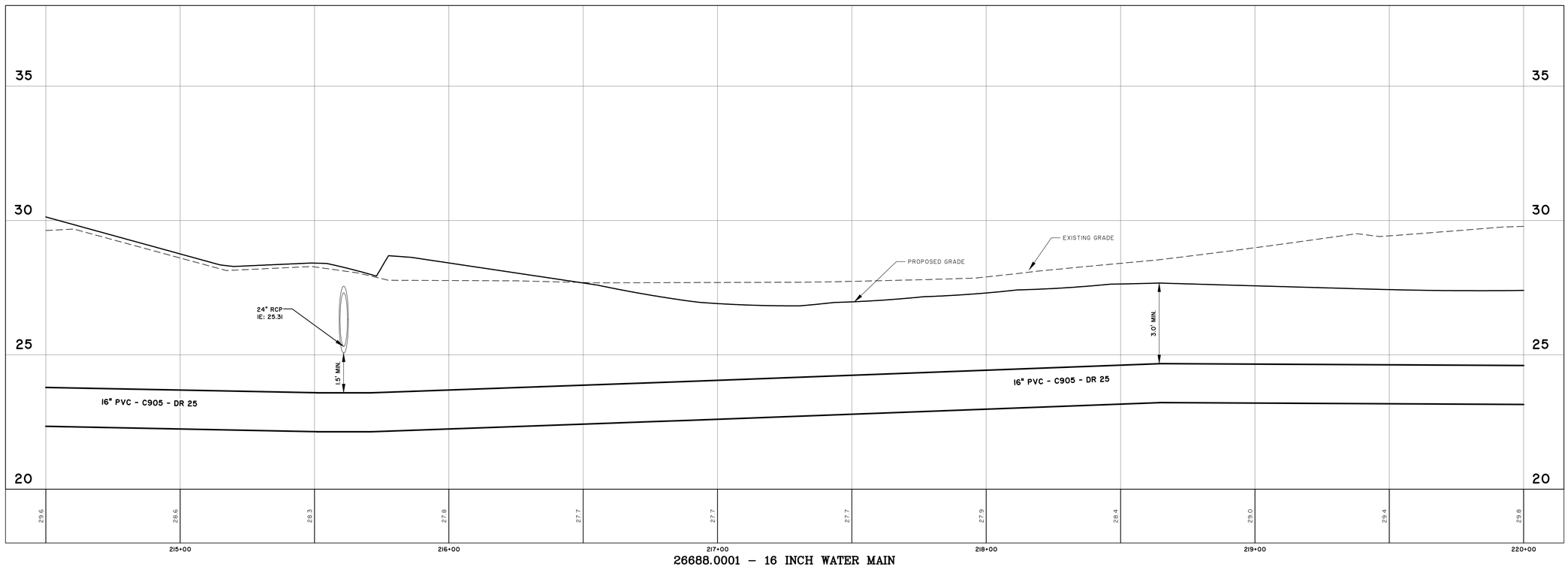
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.39

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN
STATIONS: 214+50 – 220+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00269 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. RICHARDS — 29577 — REGISTERED PROFESSIONAL ENGINEER

8/7/18

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

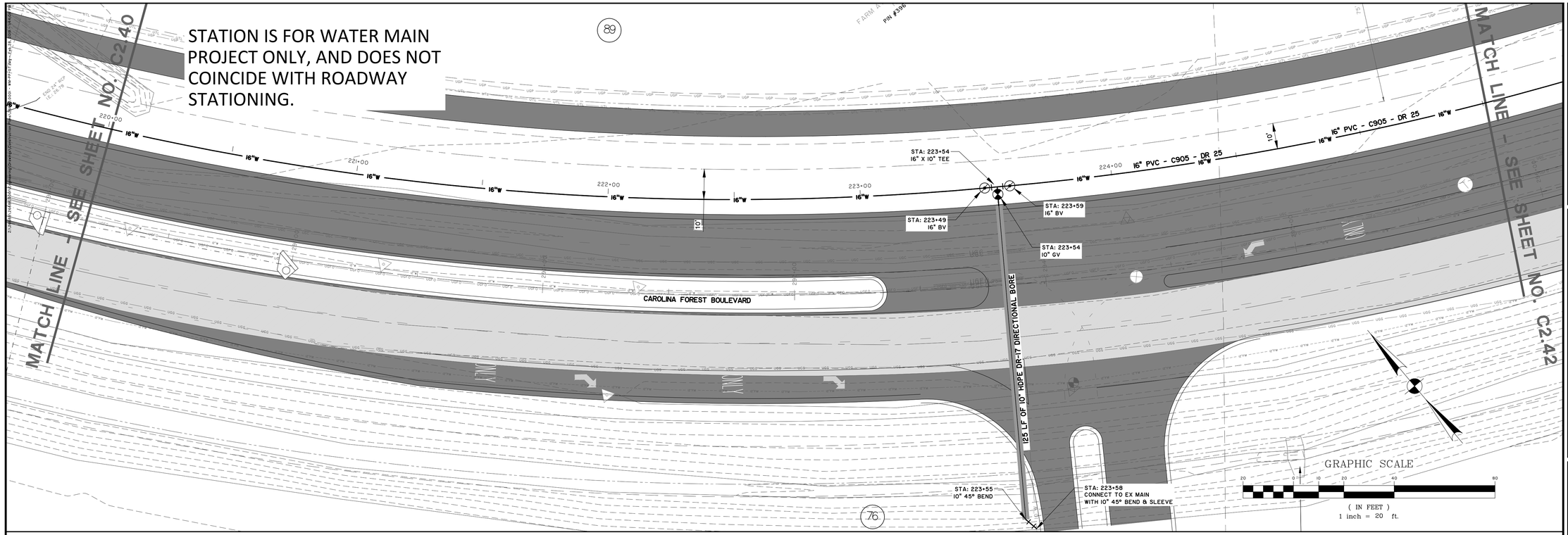
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

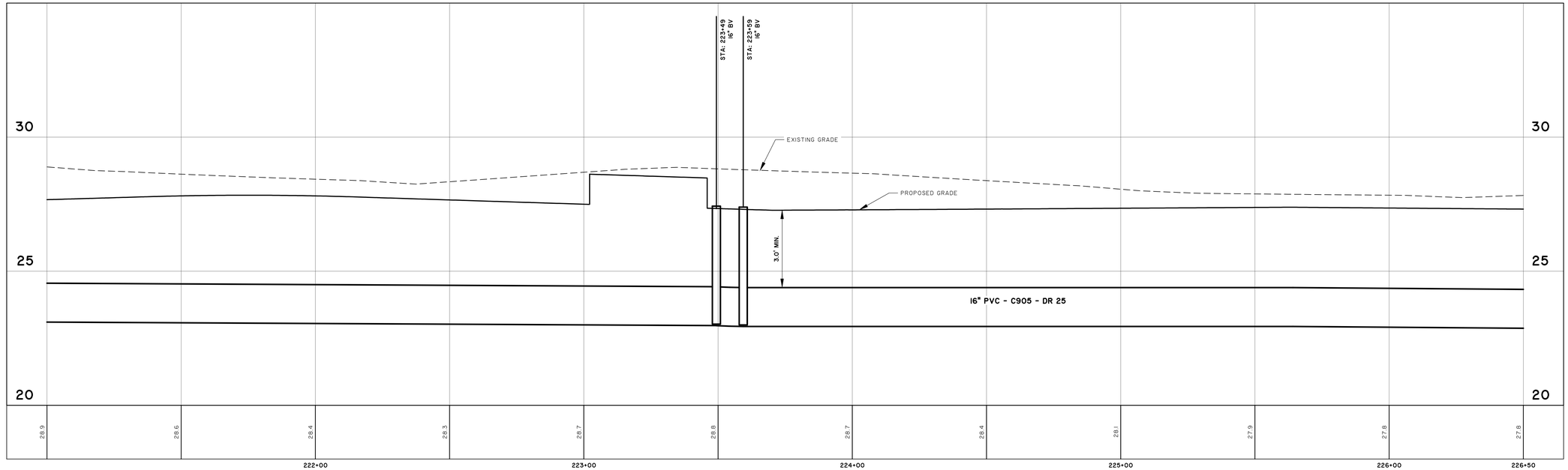
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.40

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 221+00 – 226+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. RICHARDS — REGISTERED PROFESSIONAL ENGINEER — No. 28903

8/7/19

NO.	REVISIONS	BY	DATE

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611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY

HORRY COUNTY, SOUTH CAROLINA

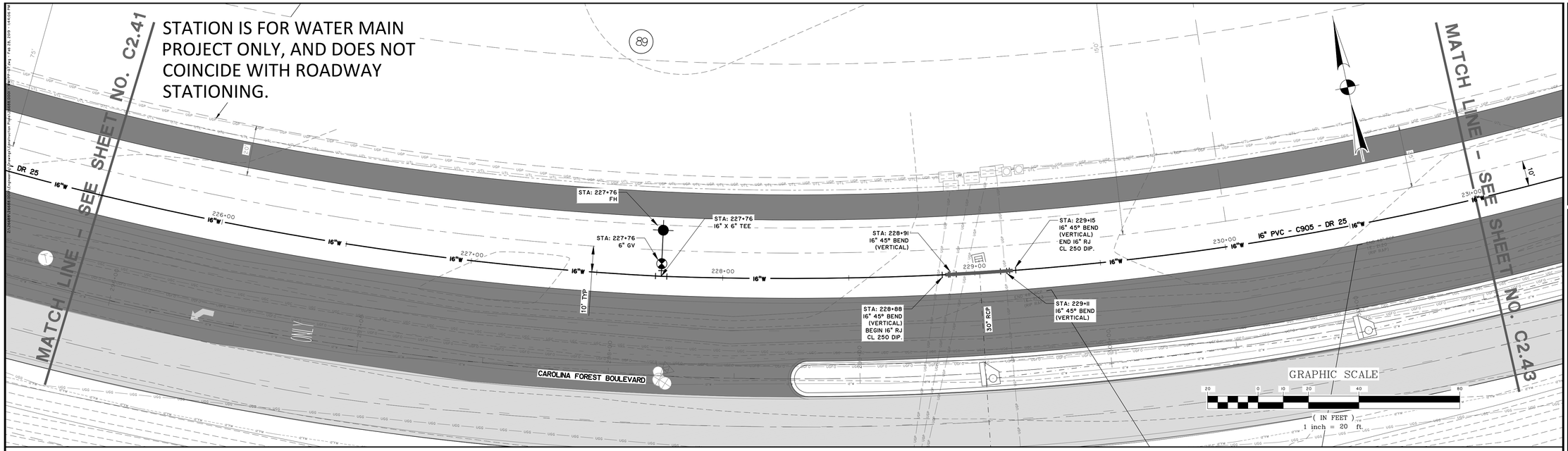
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

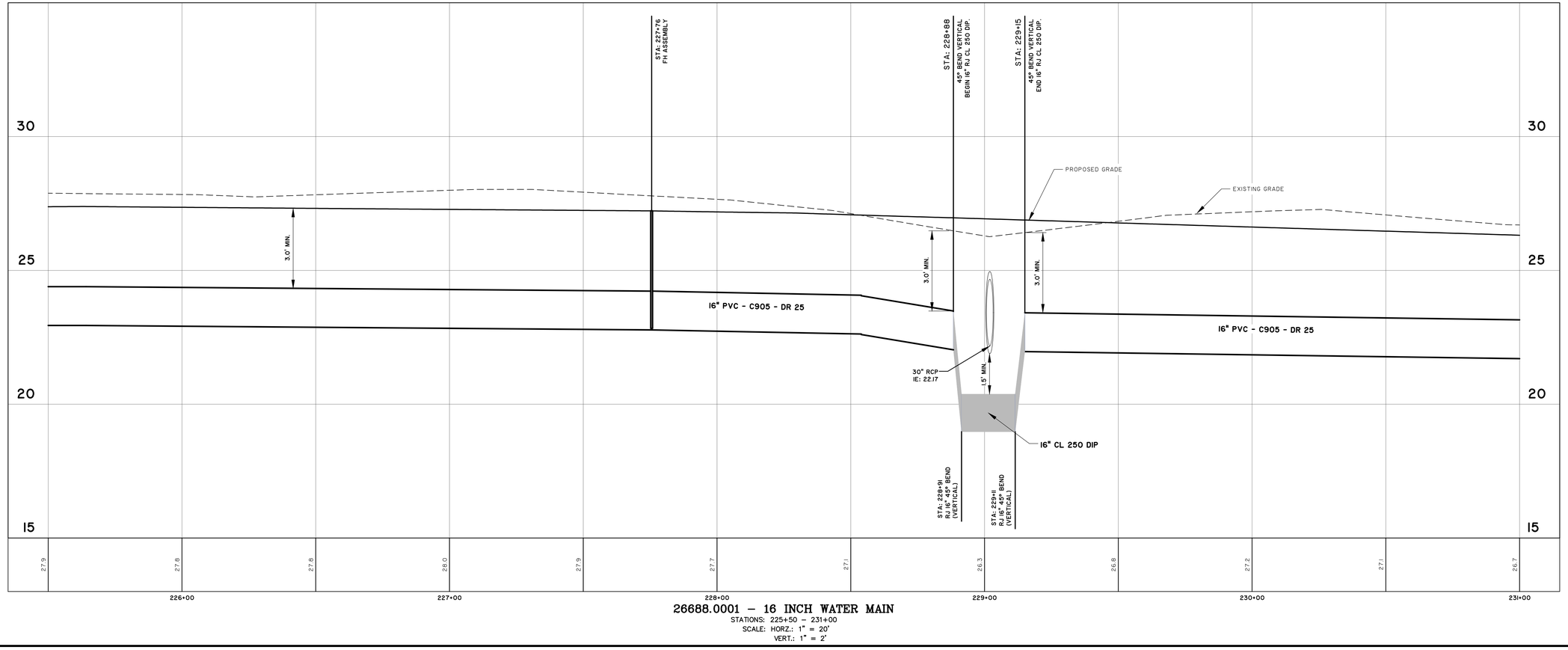
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.41

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN
STATIONS: 225+50 – 231+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00265 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOSEPH H. HUTTON — 19MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

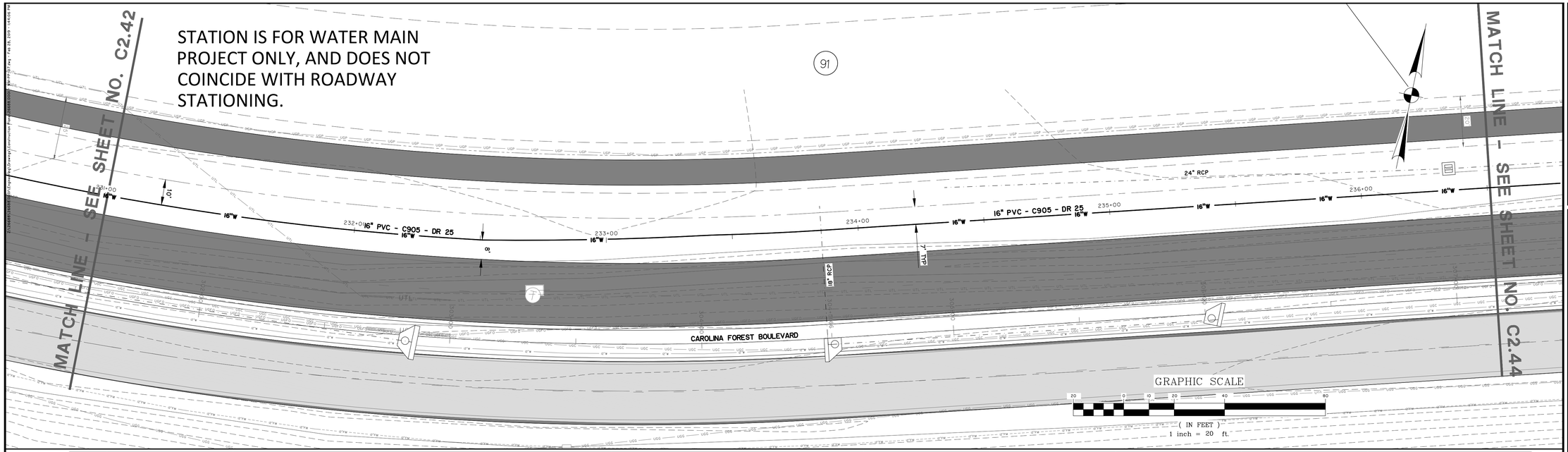
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

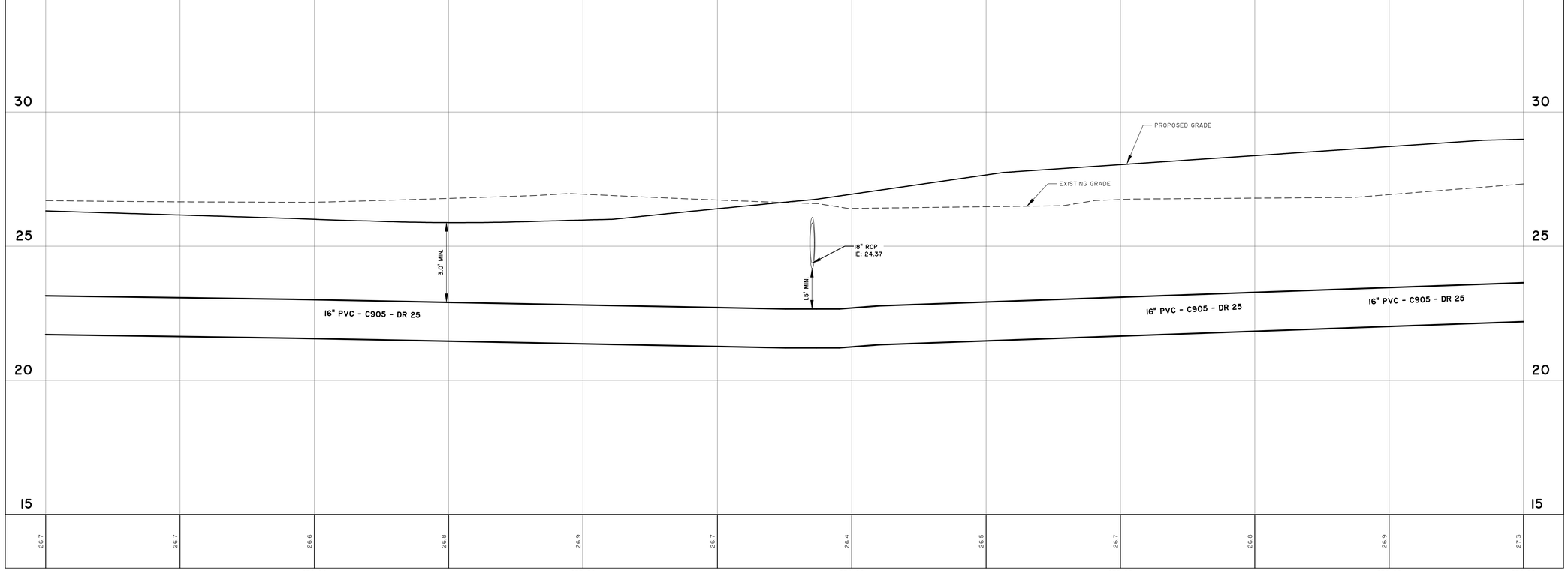
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.42

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 231+00 – 236+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NOLTON THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER KEVIN E. NOLTON 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.43

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.43

MATCH LINE - SEE SHEET NO. C2.45

16" PVC - C905 - DR 25

24" RCP

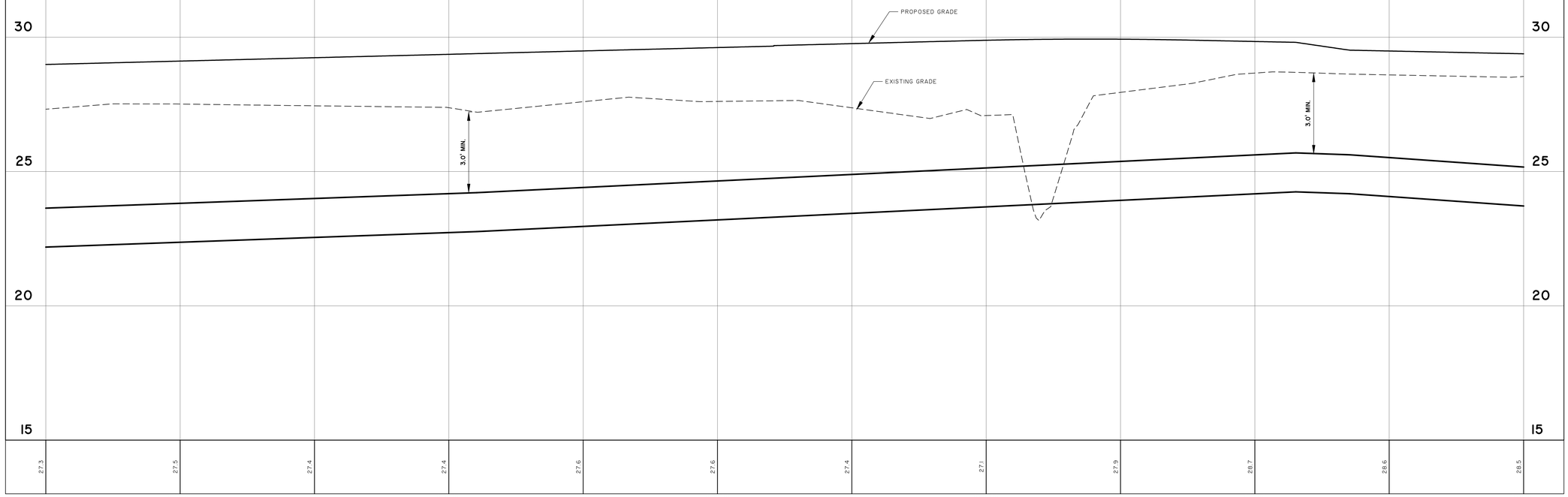
36" RCP

CAROLNA FOREST BOULEVARD

CAROLINA FOREST BLVD (S-26 PUBLIC R/W)

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.



26688.0001 – 16 INCH WATER MAIN
STATIONS: 236+50 – 242+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. RICHARDS — 27966 — REGISTERED PROFESSIONAL ENGINEER

8/7/19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
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Myrtle Beach, SC 29577 • 843.839.3545
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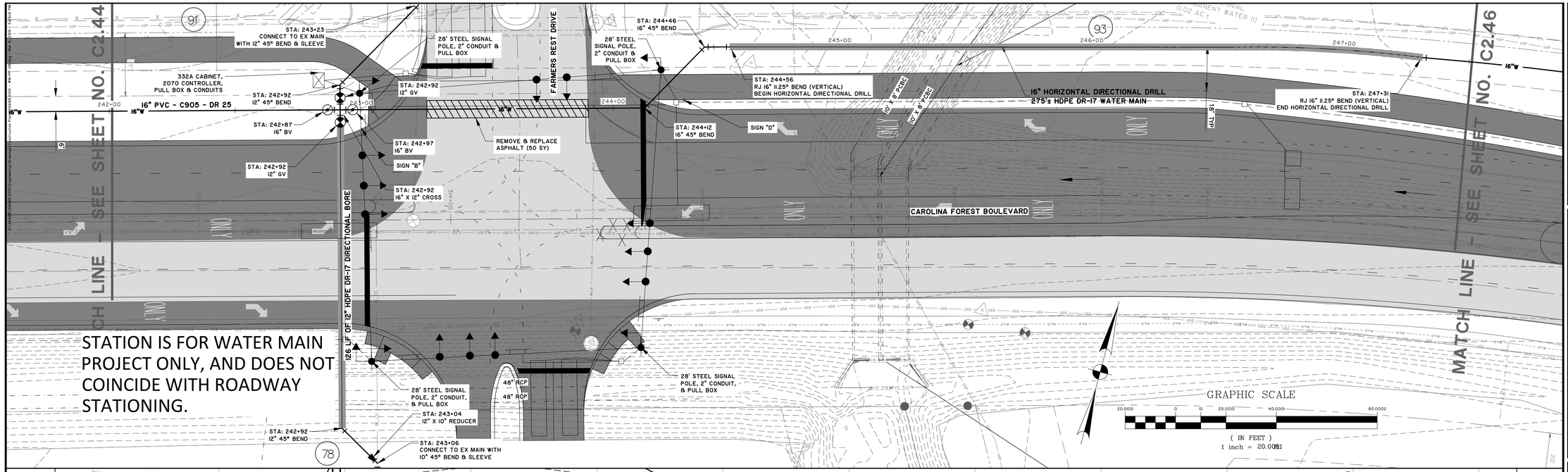
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.44



26688.0001 – 16 INCH WATER MAIN

STATIONS: 242+00 – 247+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — KENNETH H. HUTCHINS — 19MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

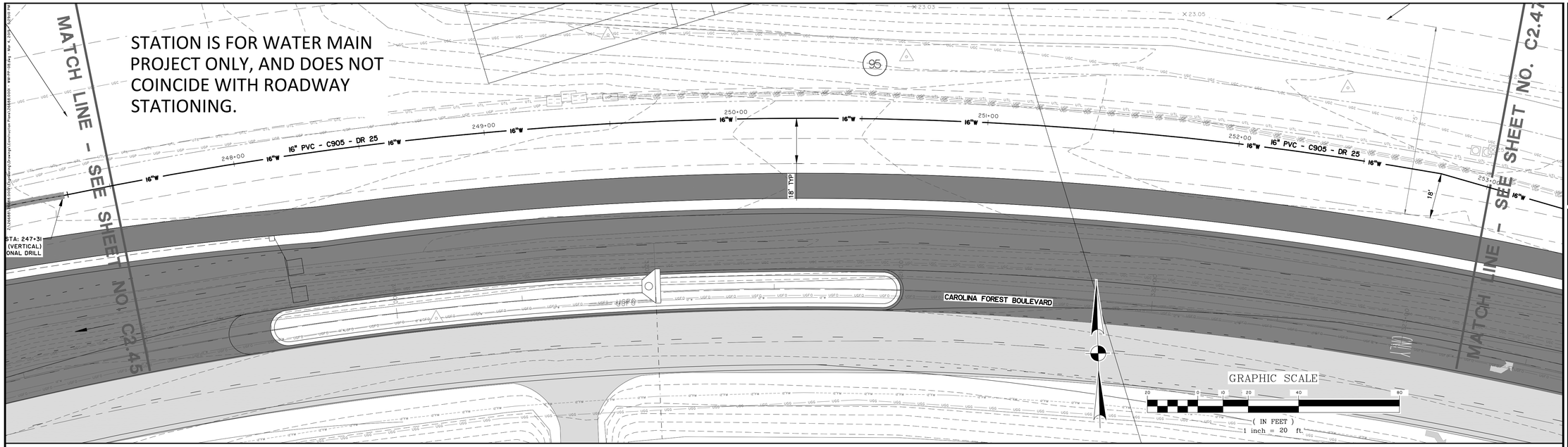
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

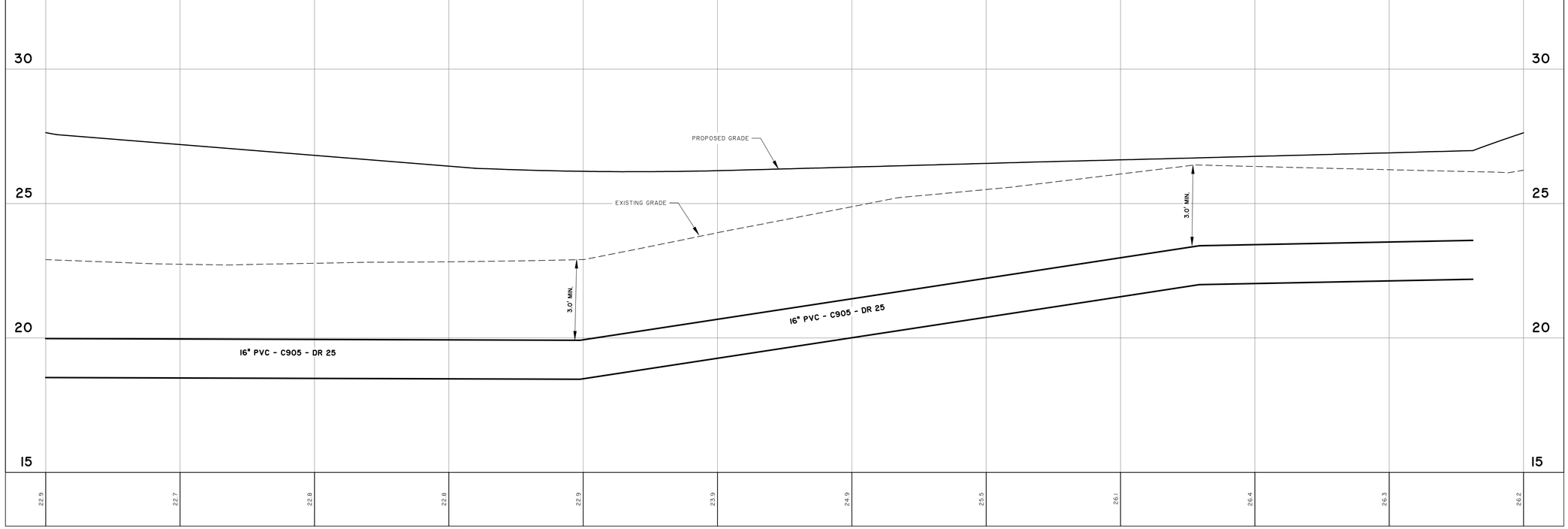
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	6/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.45





26688.0001 – 16 INCH WATER MAIN
STATIONS: 247+50 – 253+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA NO. 4102 THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA JAMES H. RICHARDS 24880 REGISTERED PROFESSIONAL ENGINEER

8/7/19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

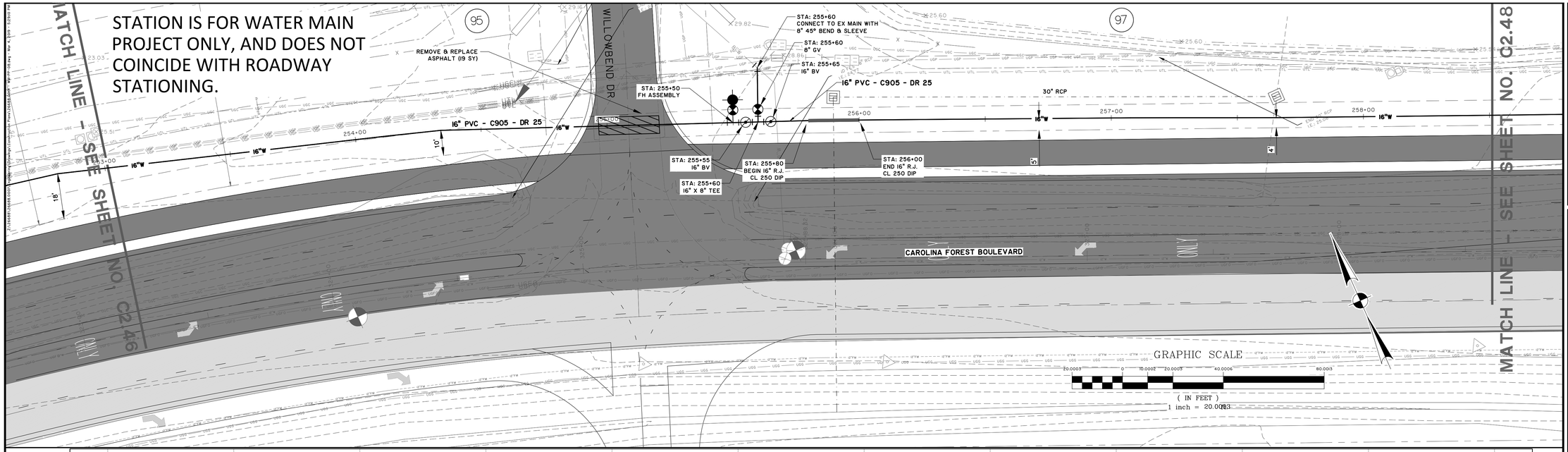
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

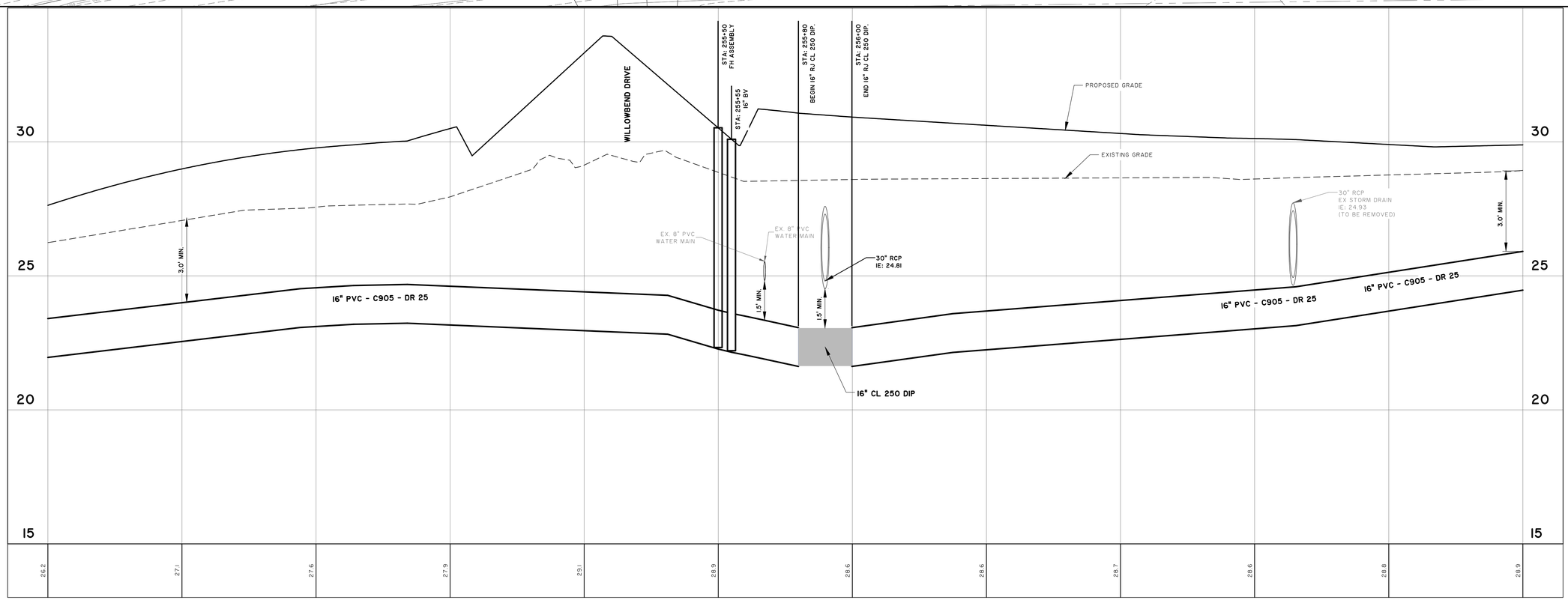
PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.46

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.





26688.0001 – 16 INCH WATER MAIN

STATIONS: 253+00 – 258+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.47

STATION IS FOR WATER MAIN PROJECT ONLY, AND DOES NOT COINCIDE WITH ROADWAY STATIONING.

MATCH LINE - SEE SHEET NO. C2.47

MATCH LINE - SEE SHEET NO. C2.49

97

CAROLINA FOREST BOULEVARD

259+00 260+00 261+00 262+00 263+00 264+00

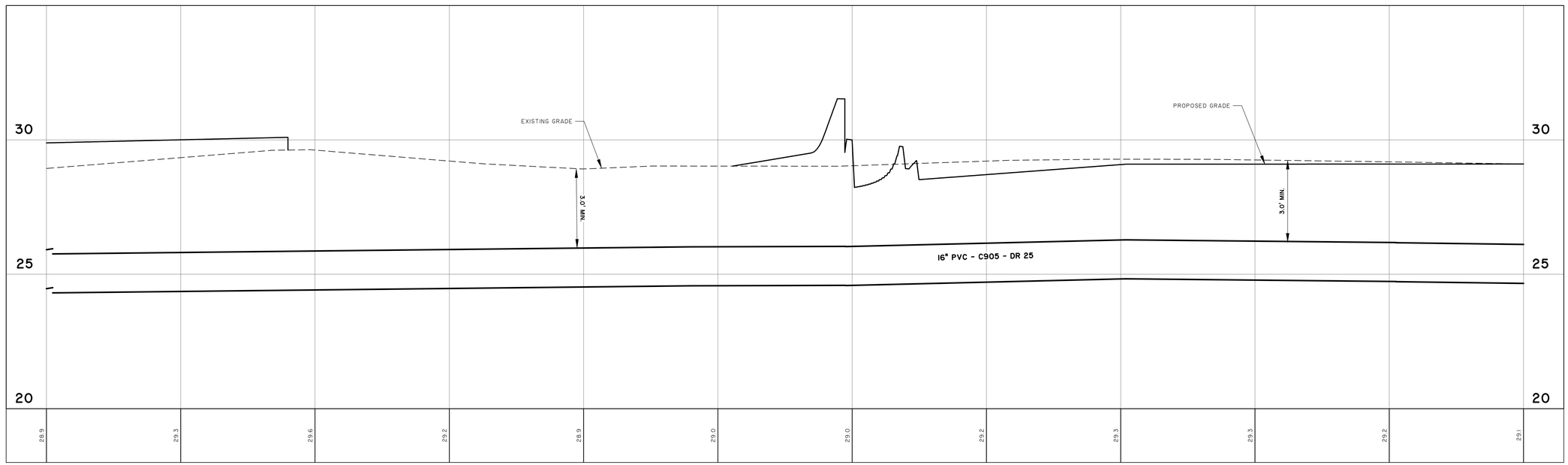
16"W

16" PVC - C905 - DR 25

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



26688.0001 – 16 INCH WATER MAIN

STATIONS: 258+50 – 264+00
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JAMES H. HUTCHINSON — 29577 — REGISTERED PROFESSIONAL ENGINEER

6/19/19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

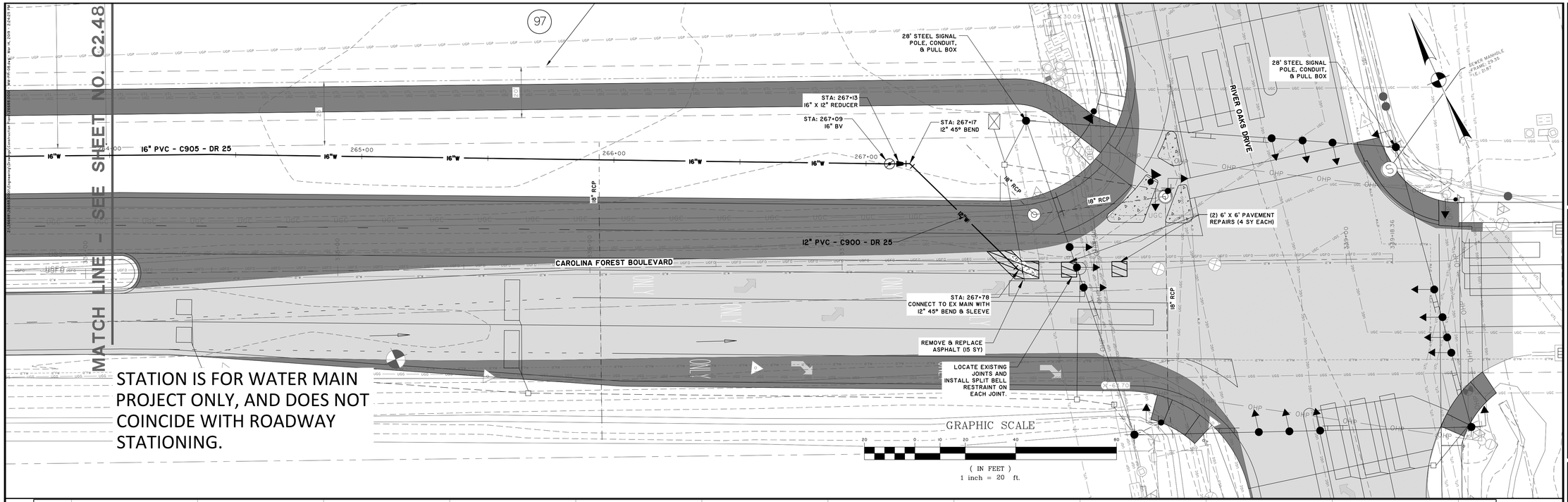
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

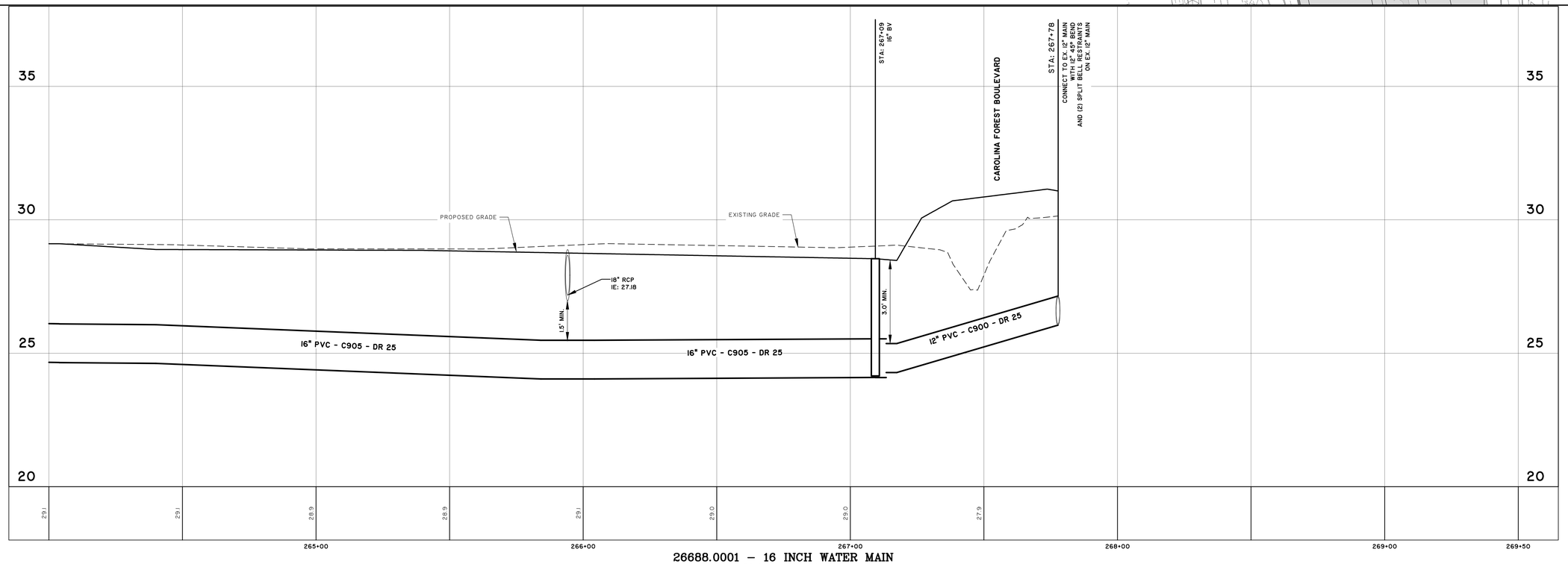
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.48





26688.0001 – 16 INCH WATER MAIN
STATIONS: 264+00 – 269+50
SCALE: HORZ.: 1" = 20'
VERT.: 1" = 2'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00268 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — KEVIN E. HARRIS — 18MAR19

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

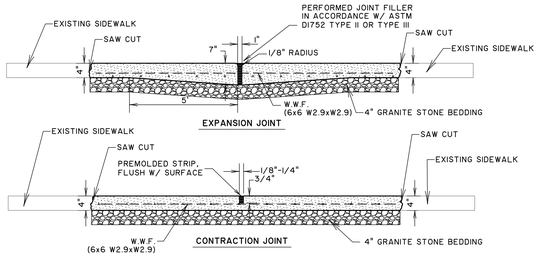
GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

PLAN AND PROFILE

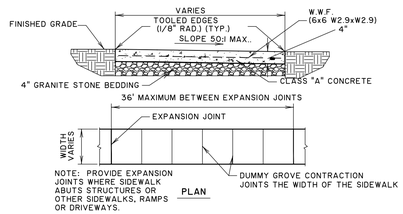
JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	AS NOTED

C2.49



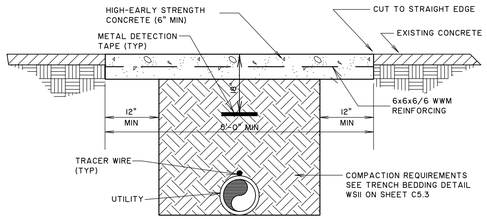
1 REMOVE AND REPLACE SIDEWALK DETAIL

C5.1 NOT TO SCALE



NOTES: (FOR PAVEMENT REPLACEMENT)

1. STABILIZED AGGREGATE BASE COURSE (S.A.B.C.) SHALL MEET SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (SCDOT) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 305.
2. THE SURFACE COURSE SHALL MEET THE REQUIREMENTS OF SCDOT STANDARD SPECIFICATIONS, SECTION 309, TYPE C.
3. THE SUBGRADE SHALL BE COMPACTED TO 95% MAXIMUM DENSITY AND SHALL BE PREPARED ACCORDING TO SECTION 208 OF THE SCDOT STANDARD SPECIFICATIONS.
4. THE BASE COURSE SHALL BE COMPACTED TO 100% MAXIMUM LABORATORY DRY DENSITY AS DETERMINED BY SC-T-140.
5. THE SURFACE COURSE SHALL BE COMPACTED TO 98% LABORATORY COMPACTED DENSITY.
6. COMPACTION TESTS SHALL BE PERFORMED ON THE SUBGRADE, BASE AND WEARING SURFACE AND SUPPLIED TO THE ENGINEER.
7. SCDOT SECTION NUMBERS REFER TO THE 2007 EDITION OF SCDOT STANDARD SPECIFICATIONS.

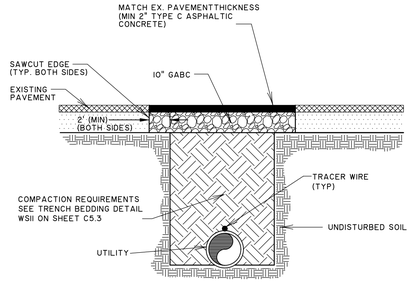


NOTE:

1. ALL WORK TO BE IN ACCORDANCE WITH THE SOUTH CAROLINA STATE HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2007 EDITION.
2. EXISTING CRACKS AND DEFICIENCIES TO BE CORRECTED.

2 REMOVE AND REPLACE PAVEMENT (CONCRETE)

C5.1 NOT TO SCALE



3 REMOVE AND REPLACE ASPHALT (FOR WATER LINE)

C5.1 NOT TO SCALE

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR.

SIGNATURE

8/2/12

DATE

#	DATE	CHK	DESCRIPTION
5	9-1-11	JCS	TMA UPDATE
4	1-5-11	JCS	SIGN NUMBER UPDATE
3	5-28-09	JCS	TC DEVICES NOTE REV.
2	8-4-08	JCS	TC DEVICES UPDATE
1	2-27-08	JCS	FLAGGER STATION REV.
0	9-20-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS TWO-LANE TWO-WAY PRIMARY & SECONDARY ROUTES

610-005-00

EFFECTIVE LETTING DATE: 3 JAN 2005 THIS DRAWING IS NOT TO SCALE

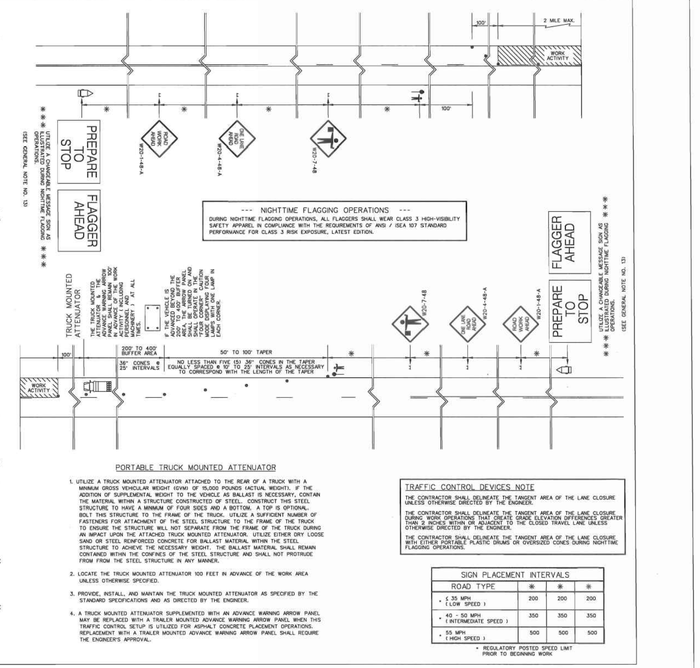
GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH CURB AND GUTTER. INSTALL SIGNS ON THE RIGHT SIDE OF THE ROAD NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
3. SPACINGS INDICATED ARE FOR NORMAL CONDITIONS: ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON PERMANENT SIGN SUPPORTS INSTALLED ON THE RIGHT SIDE OF THE ROAD SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES ACCEPTED BY THE DEPARTMENT AND LISTED ON THE LIST FOR TRAFFIC CONTROL DEVICES AS "ACCEPTED" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org
7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
8. LANE CLOSURES ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS. THE PLANS AND/OR THE DIRECTOR OF TRAFFIC ENGINEERING.
9. INSTALL, CONDUCT AND MAINTAIN FLAGGING OPERATIONS IN ACCORDANCE WITH THIS STANDARD DRAWING AND THE LATEST EDITIONS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, THE NUTCD AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK", UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. ERECT ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24"X24" STOP/SLOW PADDLE MOUNTED ON A ROD HANDLE WITH A MINIMUM LENGTH OF 6'-0". THE DEPARTMENT PROHIBITS THE USE OF FLAGS EXCEPT DURING EMERGENCY SITUATIONS.
10. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH APPROACH WHEN A FLAGGING OPERATION IS IN PLACE AND ACTIVE. WHEN NECESSARY TO RELOCATE THE FLAGGER STATION WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS AT THE NEW LOCATION FOR THE FLAGGER STATION AND COMPLETE THE RELOCATION OF THE FLAGGER STATION PRIOR TO REMOVING THE ORIGINAL ARRAY OF ADVANCE WARNING SIGNS.
11. DURING NIGHTTIME FLAGGING OPERATIONS, ILLUMINATE EACH FLAGGER STATION WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC., THAT PROVIDE A MINIMUM ILLUMINATION LEVEL OF 10fc LX OR 10 lx.
12. DURING NIGHTTIME FLAGGING OPERATIONS, FLAGGERS SHALL WEAR SAFETY APPAREL THAT MEET THE REQUIREMENTS OF ANSI/ISEA 107, STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, AND A FLUORESCENT HARDHAT.
13. DURING NIGHTTIME FLAGGING OPERATIONS, SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS WITH A CHANGEABLE MESSAGE SIGN MOUNTED ON A TRAILER OR TRUCK. PORTABLE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS. INSTALL THE CHANGEABLE MESSAGE SIGNS IN ADVANCE OF THE THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "PREPARE TO STOP", "FLAGGER AHEAD". A TRUCK MOUNTED CHANGEABLE MESSAGE SIGN IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN DURING FLAGGING OPERATIONS.
14. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENCROACH ONTO THE ADJACENT TRAVEL LANE ACCESS TO TRAFFIC. PROVIDE ADEQUATE TRAFFIC CONTROL CONTROL DEVICES AS NECESSARY TO FIGURE PROPER SEPARATION OF THE WORK AREA.
15. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, THE TWO LOCATIONS ARE TO BE SEPARATED BY NO LESS THAN 2 MILES FROM THE END OF THE FIRST LANE CLOSURE TO THE BEGINNING OF THE TAPER OF THE SECOND LANE CLOSURE.
16. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD PAYMENT FOR ANY UNACCEPTABLE WORK OR FAILURE TO PROPERLY INSTALL AND MAINTAIN AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

ADVANCE WARNING ARROW PANEL

DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE ONLY. DISPLAY OF AN ARROW OR CHEVRON OPERATING MODE OR ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" IS PROHIBITED DURING FLAGGING OPERATIONS.

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OF OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL DISPLAY SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.



PORTABLE TRUCK MOUNTED ATTENUATOR

1. UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVW) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM FROM THE STEEL STRUCTURE IN ANY MANNER.
2. LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
3. PROVIDE, INSTALL, AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
4. A TRUCK MOUNTED ATTENUATOR SUPPLEMENTED WITH AN ADVANCE WARNING ARROW PANEL MAY BE REPLACED WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL WHEN THIS TRAFFIC CONTROL SETUP IS UTILIZED FOR ASPHALT CONCRETE PLACEMENT OPERATIONS. REPLACEMENT WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL SHALL REQUIRE THE ENGINEER'S APPROVAL.

TRAFFIC CONTROL DEVICES NOTE

THE CONTRACTOR SHALL DELINEATE THE TANGENT AREA OF THE LANE CLOSURE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DELINEATE THE TANGENT AREA OF THE LANE CLOSURE DURING WORK OPERATIONS THAT CREATE GRADE ELEVATION DIFFERENCES GREATER THAN 3" BETWEEN THE TRAVELED WAY AND THE CLOSED TRAVEL LANE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DELINEATE THE TANGENT AREA OF THE LANE CLOSURE WITH EITHER TYPE III PLASTIC DRUMS OR OVERSIZED CONES DURING NIGHTTIME FLAGGING OPERATIONS.

SIGN PLACEMENT INTERVALS

ROAD TYPE	*	*	*
< 35 MPH (LOW SPEED)	200	200	200
40 - 50 MPH (INTERMEDIATE SPEED)	350	350	350
55 MPH (HIGH SPEED)	500	500	500

* - REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

4 SCDOT LANE CLOSURE FLAGGING OPERATIONS (610-005-00)

C5.1 NOT TO SCALE

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

SOUTH CAROLINA NOLTE VERTICAL 2000 THOMAS & HUTTON ENGINEERING CO. No. C00289 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT JOHN H. HILL No. 1604 CERTIFICATE OF AUTHORIZATION

18MAR19

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

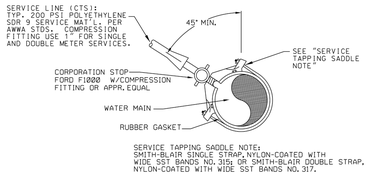
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

MISCELLANEOUS DETAILS

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	NO SCALE

C5.1

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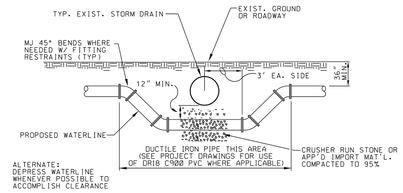
SERVICE TAPPING SADDLE NOTE:
SMITH-BLAIR SINGLE STRAP, NYLON-COATED WITH WIDE SST BANDS NO. 315; OR SMITH-BLAIR DOUBLE STRAP, NYLON-COATED WITH WIDE SST BANDS NO. 317.

TYPICAL SERVICE TAP

W7

LATEST REVISION:
8/28/06 DRT CHANGED "IPS" TO "CTS" SERVICE LINE

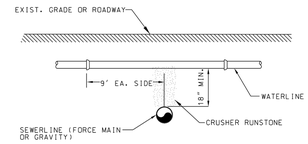
TYPICAL SERVICE TAP	
WATER ONLY UPDATED: 08/28/06	W7
GRAND STRAND WATER & SEWER AUTHORITY	



TYPICAL STORM DRAIN CROSSING

W8

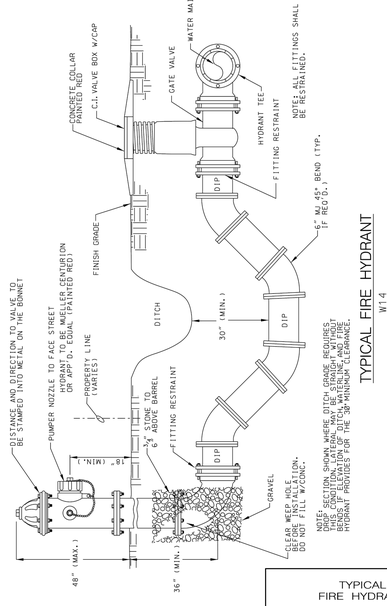
TYPICAL STORM DRAIN CROSSING	
WATER ONLY UPDATED: 5/13/02	W8
GRAND STRAND WATER & SEWER AUTHORITY	



TYPICAL SEWERLINE CROSSING

W9

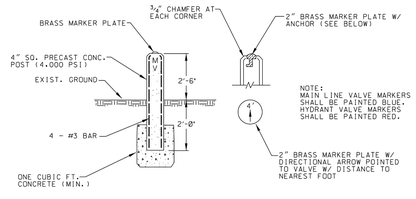
TYPICAL SEWERLINE CROSSING	
WATER ONLY UPDATED: 2/16/98	W9
GRAND STRAND WATER & SEWER AUTHORITY	



TYPICAL FIRE HYDRANT

W14

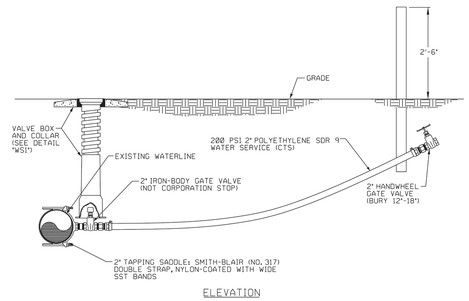
TYPICAL FIRE HYDRANT	
WATER ONLY UPDATED: 8/13/01	W14
GRAND STRAND WATER & SEWER AUTHORITY	



TYPICAL CONCRETE VALVE MARKER

W17

TYPICAL CONCRETE VALVE MARKER	
WATER ONLY UPDATED: 5/13/02	W17
GRAND STRAND WATER & SEWER AUTHORITY	



ELEVATION

TYPICAL WATER SERVICE DETAIL FOR 1 1/2" – 2" METER SERVICES (FOR DEVELOPER PROJECTS ONLY)

W20

LATEST REVISION:
02/02/2010 DRT 2" HANDWHEEL G.V. TO BE BURIED RATHER THAN LEFT ABOVE GROUND.

TYPICAL WATER SERVICE DETAIL FOR 1 1/2" – 2" METER SERVICES (FOR DEVELOPER PROJECTS ONLY)	
WATER ONLY UPDATED: 02/02/2010	W20
GRAND STRAND WATER & SEWER AUTHORITY	

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOSEPH H. HUTTON, JR. — 19MAR19

NO.	REVISIONS	BY	DATE

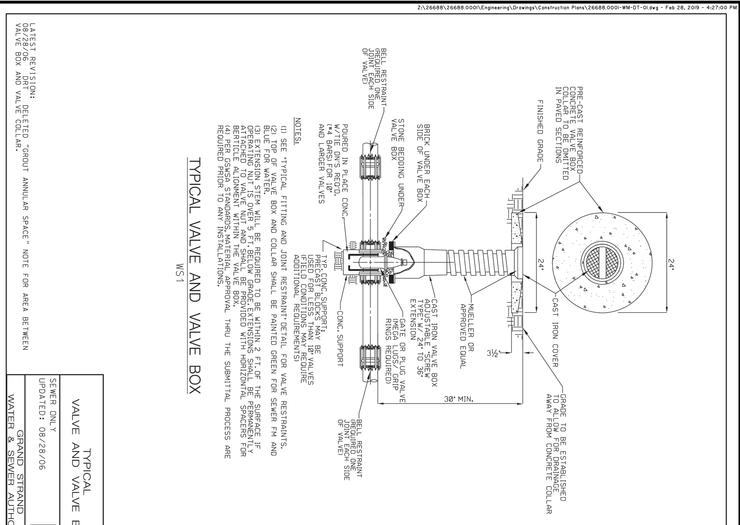
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GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA
CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

WATER DETAILS

JOB NO:	J-26688.0001
DATE:	8/7/18
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	KEN
APPROVED:	JHR
SCALE:	NO SCALE

C5.2

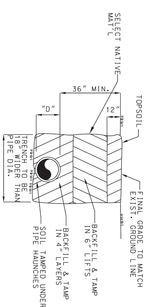


TYPICAL VALVE AND VALVE BOX
WS1

NOTES:
(1) SEE "TYPICAL FITTING AND JOINT RESTRAINT" DETAIL FOR VALVE RESTRAINTS.
(2) THE VALVE BOX AND COLLAR SHALL BE PAINTED GREEN FOR SEWER FM AND BLUE FOR WATER. BOX AND COLLAR SHALL BE PERMANENTLY LABELED "SEWER VALVE" OR "WATER VALVE" AS APPROPRIATE.
(3) ALL VALVES 6" THROUGH 12" SHALL BE EQUIPPED WITH HORIZONTAL EXTENSIONS FOR OPERATING NUT AS PER G.S.W.S.A. DETAIL. EXTENSIONS SHALL BE PERMANENTLY ATTACHED TO VALVE BONNET AND SHALL BE PROVIDED WITH HORIZONTAL SPACERS FOR STABILITY ALONGWITH THE VALVE BOX. BOX SHALL BE PROVIDED WITH HORIZONTAL BEARING ALIGNMENT WITHIN THE VALVE BOX.
(4) SEE GSWSA STANDARDS, MATERIAL APPROVAL THRU THE SUBMITTAL PROCESS ARE REQUIRED PRIOR TO ANY INSTALLATIONS.

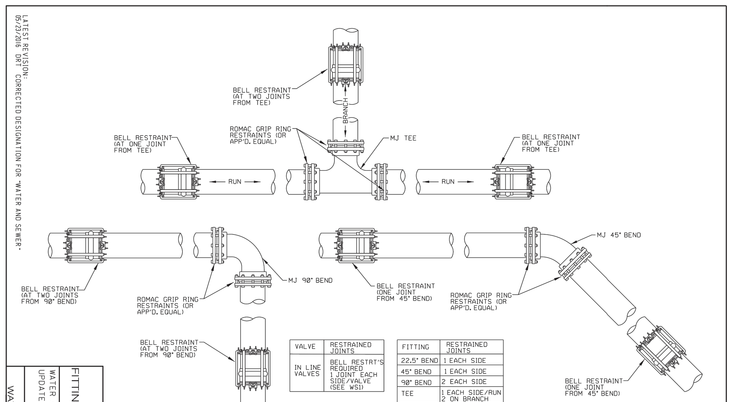
LATEST REVISION:
DELETED "GROUT ANNULAR SPACE." NOTE FOR AREA BETWEEN VALVE BOX AND VALVE COLLAR.

TYPICAL VALVE AND VALVE BOX	
SEWER ONLY	
UPDATED: 08/28/06	WS1
WATER & SEWER AUTHORITY	GRAND STRAND



TYPICAL PIPE BEDDING DETAIL
WS11

TYPICAL PIPE BEDDING DETAIL	
WATER OR SEWER	
UPDATED: 12/26/97	WS11
WATER & SEWER AUTHORITY	GRAND STRAND



VALVE	RESTRAINED JOINTS
IN LINE VALVES	BELL RESTRT'S REQUIRED 1 JOINT EACH SIDE/VALVE (SEE WS11

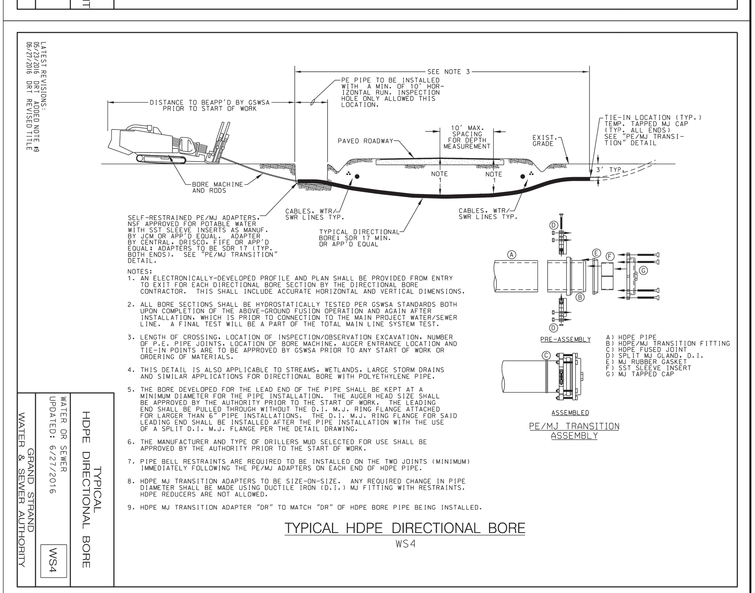
FITTING	RESTRAINED JOINTS
22.5° BEND	1 EACH SIDE
45° BEND	1 EACH SIDE
90° BEND	2 EACH SIDE
TEE	1 EACH SIDE/RUN 2 ON BRANCH

NOTES:
1. TABLE OF NO.OF RESTRAINT'S REQUIRED ARE FOR SIZES THROUGH 12"ø FOR LARGER THAN 12"ND.REQUIRED IS TO BE DETERMINED BY GSWSA.
2. PER GSWSA STANDARDS, MATERIAL APPROVAL THRU THE SUBMITTAL PROCESS ARE REQUIRED PRIOR TO ANY INSTALLATIONS.
3. PIPE BELL RESTRAINTS ARE REQUIRED TO BE INSTALLED ON THE TWO JOINTS (MINIMUM) IMMEDIATELY FOLLOWING THE PE/MJ ADAPTERS ON EACH END OF HDPE PIPE.

TYPICAL FITTING AND JOINT RESTRAINT
WS3

LATEST REVISION:
05/2/2016 DET. CORRECTED DESIGNATION FOR "WATER AND SEWER"

TYPICAL FITTING AND JOINT RESTRAINT	
WATER AND SEWER	
UPDATED: 5/27/2016	WS3
WATER & SEWER AUTHORITY	GRAND STRAND



PE/MJ TRANSITION ASSEMBLY

NOTES:
1. AN ELECTRONICALLY-DEVELOPED PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR. THIS SHALL INCLUDE ACCURATE HORIZONTAL AND VERTICAL DIMENSIONS.
2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER GSWSA STANDARDS BOTH UPON COMPLETION OF THE ABOVE-GROUND FUSION OPERATION AND AGAIN AFTER INSTALLATION, WHICH IS PRIOR TO CONNECTION TO THE MAIN PROJECT WATER/SEWER LINE. A FINAL TEST WILL BE A PART OF THE TOTAL MAIN LINE SYSTEM TEST.
3. LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF P.E. PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION AND TIE-IN POINTS ARE TO BE APPROVED BY GSWSA PRIOR TO ANY START OF WORK OR ORDERING OF MATERIALS.
4. THIS DETAIL IS ALSO APPLICABLE TO STREAMS, WETLANDS, LARGE STORM DRAINS AND SIMILAR APPLICATIONS FOR DIRECTIONAL BORE WITH POLYETHYLENE PIPE.
5. THE BORE DEVELOPED FOR THE LEAD END OF THE PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION. THE AUGER HEAD SIZE SHALL BE APPROVED BY THE AUTHORITY PRIOR TO THE START OF WORK. THE LEADING END SHALL BE PULLED THROUGH WITHOUT THE O.D. M.J. RING FLANGE ATTACHED FOR LARGER THAN 6" PIPE INSTALLATIONS. THE O.D. M.J. RING FLANGE FOR SAID LEADING END SHALL BE INSTALLED AFTER PIPE INSTALLATION WITH THE USE OF A SPLIT O.D. M.J. FLANGE PER THE DETAIL DRAWING.
6. THE MANUFACTURER AND TYPE OF DRILLERS MUD SELECTED FOR USE SHALL BE APPROVED BY THE AUTHORITY PRIOR TO THE START OF WORK.
7. PIPE BELL RESTRAINTS ARE REQUIRED TO BE INSTALLED ON THE TWO JOINTS (MINIMUM) IMMEDIATELY FOLLOWING THE PE/MJ ADAPTERS ON EACH END OF HDPE PIPE.
8. HDPE MJ TRANSITION ADAPTERS TO BE SIZE-ON-SIZE. ANY REQUIRED CHANGE IN PIPE DIAMETER SHALL BE MADE USING DUCTILE IRON I.D.; MJ FITTING WITH RESTRAINTS. HDPE REDUCERS ARE NOT ALLOWED.
9. HDPE MJ TRANSITION ADAPTER "OR" TO MATCH "OR" OF HDPE BORE PIPE BEING INSTALLED.

TYPICAL HDPE DIRECTIONAL BORE
WS4

LATEST REVISIONS:
06/27/2016 DET. REVISED NOTE #5
06/27/2016 DET. REVISED TITLE

TYPICAL HDPE DIRECTIONAL BORE	
WATER OR SEWER	
UPDATED: 6/27/2016	WS4
WATER & SEWER AUTHORITY	GRAND STRAND

C5.3

DESIGN NO:	5-26688.000
DATE:	6/27/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	
APPROVED:	JHR
SCALE:	NO SCALE

GRAND STRAND WATER AND SEWER AUTHORITY
HORRY COUNTY, SOUTH CAROLINA

CAROLINA FOREST BOULEVARD WATER MAIN RELOCATION

WATER DETAILS

THOMAS & HUTTON
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Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

NO.	REVISIONS	BY	DATE

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 30764 JOHN H. RICHARDS 18MAR19

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORITY