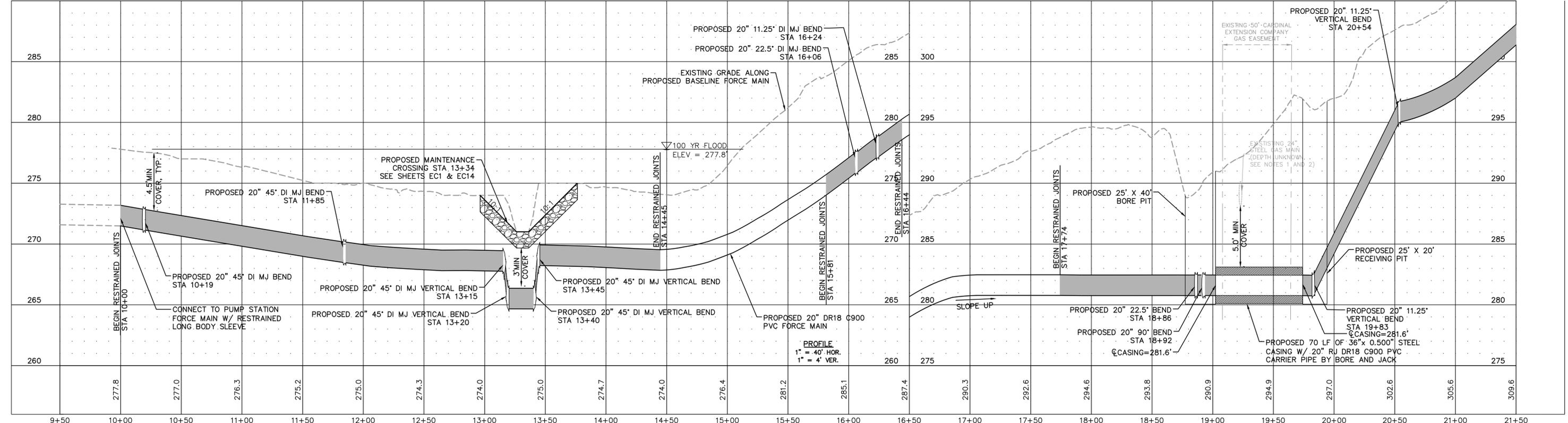


- NOTES:**
1. GAS MAIN SIZE AND DEPTH UNKNOWN. CONTRACTOR SHALL COORDINATE WITH CARDINAL GAS COMPANY AND PROVIDE A TEST DIG TO CONFIRM DEPTH PRIOR TO CONSTRUCTION.
 2. PER THE WILLIAMS DEVELOPMENT HANDBOOK, THE TOP OF CASING MUST HAVE 5 FEET OF VERTICAL SEPARATION FROM THE EXISTING GAS MAIN. CONTRACTOR SHALL PLACE 811 CALL AT LEAST 48 HOURS PRIOR TO CROSSING. WILLIAMS REPRESENTATIVE MUST BE ON-SITE AT ALL TIMES FOR ALL SURFACE AND SUBSURFACE ACTIVITIES WHILE CROSSING THE EXISTING GAS MAIN.
 3. CONTRACTOR SHALL PROVIDE CONNECTION TO PUMP STATION PIPING W/ LONG BODY DUCTILE IRON RESTRAINED SLEEVE. CONTRACTOR SHALL PROVIDE DETAILED TESTING PLAN INCLUDING A CLOSURE PLAN.

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&C	Parks, Recreation & Cultural Resources
Electric	



No.	REVISIONS	DATE	BY
1	PERMIT SUBMITTAL	12/18/2024	SDL



**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**FORCE MAIN PLAN AND PROFILE
STA 10+00 TO STA 21+50**

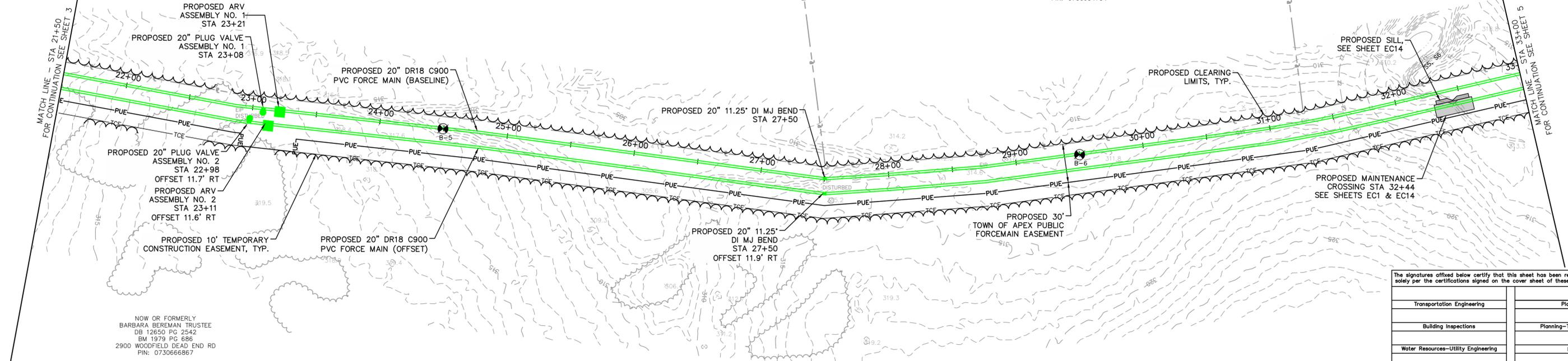
CJS PROJ. #:	100-005	C1
DATE:	12-18-2024	
SCALE:	1" = 40'	
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	SHEET NUMBER
CHECKED BY:	SDL	3 OF 56



NOW OR FORMERLY
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DB 12651 PG 1128
BM 2006 PG 416
0 OLD HOLLY SPRINGS APEX RD
PIN: 0730852539

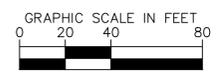
NOW OR FORMERLY
A. PAUL MAHOUTCHIAN
MARYANN MAHOUTCHIAN
DB 8273 PG 1697
BM 1974 PG 228
2812 WOODFIELD DEAD END RD
PIN: 0730654754

NOW OR FORMERLY
INNA DENG TRUSTEE
INNA DENG FAMILY TRUST 2
DB 17029 PG 832
BM 1974 PG 228
2828 WOODFIELD DEAD END RD
PIN: 0730650989



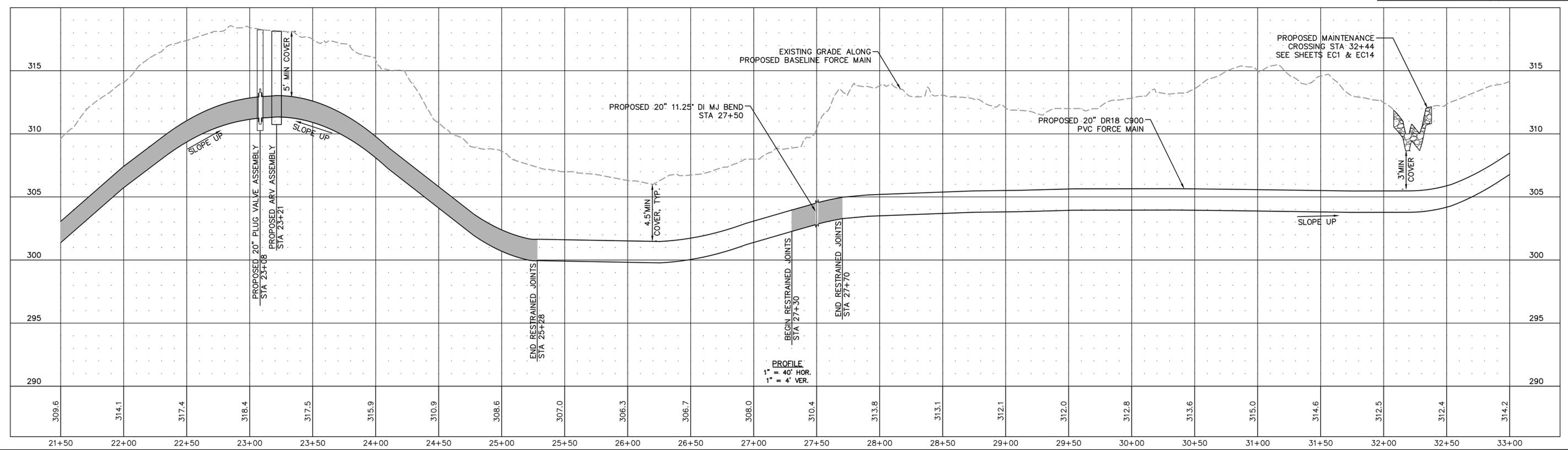
NOW OR FORMERLY
BARBARA BEREMAN TRUSTEE
DB 12650 PG 2642
BM 1979 PG 686
2900 WOODFIELD DEAD END RD
PIN: 0730666867

PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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WATER RESOURCES DEPARTMENT
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BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 21+50 TO STA 33+00

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C2
SHEET NUMBER
4 OF 56

Plotted By: J. Speers Layout: 4 PLAN AND PROFILE December 18, 2024 02:09:04pm S:\100 Hazem and Sawyer\100-005 Apex Big Branch 2 PS 80 Drawings\Plan Sheets\C-SHT-BIG BRANCH-1.dwg

Plotted By: J. Speers Layout: 5 PLAN AND PROFILE December 18, 2024 02:09:16pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS BD - Drawings\Plan Sheets\C-SHT-BIG BRANCH-1.dwg

NOW OR FORMERLY
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INNA DENG FAMILY TRUST 2
DB 17029 PG 832
BM 1974 PG 228
2828 WOODFIELD DEAD END RD
PIN: 0730650989

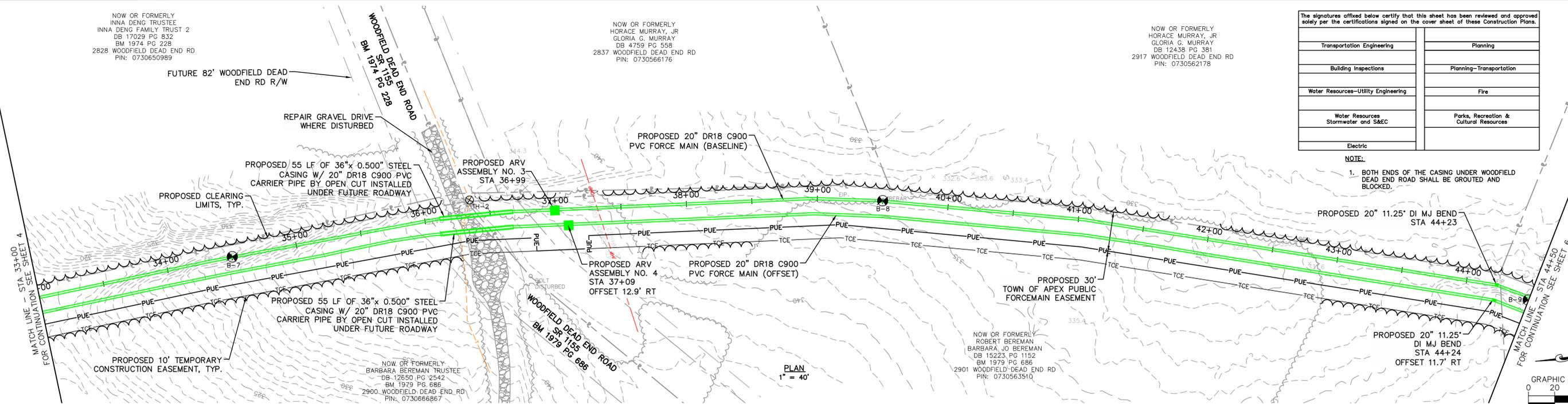
NOW OR FORMERLY
HORACE MURRAY, JR
GLORIA G. MURRAY
DB 4759 PG 558
2837 WOODFIELD DEAD END RD
PIN: 0730566176

NOW OR FORMERLY
HORACE MURRAY, JR
GLORIA G. MURRAY
DB 12438 PG 381
2917 WOODFIELD DEAD END RD
PIN: 0730562178

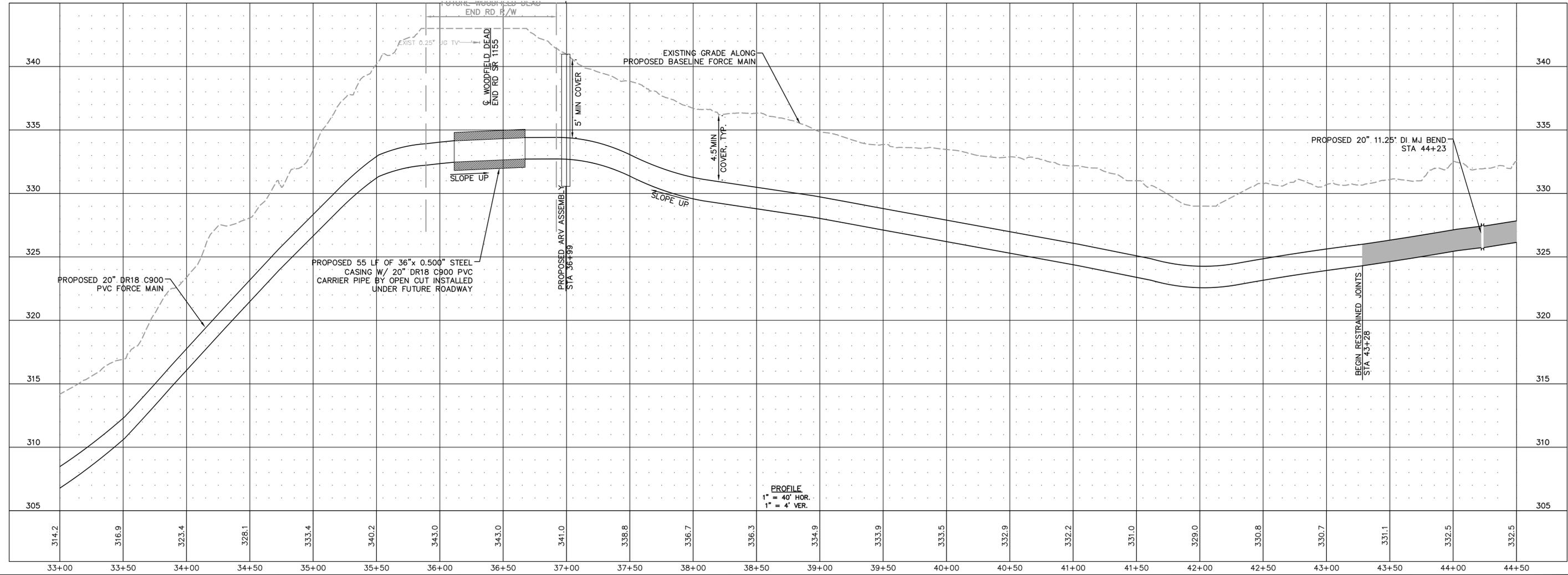
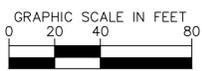
The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

NOTE:
1. BOTH ENDS OF THE CASING UNDER WOODFIELD DEAD END ROAD SHALL BE GROUTED AND BLOCKED.



PLAN
1" = 40'



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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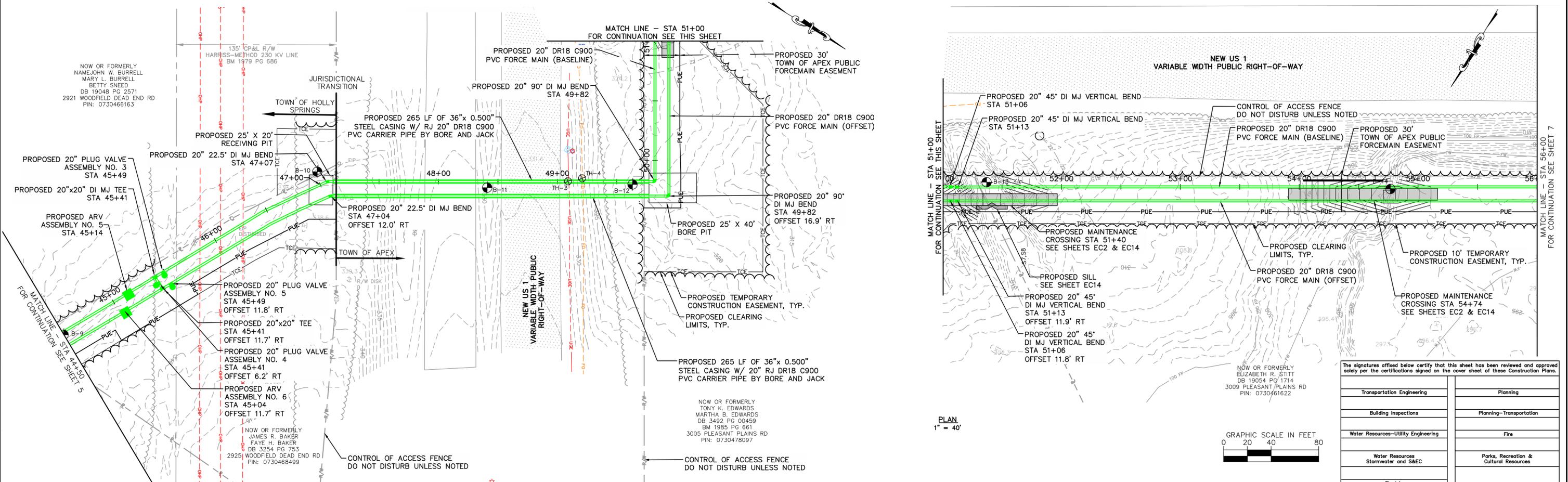
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 33+00 TO STA 44+50

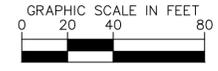
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SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C3
SHEET NUMBER
5 OF 56

Plotted By: J. Speers Layout: 6 PLAN AND PROFILE December 18, 2024 02:09:33pm S:\100 Hazem and Sawyer\100-005 Apex Big Branch 2 PS B0 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-1.dwg

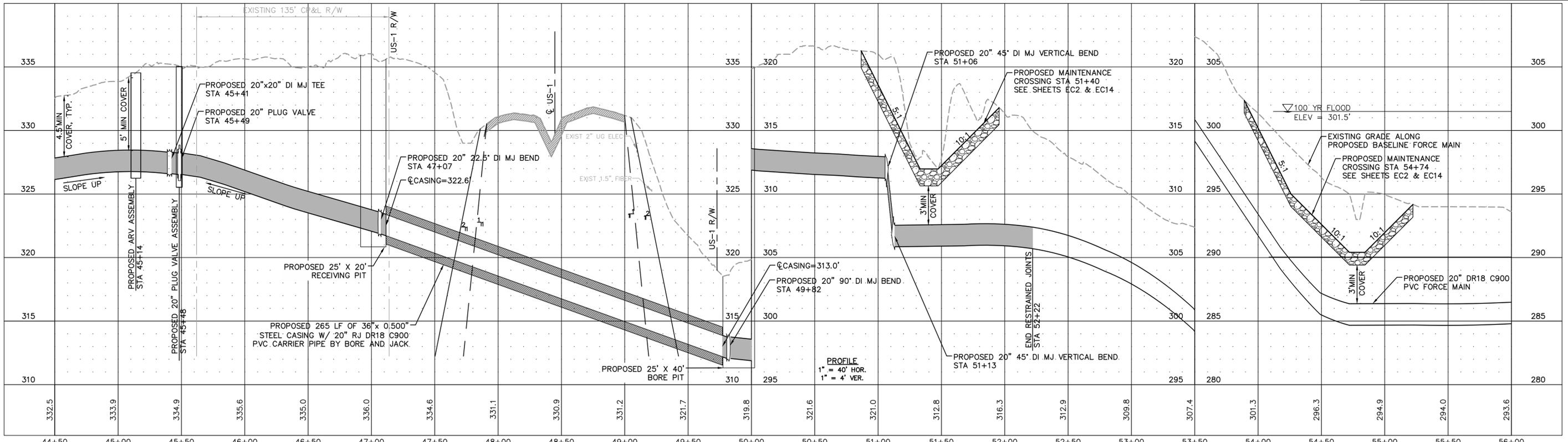


PLAN
1" = 40'



The signatures offered below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY
1	PERMIT SUBMITTAL	12/18/2024	SDL



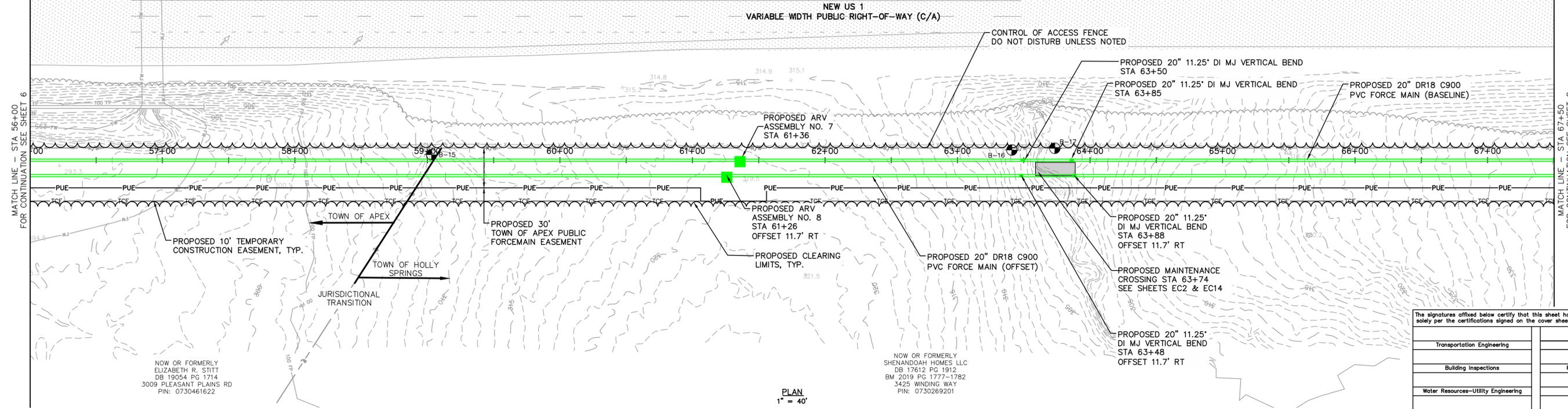
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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

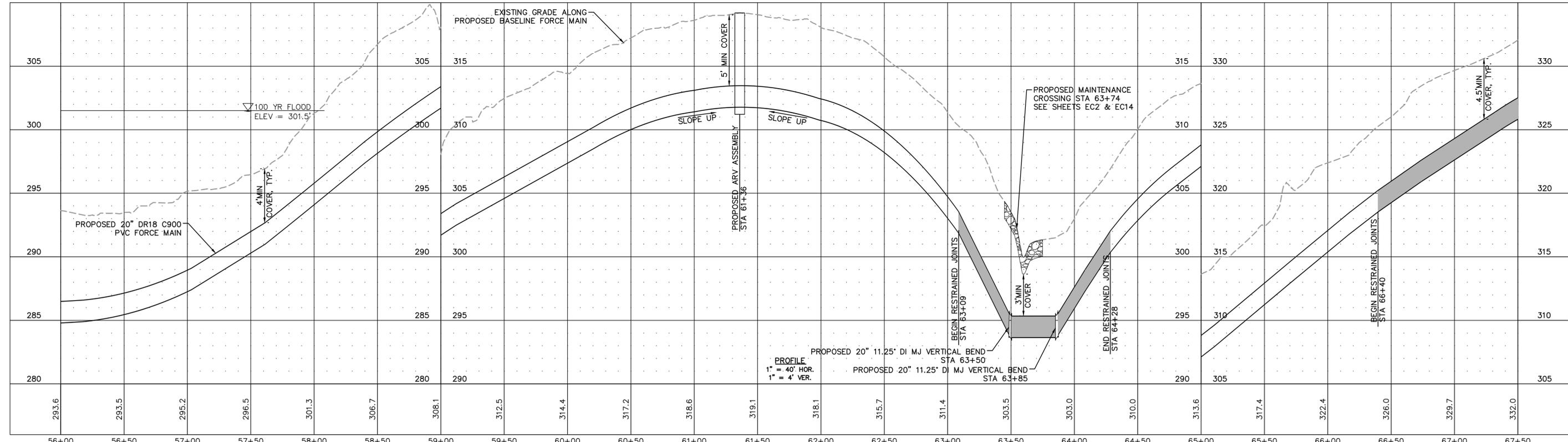
FORCE MAIN PLAN AND PROFILE
STA 44+50 TO STA 56+00

CJS PROJ. #:	100-005	C4
DATE:	12-18-2024	
SCALE:	1" = 40'	
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	SHEET NUMBER 6 OF 56



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



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FORCE MAIN

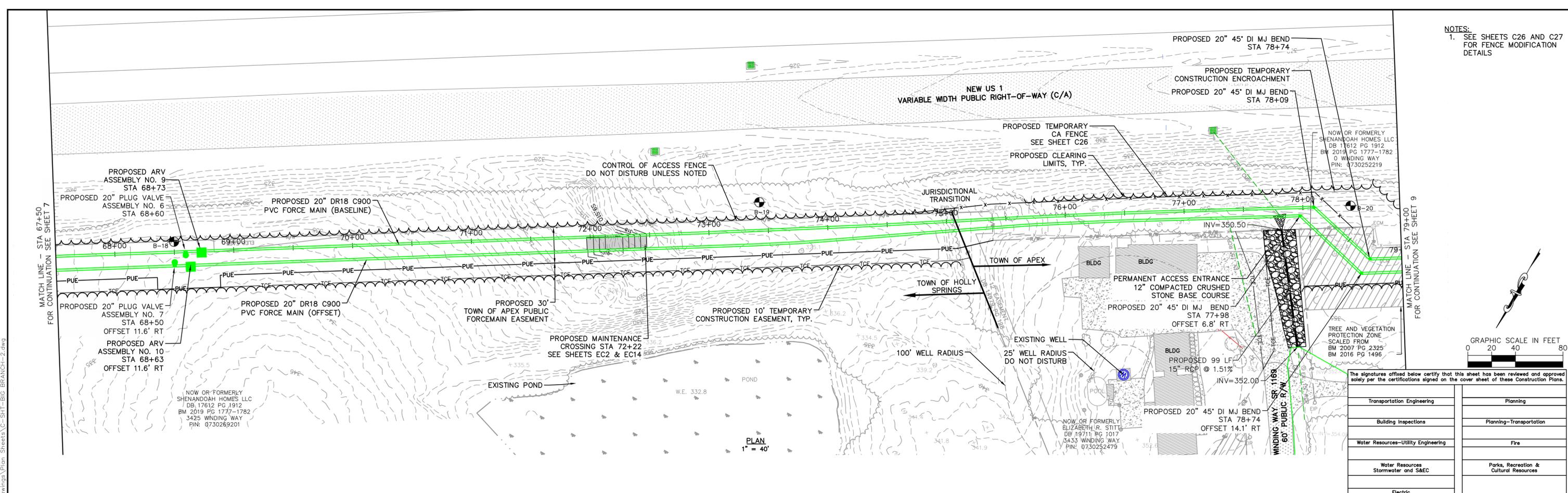
FORCE MAIN PLAN AND PROFILE
STA 56+00 TO STA 67+50

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DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C5

SHEET NUMBER
7 OF 56

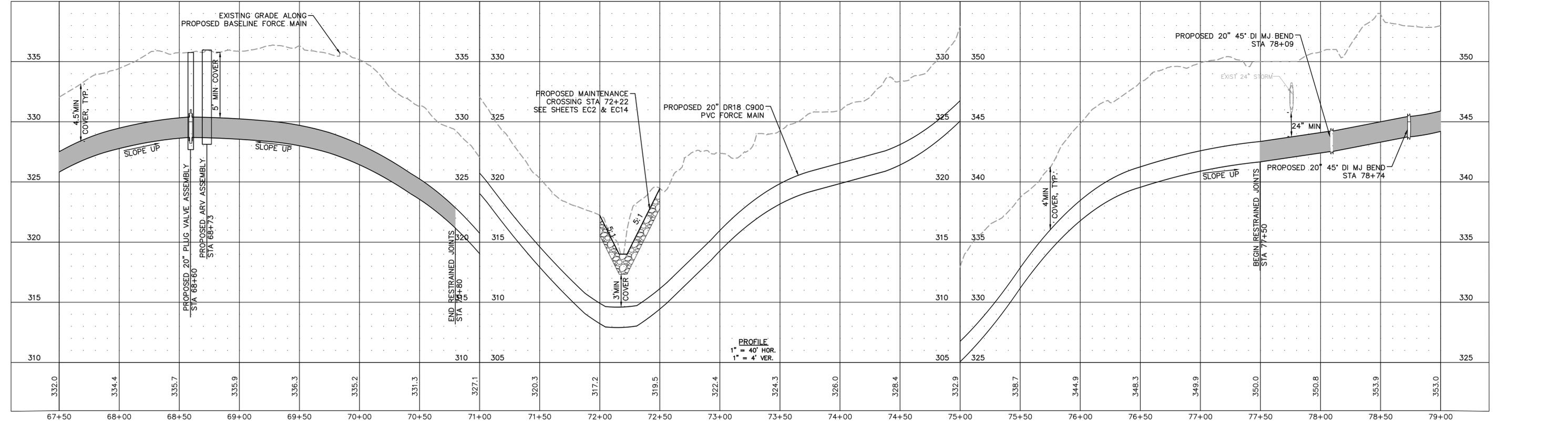
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NOTES:
1. SEE SHEETS C26 AND C27 FOR FENCE MODIFICATION DETAILS

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



1	PERMIT SUBMITTAL	12/18/2024	SDL
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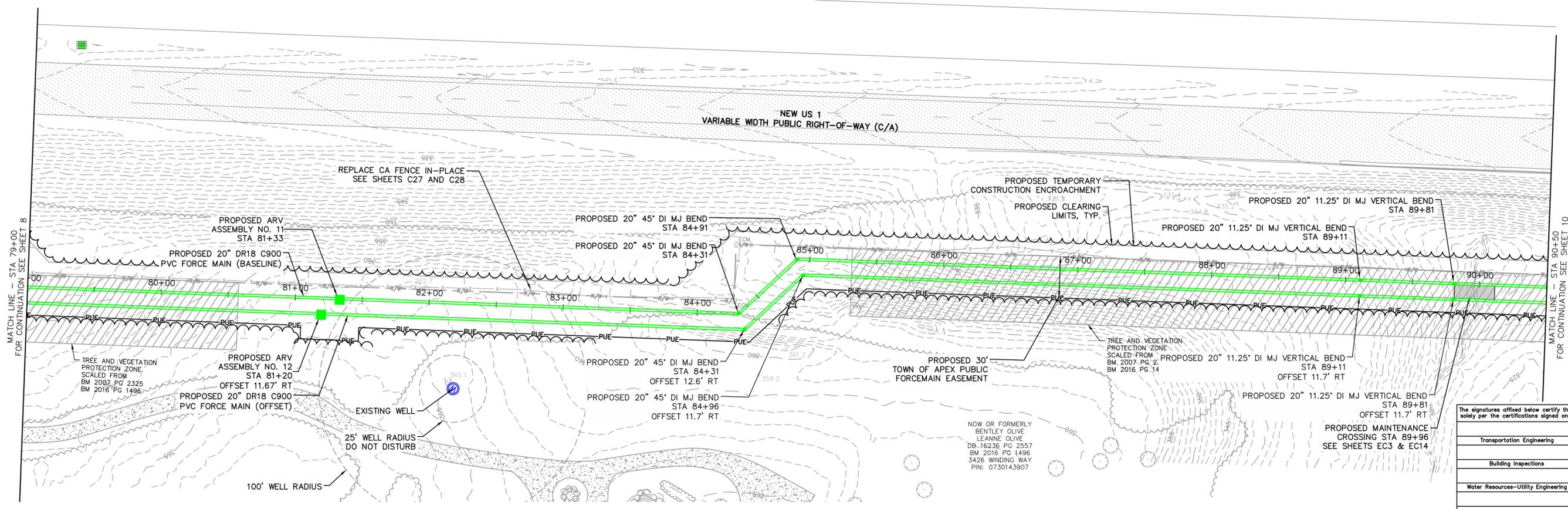
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 67+50 TO STA 79+00

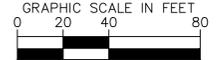
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DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	

Plotted By: J. Speers Layout: B. PLAN AND PROFILE December 18, 2024 02:10:32pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS BD - Drawings\Plan Sheets\C-SHT-BIG BRANCH-2.dwg

NOTES:
1. SEE SHEETS C27 AND C28 FOR FENCE MODIFICATION DETAILS.

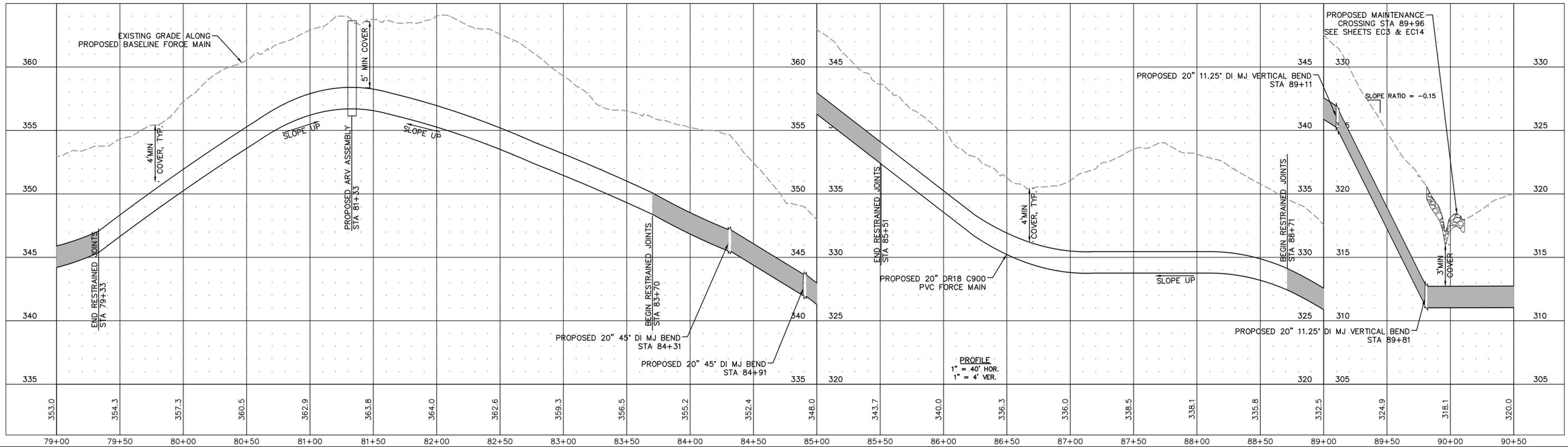


PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 79+00 TO STA 90+50

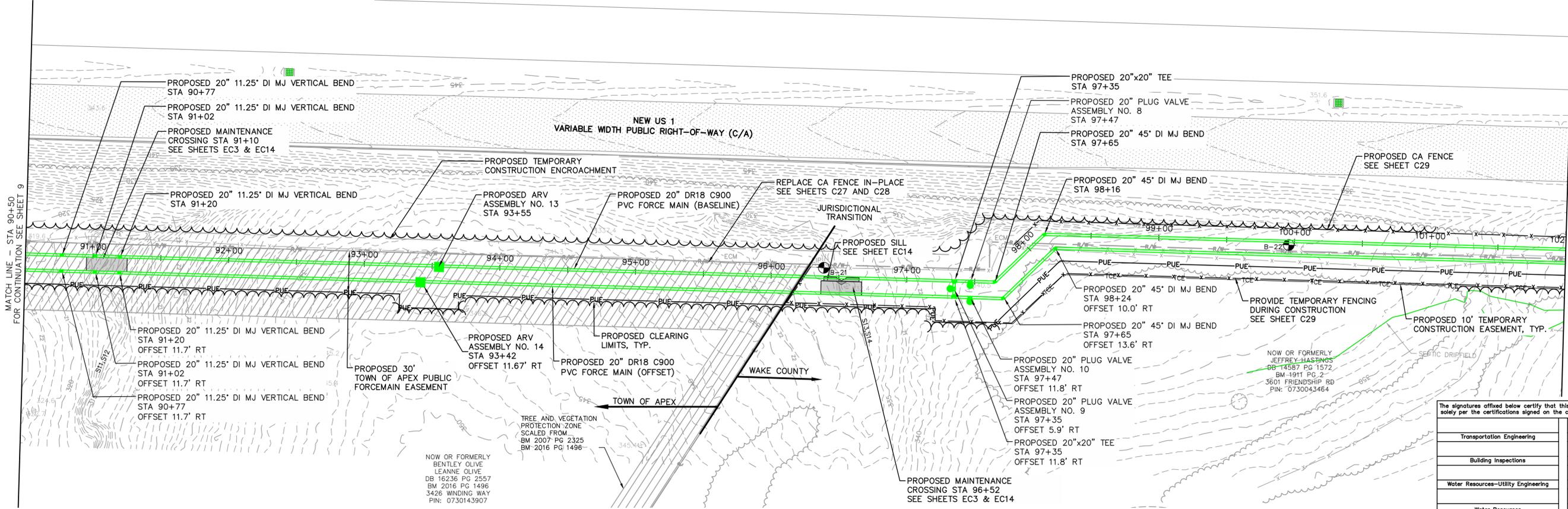
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CHECKED BY:	SDL

C7

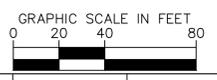
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NOTES:
1. SEE SHEETS C27, C28, AND C29 FOR FENCE MODIFICATION DETAILS.

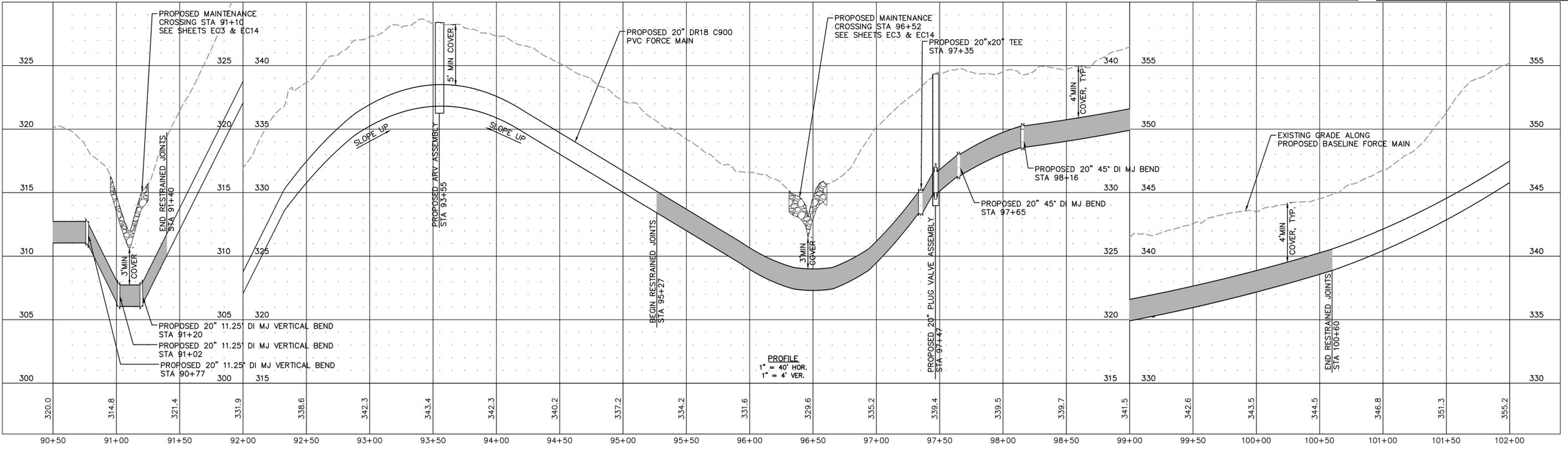


PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

Plotted By: J. Speers Layout: TO PLAN AND PROFILE December 18, 2024 02:11:06pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\B0 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-2.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



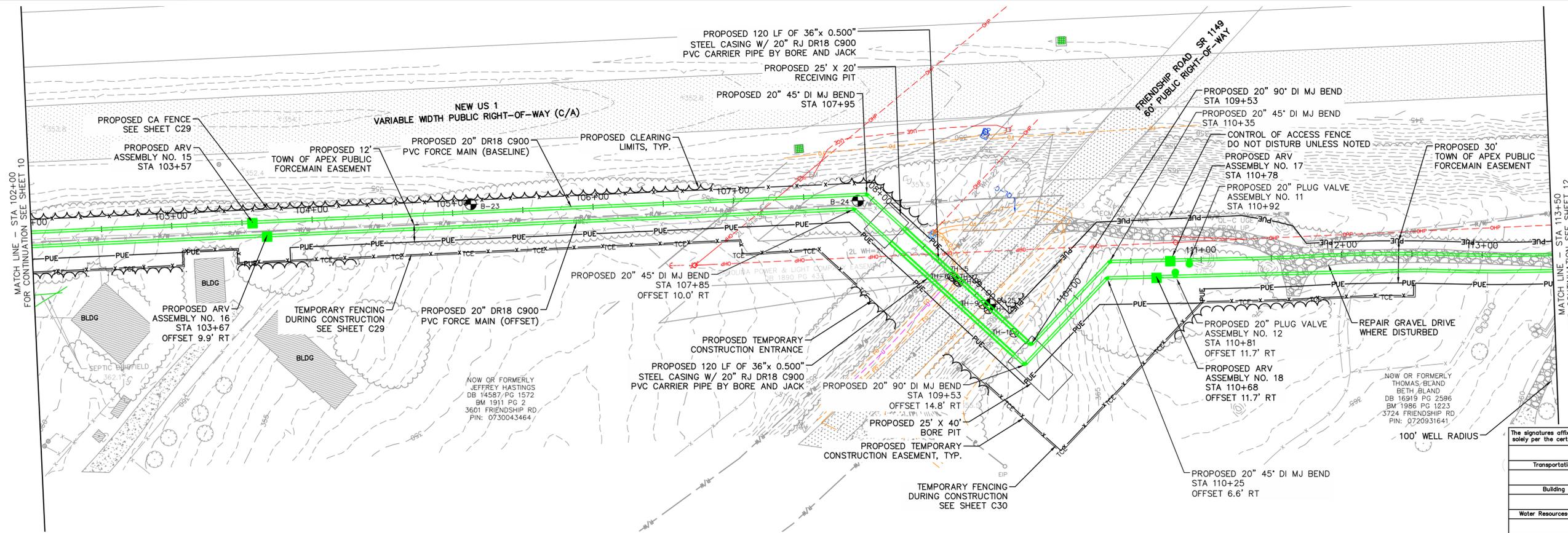
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NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

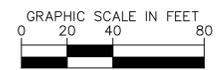
FORCE MAIN PLAN AND PROFILE
STA 90+50 TO STA 102+00

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DATE:	12-18-2024	
SCALE:	1" = 40'	
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	
SHEET NUMBER		10 OF 56

NOTES:
1. SEE SHEETS C29 AND C30 FOR FENCE MODIFICATION DETAILS

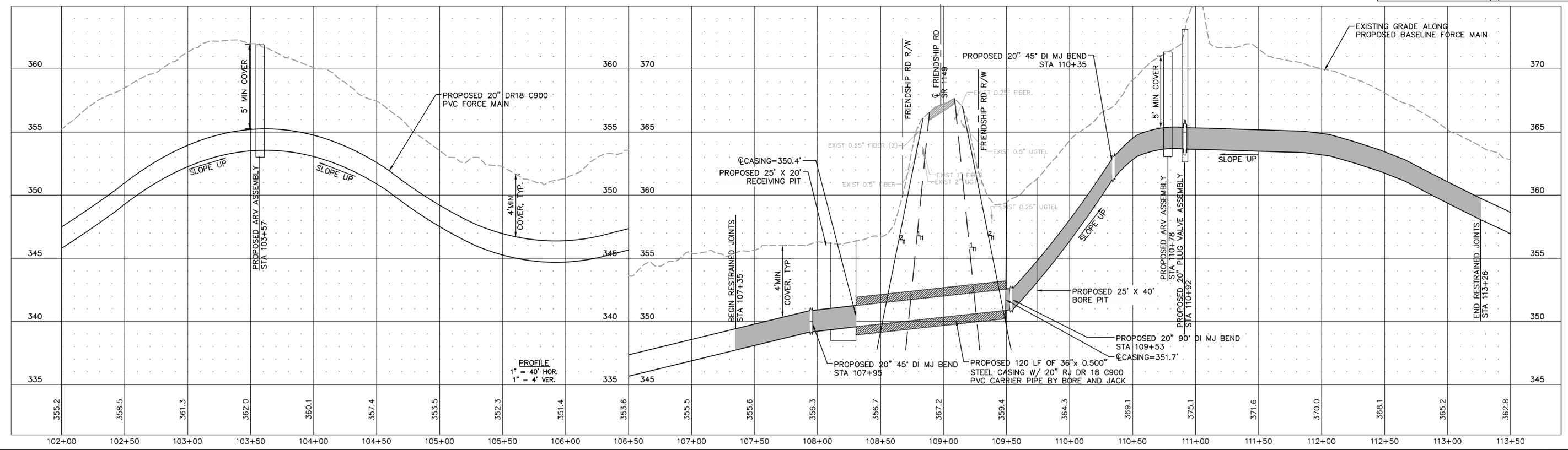


PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&C	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
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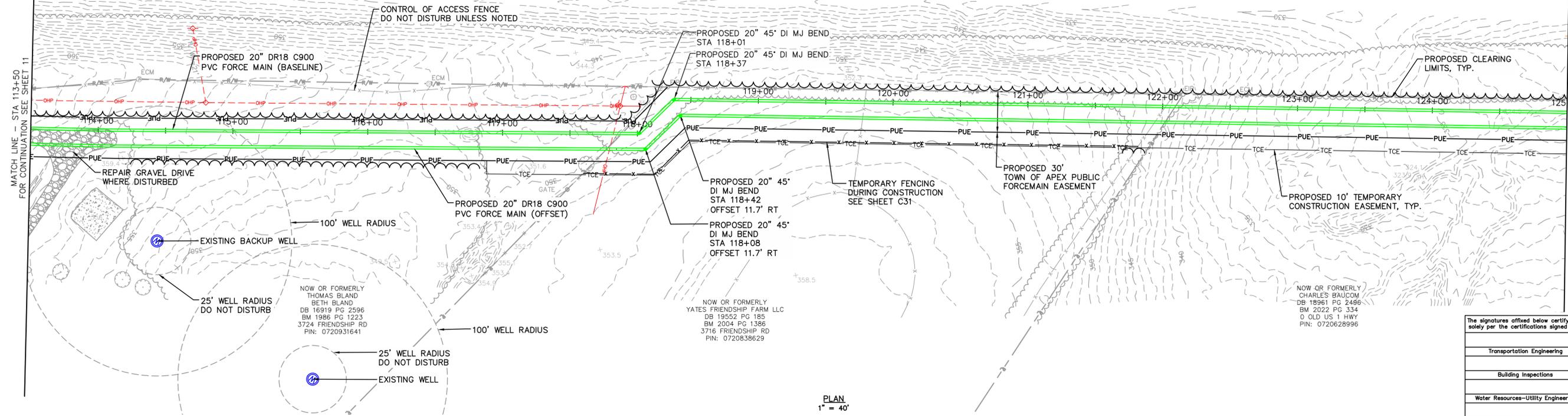
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 102+00 TO STA 113+50

CJS PROJ. #:	100-005	C9
DATE:	12-18-2024	
SCALE:	1" = 40'	
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	SHEET NUMBER 11 OF 56

NOTES:
1. SEE SHEETS C30 AND C31 FOR FENCE MODIFICATION DETAILS.

NEW US 1
VARIABLE WIDTH PUBLIC RIGHT-OF-WAY (C/A)

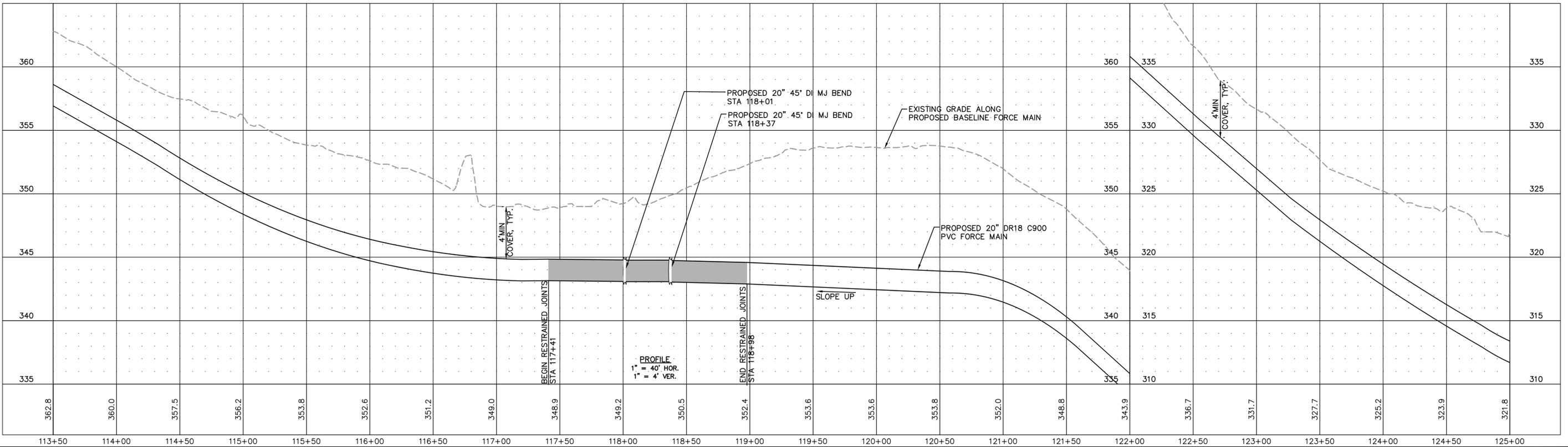


PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

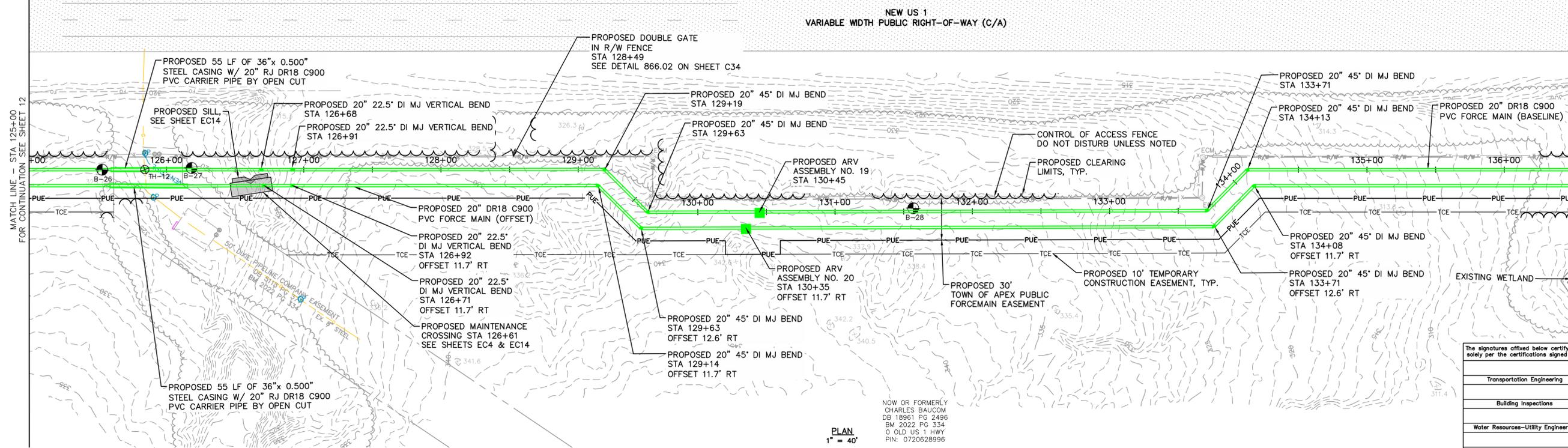
FORCE MAIN PLAN AND PROFILE
STA 113+50 TO STA 125+00

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DRAWN BY:	JJS
CHECKED BY:	SDL

C10
SHEET NUMBER
12 OF 56

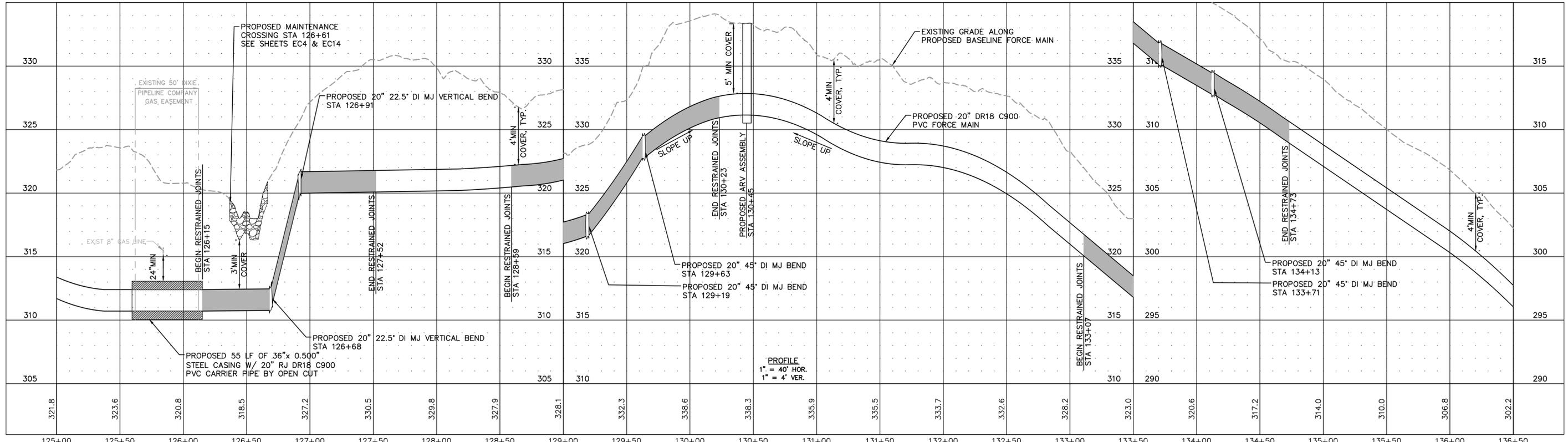
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- NOTES:**
- CONTRACTOR SHALL PLACE A ONE-CALL (811) AT LEAST 48-HOURS PRIOR TO CROSSING THE GAS PIPELINE. ENTERPRISE REPRESENTATIVE MUST BE ON-SITE TO PERFORM CROSSING.
 - CONTRACTOR SHALL SUPPORT THE GAS MAIN EVERY 10' IF EXPOSED VIA OPEN-CUT. IF ROCK IS ENCOUNTERED DURING GAS CROSSING, SPECIFIC PLANS SHALL BE SUPPLIED INDICATING CROSSING REVISIONS, SUBJECT TO REVIEW AND APPROVAL BY ENTERPRISE.
 -



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



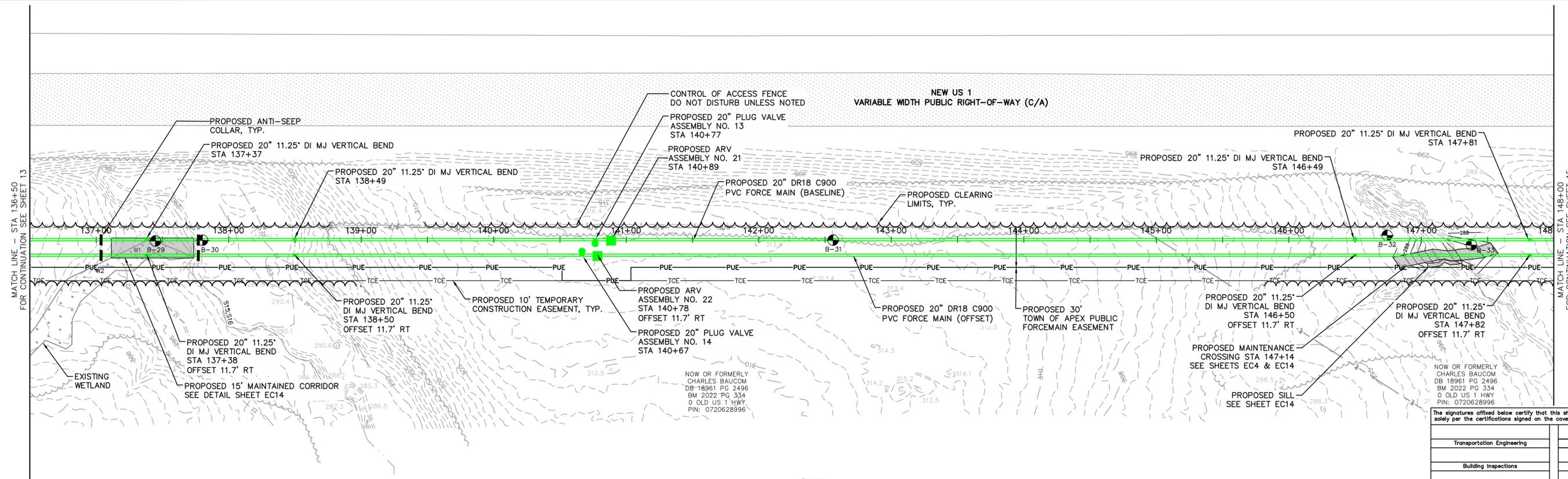
**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**FORCE MAIN PLAN AND PROFILE
STA 125+00 TO STA 136+50**

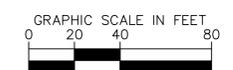
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DRAWN BY:	JJS
CHECKED BY:	SDL

C11
SHEET NUMBER
13 OF 56

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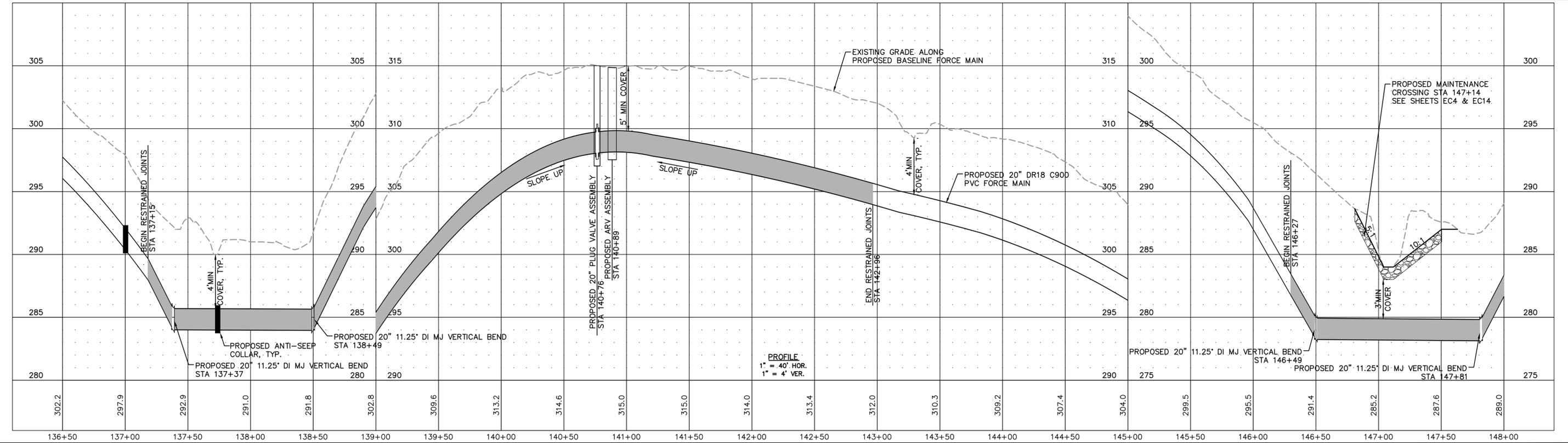


PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY
1	PERMIT SUBMITTAL	12/18/2024	SDL



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

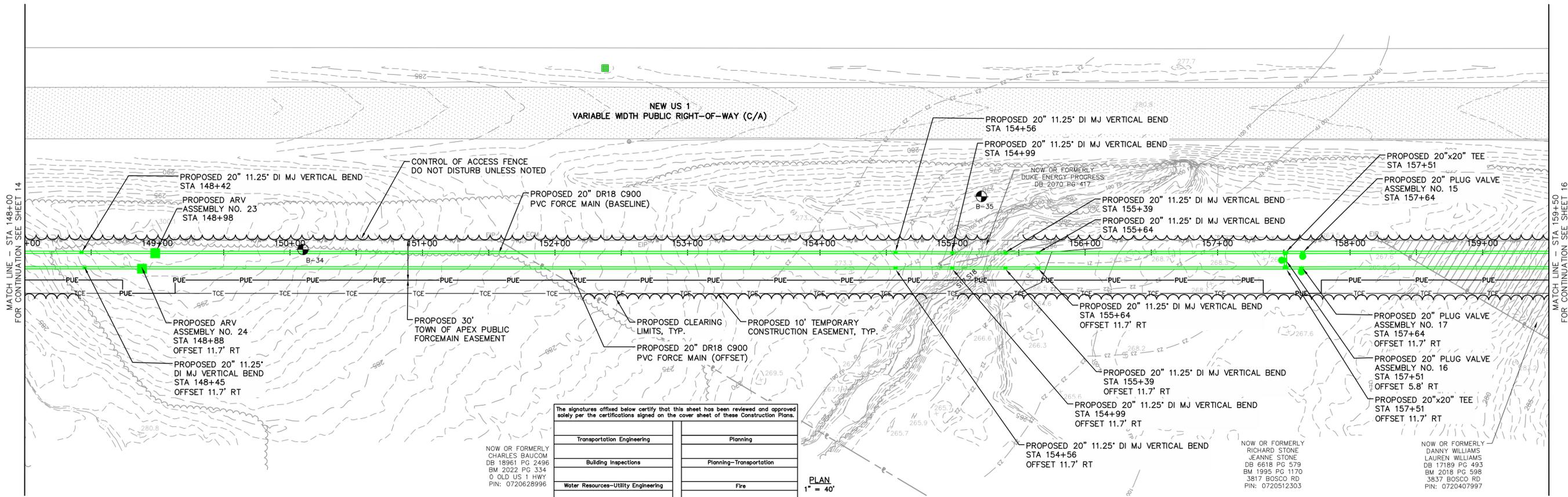
FORCE MAIN PLAN AND PROFILE
STA 136+50 TO STA 148+00

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C12
SHEET NUMBER
14 OF 56

Plotted By: J. Speers Layout: T. PLAN AND PROFILE December 18, 2024 02:12:43pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PWS\80 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-3.dwg

Plotted By: J. Speers Layout: IS PLAN AND PROFILE December 18, 2024 02:13:04pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\B0 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-3.dwg



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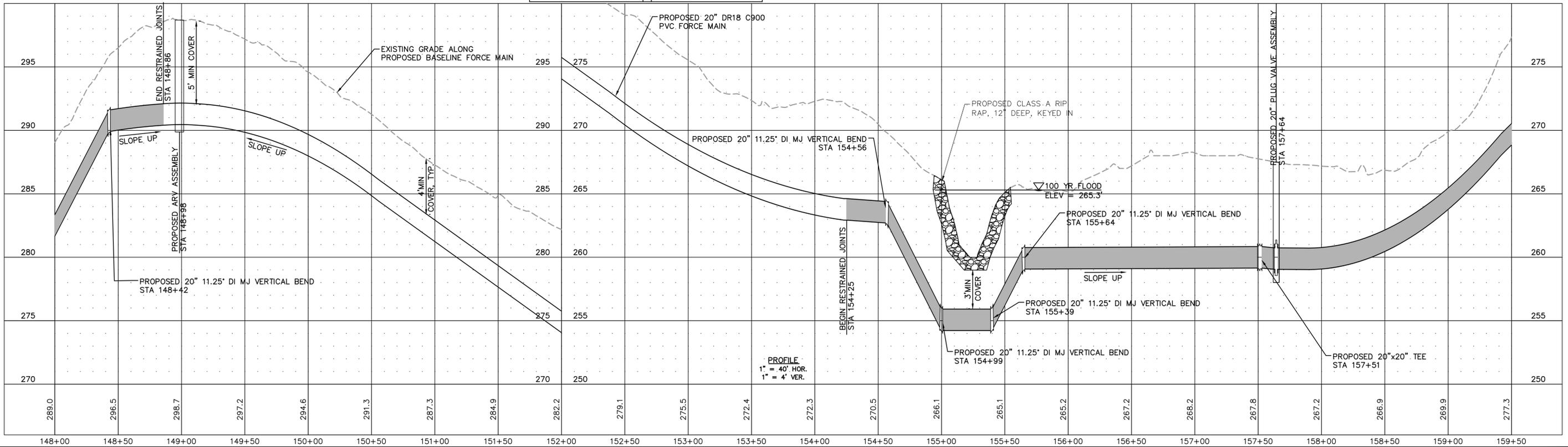
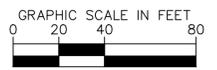
Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

NOW OR FORMERLY
CHARLES BAUCOM
DB 18961 PG 2436
BM 2022 PG 334
0 OLD US 1 HWY
PIN: 0720628996

NOW OR FORMERLY
RICHARD STONE
JEANNE STONE
DB 6618 PG 579
BM 1995 PG 1170
3817 BOSCO RD
PIN: 0720512303

NOW OR FORMERLY
DANNY WILLIAMS
LAUREN WILLIAMS
DB 17189 PG 493
BM 2018 PG 598
3837 BOSCO RD
PIN: 0720407997

PLAN
1" = 40'



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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CARY, NC 27511
NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

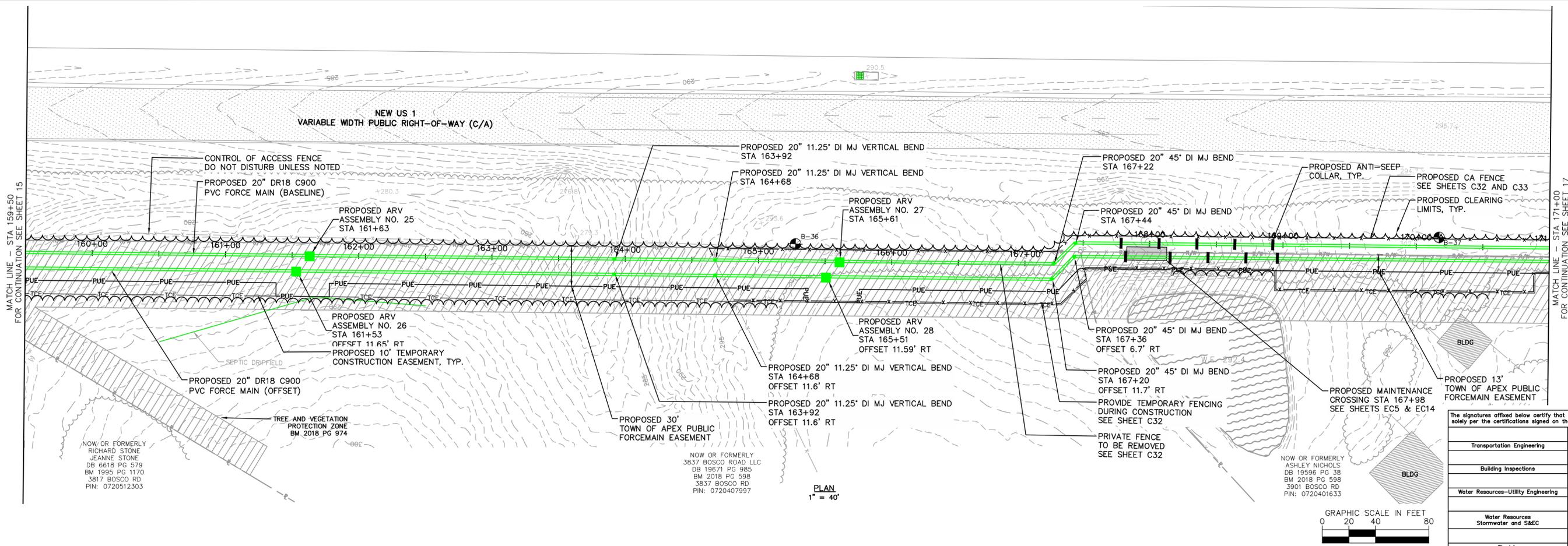
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 148+00 TO STA 159+50

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 20'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

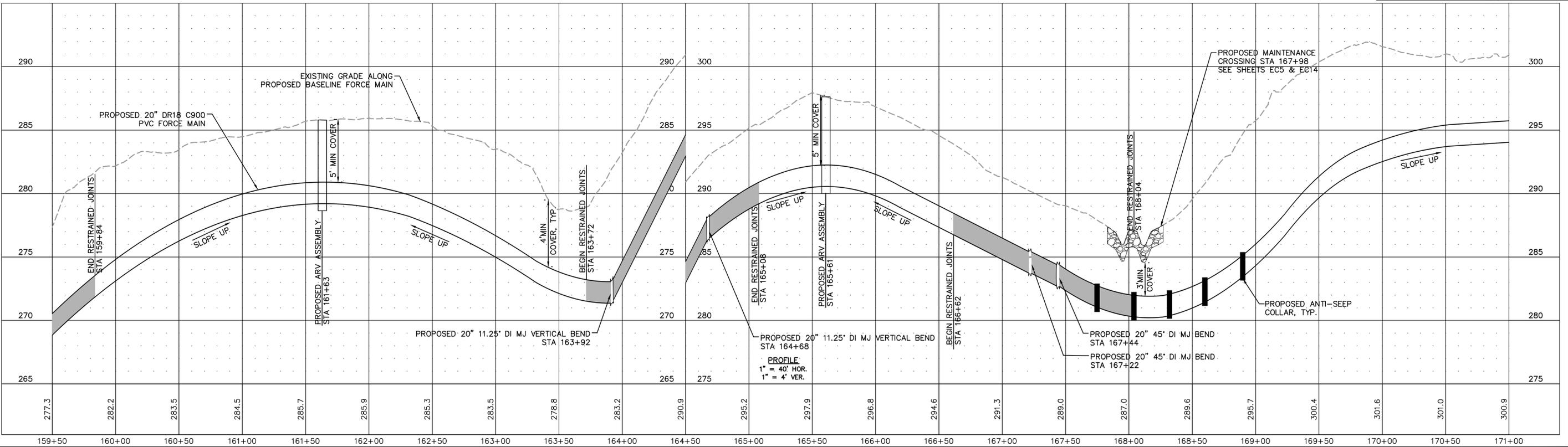
C13
SHEET NUMBER
15 OF 56

NOTES:
1. SEE SHEETS C32 AND C33 FOR FENCE MODIFICATION DETAILS.



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



Plotted By: J. Speers Layout: 16 PLAN AND PROFILE December 18, 2024 02:13:23pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PWS\B0 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-3.dwg

No.	REVISIONS	DATE	BY
1	PERMIT SUBMITTAL	12/18/2024	SDL



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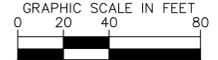
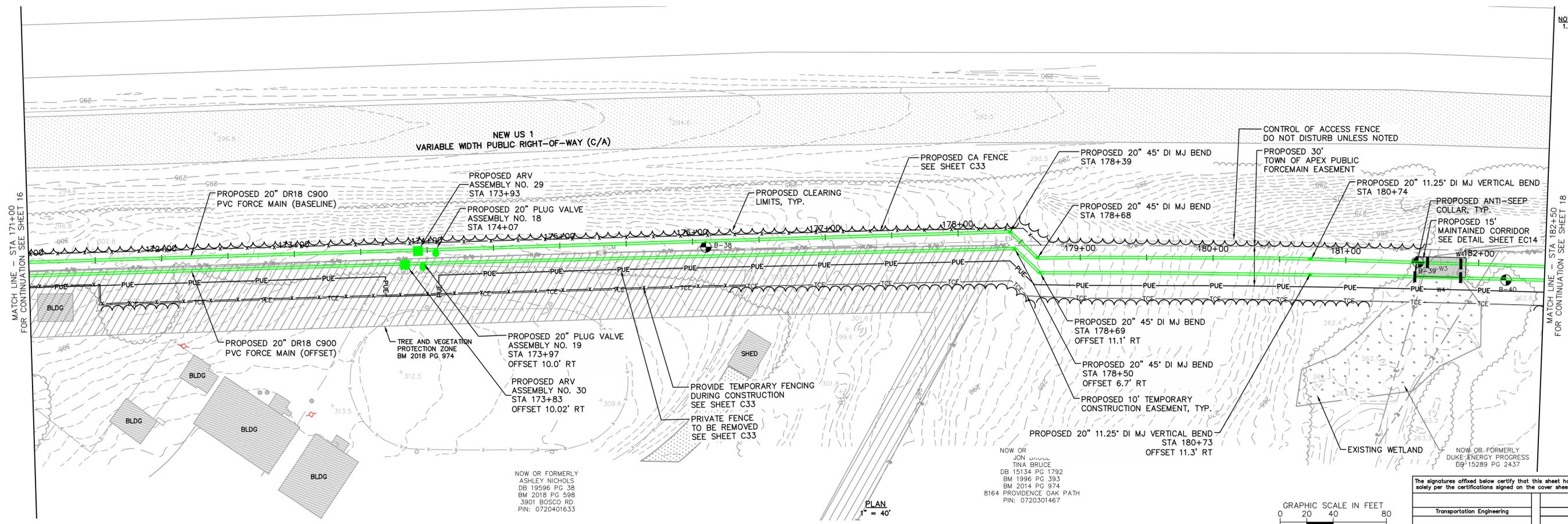
**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**FORCE MAIN PLAN AND PROFILE
STA 159+50 TO STA 171+00**

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

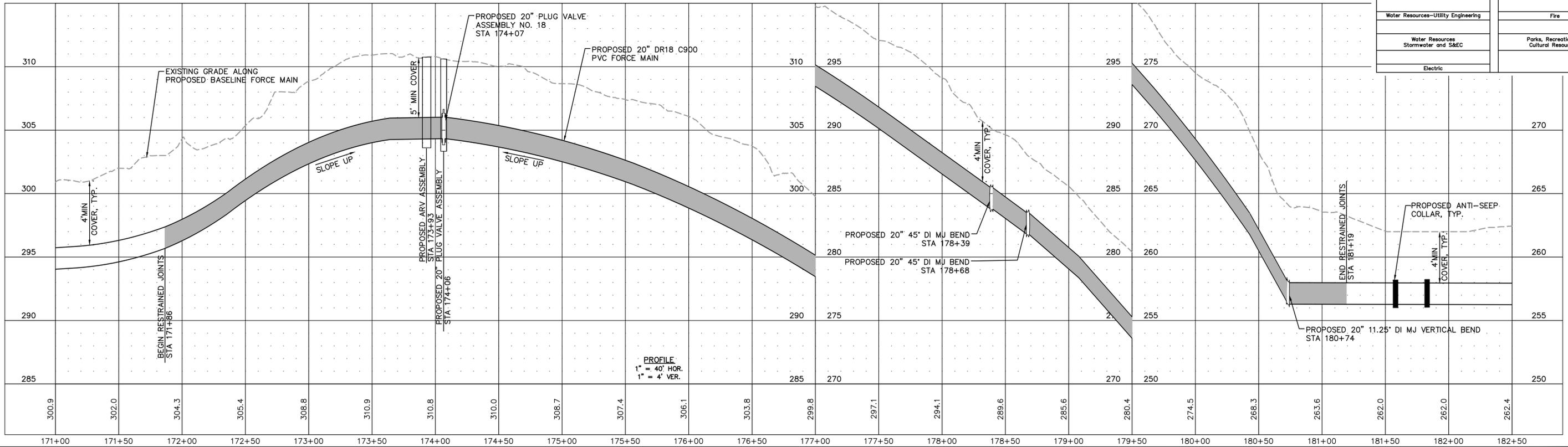
C14
SHEET NUMBER
16 OF 56

NOTES:
1. SEE SHEET C33 FOR FENCE MODIFICATION DETAILS



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



Plotted By: J. Speers Layout: I7 PLAN AND PROFILE December 18, 2024 02:13:51pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\B0 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-3.dwg

1	PERMIT SUBMITTAL	12/18/2024	SDL
No.	REVISIONS	DATE	BY



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

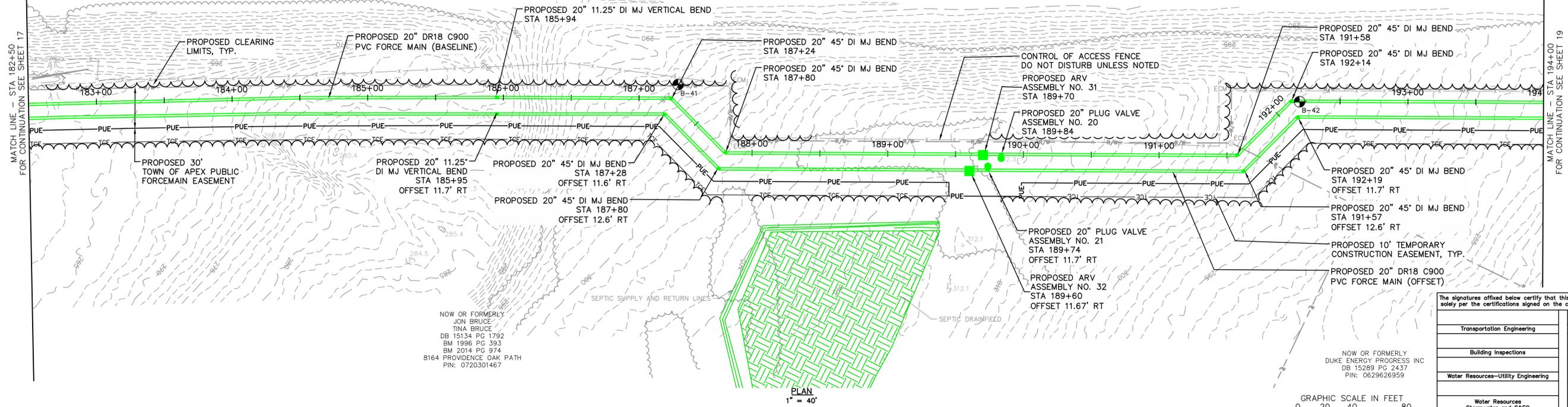
FORCE MAIN PLAN AND PROFILE
STA 171+00 TO STA 182+50

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C15
SHEET NUMBER
17 OF 56

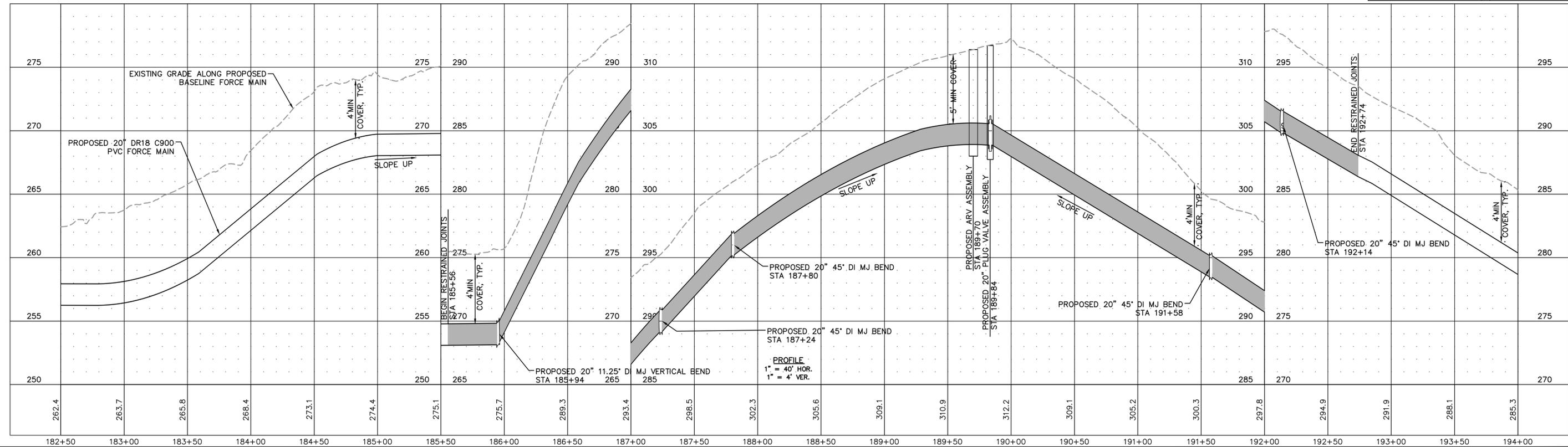


NEW US 1
VARIABLE WIDTH PUBLIC RIGHT-OF-WAY (C/A)



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



Plotted By: J. Speers Layout: 18 FORCE MAIN PLAN AND PROFILE STA 182+50 TO STA 194+00 December 18, 2024 02:14:49pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 P&S\80 - Drawings\Plan Sheets\C-SIT-BIG BRANCH-4.dwg

No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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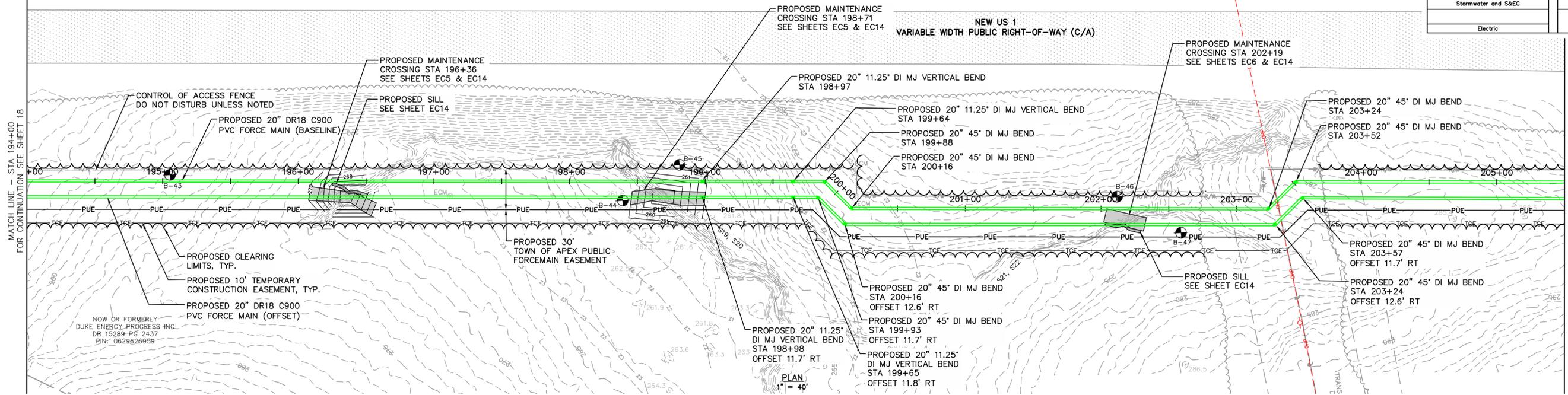
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 182+50 TO STA 194+00

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

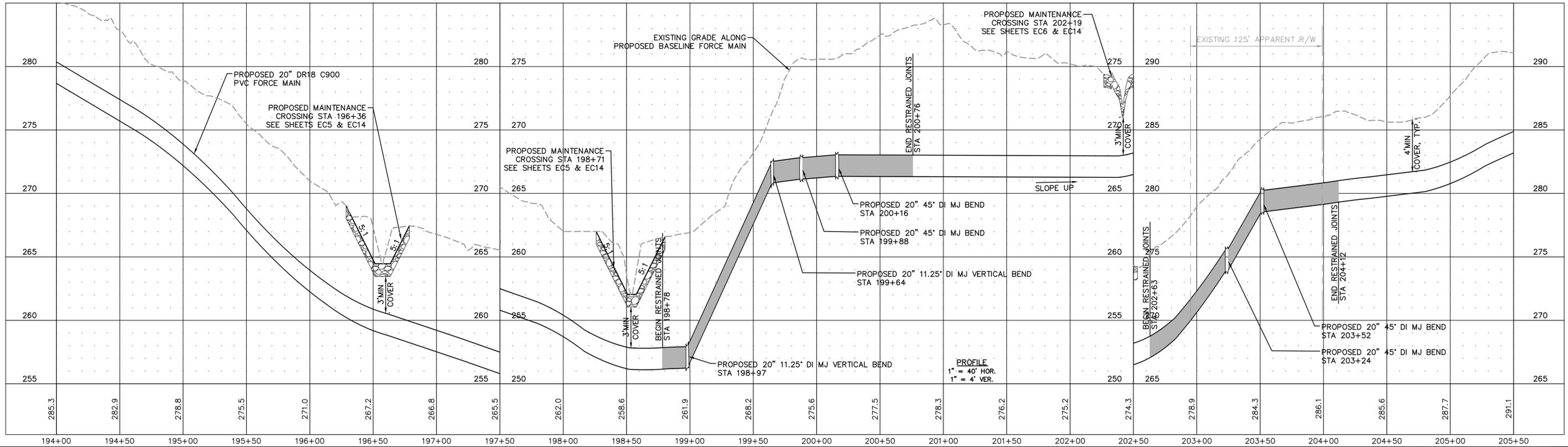
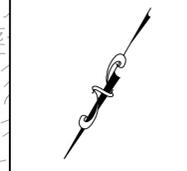
C16
SHEET NUMBER
18 OF 56

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



MATCH LINE - STA 205+50 FOR CONTINUATION SEE SHEET 20

MATCH LINE - STA 194+00 FOR CONTINUATION SEE SHEET 18



Plotted By: J. Speers Layout: J. Speers FORCE MAIN PLAN AND PROFILE STA 194+00 TO STA 205+50 December 18, 2024 02:15:02pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 - Drawings\Plan Sheets\C-SIT-BIG BRANCH-4.dwg

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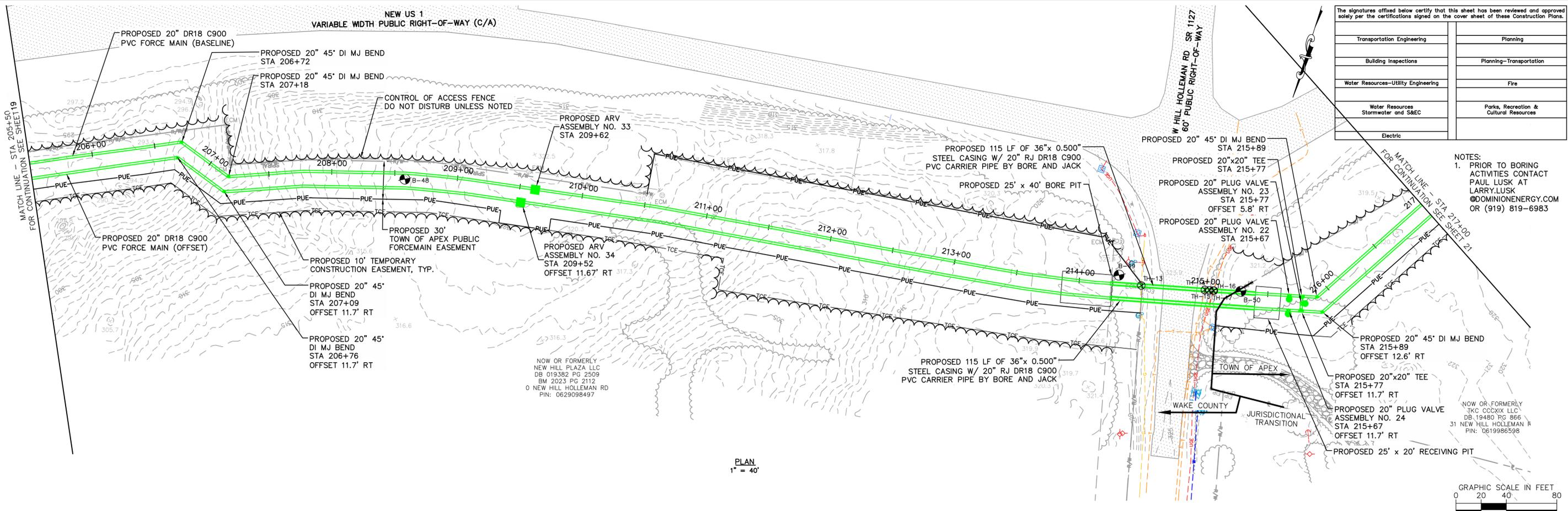
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 194+00 TO STA 205+50

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C17
 SHEET NUMBER
19 OF 56

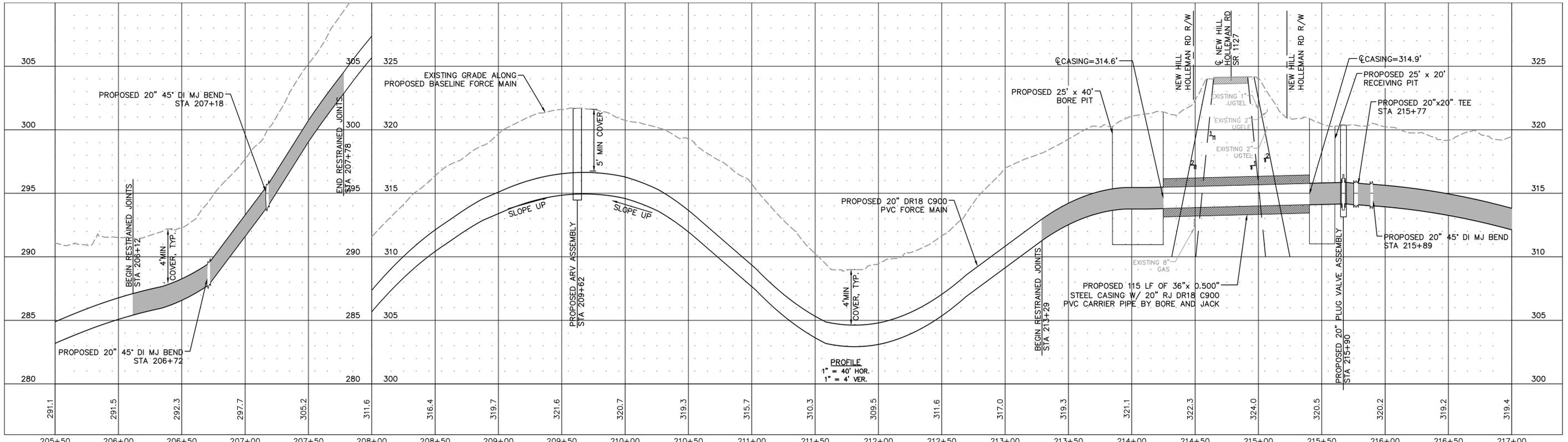
Plotted By: J. Speers Layout: 20 FORCE MAIN PLAN AND PROFILE STA 205+50 TO STA 217+00 December 18, 2024 02:15:16pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PSH80 - Drawings\Plan Sheets\C-SHIT-BIG BRANCH-4.dwg



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

NOTES:
 1. PRIOR TO BORING ACTIVITIES CONTACT PAUL LUSK AT LARRY.LUSK@DOMINIONENERGY.COM OR (919) 819-6983



No.	REVISIONS	DATE	BY
1	PERMIT SUBMITTAL	12/18/2024	SDL




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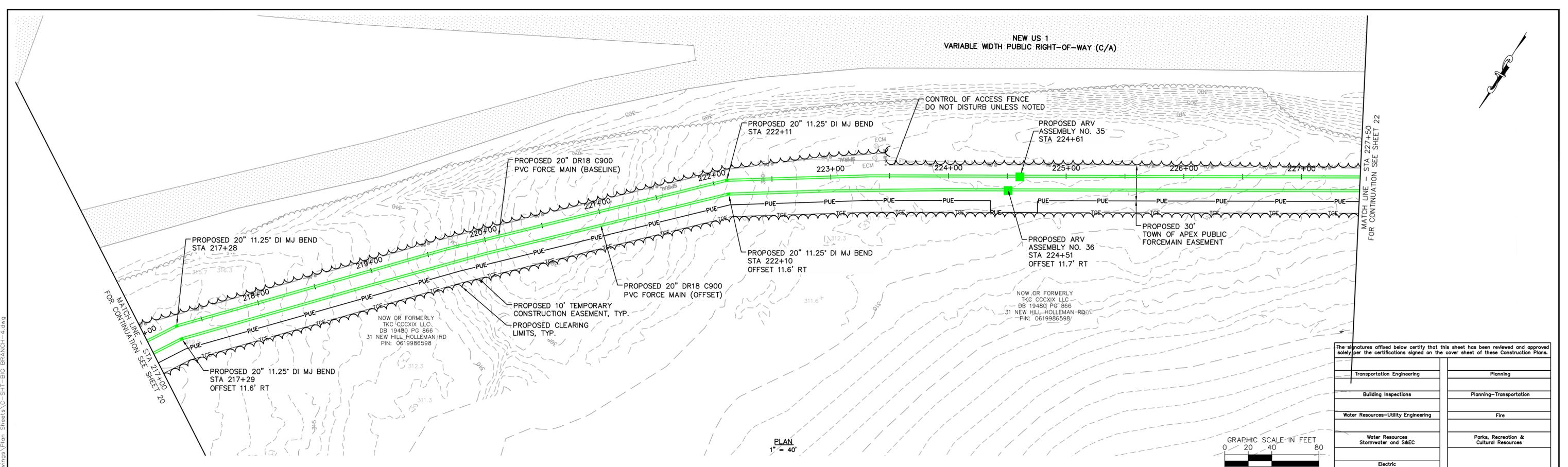
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 205+50 TO STA 217+00

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

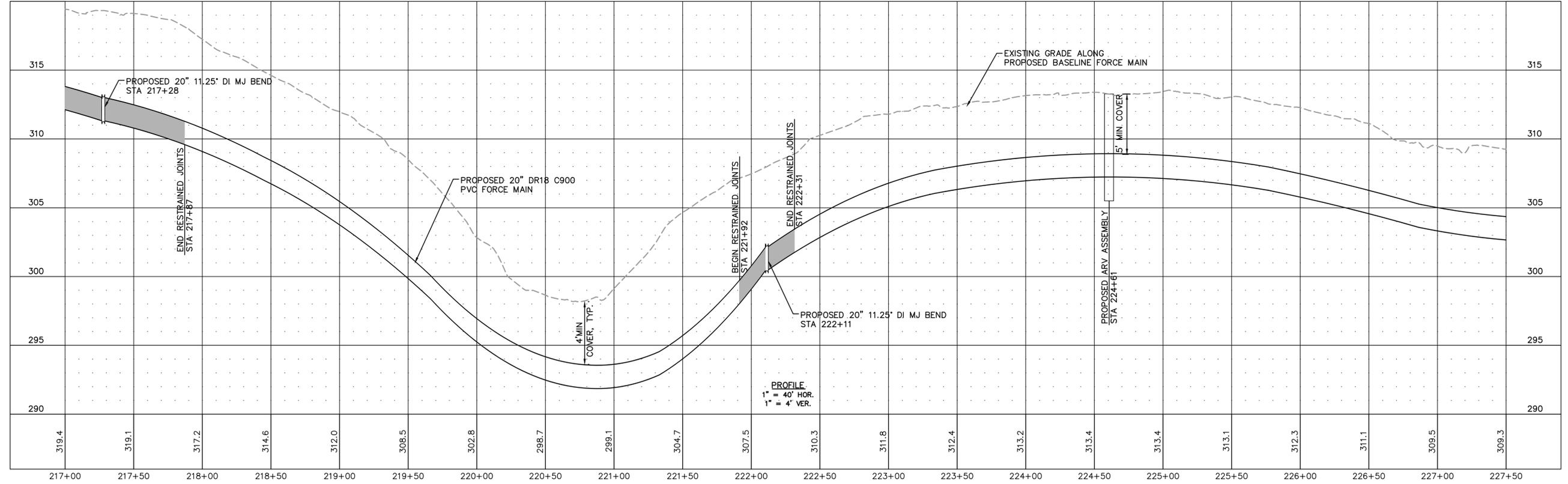
C18

SHEET NUMBER
20 OF 56

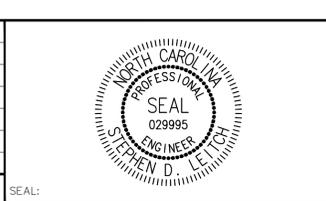


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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



1	PERMIT SUBMITTAL	12/18/2024	SDL
No.	REVISIONS	DATE	BY




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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

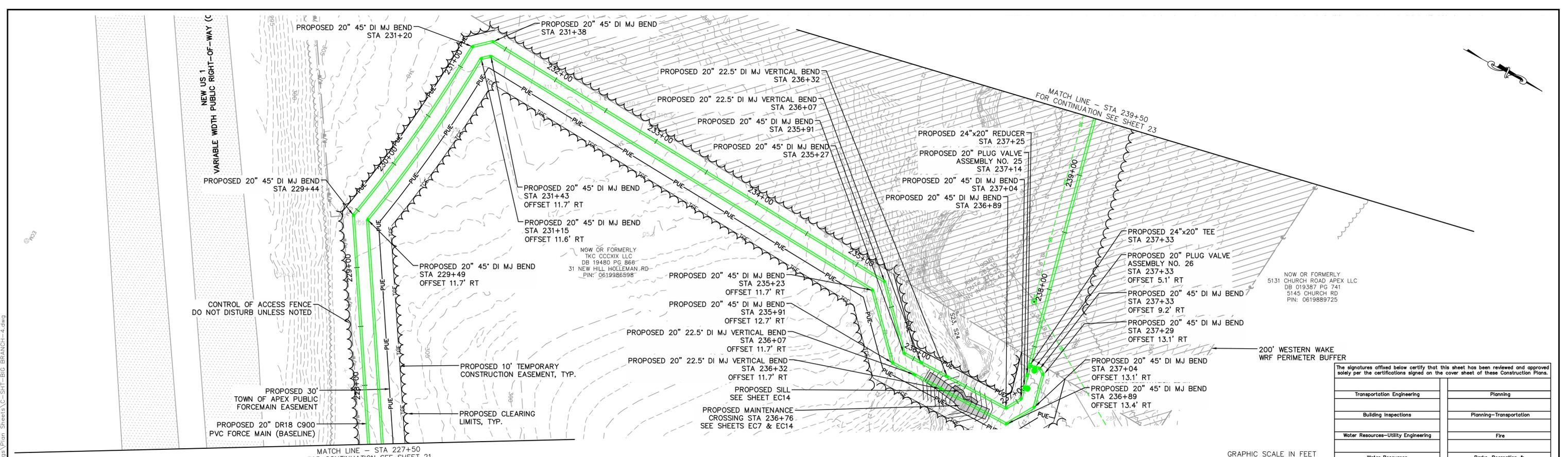
FORCE MAIN PLAN AND PROFILE
STA 217+00 TO STA 227+50

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

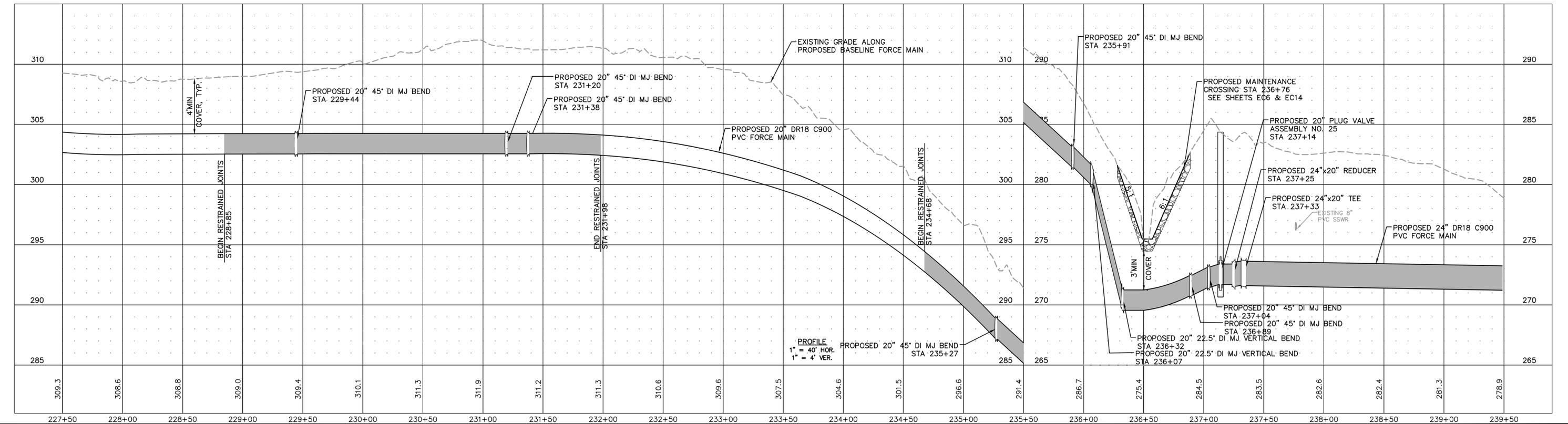
C19

SHEET NUMBER
21 OF 56

Plotted By: J. Speers Layout: 21 PLAN AND PROFILE STA December 18, 2024 02:15:31pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\80 Drawings\Plan Sheets\C-51F-BIG BRANCH-4.dwg



PLAN
1" = 40'



PROFILE
1" = 40' HOR.
1" = 4' VER.

1	PERMIT SUBMITTAL	12/18/2024	SDL
No.	REVISIONS	DATE	BY



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 227+50 TO STA 239+50

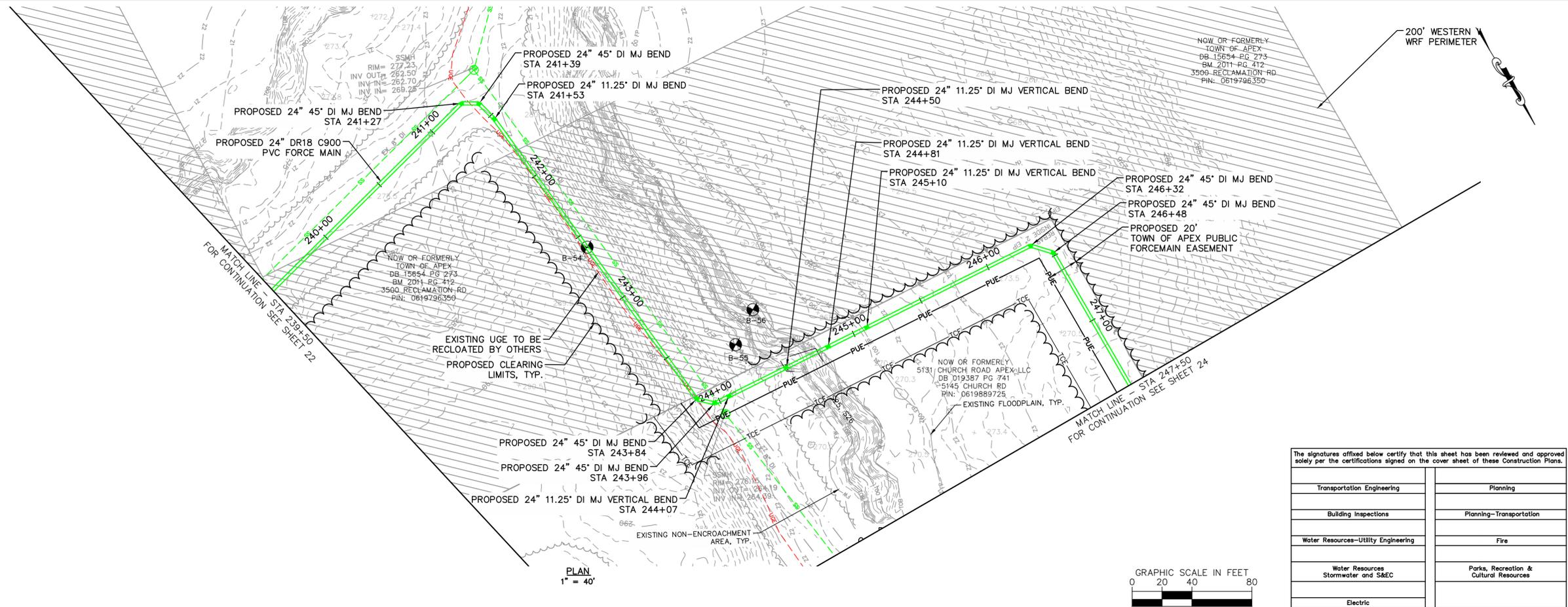
CJS PROJ. #: 100-005
DATE: 12-18-2024
SCALE: 1" = 40'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

C20

SHEET NUMBER
22 OF 56

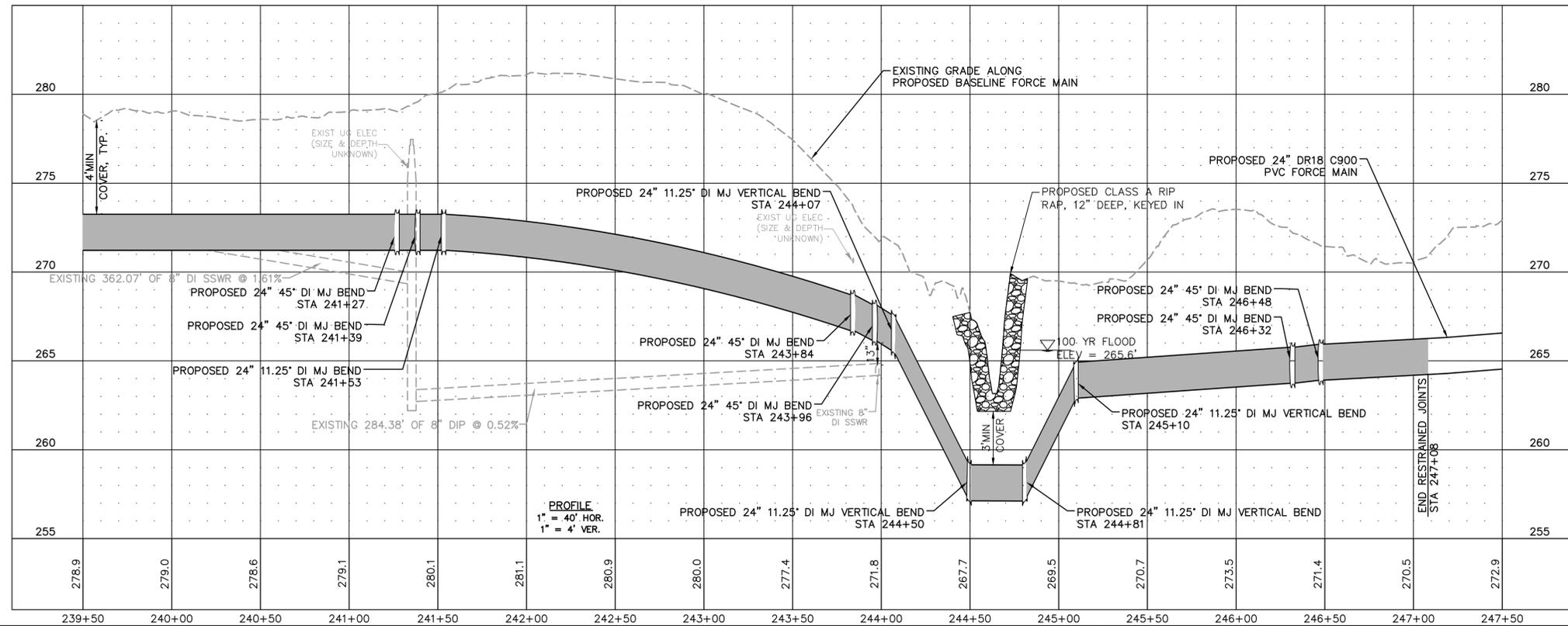
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Plotted By: J. Speers Layout: 23 PLAN AND PROFILE STA December 18, 2024 02:16:01pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\B0 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-4.dwg



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



No.	REVISIONS	DATE	BY	SEAL:
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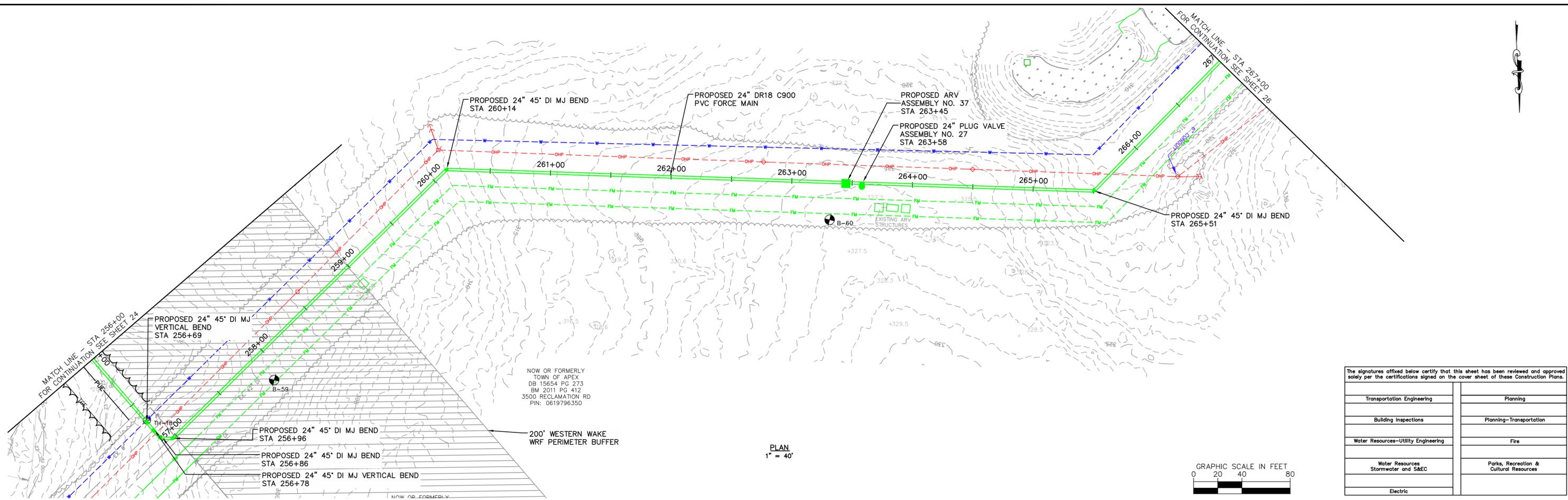
**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**FORCE MAIN PLAN AND PROFILE
STA 239+50 TO STA 247+50**

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

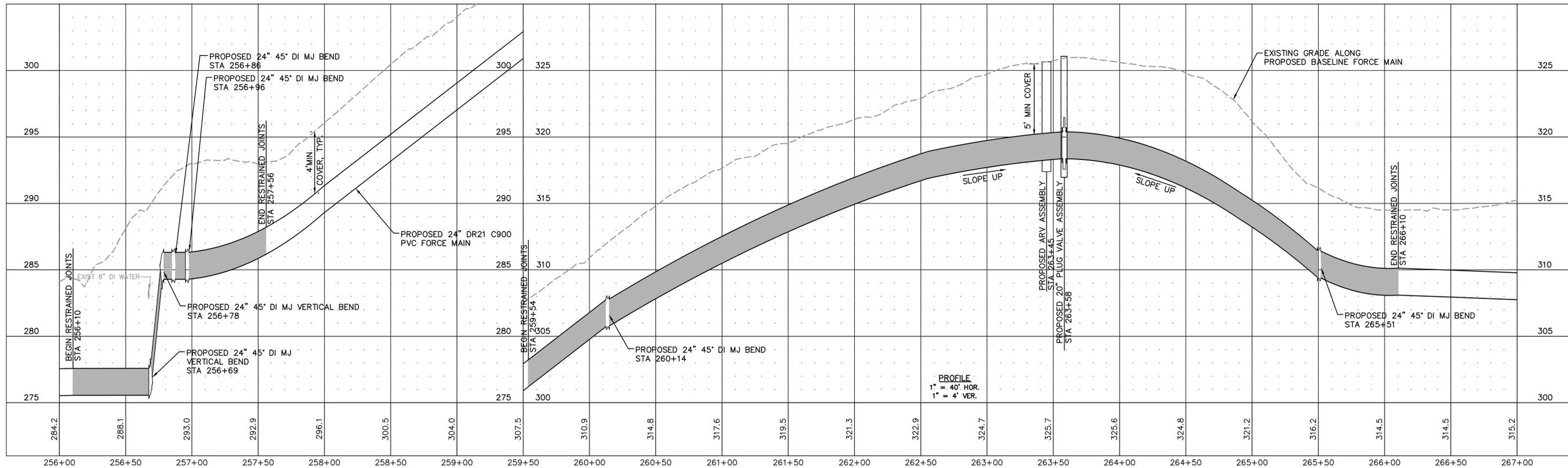
C21
SHEET NUMBER
23 OF 56

Plotted By: J. Speers Layout: 25 FORCE MAIN PLAN AND PROFILE STA 256+00 TO 267+00 December 18, 2024 02:16:33pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PWS\60 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-4.dwg



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	




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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

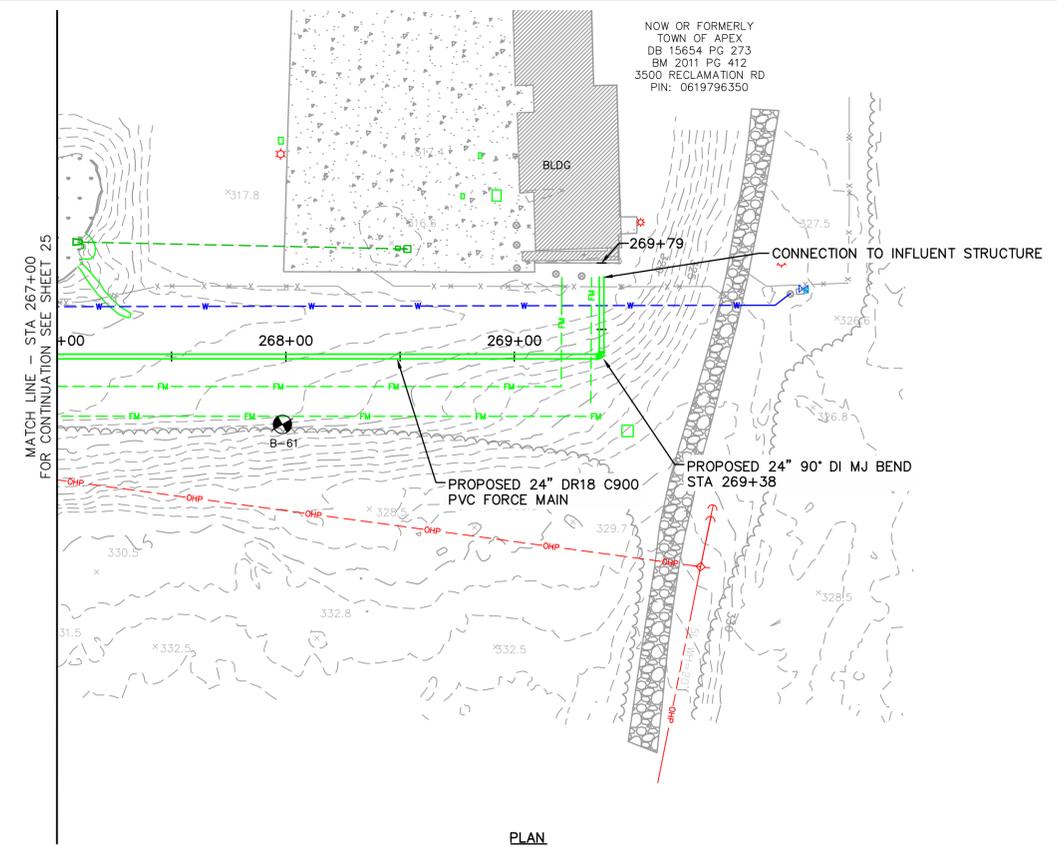
FORCE MAIN PLAN AND PROFILE
STA 256+00 TO STA 267+00

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 20'
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DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

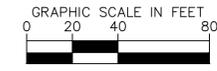
C23

SHEET NUMBER
25 OF 56

Plotted By: J. Speers Layout: 26 PLAN AND PROFILE STA TO END December 18, 2024 02:16:44pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 P&S\80 - Drawings\Plan Sheets\C-SHT-BIG BRANCH-4.dwg

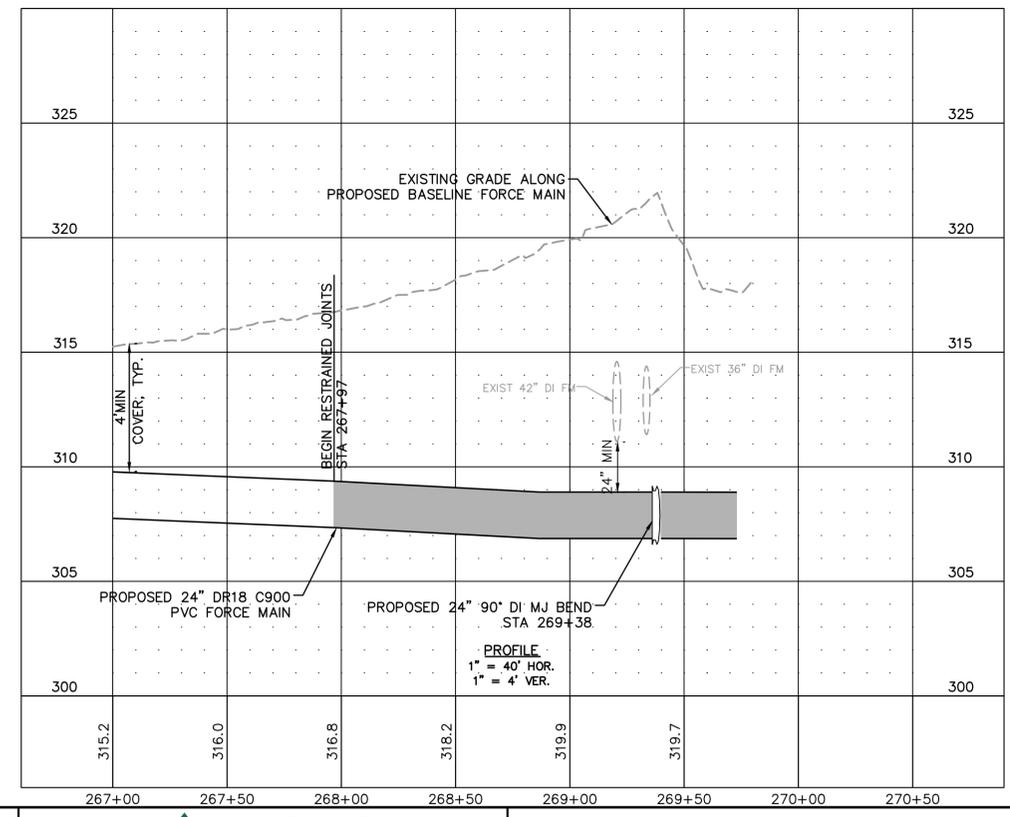


PLAN
1" = 40'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



PROFILE
1" = 40' HOR.
1" = 4' VER.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



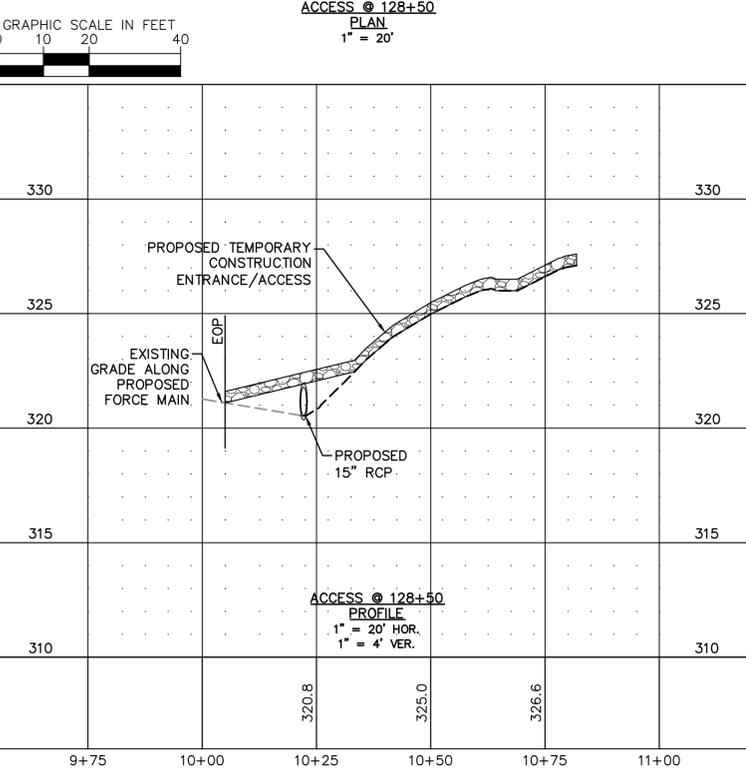
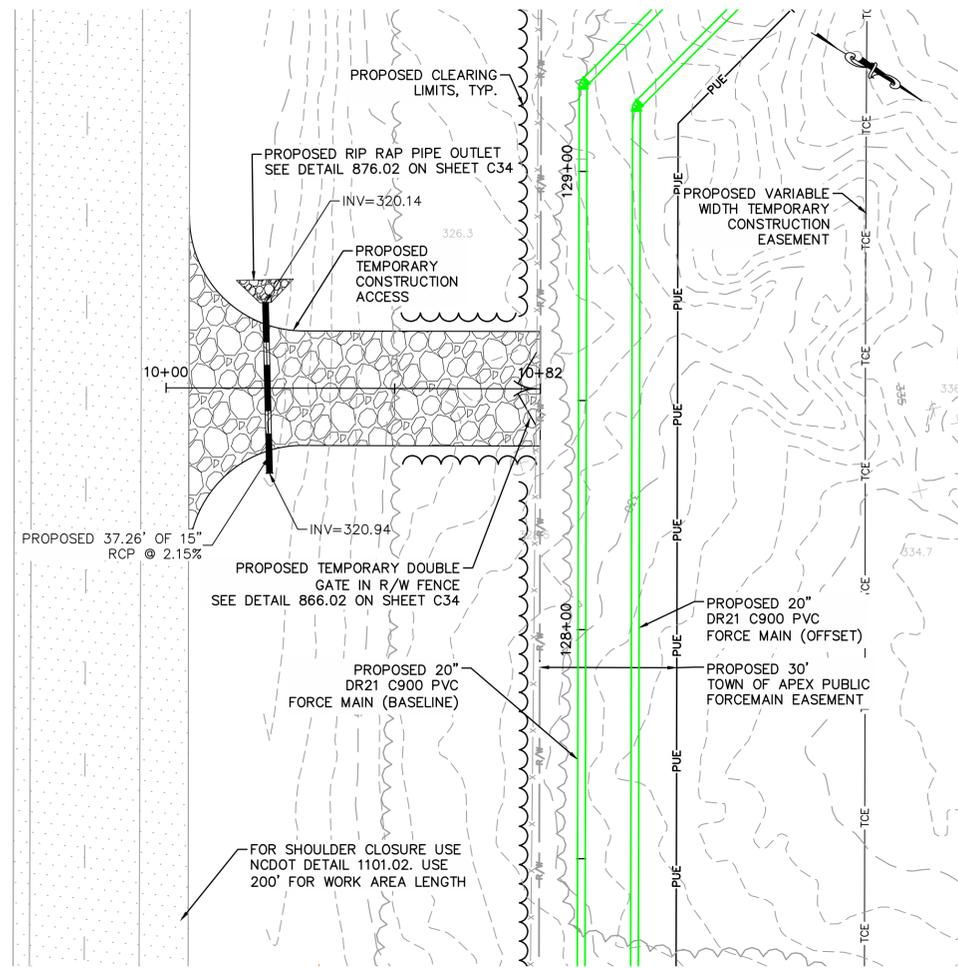
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CARY, NC 27511
NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FORCE MAIN PLAN AND PROFILE
STA 267+00 TO END

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C24
SHEET NUMBER
26 OF 56

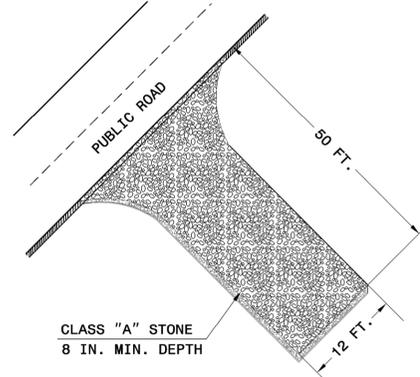


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION RALEIGH, N. C.

7-06

ENGLISH STANDARD DRAWING FOR GRAVEL CONSTRUCTION ENTRANCE

SHEET 1 OF 1 1607.01



- NOTES:
1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS.
 2. LOCATE ENTRANCE(S) TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
 3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
 4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
 5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
 6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.
 7. USE CLASS 'A' STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.

NOTE: PLACE FILTER FABRIC BENEATH STONE

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

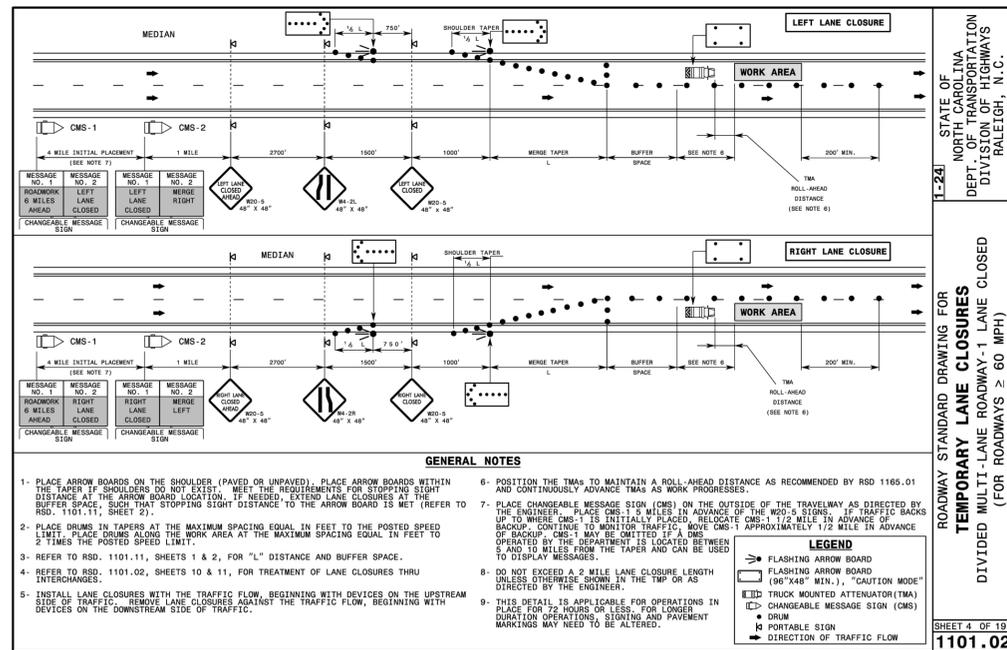
7-06

ENGLISH STANDARD DRAWING FOR GRAVEL CONSTRUCTION ENTRANCE

SHEET 1 OF 1 1607.01

NOTES:

1. LANE CLOSURE WILL ONLY BE ALLOWED BETWEEN THE HOURS OF 9 AM AND 3 PM.
2. ANY MOVEMENT OF MATERIAL OR EQUIPMENT INTO OR OUT OF THE PROJECT WILL REQUIRE A LANE CLOSURE PER THE DETAIL ON THIS SHEET AND ANY OTHER APPLICABLE NCDOT STANDARDS.
3. STORAGE OF EQUIPMENT AND MATERIALS SHALL NOT BE WITHIN 40 FEET OF THE RIGHT-OF-WAY.
4. SERVICE TRUCKS, FUEL TRUCKS, AND CARPOOLING EMPLOYEES WILL NOT HAVE TO ENTER/EXIT VIA LANE CLOSURE.



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

US 1 TEMPORARY ACCESS
ENTRANCE

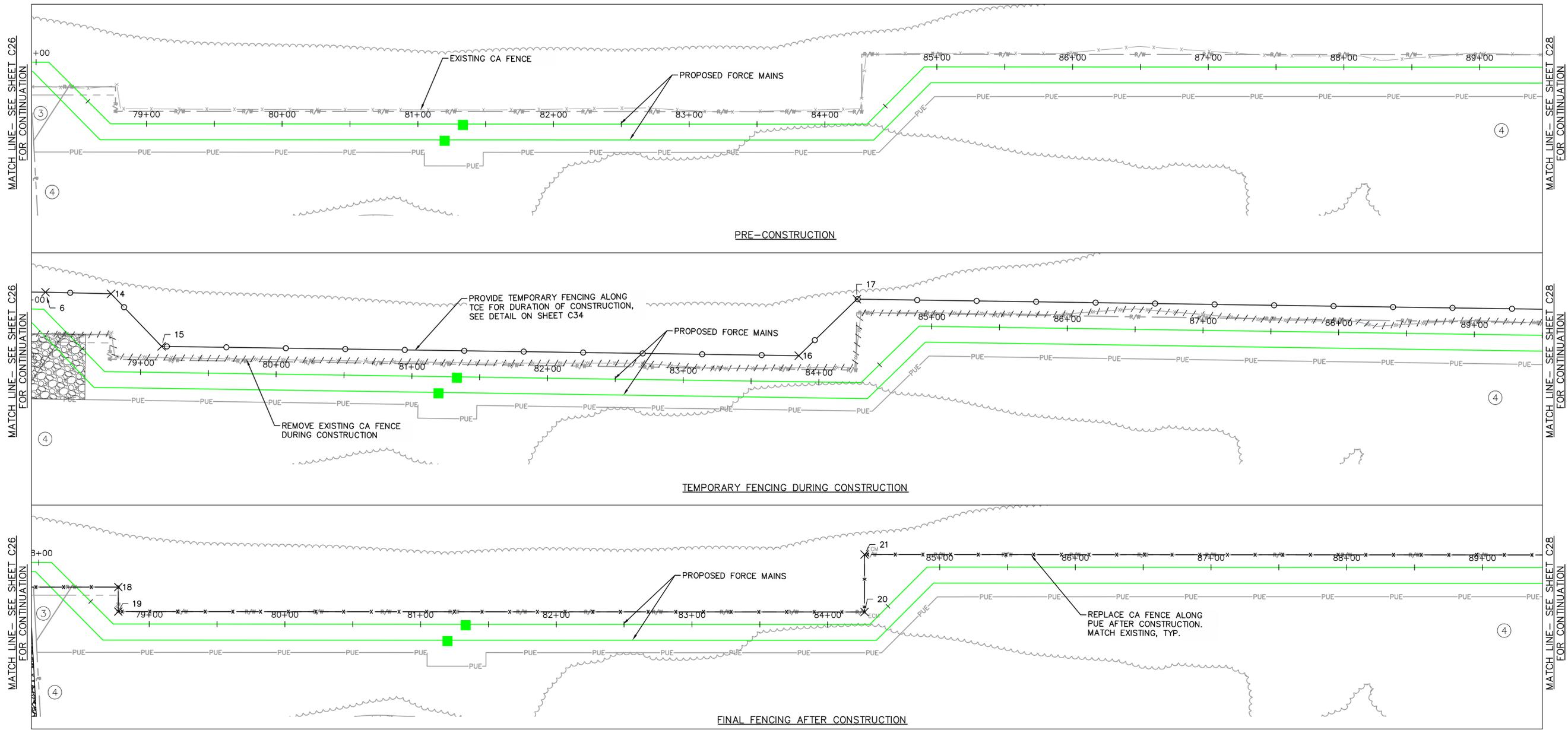
CJS PROJ. # 100-005
DATE: 12-18-2024
SCALE: 1" = 20'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

C25

SHEET NUMBER
27 OF 56

Plotted By: J. Speers Layout: 26 ACCESS ENTRANCE December 18, 2024 02:17:26pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PWS\80 - Drawings\Plan Sheets\C-SHT-ACCESS.dwg

No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	



Point #	Northing	Easting	Description
6	705258.76	2032237.85	TEMPORARY CA FENCE
14	705233.91	2032196.35	TEMPORARY CA FENCE
15	705246.75	2032144.20	TEMPORARY CA FENCE
16	705001.91	2031743.37	TEMPORARY CA FENCE
17	704943.93	2031729.37	TEMPORARY CA FENCE

Point #	Northing	Easting	Description
18	705259.77	2032180.87	NEW CA FENCE
19	705275.13	2032171.48	NEW CA FENCE
20	704988.43	2031702.12	NEW CA FENCE
21	704952.38	2031724.14	NEW CA FENCE

PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
3	SHENANDOAH HOMES LLC	0 WINDING WAY	730252219
4	BENTLEY OLIVE	3426 WINDING WAY	730143907

- NOTES:**
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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

LEGEND	EXISTING	PROPOSED
NCDOT CA FENCE	-x-x-x-x-	-x-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-o-	-o-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-□-	-□-□-□-□-
WIRE FENCE	-■-■-■-■-	-■-■-■-■-
PVC 3-RAIL FENCE	-x-x-x-x-x-	-x-x-x-x-x-
WOOD 3-RAIL FENCE	-◇-◇-◇-◇-	-◇-◇-◇-◇-
WOOD PRIVACY FENCE	-□-□-□-□-	-□-□-□-□-



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FENCE DETAIL- OLIVE 1

CJS PROJ. #: 100-005
DATE: 12-18-2024
SCALE: 1" = 40'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

C27
SHEET NUMBER
29 OF 56

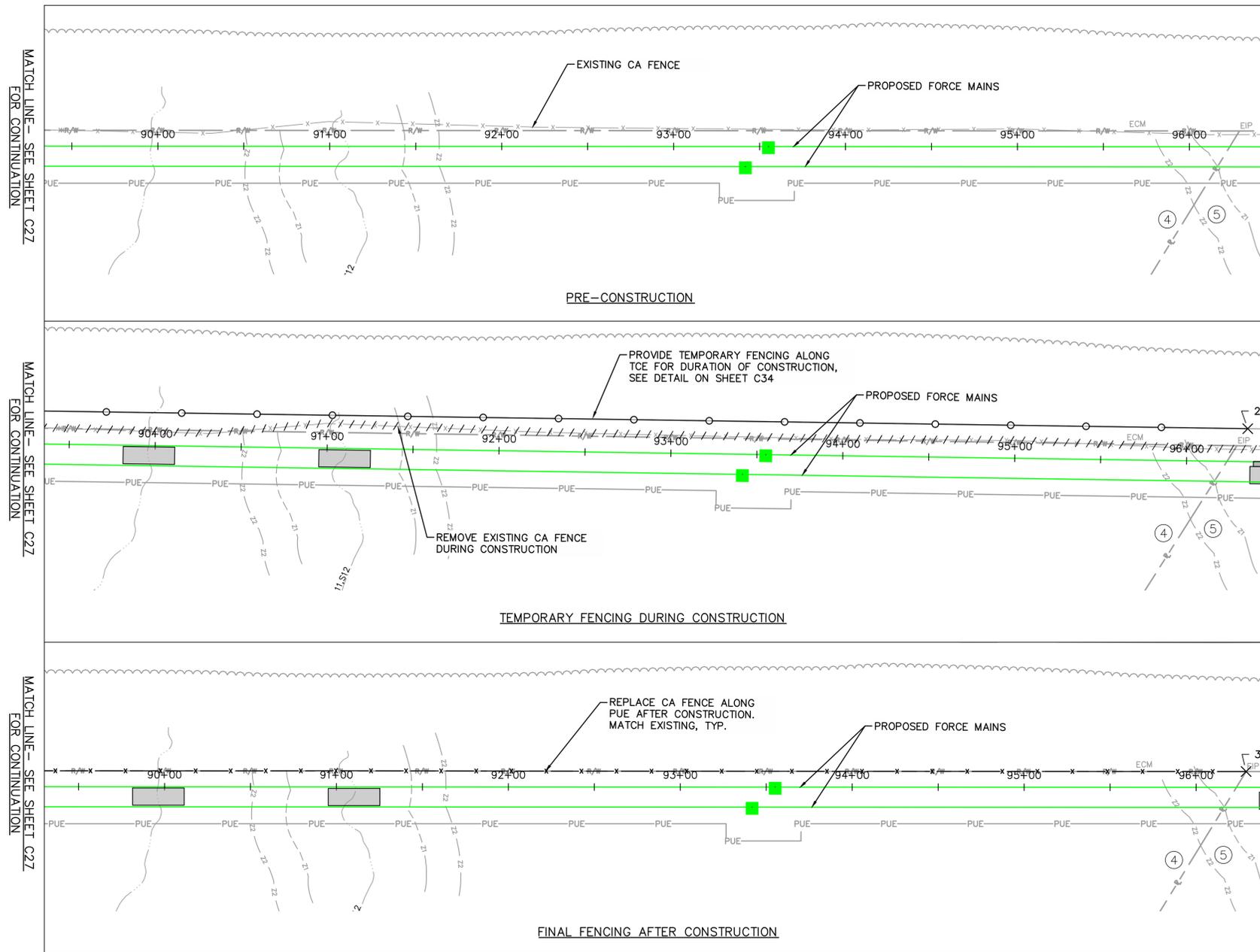


TEMPORARY FENCING POINT TABLE

Point #	Northing	Easting	Description
22	704323.28	2030713.21	END TEMPORARY FENCE

FINAL FENCING POINT TABLE

Point #	Northing	Easting	Description
23	704335.03	2030713.26	TIE-IN CA FENCE TO NEW CA FENCE



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Electric	

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PROPERTY TABLE

PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
4	BENTLEY OLIVE	3426 WINDING WAY	730143907
5	JEFFREY HASTINGS	3601 FRIENDSHIP RD	730043464

LEGEND	EXISTING	PROPOSED
NCDOT CA FENCE	-x-x-x-	-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-	-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-	-□-□-□-
WIRE FENCE	-■-■-■-	-■-■-■-
PVC 3-RAIL FENCE	-x-x-x-	-x-x-x-
WOOD 3-RAIL FENCE	-o-o-o-	-o-o-o-
WOOD PRIVACY FENCE	-□-□-□-	-□-□-□-



No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



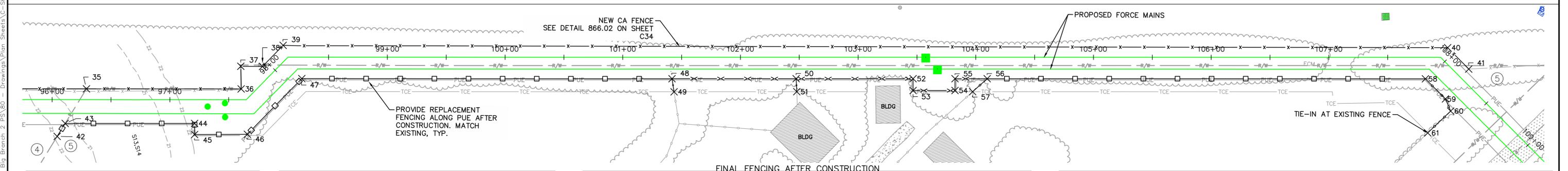
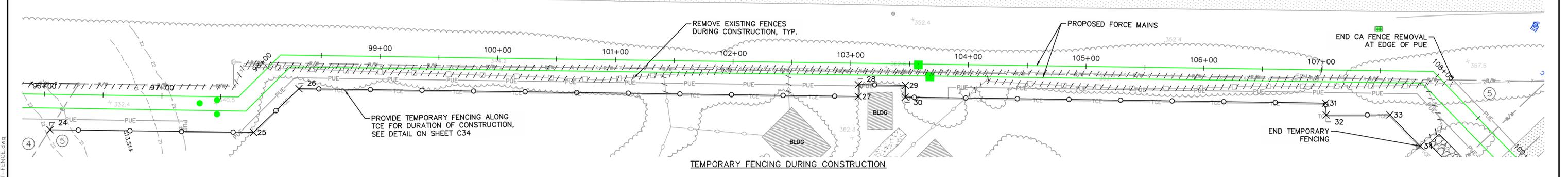
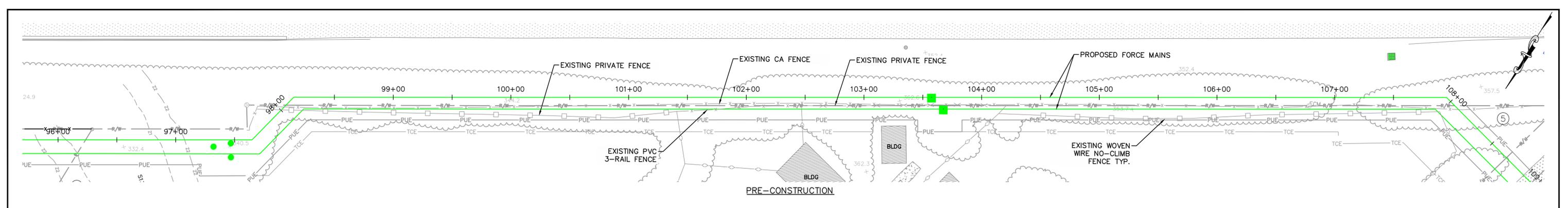
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FENCE DETAIL- OLIVE 2

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C28
SHEET NUMBER
30 OF 56

Plotted By: J. Speers Layout: FENCE DETAIL- OLIVE 2 December 18, 2024 02:19:19pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 P.S. 80 - Drawings\Plan Sheets\C-SHT-FENCE.dwg



Point #	Northing	Easting	Description
24	704380.94	2030713.20	BEGIN TEMPORARY FENCE
25	704290.51	2030565.80	TEMPORARY FENCE
26	704238.62	2030552.86	TEMPORARY FENCE
27	703990.58	2030147.36	TEMPORARY FENCE
28	703982.07	2030152.63	TEMPORARY FENCE
29	703961.20	2030118.50	TEMPORARY FENCE
30	703969.73	2030113.28	TEMPORARY FENCE
31	703783.41	2029808.47	TEMPORARY FENCE
32	703791.60	2029802.76	TEMPORARY FENCE
33	703762.64	2029757.01	TEMPORARY FENCE
34	703771.26	2029721.17	END TEMPORARY FENCE

Point #	Northing	Easting	Description
35	704335.03	2030713.26	TIE-IN CA FENCE TO NEW CA FENCE
36	704266.49	2030601.08	TIE-IN AT EXISTING CA FENCE
37	704250.28	2030611.33	NEW CA FENCE
38	704240.76	2030595.54	NEW CA FENCE
39	704216.38	2030589.91	NEW CA FENCE
40	703701.77	2029744.67	NEW CA FENCE
41	703707.90	2029719.97	TIE-IN TO EXISTING CA FENCE
42	704382.38	2030713.45	BEGIN WOVEN WIRE NO-CLIMB FENCE
43	704369.45	2030713.39	WOVEN WIRE NO-CLIMB FENCE

Point #	Northing	Easting	Description
44	704312.07	2030619.57	WOVEN WIRE NO-CLIMB FENCE
45	704320.13	2030614.65	WOVEN WIRE NO-CLIMB FENCE
46	704296.54	2030576.48	WOVEN WIRE NO-CLIMB FENCE
47	704232.12	2030561.68	WOVEN WIRE NO-CLIMB FENCE
48	704068.10	2030293.24	END WOVEN WIRE NO-CLIMB FENCE, BEGIN PVC 3-RAIL AND WOOD 3-RAIL FENCES
49	704076.66	2030285.96	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE
50	704013.03	2030203.27	TIE-IN TO EXISTING WOOD 3-RAIL FENCE
51	704022.17	2030197.08	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE
52	703961.20	2030118.50	PVC 3-RAIL FENCE

Point #	Northing	Easting	Description
53	703969.73	2030113.28	PVC 3-RAIL FENCE
54	703951.14	2030082.89	PVC 3-RAIL FENCE
55	703942.61	2030088.11	PVC 3-RAIL FENCE
56	703928.34	2030064.77	END PVC 3-RAIL FENCE, BEGIN WOVEN WIRE NO-CLIMB FENCE, TIE-IN TO WOOD 3-RAIL FENCE
57	703944.16	2030069.56	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE
58	703734.15	2029747.03	END WOVEN WIRE NO-CLIMB FENCE, BEGIN WOOD 3-RAIL FENCE
59	703739.79	2029723.62	WOOD 3-RAIL FENCE
60	703746.29	2029714.47	WOOD 3-RAIL FENCE
61	703772.23	2029721.43	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE

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Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
4	BENTLEY OLIVE	3426 WINDING WAY	730143907
5	JEFFREY HASTINGS	3601 FRIENDSHIP RD	730043464

LEGEND	EXISTING	PROPOSED
NCDOT CA FENCE	-x-x-x-	-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-	-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-	-□-□-□-
WIRE FENCE	-■-■-■-	-■-■-■-
PVC 3-RAIL FENCE	-<>-<>-<>-	-<>-<>-<>-
WOOD 3-RAIL FENCE	-◇-◇-◇-	-◇-◇-◇-
WOOD PRIVACY FENCE	-□-□-□-	-□-□-□-

GRAPHIC SCALE IN FEET
0 20 40 80

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

FENCE DETAIL- HASTINGS

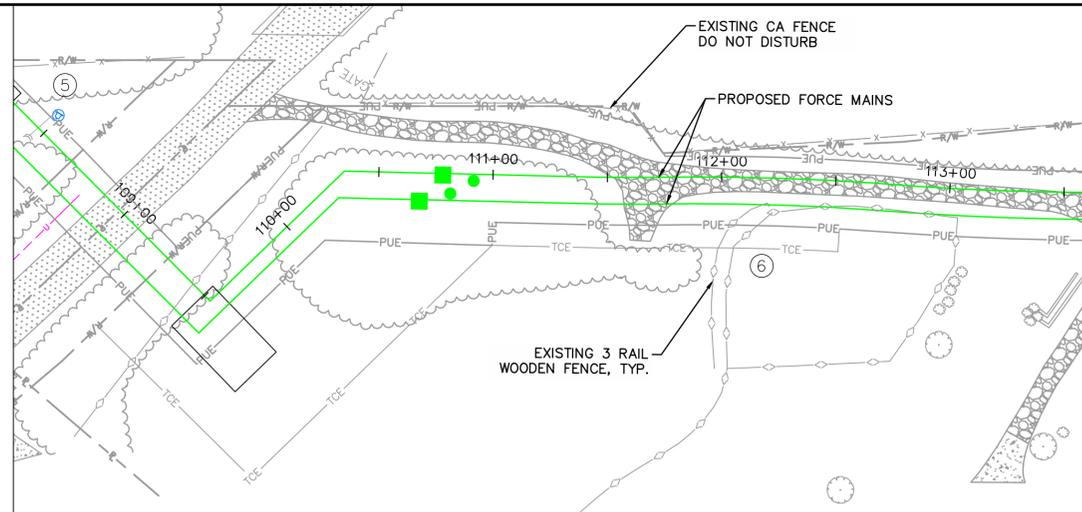
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DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

C29
SHEET NUMBER
31 OF 56

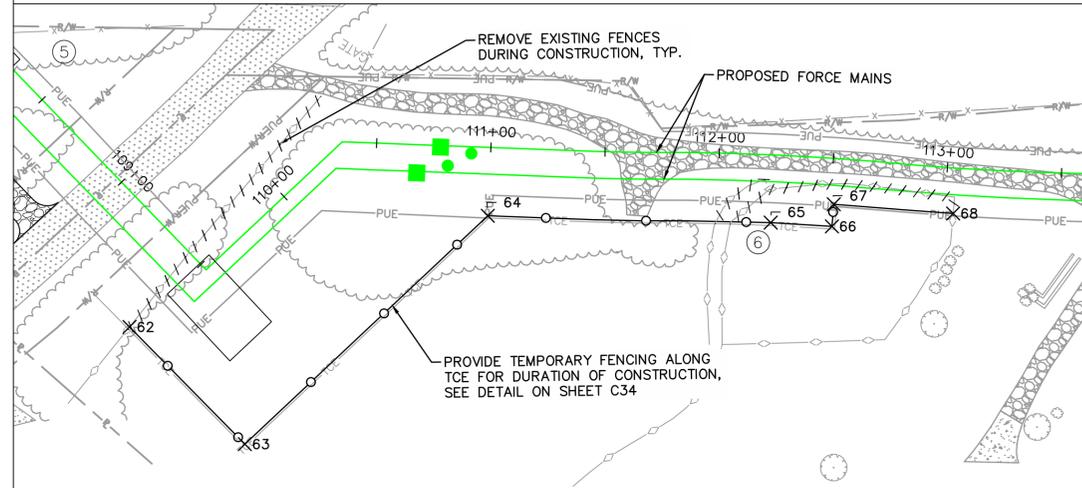
PROPERTY TABLE			
PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
5	JEFFREY HASTINGS	3601 FRIENDSHIP RD	730043464
6	THOMAS BLAND	3724 FRIENDSHIP RD	720931641

TEMPORARY FENCING POINT TABLE			
Point #	Northing	Easting	Description
62	703788.35	2029606.80	BEGIN TEMPORARY FENCE
63	703804.67	2029536.80	TEMPORARY FENCE
64	703663.64	2029500.11	TEMPORARY FENCE
65	703600.10	2029393.84	TEMPORARY FENCE
66	703587.21	2029370.32	TEMPORARY FENCE
67	703578.62	2029374.78	TEMPORARY FENCE
68	703554.14	2029328.47	END TEMPORARY FENCE

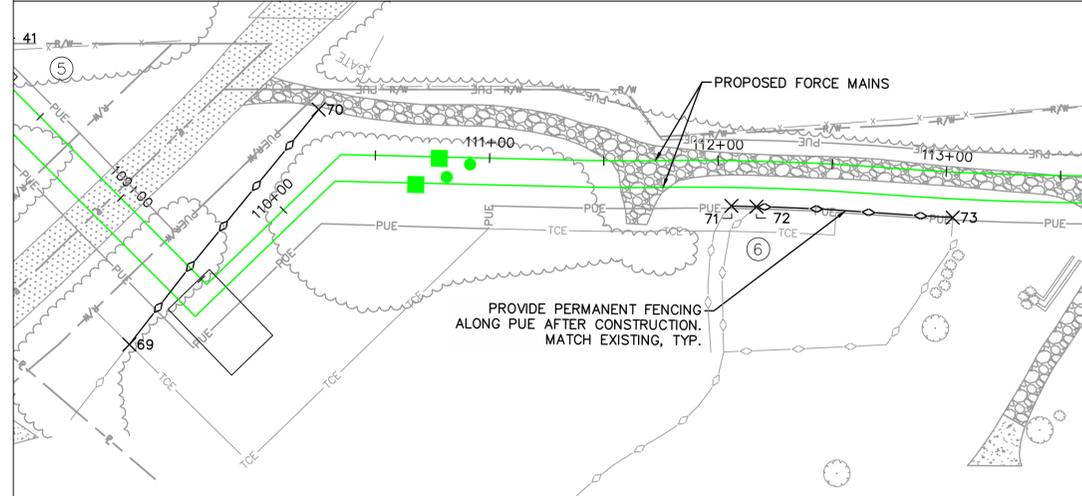
FINAL FENCING POINT TABLE			
Point #	Northing	Easting	Description
69	703789.35	2029606.91	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE
70	703658.63	2029589.76	END WOOD 3-RAIL FENCE
71	703600.31	2029413.74	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE
72	703594.90	2029404.22	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE
73	703554.14	2029328.48	TIE-IN WOOD 3-RAIL FENCE TO EXISTING WOOD 3-RAIL FENCE



PRE-CONSTRUCTION



TEMPORARY FENCING DURING CONSTRUCTION



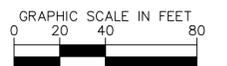
FINAL FENCING AFTER CONSTRUCTION



- NOTES:
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Electric	

LEGEND	EXISTING	PROPOSED
NCDOT CA FENCE	-x-x-x-	-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-	-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-	-□-□-□-
WIRE FENCE	-■-■-■-	-■-■-■-
PVC 3-RAIL FENCE	-x-x-x-x-	-x-x-x-x-
WOOD 3-RAIL FENCE	-◇-◇-◇-	-◇-◇-◇-
WOOD PRIVACY FENCE	-□-□-□-	-□-□-□-



Plotted By: J. Speers Layout: FENCE DETAIL- BLAND December 18, 2024 02:19:55pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 FS\80 - Drawings\Plan Sheets\C-SHT-FENCE.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FENCE DETAIL- BLAND

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

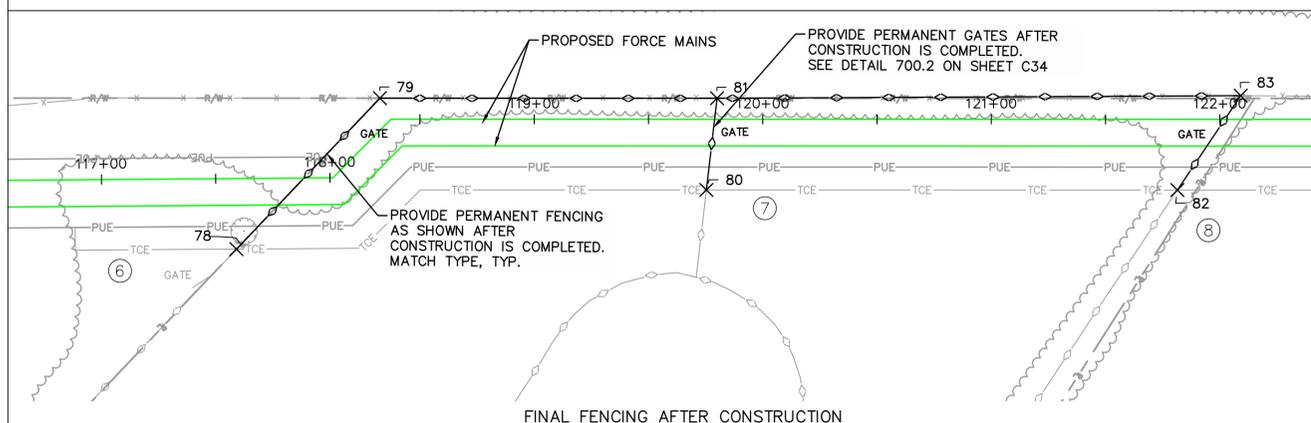
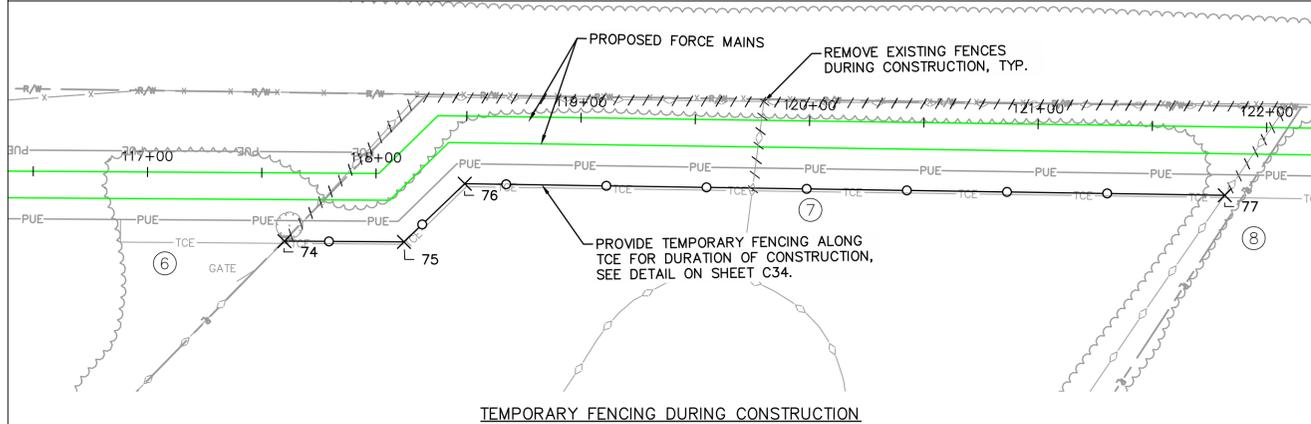
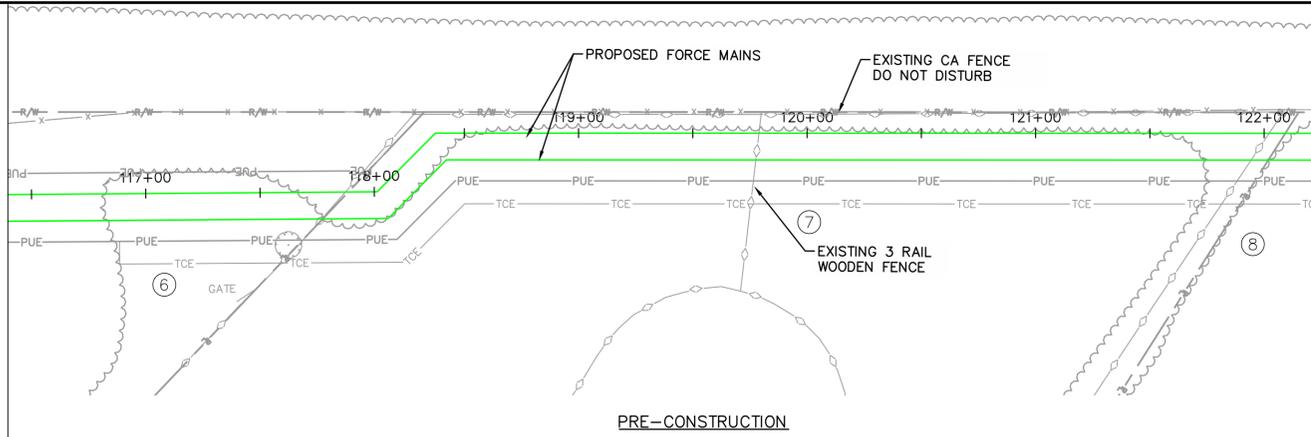
C30

SHEET NUMBER
32 OF 56

PROPERTY TABLE			
PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
6	THOMAS BLAND	3724 FRIENDSHIP RD	720931641
7	YATES FRIENDSHIP FARM LLC	3716 FRIENDSHIP RD	720838629
8	CHARLES BAUCOM	0 OLD US 1 HIGHWAY	720628996

TEMPORARY FENCING POINT TABLE			
Point #	Northing	Easting	Description
74	703323.39	2028933.32	BEGIN TEMPORARY FENCING
75	703295.75	2028888.91	TEMPORARY FENCE
76	703260.10	2028879.97	TEMPORARY FENCE
77	703086.89	2028596.03	END TEMPORARY FENCING

FINAL FENCING POINT TABLE			
Point #	Northing	Easting	Description
78	703324.91	2028933.87	TIE-IN WOOD 3-PANEL FENCE TO EXISTING WOOD 3-PANEL FENCE
79	703235.97	2028914.69	TIE-IN WOOD 3-PANEL FENCE TO WOOD 3-PANEL FENCE
80	703195.59	2028771.93	TIE-IN WOOD 3-PANEL FENCE TO EXISTING WOOD 3-PANEL FENCE
81	703159.02	2028788.81	TIE-IN WOOD 3-PANEL FENCE TO WOOD 3-PANEL FENCE
82	703088.10	2028596.08	TIE-IN WOOD 3-PANEL FENCE TO EXISTING WOOD 3-PANEL FENCE
83	703038.49	2028593.93	TIE-IN WOOD 3-PANEL FENCE TO WOOD 3-PANEL FENCE

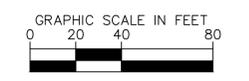


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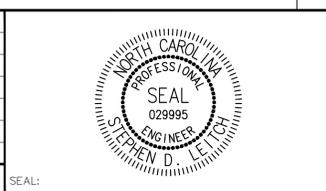
Transportation Engineering	Planning
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Water Resources Stormwater and S&E	Parks, Recreation & Cultural Resources
Electric	

LEGEND	EXISTING	PROPOSED
NCDOT R/W FENCE	-x-x-x-	-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-	-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-	-□-□-□-
WIRE FENCE	-■-■-■-	-■-■-■-
PVC 3-RAIL FENCE	-x-x-x-	-x-x-x-
WOOD 3-RAIL FENCE	-o-o-o-	-o-o-o-
WOOD PRIVACY FENCE	-□-□-□-	-□-□-□-



Plotted By: J. Speers Layout: FENCE DETAIL - YATES FRIENDSHIP FARM LLC December 18, 2024 02:20:16pm S:\100 Hezen and Sawyer\100-005 Apex Big Branch 2 PSt\30 - Drawings\Plan Sheets\C-SHT-FENCE.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



CJS
Conveyance, PLLC

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CARY, NC 27511

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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

FENCE DETAIL- YATES FRIENDSHIP
FARM LLC

CJS PROJ. #: 100-005
DATE: 12-18-2024
SCALE: 1" = 40'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

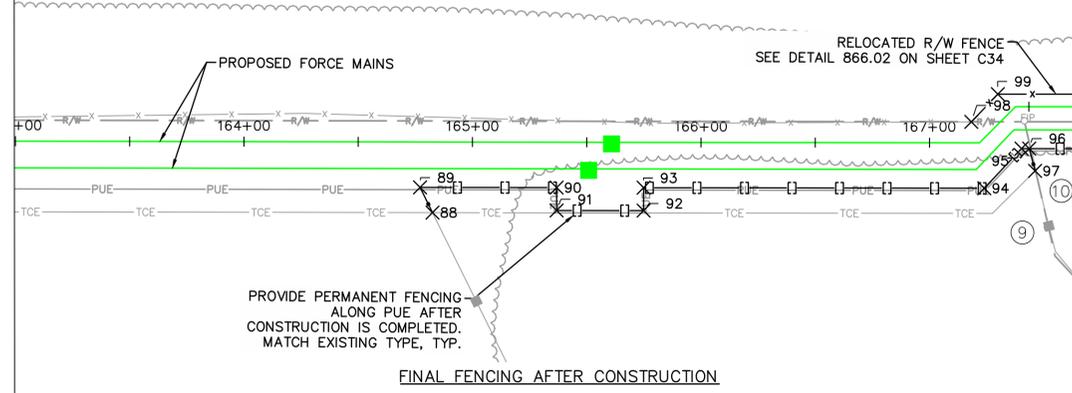
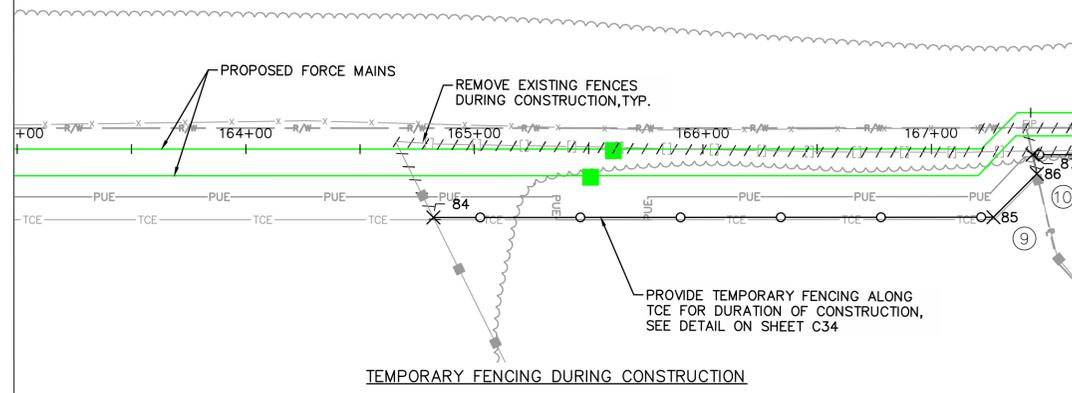
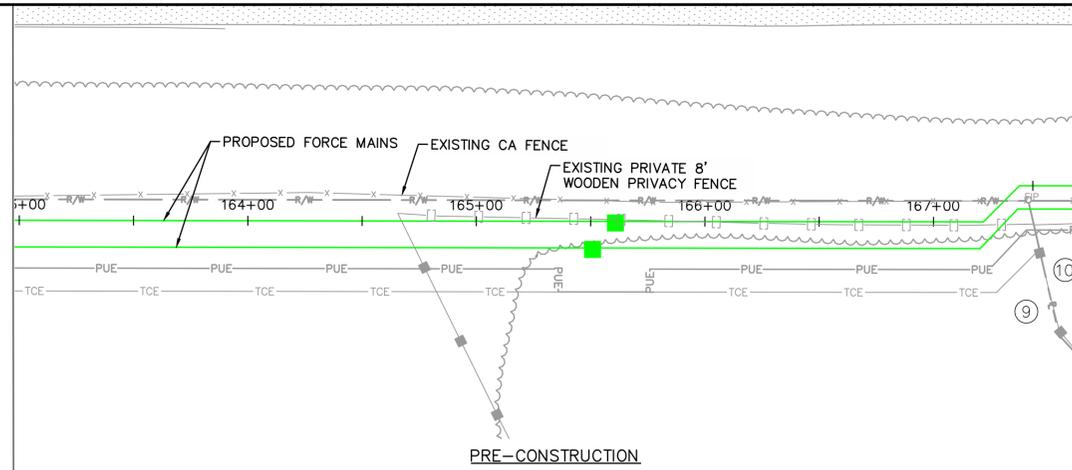
C31

SHEET NUMBER
33 OF 56

PROPERTY TABLE			
PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
9	3837 BOSCO ROAD LLC	3837 BOSCO RD	720407997
10	ASHLEY NICHOLS	3901 BOSCO RD	720401633

TEMPORARY FENCING POINT TABLE			
Point #	Northing	Easting	Description
84	700859.06	2024947.83	BEGIN TEMPORARY FENCE
85	700731.51	2024738.56	TEMPORARY FENCE
86	700705.44	2024732.18	TEMPORARY FENCE
87	700699.32	2024738.17	TEMPORARY FENCE

FINAL FENCING POINT TABLE			
Point #	Northing	Easting	Description
88	700859.66	2024946.88	TIE-IN WIRE FENCE TO EXISTING WIRE FENCE
89	700853.11	2024957.27	END WIRE FENCE, BEGIN 8' WOOD PRIVACY FENCE
90	700821.99	2024906.23	8' WOOD PRIVACY FENCE
91	700830.53	2024901.02	8' WOOD PRIVACY FENCE
92	700810.73	2024868.54	8' WOOD PRIVACY FENCE
93	700802.19	2024873.74	8' WOOD PRIVACY FENCE
94	700724.61	2024746.46	8' WOOD PRIVACY FENCE
95	700701.35	2024741.57	8' WOOD PRIVACY FENCE
96	700699.59	2024738.69	TIE-IN CHICKEN WIRE FENCE TO 8' WOOD PRIVACY FENCE
97	700706.56	2024731.43	TIE-IN WIRE FENCE TO EXISTING WIRE FENCE
98	700702.85	2024766.39	TIE-IN AT EXISTING CA FENCE
99	700686.49	2024762.82	NEW CA FENCE



MATCH LINE - SEE SHEET C33 FOR CONTINUATION

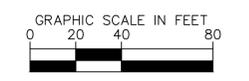
MATCH LINE - SEE SHEET C33 FOR CONTINUATION

MATCH LINE - SEE SHEET C33 FOR CONTINUATION

- NOTES:**
- CA FENCE SHALL BE INSTALLED PER NCDOT DETAIL 866.02 ON SHEET C34.
 - TEMPORARY FENCES SHALL BE INSTALLED PER DETAIL ON SHEET C34.
 - ALL FENCING OTHER THAN CA AND TEMPORARY FENCING SHALL MATCH EXISTING FENCING FOR EACH PARTICULAR PROPERTY.

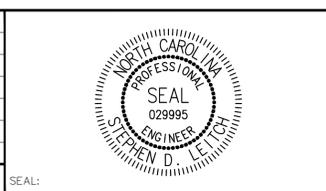
The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.	
Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

LEGEND	EXISTING	PROPOSED
NCDOT CA FENCE	-x-x-x-	-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-	-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-	-□-□-□-
WIRE FENCE	-■-■-■-	-■-■-■-
PVC 3-RAIL FENCE	-x-x-x-	-x-x-x-
WOOD 3-RAIL FENCE	-o-o-o-	-o-o-o-
WOOD PRIVACY FENCE	-□-□-□-	-□-□-□-



Plotted By: J. Speers Layout: FENCE DETAIL - 3837 BOSCO ROAD LLC December 18, 2024 02:20:43pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 Pumps\Plan Sheets\C-SHT-FENCE.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**FENCE DETAIL- 3837 BOSCO ROAD
LLC**

CJS PROJ. #: 100-005
DATE: 12-18-2024
SCALE: 1" = 40'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

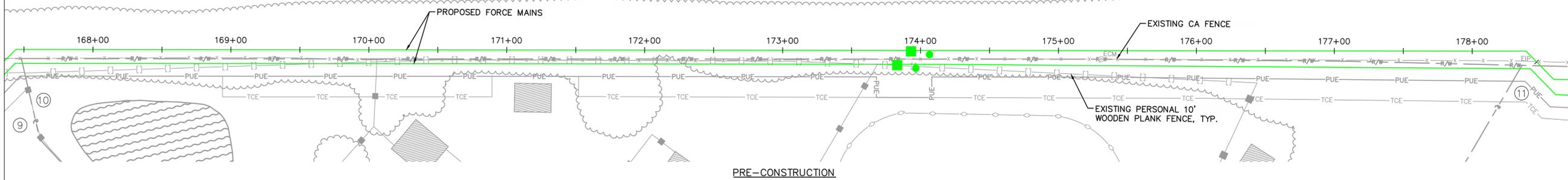
C32

SHEET NUMBER
34 OF 56

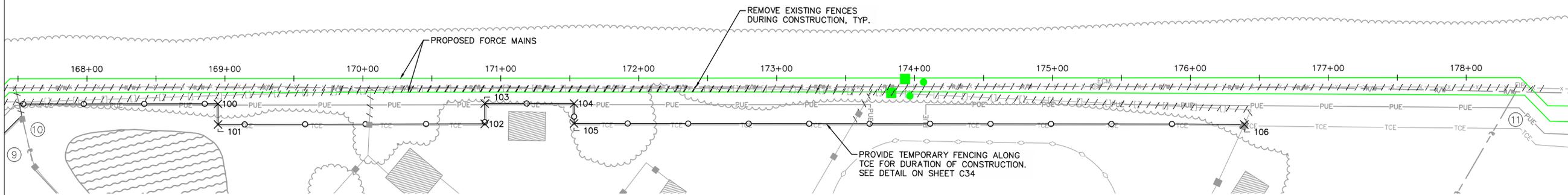
MATCH LINE - SEE SHEET C32 FOR CONTINUATION

MATCH LINE - SEE SHEET C32 FOR CONTINUATION

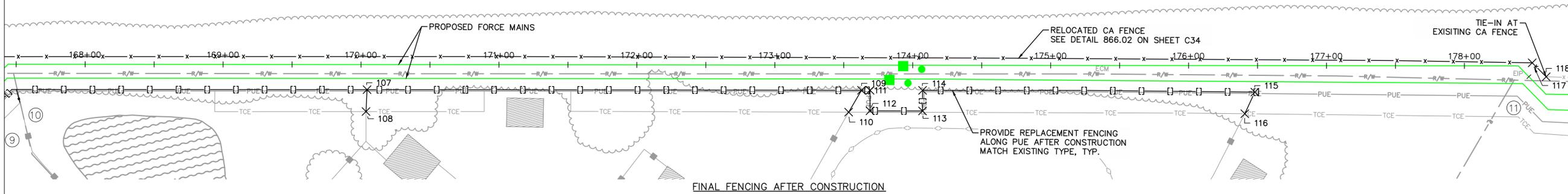
MATCH LINE - SEE SHEET C32 FOR CONTINUATION



PRE-CONSTRUCTION



TEMPORARY FENCING DURING CONSTRUCTION



FINAL FENCING AFTER CONSTRUCTION

- NOTES:**
- CA FENCE SHALL BE INSTALLED PER NCDOT DETAIL 866.02 ON SHEET C34.
 - TEMPORARY FENCES SHALL BE INSTALLED PER DETAIL ON SHEET C34.
 - ALL FENCING OTHER THAN CA AND TEMPORARY FENCING SHALL MATCH EXISTING FENCING FOR EACH PARTICULAR PROPERTY.

Point #	Northing	Easting	Description
100	700624.16	2024615.09	TEMPORARY FENCE
101	700636.89	2024607.30	TEMPORARY FENCE
102	700535.95	2024442.35	TEMPORARY FENCE
103	700523.42	2024450.02	TEMPORARY FENCE
104	700489.72	2024394.74	TEMPORARY FENCE
105	700502.05	2024387.20	TEMPORARY FENCE
106	700249.98	2023971.80	END TEMPORARY FENCE

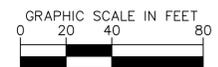
Point #	Northing	Easting	Description
107	700567.09	2024521.74	TIE-IN WIRE FENCE TO 10' PRIVACY FENCE
108	700580.98	2024514.11	TIE-IN WIRE FENCE TO EXISTING WIRE FENCE
109	700380.42	2024215.69	TIE-IN WIRE FENCE TO 10' PRIVACY FENCE
110	700398.79	2024215.36	TIE-IN WIRE FENCE TO EXISTING WIRE FENCE
111	700377.19	2024210.38	10' WOOD PRIVACY FENCE
112	700389.90	2024202.65	10' WOOD PRIVACY FENCE
113	700370.12	2024170.12	10' WOOD PRIVACY FENCE
114	700357.37	2024177.88	10' WOOD PRIVACY FENCE
115	700232.78	2023971.72	END 10' WOOD PRIVACY FENCE, TIE-IN WIRE FENCE
116	700249.91	2023969.74	TIE-IN WIRE FENCE TO EXISTING WIRE FENCE
117	700109.75	2023811.22	NEW CA FENCE
118	700113.08	2023797.30	TIE-IN TO EXISTING CA FENCE

PROPERTY NUMBER	PROPERTY OWNER	PROPERTY ADDRESS	PIN NUMBER
9	3837 BOSCO ROAD LLC	3837 BOSCO RD	720407997
10	ASHLEY NICHOLS	3901 BOSCO RD	720401633
11	JON BRUCE	8164 PROVIDENCE OAK PATH	720301467

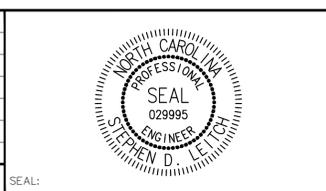
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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

LEGEND	EXISTING	PROPOSED
NCDOT CA FENCE	-x-x-x-	-x-x-x-
TEMPORARY WOVEN WIRE NO-CLIMB FENCE	-o-o-o-	-o-o-o-
PERMANENT WOVEN WIRE NO-CLIMB FENCE	-□-□-□-	-□-□-□-
WIRE FENCE	-■-■-■-	-■-■-■-
PVC 3-RAIL FENCE	-<x>-<x>-<x>-	-<x>-<x>-<x>-
WOOD 3-RAIL FENCE	-◇-◇-◇-	-◇-◇-◇-
WOOD PRIVACY FENCE	-□-□-□-	-□-□-□-



No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

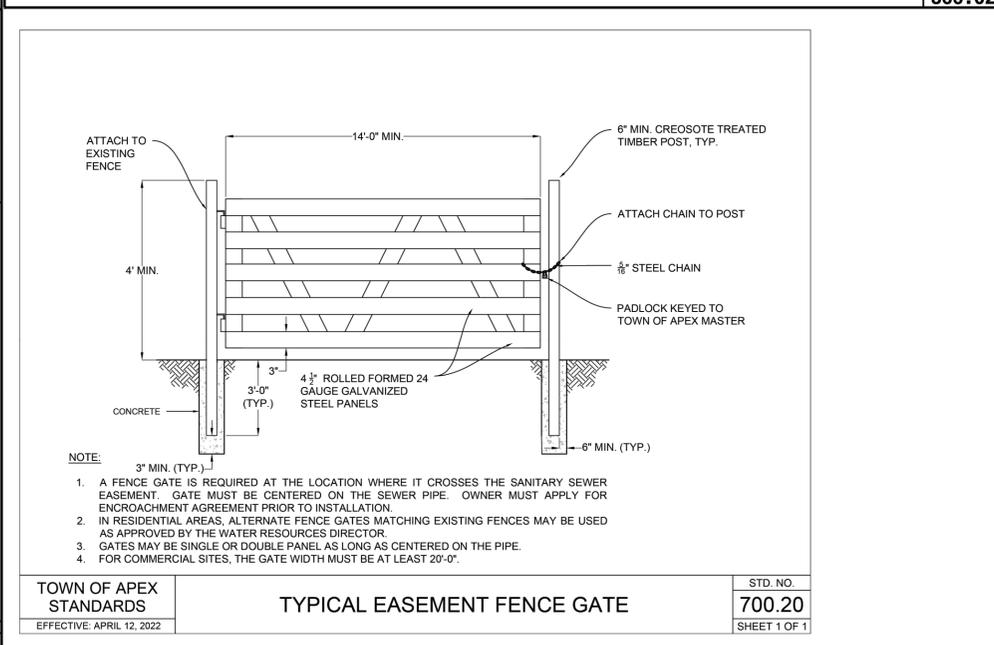
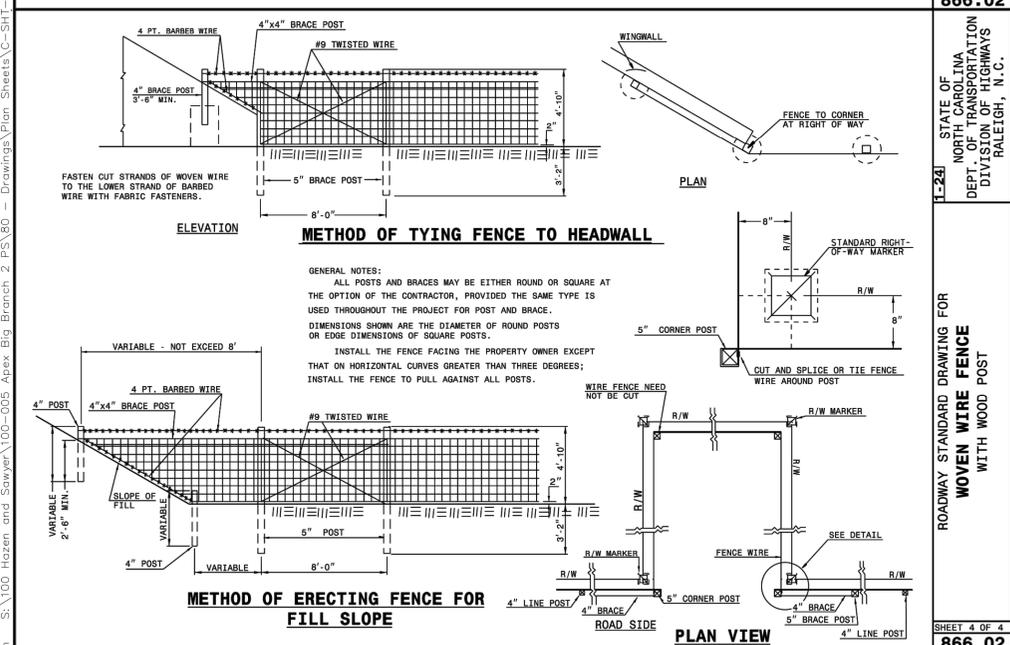
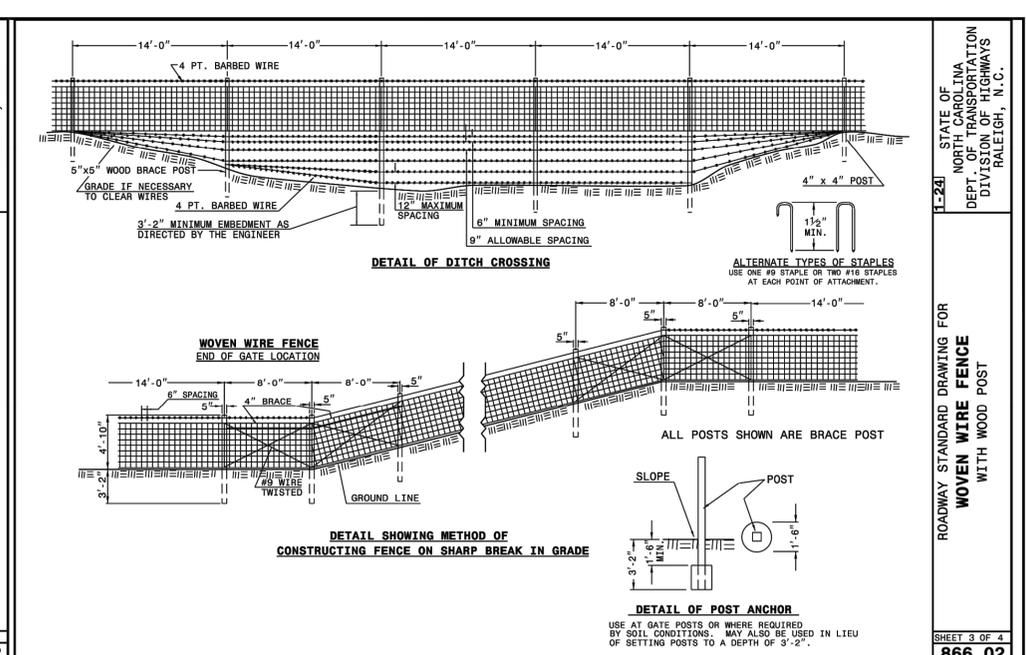
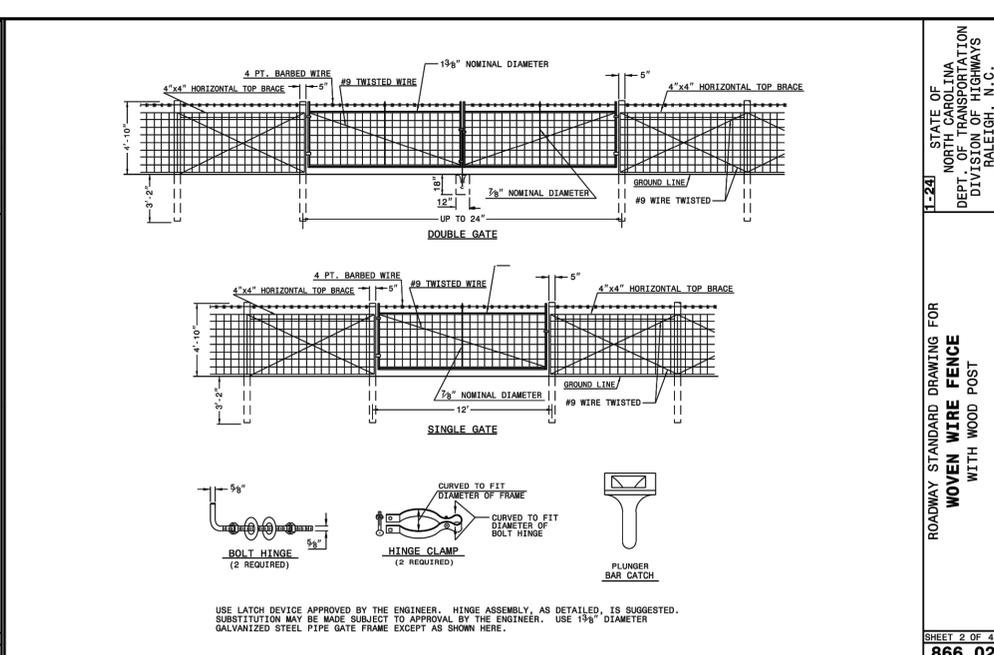
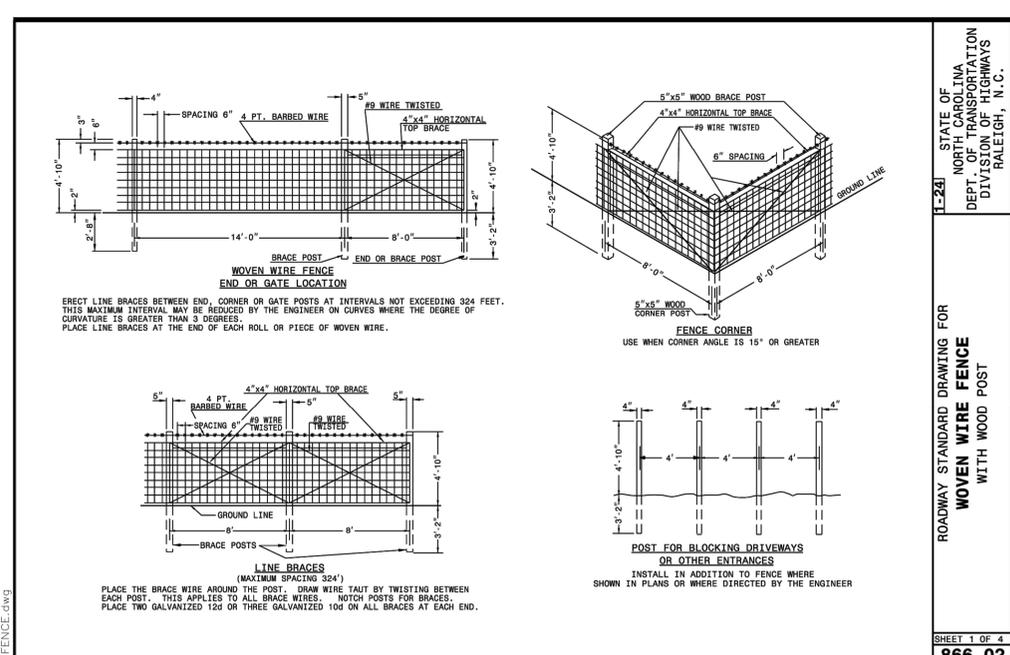
FENCE DETAIL- NICHOLS

CJS PROJ. #: 100-005
DATE: 12-18-2024
SCALE: 1" = 40'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

C33

SHEET NUMBER
35 OF 56

Plotted By: J. Speers Layout: FENCE DETAIL- NICHOLS December 18, 2024 02:21:13pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS 80 Drawings\Plan Sheets\C-SHT-FENCE.dwg



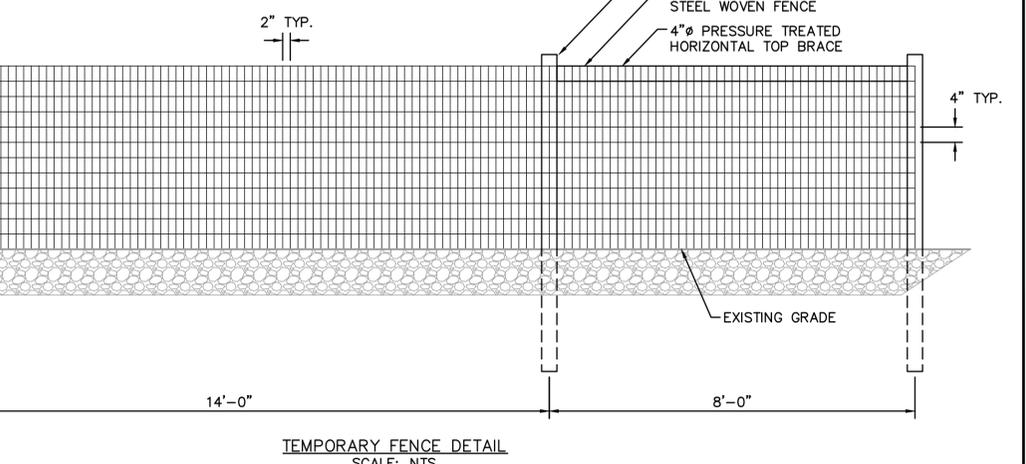
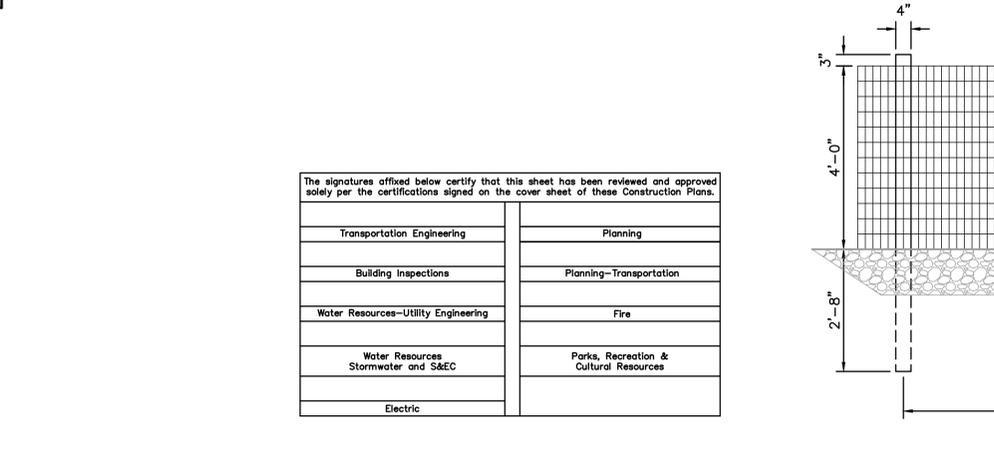
ENGLISH STANDARD DRAWING FOR GUIDE FOR RIP RAP AT PIPE OUTLETS

D	OUTLET W/ DITCH				OUTLET W/O DITCH			
	CLASS 'B' RIP RAP	CLASS 'I' RIP RAP	CLASS 'I' RIP RAP	CLASS 'I' RIP RAP	CLASS 'B' RIP RAP	CLASS 'I' RIP RAP	CLASS 'I' RIP RAP	CLASS 'I' RIP RAP
12"	2	5	5	2	5	1	4	2
15"	2	7	7	3	7	1	5	3
18"	3	10	9	4	10	2	7	4
24"	5	14	15	7	15	3	11	7
30"	8	21	21	11	22	5	16	11
36"	11	28	29	15	30	7	22	16
42"	15	37	39	20	39	10	28	22
48"	-	-	49	26	50	-	-	28
54"	-	-	60	33	62	-	-	36
60"	-	-	73	40	75	-	-	44
66"	-	-	87	48	89	-	-	54
72"	-	-	102	57	104	-	-	64

NOTE:
FOR CALCULATION PURPOSES
CLASS 'B' RIP RAP = 100 LBS./FT³
CLASS 'I' RIP RAP = 105 LBS./FT³

PIPE OUTLET WITH DITCH

PIPE OUTLET WITHOUT DITCH



1 PERMIT SUBMITTAL 12/18/2024 SDL

No. REVISIONS DATE BY

CJS Conveyance, PLLC

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CARY, NC 27511

NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION - FORCE MAIN

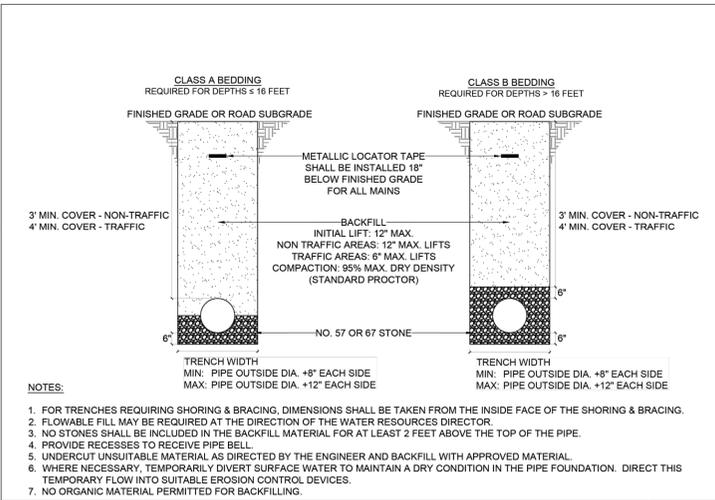
NCDOT AND TEMPORARY FENCE DETAILS

CJS PROJ. # 100-005
DATE: 12-18-2024
SCALE: 1" = 40'
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

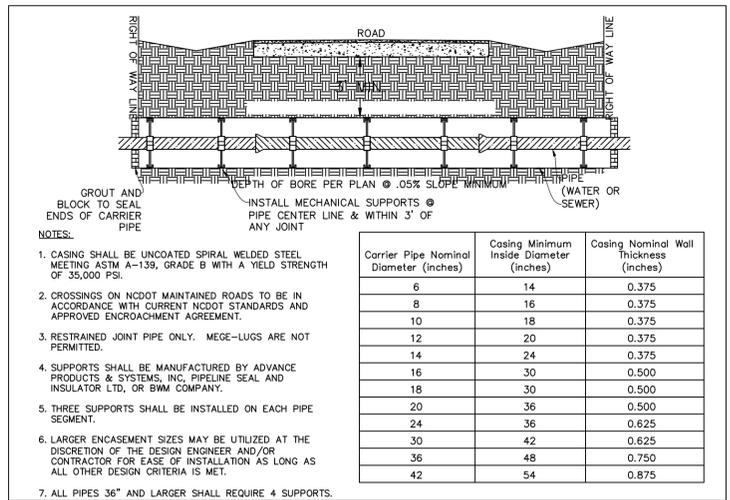
C34

SHEET NUMBER 36 OF 56

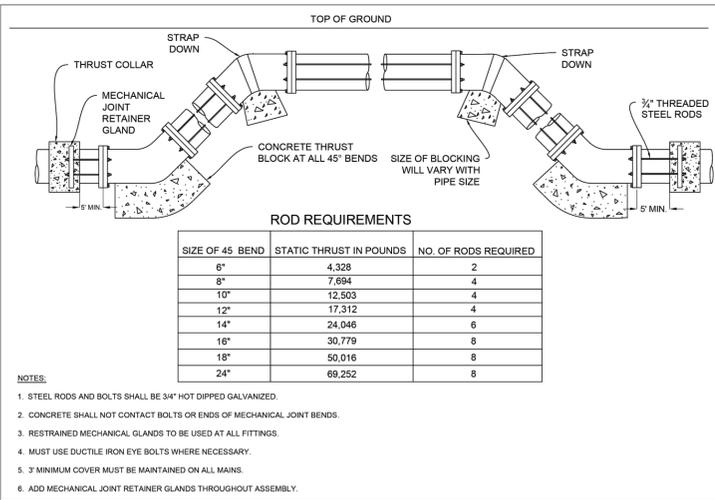
Plotted By: J. Speers Layout: 28 TOWN OF APEX STANDARD DETAILS December 18, 2024 02:21:44pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\80 - Drawings\Plan Sheets\100-005 Apex Big Branch 2 PS-SHT-DETAILS-TOWN OF APEX.dwg



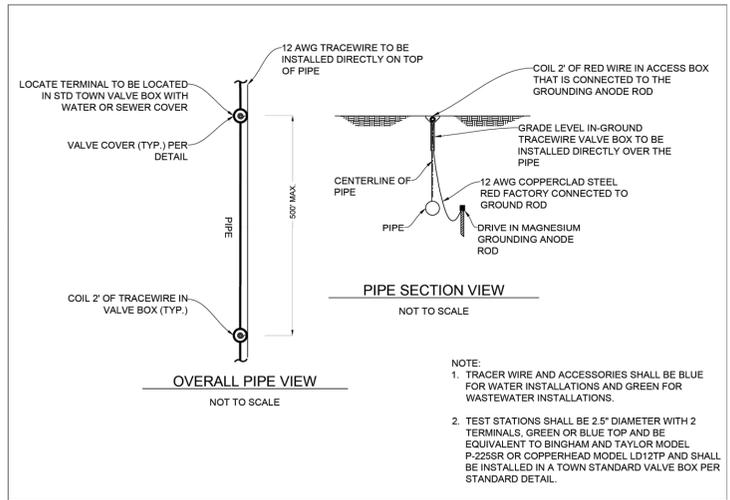
TOWN OF APEX STANDARDS	SANITARY SEWER PIPE BEDDING & BACKFILLING	STD. NO. 450.02
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



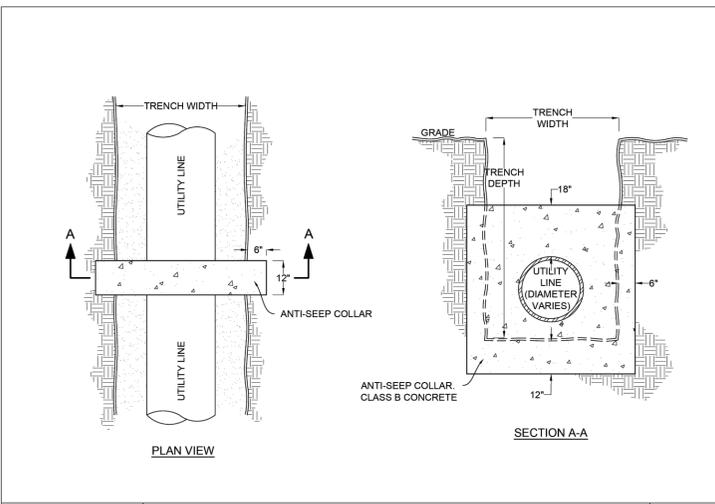
TOWN OF APEX STANDARDS	BORE & JACK	STD. NO. 450.06
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



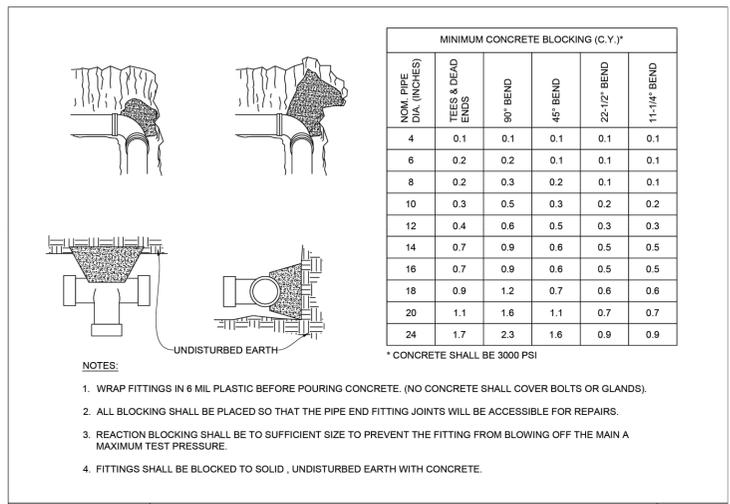
TOWN OF APEX STANDARDS	VERTICAL BEND	STD. NO. 450.08
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



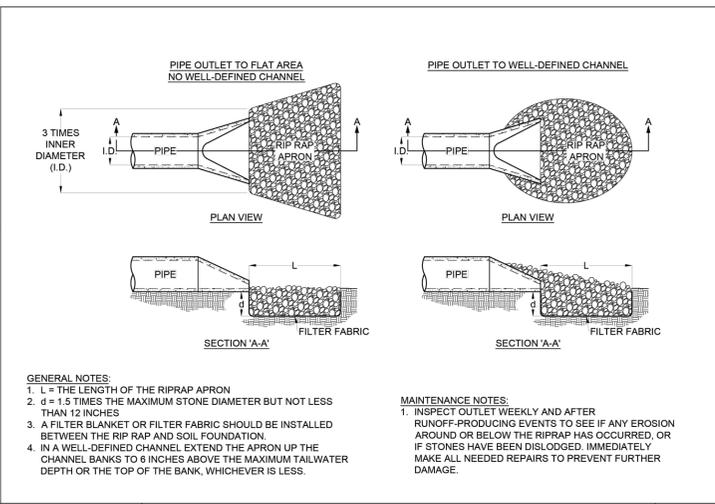
TOWN OF APEX STANDARDS	TRACER WIRE	STD. NO. 450.13
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



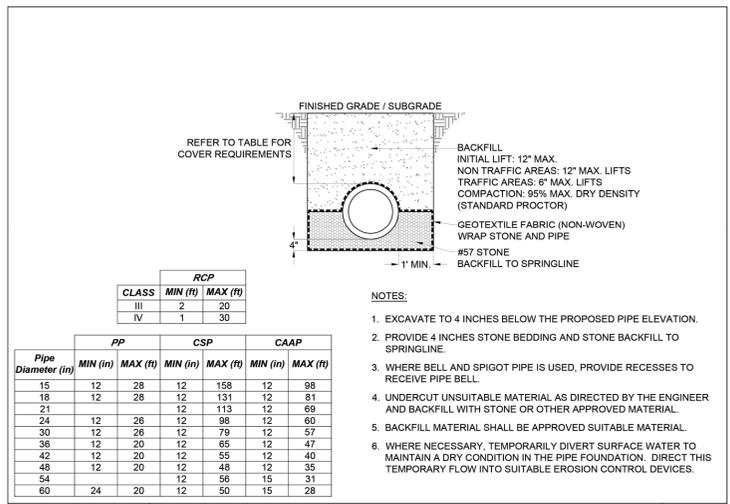
TOWN OF APEX STANDARDS	ANTI-SEEP COLLAR	STD. NO. 450.10
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



TOWN OF APEX STANDARDS	REACTION BLOCKING	STD. NO. 600.13
EFFECTIVE: MARCH 23, 2021		SHEET 1 OF 1



TOWN OF APEX STANDARDS	PIPE OUTLET	STD. NO. 400.18
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1



TOWN OF APEX STANDARDS	STORM DRAIN PIPE BEDDING & BACKFILLING	STD. NO. 500.09
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

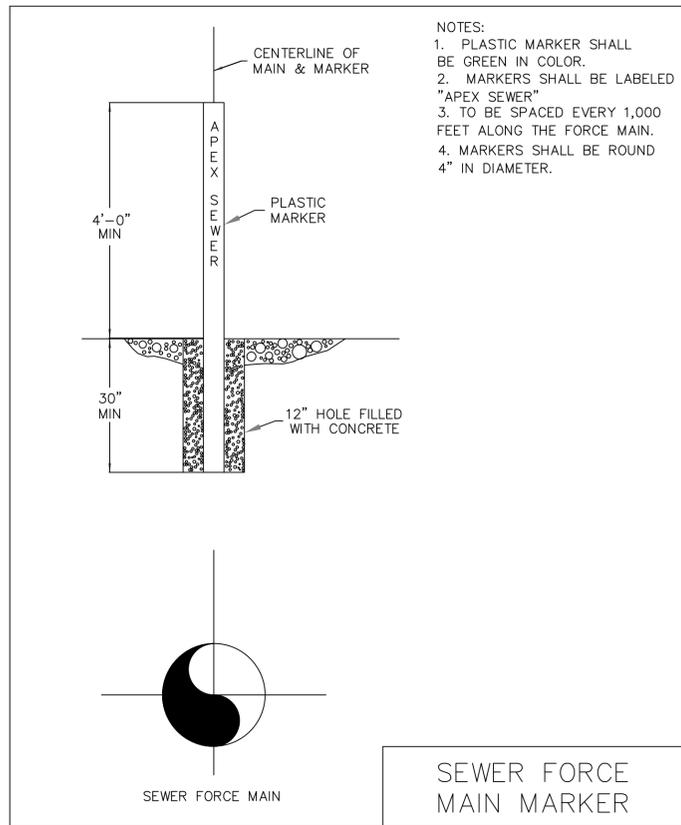


TOWN OF APEX
WATER RESOURCES DEPARTMENT
BIG BRANCH 2 PUMP STATION - FORCE MAIN

TOWN OF APEX STANDARD DETAILS

CJS PROJ. #:	100-005	D1
DATE:	12-18-2024	
SCALE:	N/A	SHEET NUMBER 37 OF 56
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



NOTES:
 1. PLASTIC MARKER SHALL BE GREEN IN COLOR.
 2. MARKERS SHALL BE LABELED "APEX SEWER"
 3. TO BE SPACED EVERY 1,000 FEET ALONG THE FORCE MAIN.
 4. MARKERS SHALL BE ROUND 4" IN DIAMETER.

MAIN MARKER LOCATIONS			TRACER WIRE LOCATIONS		
BASELINE		Stationing	BASELINE		Distance From Last Tracer Wire
Sheet	Main Marker Type		Sheet	Stationing	
C1	45° Bend	1019	C1	1185	185
C1	45° Bend	1185	C1	1624	439
C1	22.5° Bend	1606	C1	1892	268
C1	11.25° Bend	1624	C2	2321	429
C1	22.5° Bend	1886	C2	2750	429
C1	90° Bend	1892	C2	3100	350
C2	11.25° Bend	2750	C3	3600	500
C3	Force Main	3700	C3	4000	400
C3	11.25° Bend	4423	C3	4423	423
C4	Tee	4541	C4	4707	284
C4	22.5° Bend	4707	C4	4982	275
C4	90° Bend	4982	C4	5450	468
C5	Force Main	5900	C5	5900	450
C6	Force Main	6900	C5	6136	236
C6	45° Bend	7809	C6	6600	464
C6	45° Bend	7874	C6	6860	260
C7	45° Bend	8431	C6	7350	490
C7	45° Bend	8491	C6	7809	459
C8	Force Main	9400	C7	8133	324
C8	Tee	9735	C7	8491	358
C8	45° Bend	9765	C7	8900	409
C8	45° Bend	9816	C8	9355	455
C9	45° Bend	10795	C8	9765	410
C9	90° Bend	10953	C8	10100	335
C9	45° Bend	11035	C9	10357	257
C10	45° Bend	11801	C9	10795	438
C10	45° Bend	11837	C9	11092	297
C10	Force Main	12300	C10	11500	408
C11	45° Bend	12919	C10	11837	337
C11	45° Bend	12963	C11	12300	463
C11	45° Bend	13371	C11	12800	500
C11	45° Bend	13413	C11	13045	245
C12	Force Main	14400	C11	13413	368
C13	Force Main	15100	C12	13900	487
C13	Tee	15751	C12	14077	177
C14	45° Bend	16722	C12	14400	323
C14	45° Bend	16744	C13	14898	498
C15	Force Main	17600	C13	15300	402
C15	45° Bend	17839	C13	15764	464
C15	45° Bend	17868	C14	16163	399
C16	45° Bend	18724	C14	16561	398
C16	45° Bend	18780	C14	16744	183
C16	45° Bend	19158	C15	17100	356
C16	45° Bend	19214	C15	17407	307
C17	45° Bend	19988	C15	17868	461
C17	45° Bend	20016	C16	18300	432
C17	45° Bend	20324	C16	18724	424
C17	45° Bend	20352	C16	18984	260
C18	45° Bend	20672	C16	19214	230
C18	45° Bend	20718	C17	19700	486
C18	Tee	21577	C17	19988	288
C18	45° Bend	21589	C17	20352	364
C19	11.25° Bend	21728	C18	20718	366
C19	11.25° Bend	22212	C18	20962	244
C20	45° Bend	22945	C18	21400	438
C20	45° Bend	23120	C18	21567	167
C20	45° Bend	23138	C19	21728	161
C20	45° Bend	23528	C19	22212	484
C20	45° Bend	23591	C19	22461	249
C20	45° Bend	23689	C20	22945	484
C20	45° Bend	23704	C20	23138	193
C20	Reducer	23725	C20	23591	453
C20	Tee	23733	C20	23733	142
C21	45° Bend	24127	C21	24177	444
C21	45° Bend	24139	C21	24396	219
C21	11.25° Bend	24153	C21	24632	236
C21	45° Bend	24384	C22	25100	468
C21	45° Bend	24396	C22	25500	400
C21	45° Bend	24632	C23	25686	186
C21	45° Bend	24648	C23	26014	328
C22	Force Main	25200	C23	26358	344
C23	45° Bend	25686	C23	26700	342
C23	45° Bend	25696	C24	26938	238
C23	45° Bend	26014			
C23	45° Bend	26551			
C24	90° Bend	26938			

BIG BRANCH 2 PS - FORCE MAIN THRUST RESTRAINT TABLE		
SIZE (IN)	FITTING/ APPURTENANCE	THRUST RESTRAINT DISTANCE (LF)
20	11.25°	12
20	11.25° VERT	22
20	22.5°	24
20	22.5° VERT	45
20	45°	49
20	45° VERT	92
20	90°	118
20	PLUG VALVE	222
24x20	REDUCER	78
24	11.25°	14
24	11.25° VERT	26
24	22.5°	27
24	22.5° VERT	52
24	45°	57
24	45° VERT	107
24	90°	136
24	PLUG VALVE	258

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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 Conveyance, PLLC
 320 S. ACADEMY ST
 CARY, NC 27511
 NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

TOWN OF APEX
 WATER RESOURCES DEPARTMENT
 BIG BRANCH 2 PUMP STATION - FORCE MAIN

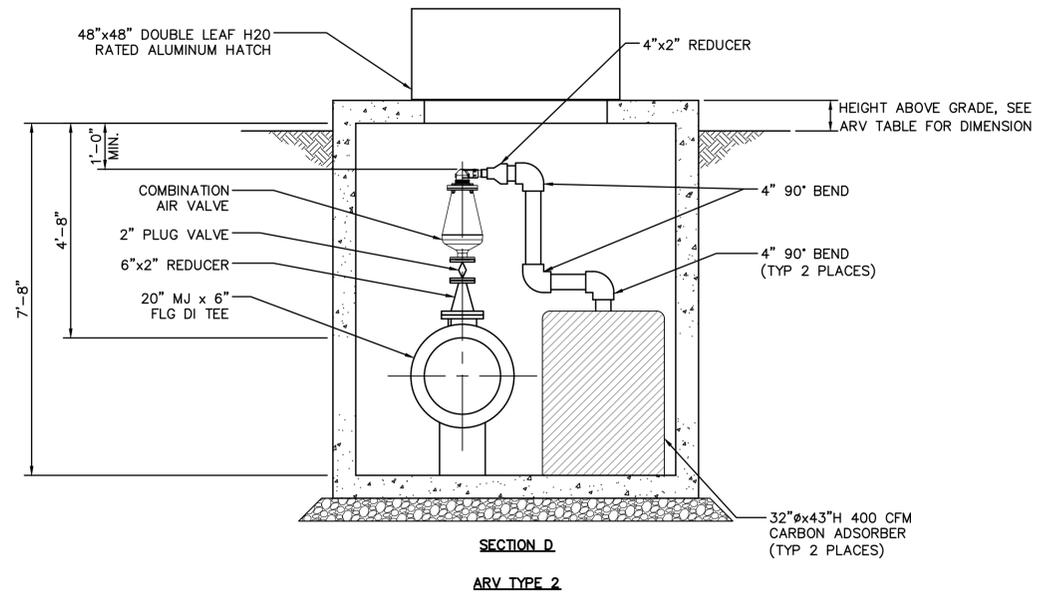
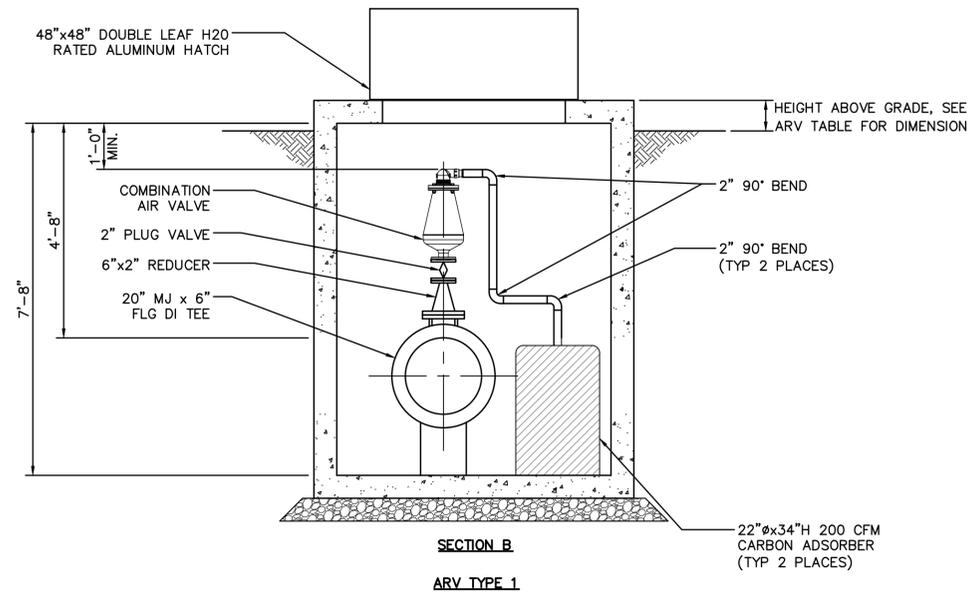
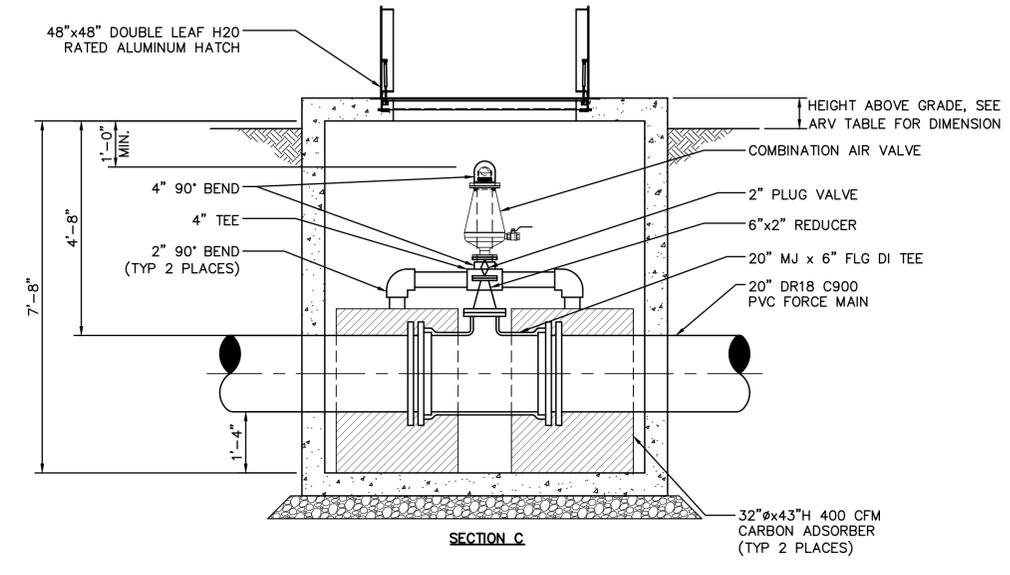
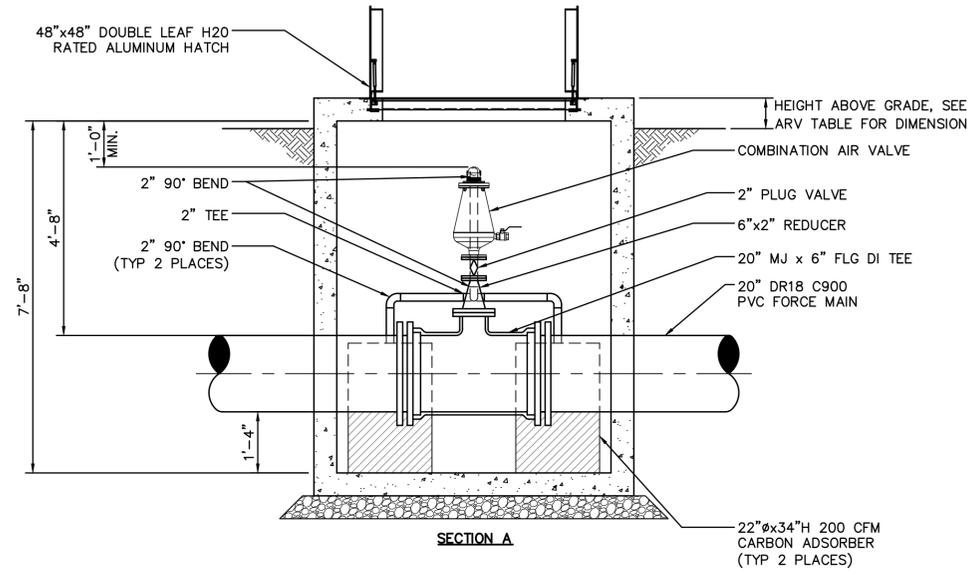
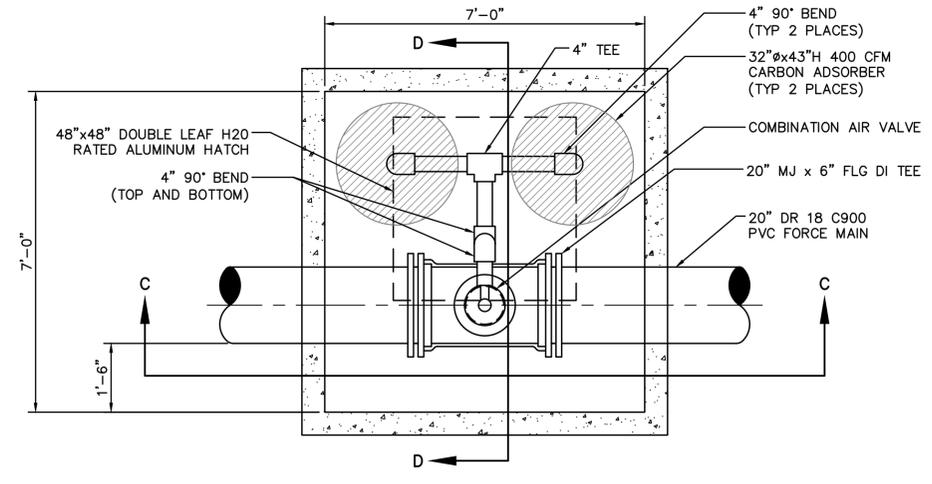
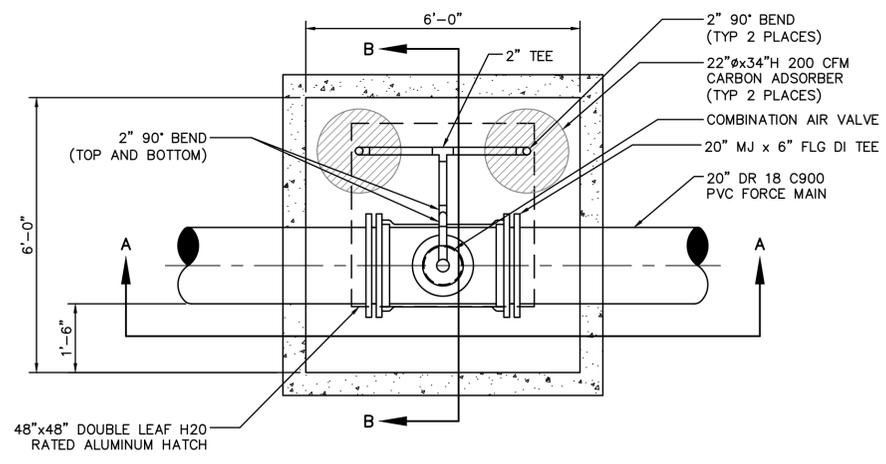
TOWN OF APEX STANDARD DETAILS

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	N/A
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

D2

SHEET NUMBER
38 OF 56

Plotted By: J. Speers Layout: STANDARD DETAILS December 18, 2024 02:21:57pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS B0 - Drawings\Plan Sheets\C-SHT-DETAILS-TOWN OF APEX.dwg



ARV TABLE						
ARV NO.	STA	BASELINE/OFFSET	FORCE MAIN SIZE (IN)	DETAIL TYPE	ORIENTATION LOOKING DOWNSTREAM	HEIGHT ABOVE GRADE
1	23+21	BASELINE	20	2	LEFT	3'-0"
2	23+11	OFFSET	20	2	LEFT	3'-0"
3	36+99	BASELINE	20	1	LEFT	3'-0"
4	37+09	OFFSET	20	1	LEFT	3'-0"
5	45+14	BASELINE	20	2	LEFT	3'-0"
6	45+04	OFFSET	20	2	LEFT	3'-0"
7	61+36	BASELINE	20	2	LEFT	3'-0"
8	61+26	OFFSET	20	2	LEFT	3'-0"
9	68+73	BASELINE	20	2	LEFT	3'-0"
10	68+63	OFFSET	20	2	LEFT	3'-0"
11	81+33	BASELINE	20	1	LEFT	3'-0"
12	81+20	OFFSET	20	1	LEFT	3'-0"
13	93+55	BASELINE	20	1	LEFT	3'-0"
14	93+42	OFFSET	20	1	LEFT	3'-0"
15	103+57	BASELINE	20	1	LEFT	AT GRADE
16	103+67	OFFSET	20	1	LEFT	3'-0"
17	110+78	BASELINE	20	1	LEFT	AT GRADE
18	110+68	OFFSET	20	1	LEFT	AT GRADE
19	130+45	BASELINE	20	1	LEFT	3'-0"
20	130+35	OFFSET	20	1	LEFT	3'-0"
21	140+89	BASELINE	20	1	LEFT	3'-0"
22	140+78	OFFSET	20	1	LEFT	3'-0"
23	148+98	BASELINE	20	1	LEFT	3'-0"
24	148+88	OFFSET	20	1	LEFT	3'-0"
25	161+63	BASELINE	20	1	LEFT	3'-0"
26	161+53	OFFSET	20	1	LEFT	3'-0"
27	165+61	BASELINE	20	1	LEFT	3'-0"
28	165+51	OFFSET	20	1	LEFT	3'-0"
29	173+93	BASELINE	20	1	LEFT	AT GRADE
30	173+83	OFFSET	20	1	LEFT	3'-0"
31	189+70	BASELINE	20	1	LEFT	3'-0"
32	189+60	OFFSET	20	1	LEFT	3'-0"
33	209+62	BASELINE	20	1	LEFT	3'-0"
34	209+52	OFFSET	20	1	LEFT	3'-0"
35	224+61	BASELINE	20	1	LEFT	3'-0"
36	224+51	OFFSET	20	1	LEFT	3'-0"
37	263+45	BASELINE	24	1	LEFT	3'-0"

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Plotted By: J. Speers, Layout: 37 ARV DETAIL, December 18, 2024, 02:22:18pm, S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 - Drawings\Plan Sheets\C-SIT-DETAILS-TOWN OF APEX.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



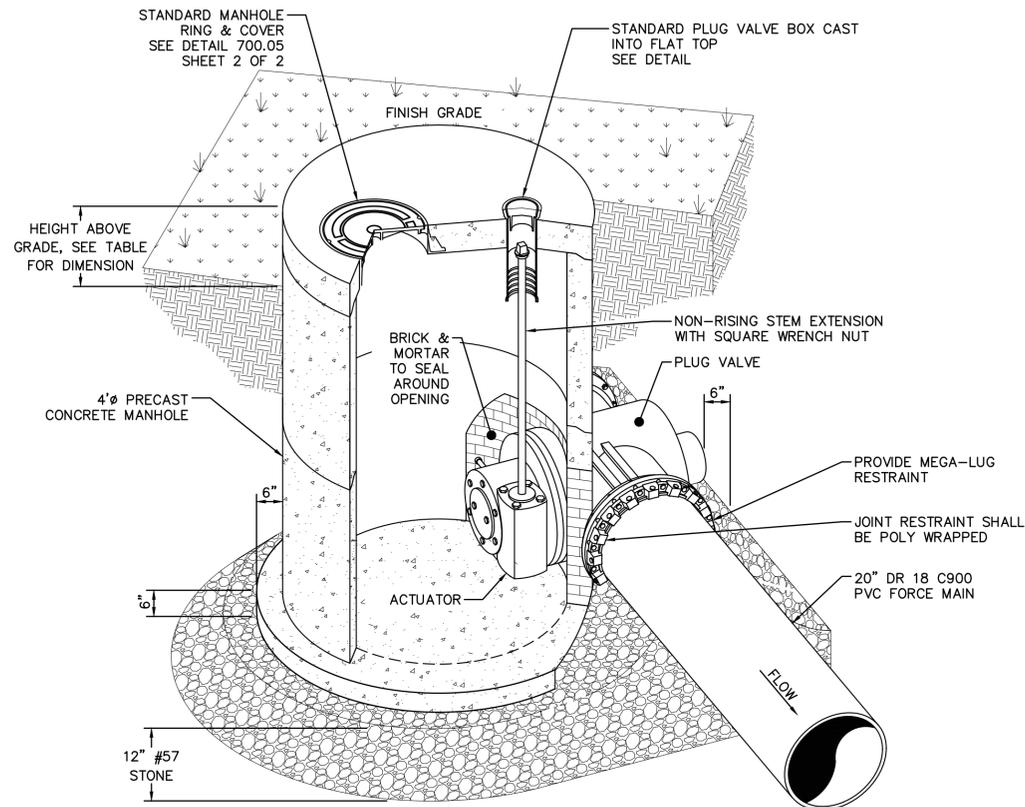
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TOWN OF APEX
WATER RESOURCES DEPARTMENT
BIG BRANCH 2 PUMP STATION - FORCE MAIN

ARV DETAIL

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	N/A
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

D3
SHEET NUMBER
39 OF 56



NOTE:
 1. 50% OR LESS OF THE PIPE SHOULD BE IN THE MANHOLE.
 2. PROVIDE 4" COVER OVER VALVE MINIMUM.
 3. REFER TO PLANS FOR ARRANGEMENT AT EACH LOCATION.

PLUG VALVE

PLUG VALVE TABLE					
NO.	STA	BASELINE/OFFSET	VALVE SIZE (in)	ORIENTATION LOOKING DOWNSTREAM	HEIGHT ABOVE GRADE
1	23+08	BASELINE	20	RIGHT	3'-0"
2	22+98	OFFSET	20	LEFT	3'-0"
3	45+49	BASELINE	20	RIGHT	3'-0"
4	45+41	OFFSET	20	LEFT	3'-0"
5	45+49	OFFSET	20	LEFT	3'-0"
6	68+60	BASELINE	20	RIGHT	3'-0"
7	68+50	OFFSET	20	LEFT	3'-0"
8	97+47	BASELINE	20	RIGHT	3'-0"
9	97+35	OFFSET	20	LEFT	3'-0"
10	97+47	OFFSET	20	LEFT	3'-0"
11	110+92	BASELINE	20	RIGHT	AT GRADE
12	110+81	OFFSET	20	LEFT	AT GRADE
13	140+77	BASELINE	20	RIGHT	3'-0"
14	140+67	OFFSET	20	LEFT	3'-0"
15	157+64	BASELINE	20	RIGHT	3'-0"
16	157+51	OFFSET	20	LEFT	3'-0"
17	157+64	OFFSET	20	LEFT	3'-0"
18	174+07	BASELINE	20	RIGHT	AT GRADE
19	173+97	OFFSET	20	LEFT	3'-0"
20	189+84	BASELINE	20	RIGHT	3'-0"
21	189+74	OFFSET	20	LEFT	3'-0"
22	215+67	BASELINE	20	RIGHT	3'-0"
23	215+77	OFFSET	20	LEFT	3'-0"
24	215+67	OFFSET	20	LEFT	3'-0"
25	237+25	BASELINE	20	RIGHT	3'-0"
26	237+33	OFFSET	20	LEFT	3'-0"
27	263+58	BASELINE	24	RIGHT	3'-0"

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Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Plotted By: J. Speers Layout: 36 PLUG VALVE DETAIL December 18, 2024 02:22:21pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 P&S\30 - Drawings\Plan Sheets\100-SHT-DETAILS-TOWN OF APEX.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	




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TOWN OF APEX
WATER RESOURCES DEPARTMENT
BIG BRANCH 2 PUMP STATION - FORCE MAIN

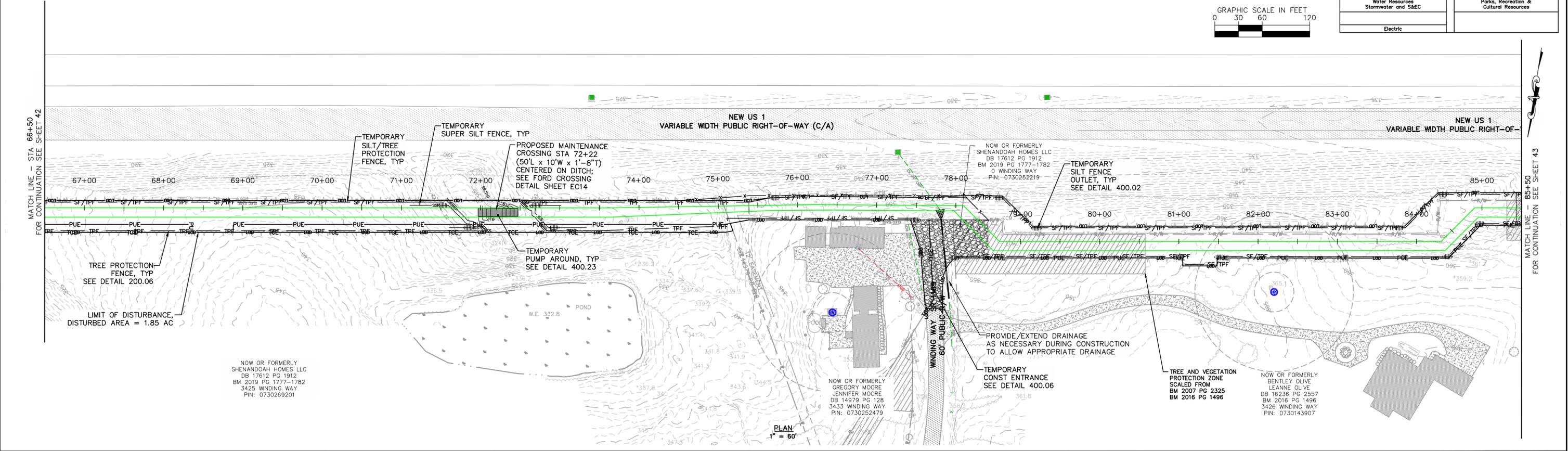
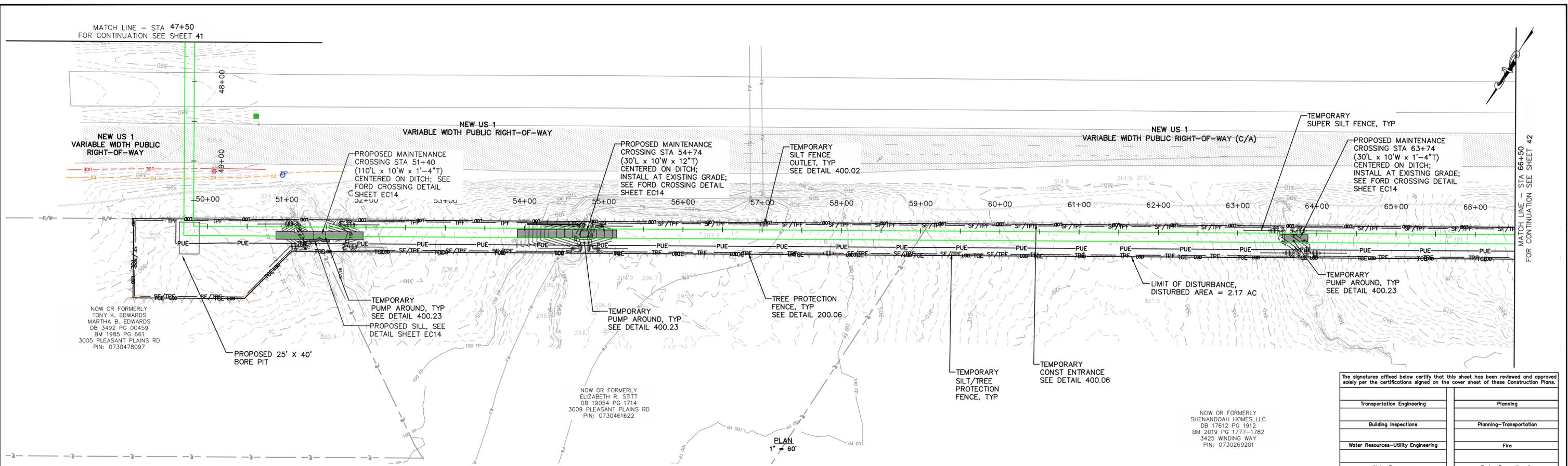
PLUG VALVE DETAIL

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	N/A
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

D4

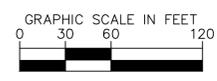
SHEET NUMBER
40 OF 56

Plotted By: J. Speers Layout: EC2 December 18, 2024 03:14:57pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS\80 - Drawings\Plan Sheets\C-SHT-BIG BRANCH EROS-1.dwg



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	



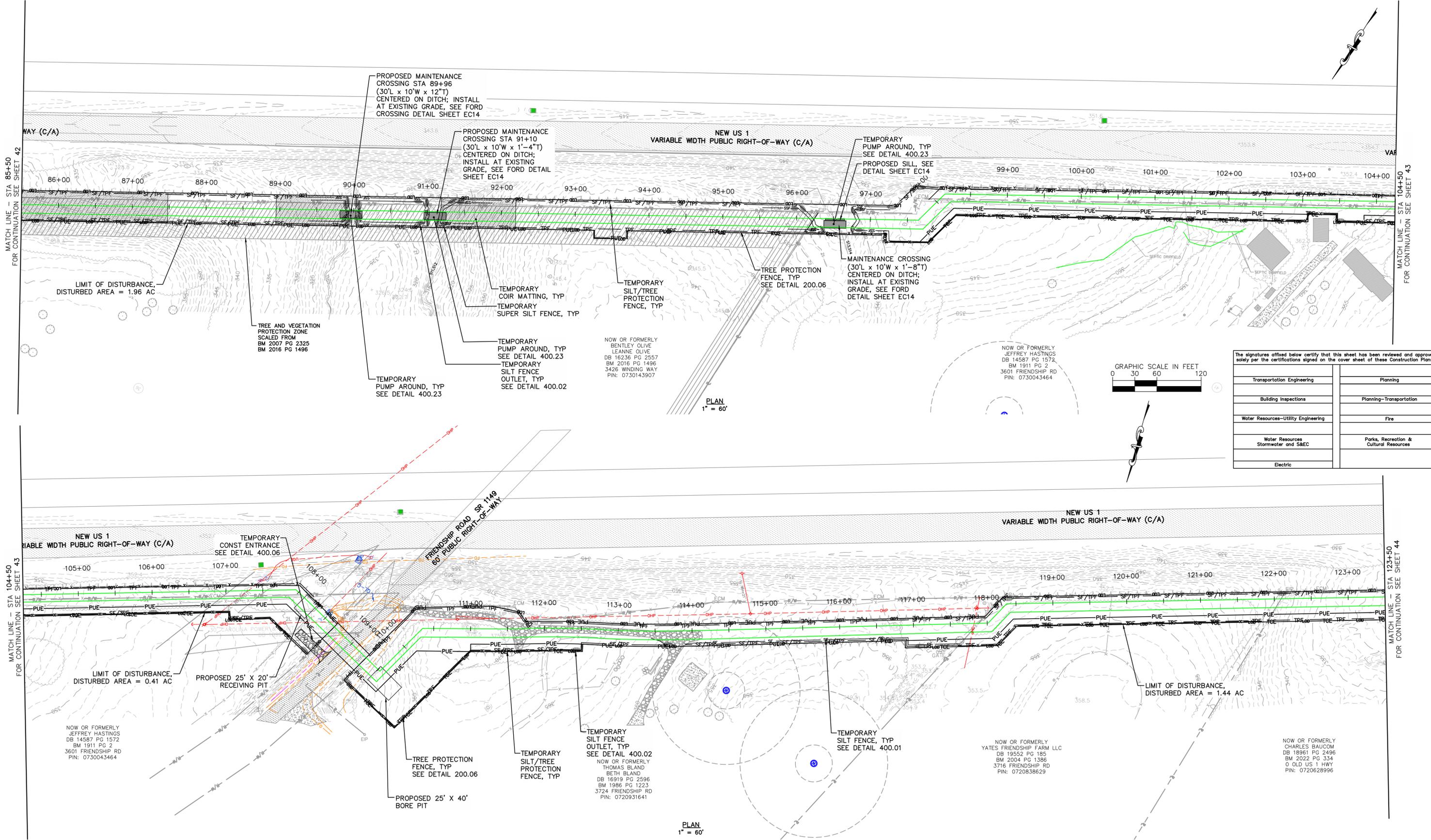
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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

EROSION CONTROL STA 47+50
TO STA 85+50

CJS PROJ. #:	100-005	EC2
DATE:	12-18-2024	
SCALE:	1" = 60'	SHEET NUMBER 42 OF 56
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	

Plotted By: J. Speers, Layout: EC3, December 18, 2024, 03:15:05pm, S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS 80 - Drawings\Plan Sheets\C-SHT-BIG BRANCH EROS-1.dwg



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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 BIG BRANCH 2 PUMP STATION -
 FORCE MAIN

EROSION CONTROL STA 85+50
 TO STA 123+50

CJS PROJ. #:	100-005	EC3
DATE:	12-18-2024	
SCALE:	1" = 60'	SHEET NUMBER 43 OF 56
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	

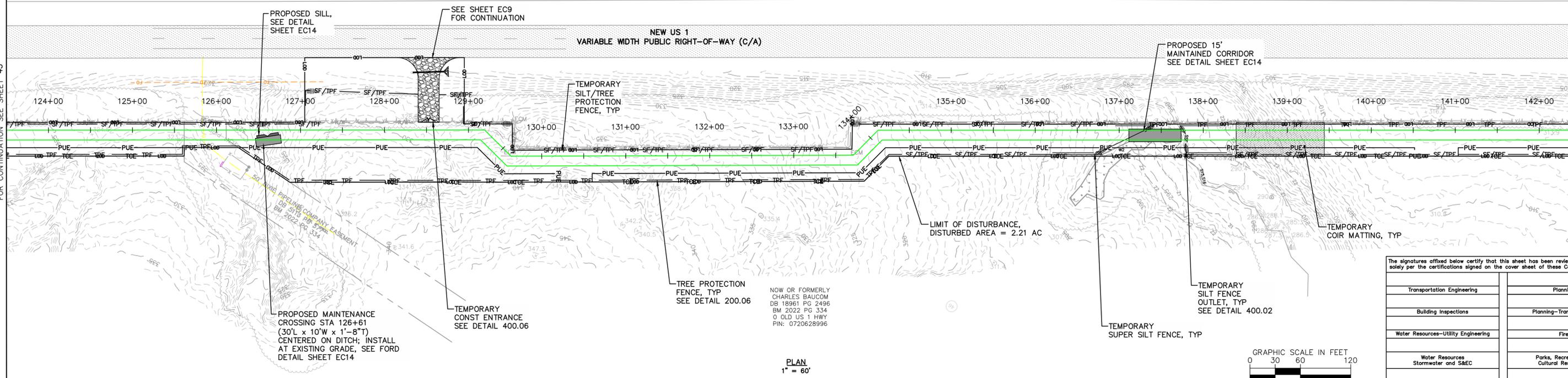
Plotted By: J. Speers Layout: EC4 December 18, 2024 03:15:18pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PUMP STATION - Big Branch EROSION - 1.dwg

MATCH LINE - STA 123+50 FOR CONTINUATION SEE SHEET 43

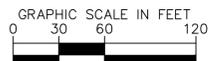
MATCH LINE - STA 142+50 FOR CONTINUATION SEE SHEET 44

MATCH LINE - STA 142+50 FOR CONTINUATION SEE SHEET 44

MATCH LINE - STA 161+50 FOR CONTINUATION SEE SHEET 45

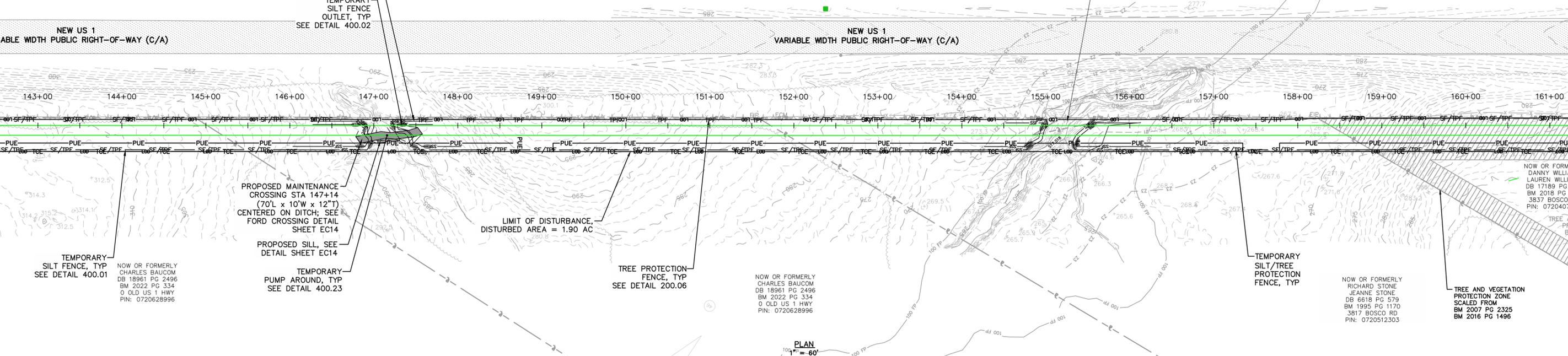


PLAN
1" = 60'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&C	Parks, Recreation & Cultural Resources
Electric	



PLAN
1" = 60'

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



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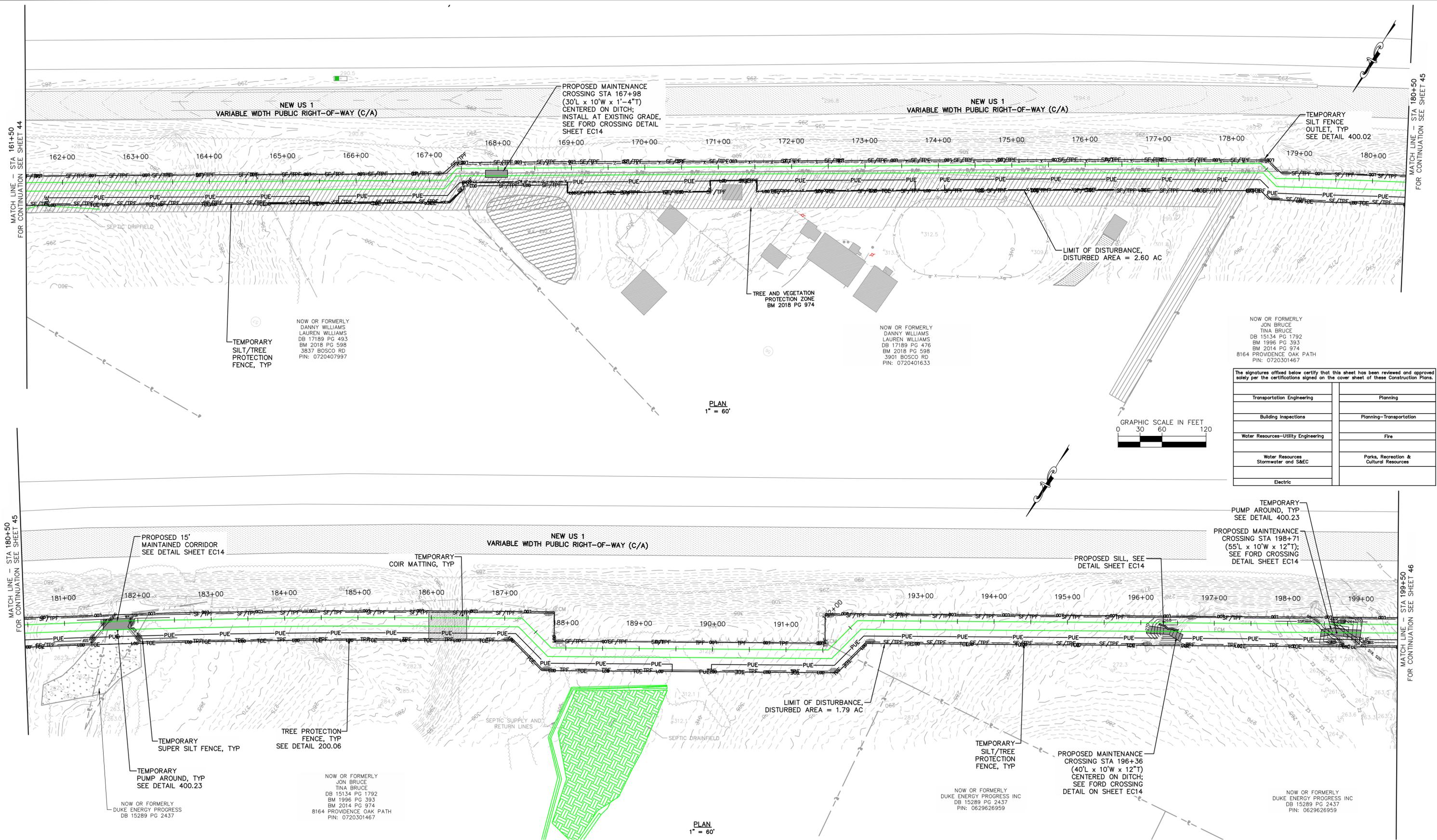
WATER RESOURCES DEPARTMENT
TOWN OF APEX

BIG BRANCH 2 PUMP STATION -
FORCE MAIN

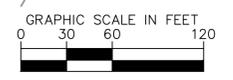
EROSION CONTROL STA 123+50
TO STA 161+50

CJS PROJ. #:	100-005	EC4
DATE:	12-18-2024	
SCALE:	1" = 60'	SHEET NUMBER 44 OF 56
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	

Plotted By: J. Speers Layout: EC5 December 18, 2024 03:15:30pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS 60 - Drawings\Plan Sheets\C-SHT-BIG BRANCH ERO5-1.dwg



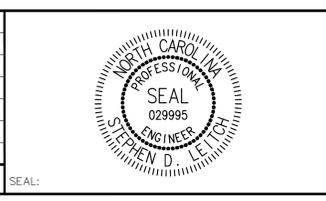
PLAN
1" = 60'



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	

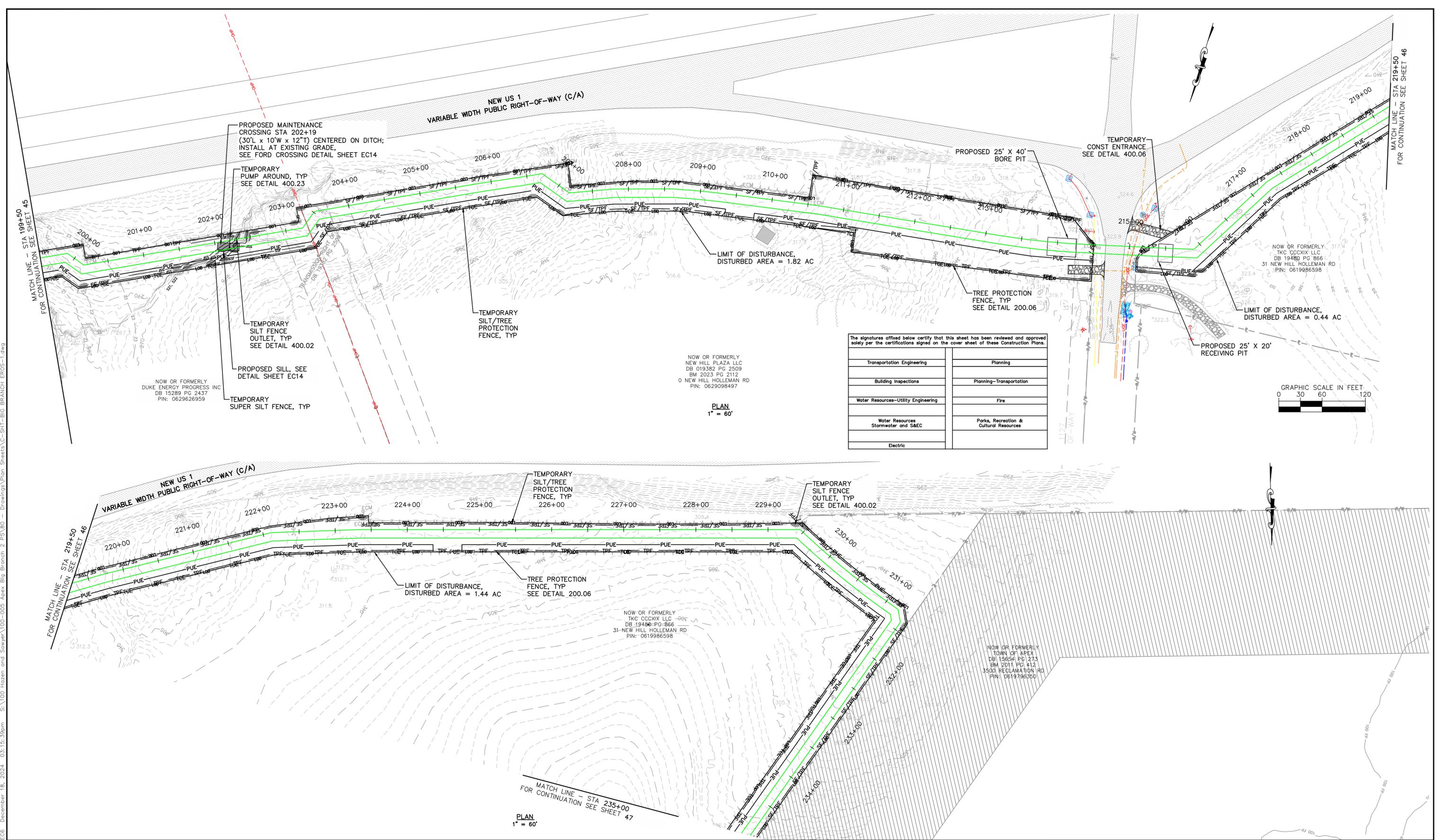


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WATER RESOURCES DEPARTMENT
 TOWN OF APEX
 BIG BRANCH 2 PUMP STATION -
 FORCE MAIN

EROSION CONTROL STA 161+50
 TO STA 199+50

CJS PROJ. #:	100-005	EC5
DATE:	12-18-2024	
SCALE:	1" = 60'	SHEET NUMBER 45 OF 56
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	



Plotted By: J. Speers Layout: E06 December 18, 2024 03:15:39pm S:\100 Hazem and Sawyer\100-005 Apex Big Branch 2 PS 60 - Drawings\Plan Sheets\C-SHT-BIG BRANCH ERO5-1.dwg

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



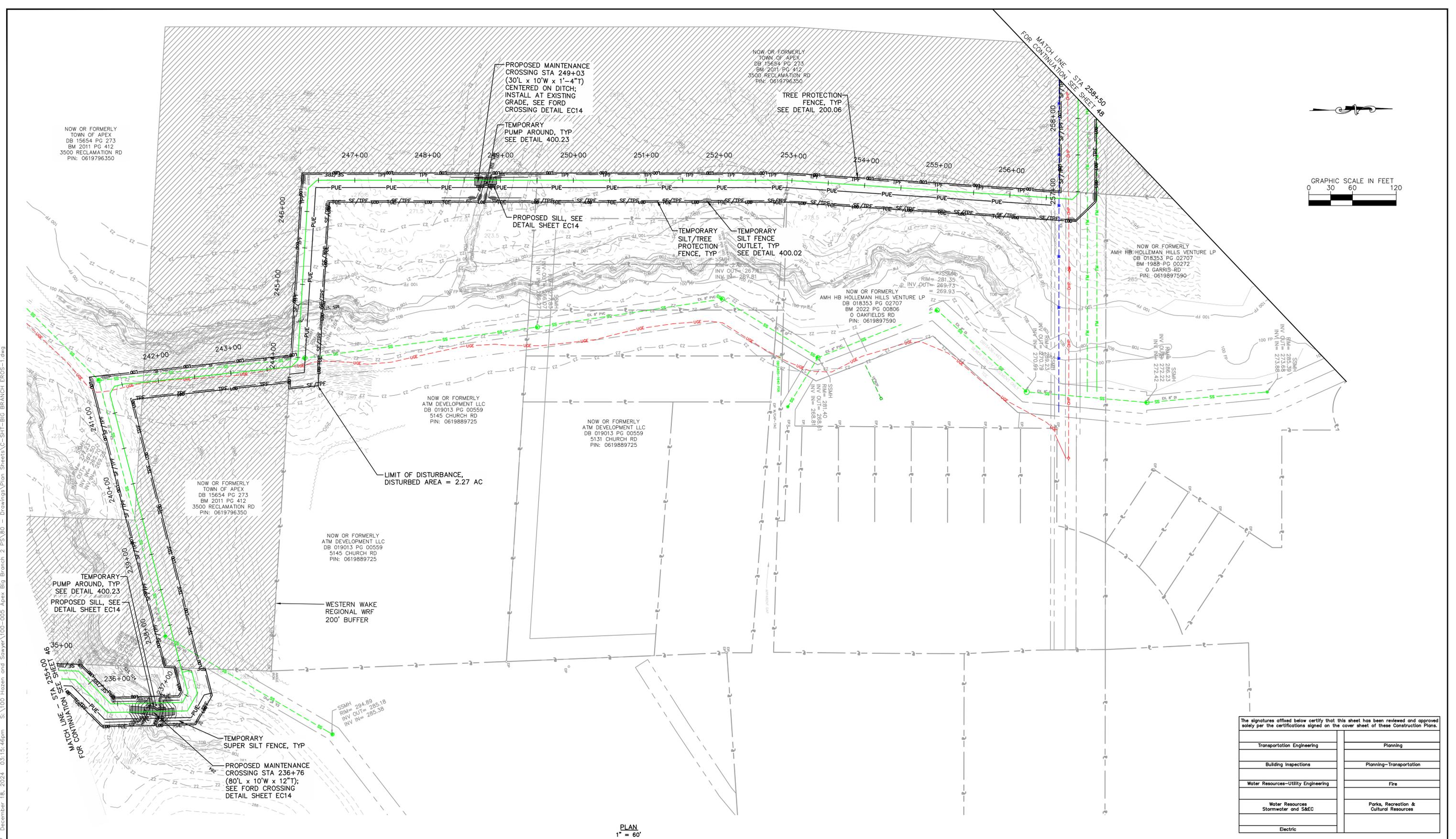
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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

EROSION CONTROL STA 199+50
TO STA 235+00

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 60'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC6
 SHEET NUMBER
46 OF 56



PLAN
1" = 60'

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

1	PERMIT SUBMITTAL	12/18/2024	SDL
No.	REVISIONS	DATE	BY

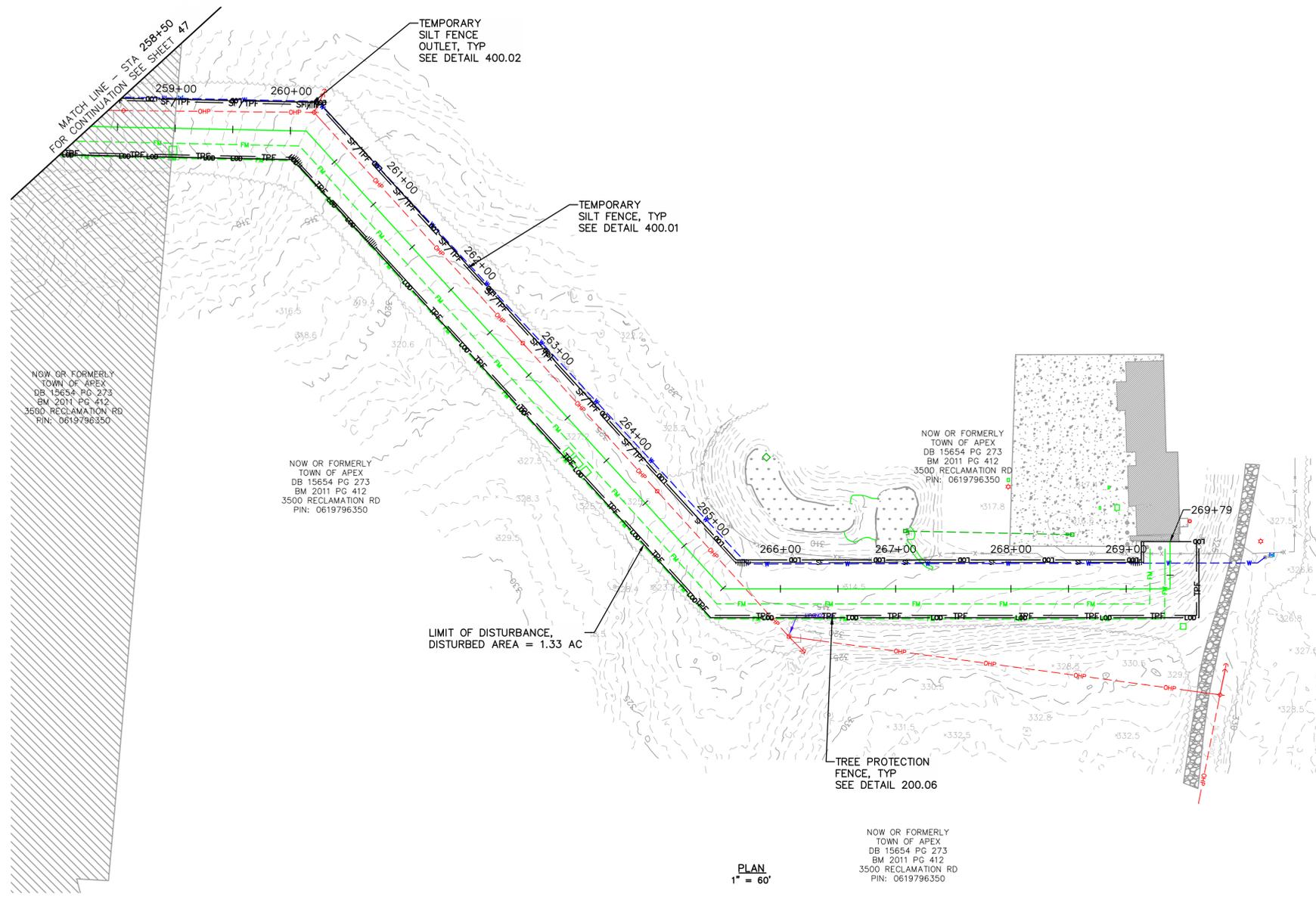
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TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

EROSION CONTROL STA
235+00 TO STA 258+00

CJS PROJ. #:	100-005	EC7
DATE:	12-18-2024	
SCALE:	1" = 60'	SHEET NUMBER 47 OF 56
PROJECT ENGINEER:	SDL	
DESIGNED BY:	JJS	
DRAWN BY:	JJS	
CHECKED BY:	SDL	

Plotted By: J. Speers Layout: EC7 December 18, 2024 03:15:46pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS 80 Drawings\Plan Sheets\C-SHT-BIG BRANCH EROS-1.dwg



PLAN
1" = 60'

PLAN
1" = 60'

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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Plotted By: J. Speers Layout: EC8 December 18, 2024 03:15:49pm S:\100 Hazem and Sawyer\100-005 Apex Big Branch 2 PS\60 - Drawings\Plan Sheets\C-SHT-BIG BRANCH EROS-1.dwg

No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	



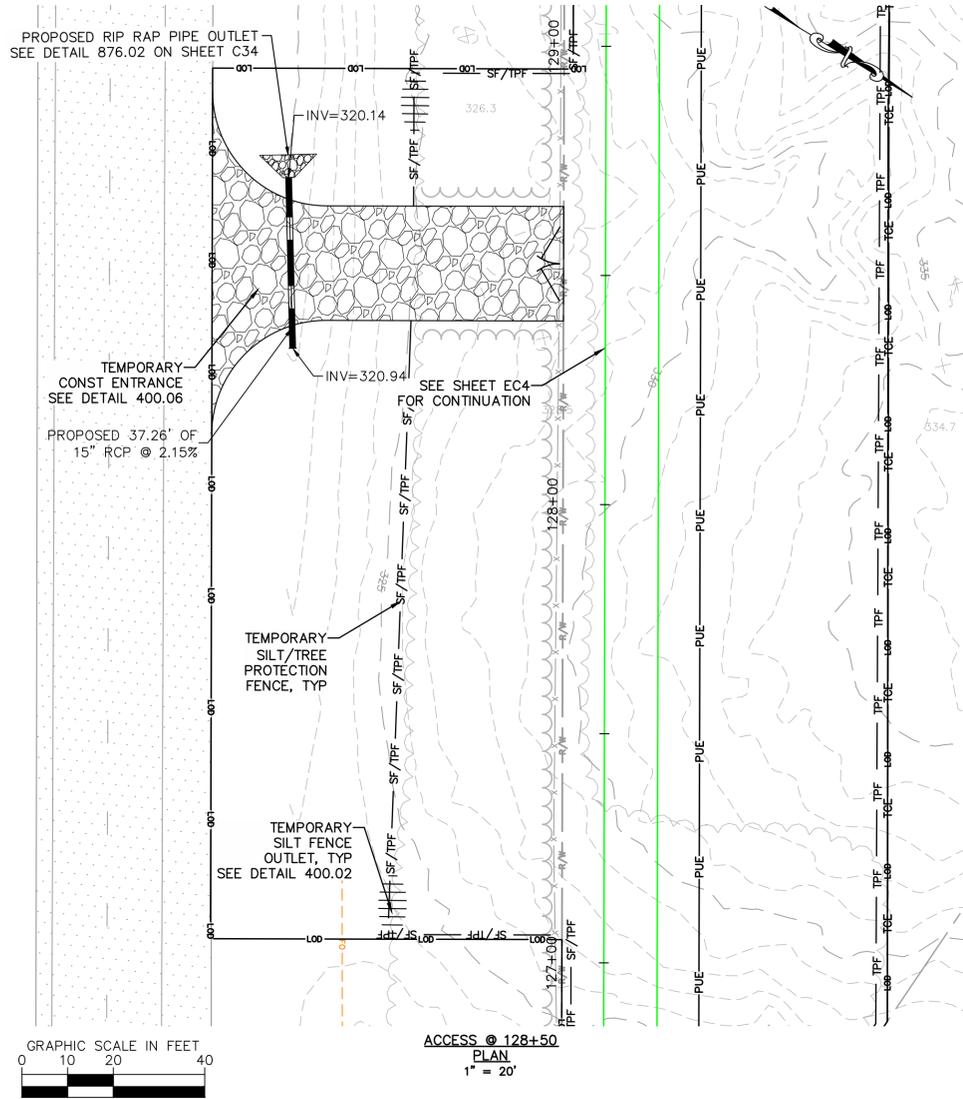
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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

EROSION CONTROL
STA 258+50 TO END

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 60'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC8
SHEET NUMBER
48 OF 56



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Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Plotted By: J. Speers Layout: EC9 December 18, 2024 03:15:56pm S:\100 Hazem and Sawyer\100-005 Apex Big Branch 2 PS\80 - Drawings\Plan Sheets\C-SHT-BIG BRANCH EROS-1.dwg

No.	REVISIONS	DATE	BY	SEAL
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WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

EROSION CONTROL US1
TEMPORARY ACCESS ENTRANCE

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 20'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC9
SHEET NUMBER
49 OF 56

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

- UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL HANDBOOK.
- THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
- PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS, STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND NCDENR REGIONAL OFFICE FOR APPROVAL. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER AND THE OWNER'S REPRESENTATIVE A COPY OF THE AMENDED PERMIT.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES, OTHER THAN THOSE SHOWN ON PLANS, NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER NCDENR OR THE OWNERS REPRESENTATIVE. (NO SEPARATE PAYMENT).
- ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SODDED OR SEEDED AS INDICATED AND STABILIZED.
- UNLESS A STREAM CROSSING IS PROPOSED, THE CONTRACTOR IS NOT PERMITTED TO CROSS ANY STREAM WITH ANY VEHICLE OR PIECE OF EQUIPMENT. CONTRACTOR TO NOTE THAT RIP RAP BANK STABILIZATION IS NOT CONSIDERED A STREAM CROSSING. IF A STREAM CROSSING IS NOT SHOWN, BUT ENCOUNTERED, CONTRACTOR MUST USE A BACK AND OUT APPROACH.
- DURING DE-WATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OULET.
- THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANT NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR UPON COMPLETION OF A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE OWNERS REPRESENTATIVE. (NO SEPARATE PAYMENT).
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA. (NO SEPARATE PAYMENT).
- WHEN CROSSING CREEK OR DRAINAGE-WAY, THE CONTRACTOR SHALL INSTALL RIP-RAP WITH FABRIC ON DISTURBED BANKS AND CHANNELS AND RESTORE SLOPES TO ORIGINAL CONTOURS, BUT NOT STEEPER THAN 2:1 MAXIMUM. DISTURBED CREEK AREA SHALL BE STABILIZED IMMEDIATELY.
- LIMITS OF CONSTRUCTION ARE AS SHOWN ON PLANS FOR PAVEMENT REPAIR WHEN INSIDE PAVEMENT AND EDGE OF PAVEMENT TO RIGHT-OF-WAY WHEN OUTSIDE PAVEMENT. UNLESS STATED OTHERWISE, CONTRACTOR SHALL BE MINDFUL THAT TOTAL PROJECT LIMITS OF DISTURBANCE IS INTENDED TO BE UNDER 1 ACRE. AREAS SHALL BE REQUIRED APPLY FOR AND OBTAIN A PERMIT FOR ADDITIONAL DISTURBED AREA INCLUDING BUT NOT LIMITED TO TRENCHED CONSTRUCTION AREAS, SPOIL PILES, MATERIAL LAYDOWN, AND EROSION CONTROL MEASURES.
- ANY AREAS WITHIN THE 15 FOOT BUFFER ZONE OF A CREEK OR NATURAL WATER COURSE MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER LINE INSTALLATION IS COMPLETED WITHIN THE BUFFER ZONE.
- NO BORROW OR SPOIL AREAS LOCATED ON SITE. ALL SPOIL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE DAILY.
- CONTRACTOR SHALL RESTORE THE DISTURBED AREA TO EXISTING GRADE UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
- CONCRETE MIXERS SHALL NOT RINSE OUT ON PROJECT SITE UNLESS A CONCRETE WASHOUT EXISTS PER DETAIL.

EROSION CONTROL MAINTENANCE PLAN

- ALL EROSION CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
- SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES ABOUT 0.5 FT DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER.
- ALL UTILITY TRENCHES ARE TO BE PROTECTED FROM WATER INFILTRATION.
- SPOIL PILES ARE TO BE CONTAINED AT ALL TIMES.
- ALL SEEDED AREAS WILL BE FERTILIZED, RE-SEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SPECIFICATIONS TO MAINTAIN A VIGOROUS, DENSE VEGETATION COVER. IF SEEDING FAILURE OCCURS, THOSE AREAS SHALL BE RE-SEEDED WITH ANNUAL VEGETATION, SUITABLE FOR THE TIME OF YEAR FOR TEMPORARY STABILIZATION AND PREPARED FOR FOR PERMANENT SEEDING. SEEDING AND MULCHING WILL BE IN ACCORDANCE WITH SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION CONTROL MEASURES AT ALL TIMES, WHETHER INSTALLED ACCORDING TO PLAN OR AS DIRECTED BY THE NCDENR REPRESENTATIVE OR THE OWNERS REPRESENTATIVE (NO SEPARATE PAYMENT).

GROUND COVER STATUTES

PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS (SEE TABLE THIS SHEET FOR TIME FRAMES) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

PLANNED SEDIMENTATION AND EROSION CONTROL PRACTICES

- THE FOLLOWING EROSION CONTROL ITEMS WILL BE CONSTRUCTED AS SHOWN ON THE ATTACHED EROSION CONTROL DETAILS AND PLAN.
- TEMPORARY SEEDING:** TO BE INSTALLED AS PER SEEDING SPECIFICATIONS.
 - PERMANENT SEEDING:** TO BE INSTALLED AS PER SEEDING SPECIFICATIONS. FERTILIZER, SODDING AND MULCHING: TO BE INSTALLED AS PER TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS.
 - SODDING:** TO PREVENT EROSION AND DAMAGE FROM SEDIMENT AND RUNOFF BY STABILIZING THE SOIL SURFACE WITH PERMANENT VEGETATION.

MAINTENANCE: AFTER THE FIRST WEEK WATER AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE IN THE ROOT ZONE AND PREVENT DORMANCY OF THE SOD. DO NOT REMOVE MORE THAN ONE-THIRD OF THE SHOOT IN ANY MOWING. GRASS HEIGHT SHOULD BE MAINTAINED BETWEEN 2 AND 3 INCHES. AFTER THE FIRST GROWING SEASON, ESTABLISH PERMANENT FERTILIZATION, AND MAY ALSO REQUIRE LIME. FOLLOW SOIL TEST RECOMMENDATIONS WHEN POSSIBLE.
 - MULCHING:** TO PROTECT THE SOIL SURFACE FROM THE FORCES OF RAINDROP IMPACT AND OVERLAND FLOW. MULCH FOSTERS THE GROWTH OF VEGETATION, REDUCES EVAPORATION, INSULATES THE SOIL, AND SUPPRESSES WEED GROWTH. MULCH IS FREQUENTLY USED TO ACCENT LANDSCAPE PLANTINGS.

- MAINTENANCE:** INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED, AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.
- OUTLET STABILIZATION STRUCTURE:** TO BE INSTALLED AS A PERMANENT STABILIZATION MEASURE AT THE OUTLET OF A CHANNEL OR CONDUIT BY REDUCING THE VELOCITY OF FLOW AND DISSIPATING ENERGY. THESE MEASURES WILL BE LOCATED PER PLANS AND CONSTRUCTED PER THE DETAIL.
 - INLET PROTECTION:** TEMPORARY INLET PROTECTION WILL BE INSTALLED AROUND THOSE INLETS, EITHER EXISTING OR PROPOSED, WHERE THERE IS POTENTIAL FOR SEDIMENT TO REACH THE INLET AND THEREFORE THE DOWNSTREAM SECTIONS. THESE MEASURES WILL BE LOCATED PER THE PLANS AND CONSTRUCTED PER THE DETAIL.

MAINTENANCE: INSPECT THE RIP-RAP OUTLET STRUCTURES WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) TO SEE IF ANY EROSION AROUND OR BELOW THE RIP-RAP HAS TAKEN PLACE, OR IF THE STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.
 - ROCK PILE INLET PROTECTION:** SIMILAR TO BLOCK AND GRAVEL INLET PROTECTION, THIS MEASURE IS USED TO HELP PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN AND BEING TRANSFERRED BY A STORM DRAINAGE SYSTEM PRIOR TO STABILIZATION OF DISTURBED DRAINAGE AREA. THIS MEASURE ALLOWS EARLY USE OF THE STORM DRAINAGE SYSTEM.

MAINTENANCE: INSPECT THE ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING. CHECK THE STRUCTURE FOR DAMAGE. ANY RIP-RAP DISPLACED FROM THE STONE, HORSHOE MUST BE REPLACED IMMEDIATELY. AFTER ALL THE SEDIMENT PRODUCING AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.
 - TEMPORARY SILT FENCE:** WILL RETAIN SEDIMENT FROM SMALL DISTURBED AREAS. SILT FENCE WILL BE PLACED ALONG SLOPES AS SHOWN ON CONSTRUCTION DETAILS.

MAINTENANCE: INSPECT SEDIMENT FENCES AT LEAST WEEKLY AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEAN OUT. REMOVE ALL FENCING MATERIALS FROM UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
 - CHECK DAM:** WILL BE INSTALLED TO REDUCE EROSION BY REDUCING THE VELOCITY OF THE FLOW.

MAINTENANCE: INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIP-RAP LINER IN THE PORTION OF THE CHANNEL.

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND ACROSS SECTION.

SEEDING SCHEDULE

TO BE IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.

SEED SHALL BE SEED CERTIFIED TO BE THE LATEST SEASONS CROP AND SHALL BE DELIVERED IN ORIGINAL SEALED PACKAGES BEARING THE PRODUCER'S GUARANTEED ANALYSIS FOR PERCENTAGES OF MIXTURES AND PURE LIVE SEED. THE PRODUCERS SEED LABEL SHALL INDICATE IF THE MINIMUM PERCENT OF PURE LIVE SEED (WHICH SHALL BE 85.0% FOR BERMIUDA, 88 FOR RYE GRAIN), THE MINIMUM PERCENT OF GERMINATION IN HARD SEED AND MAXIMUM PERCENT OF WEED SEED (NO MORE THAN 1 PERCENT FOR BERMIUDA, 0.5 PERCENT FOR RYE GRAIN). SEED SHALL BE LABELED IN CONFORMANCE WITH U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT AND APPLICABLE STATE SEED LAWS. SEED THAT HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED WILL NOT BE ACCEPTABLE.

THE FOLLOWING SEED MIXTURE SHALL BE USED:

TEMPORARY SEED MIXTURE		
DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	GERMAN MILLET	40 LBS/ACRE
AUG. 15 - NOV. 15	GRAIN RYE	120 LBS/ACRE
NOV. 1 - APRIL 1	GRAIN RYE	120 LBS/ACRE
PERMANENT SEED MIXTURE		
DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	K-31 FESCUE COMMON BERMIUDA CENTIPEDE	80 LBS/ACRE 60 (HULLED) LBS/ACRE 5 LBS/ACRE
AUG. 15 - NOV. 15	K-31 FESCUE COMMON BERMIUDA CENTIPEDE	120 LBS/ACRE 25 (HULLED) LBS/ACRE 5 LBS/ACRE
NOV. 1 - APRIL 1	K-31 FESCUE COMMON BERMIUDA CENTIPEDE	120 LBS/ACRE 25 (HULLED) LBS/ACRE 5 LBS/ACRE

- NOTES:**
- WHERE CONSTRUCTION CROSSES A PASTURE THAT HAS BEEN GRASSSED, THE CONTRACTOR SHALL RE-SEED THE AREA WITH THE SAME TYPE OF GRASS AS FOUND ON THE SITE. ALL HIGHWAY RIGHTS-OF-WAY AND PRIVATE YARDS DISTURBED SHALL ALSO BE RE-SEEDED OR WITH THE SAME TYPE OF GRASS PREVIOUSLY FOUND. THE SEED MIXTURE SPECIFICATION SHALL BE USED AS A GUIDE AND THE CONTRACTOR IS CHARGED WITH THE RESPONSIBILITY OF SEEDING AREAS WITH THE PROPER TYPE OF GRASS THAT MATCHES THE EXISTING.
 - CONSULT THE REGIONAL STATE EROSION CONTROL OFFICER FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENIED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

SOIL AMENDMENTS

LIME SHALL BE APPLIED AT THE RATE OF 4000 LBS PER ACRE. 10-10-10 COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 1000 POUNDS PER ACRE AND WELL WORKED IN TO THE TOP FOUR INCHES (4") OF TOP SOIL. IF HYDROSEEDING, USE 500 POUNDS OF 10-10-10 FERTILIZER ON SLOPES STEEPER THAN 1/2 HORIZONTAL TO 1 VERTICAL. UNLESS A SOIL TEST INDICATES OTHERWISE.

MULCH

ALL SEEDED AREAS WILL BE MULCHED WITH TWO (2) TONS PER ACRE OF SMALL GRAIN STRAW OR WOOD CELLULOSE FIBER SPREAD UNIFORMLY, APPROXIMATELY 1/4 OF

GROUND SHOULD BE VISIBLE TO AVOID SMOTHERING SEEDLINGS. ASPHALT EMULSION (ASTM D-977 AND ASTM D-2028) SHALL BE USED TO ANCHOR THE STRAW APPLIED AT 150 GALLONS PER TON OF STRAW, OR CRIMPED TO STABILIZE. ASPHALT EMULSION SHALL BE APPLIED AT ALL TIMES. THE CONTRACTOR SHALL TAKE SUFFICIENT PRECAUTIONS TO PREVENT MULCH FROM ENTERING DRAINAGE STRUCTURES THROUGH DISPLACEMENT BY WIND, WATER OR OTHER CAUSES AND PROMPTLY REMOVE ANY BLOCKAGE WHICH MAY OCCUR.

MAINTENANCE

THE CONTRACTOR SHALL PROTECT AND MAINTAIN GRASSSED AREAS AS NECESSARY TO ESTABLISH A UNIFORM TURF COMPOSED OF THE GRASSES SPECIFIED. THE CONTRACTOR SHALL RE-SEED ANY BARE AREAS AND REPAIR ALL ERODED AREAS.

WATERING OF SEEDED AREAS WILL BE REQUIRED DURING PERIODS OF DRY WEATHER TO PROMOTE MAXIMUM GROWTH. THE CONTRACTOR SHALL SUPPLEMENT NATURAL RAINFALL TO INSURE A MINIMUM OF ONE (1) INCH OF RAINFALL WEEKLY.

MAINTENANCE OF LAWNS BEGINS IMMEDIATELY AFTER THE AREA IS PLANTED AND CONTINUES FOR THE PERIOD REQUIRED TO ESTABLISH ACCEPTABLE LAWNS, BUT NOT LESS THAN SIXTY (60) DAYS AFTER INITIAL SEEDING, OR UNTIL PROFESSIONAL ACCEPTANCE BY OWNER. MAINTAIN SEEDED AREAS BY WEEDING, FERTILIZING, MOWING, WEEDING AND OTHER OPERATIONS SUCH AS ROLLING, RE-GRAING, REPLANTING, AERATING, AND MULCHING AS REQUIRED TO ESTABLISH AN ACCEPTABLE LAWN FREE OF ERODED OR BARE AREAS.

CHANNEL STABILIZATION AND OUTLET PROTECTION

- UPON COMPLETION OF REACHING FINAL PREPARED SUB GRADE FOR AREAS (SLOPES, CHANNELS AND OUTLET PROTECTION) TO BE PROTECTED AS INDICATED ON DRAWINGS, INSTALL FILTER FABRIC, NCDOT NO. 37 STONE BEDDING LAYER, AND APPROPRIATE RIP RAP. PREPARED SUB GRADE SHALL BE FREE OF DEBRIS, STICKS AND OTHER DELETERIOUS MATERIAL THAT MAY BE INJURIOUS TO THE FABRIC OR PERFORMANCE OF THE SLOPE PROTECTION.
- GEOTEXTILE FABRICS, COIR MATTING OR SPECIAL MULCH PROTECTION, SUCH AS FIBERGLASS ROVING OR STRAW NETTING, SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS TO PROVIDE STABILITY UNTIL THE VEGETATION IS FULLY ESTABLISHED. THESE REQUIREMENTS FOR SLOPE PROTECTION MAY INCLUDE AN ANCHOR TRENCH, SEAMING, STITCHING AND OVERLAPPING.
- RIP RAP FOR USE OF DESIGNATED ON THE DRAWINGS SHALL CONFORM TO NCDOT REQUIREMENTS FOR THE SPECIFIED CLASS (CLASS II, B, ETC.) AS INDICATED ON THE DRAWINGS.

SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 8 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- CONSULT STATE INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZER AFTER PERMANENT COVER IS ESTABLISHED.

*APPLY AGRICULTURAL LIMESTONE-4,000 LBS/ACRE
FERTILIZER: 1000 LBS/ACRE 10-10-10
SUPER PHOSPHATE: 500 LBS/ACRE 20% ANALYSIS
MULCH: 2 TONS/ACRE SMALL GRAIN STRAW
ANOTHER: ASPHALT EMULSION @ 300 GALS/ACRE

MINIMUM REQUIREMENTS FOR SLOPE STABILIZATION

MINIMUM REQUIREMENTS	SLOPE
STABILIZED WITH GRASS	3:1 AND FLATTER
STABILIZED WITH SHRUBS OR VINES	3:1 TO 2:1
STABILIZED WITH RIP RAP	2:1
STABILIZED WITH RETAINING WALL	STEEPER THAN 1.5:1

SECTION E: GROUND STABILIZATION

Site Area Description	Required Ground Stabilization Timeframes	
	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GENERAL EROSION AND SEDIMENTATION CONTROL CONSTRUCTION SEQUENCE

- OBTAIN ALL PERMITS AND PLAN APPROVALS FOR ANY ADDITIONAL CONSTRUCTION ENTRANCES AND STAGING STORAGE AREAS.
- CONDUCT PRECONSTRUCTION CONFERENCE. CONTACT THE DEMLR REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO COMMENCING LAND-DISTURBING ACTIVITY. THE CONTACT NUMBER IS (919) 791-4200.
- INSTALL GRAVEL CONSTRUCTION ENTRANCES, SILT FENCING, TREE PROTECTION BARRICADES AND TEMPORARY INLET PROTECTION.
- INSTALL TEMPORARY INLET PROTECTION FOR DRIVEWAY CULVERTS, STORM DRAIN PIPES, AND CURBWARD INLETS.
- CLEAR AND GRUB ALL PERMANENT EASEMENTS WITHIN THE LIMITS OF DISTURBANCE AND ONLY THOSE PORTIONS OF THE TEMPORARY CONSTRUCTION EASEMENTS NECESSARY FOR CONSTRUCTION (OR AT CONTRACTOR'S DISCRETION).
- INSTALL WATER AND SEWER MAINS AS SHOWN. STRIP TOPSOIL DURING TRENCHING OPERATIONS AND SEPARATE FROM SUITABLE EXCAVATED MATERIAL. PROTECT STOCKPILED TOPSOIL FROM RUNOFF AND ANY STOCKPILED UNSUITABLE EXCAVATED MATERIAL IF SUCH MATERIAL IS NOT IMMEDIATELY DISPOSED OF OFFSITE. SUITABLE EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION WITH THE TRENCH BETWEEN THE MATERIAL AND THE SILT FENCE.
- INSPECT ALL EROSION AND SEDIMENT CONTROL DEVICES WEEKLY AND AFTER EVERY RAINFALL EVENT. PROVIDE APPROPRIATE MAINTENANCE MEASURES AFTER INSPECTION AND EACH RAIN EVENT.
- FOR SEWER AND WATER MAIN CONSTRUCTION IN STREETS, REMOVE ASPHALT IN TOWN-MAINTAINED STREETS ALONG PROPOSED SEWER AND WATER MAIN ALIGNMENTS BY MILLING WITH ZIPPER TYPE EQUIPMENT (3,000' MAXIMUM DISTURBANCE). REPLACE MILLINGS BACK OR PROVIDE ABC ON ROAD AND COMPACT TO PROVIDE AN ALL WEATHER SURFACE UNTIL SEWER OR WATER LINE INSTALLATION IS INITIATED. FOR SEWER AND WATER MAIN CONSTRUCTION IN NCDOT MAINTAINED ROADS, REMOVE ONLY PORTION OF PAVEMENT THAT CAN EITHER BE SAFELY PLACED AT END OF WORKING DAY OR PERMANENTLY PATCHED BY THE END OF EACH WORKING DAY.
- PROVIDE ABC STONE IN DISTURBED AREAS WITHIN TOWN-MAINTAINED STREETS AND COMPACT TO PROVIDE AN ALL WEATHER SURFACE TO MATCH EXISTING PAVEMENT SURFACE AS SEWER MAIN, LATERALS, WATER MAIN AND SERVICES (WHERE APPLICABLE) PROGRESSES IN TOWN-MAINTAINED STREETS. CONTRACTOR SHALL MAINTAIN ALL WEATHER SURFACE UNTIL PAVEMENT IS COMPLETED.
- TEST AND INSPECT SEWER MAIN AND LATERALS AND WATER MAIN AND SERVICES (WHERE APPLICABLE).
- PATCH ALL PAVED SURFACES DISTURBED BY CONSTRUCTION ACTIVITIES WITH PERMANENT ASPHALT PATCH. OVERLAY PERMANENT PATCHED AREAS WHERE APPLICABLE OR DESIGNATED ON DRAWINGS.
- SEED AND MULCH OR SOD ALL DISTURBED AREAS NOT OTHERWISE IMPROVED AND ESTABLISH PERMANENT GROUND COVER AS INDICATED. STABILIZATION OF DISTURBED AREA SHALL BE CONSISTENT WITH REQUIREMENTS AS INDICATED IN EROSION AND SEDIMENTATION CONTROL DETAILS.
- PRELIMINARY FINAL INSPECTION BY CONTRACTOR TO CONFIRM PUNCH LIST.
- PRELIMINARY FINAL INSPECTION BY OWNER AND CONTRACTOR TO CONFIRM PUNCH LIST.
- FINAL INSPECTION BY NCDOT AND ATTENDED BY CONTRACTOR AND OWNER.
- UPON APPROVAL FROM NCDOT AND OWNER, REMOVE TEMPORARY EROSION CONTROL MEASURES AND RESTABILIZE ANY DISTURBED AREAS.
- CLOSE OUT PROJECT.
- STOCKPILES, LAYDOWN, OR WASTE AREAS, CONCRETE WASHOUTS, PORTABLE TOILETS, AND FUELS MUST BE LOCATED AT LEAST 50 FEET AWAY FROM ANY OPEN WATER CONVEYANCES, SUCH AS BASINS, DITCHES, STORM DRAIN LINES, ETC. THE LOCATION OF THESE ACTIVITIES MAY BE FIELD ADJUSTED IF THE DISTANCE REQUIREMENTS ARE MET.
- WHEN THE PROJECT IS COMPLETE, AND PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION HAS BEEN ESTABLISHED, THE PERMITTEE SHALL CONTACT DEMLR TO CLOSE OUT THE EASC PLAN. AFTER DEMLR INFORMS THE PERMITTEE OF THE PROJECT CLOSE OUT, VISUAL INSPECTION OF THE PROJECT SHALL VISIT ALL DISTURBED AREAS TO SUBMIT AN ELECTRONIC NOTICE OF TERMINATION (E-NOT), A \$120 ANNUAL GENERAL PERMIT FEE WILL BE CHARGED UNTIL THE E-NOT HAS BEEN FILED OUT.
- PERMITS REQUIREMENTS: A RAIN GAUGE, SELF-INSPECTIONS RECORDS, PERMIT, CERTIFICATE OF COVERAGE AND WEATHER SURFACE UNTIL SEWER OR WATER LINE INSTALLATION IS INITIATED. IT IS RECOMMENDED THAT THESE ITEMS BE PLACED IN A PERMITS BOX AT THE BEGINNING OR ENTRANCE OF PROJECT.

TOWN OF APEX CONSTRUCTION SEQUENCE

- THROUGH DEVELOPMENT SERVICES AT (919) 372-7467, SCHEDULE A PRE-CONSTRUCTION MEETING WITH TOWN STAFF.
- REQUEST AN INVOICE FOR THE S&E PERFORMANCE GUARANTEE FROM DEVELOPMENT SERVICES AT (919) 249-3355.
- UTILIZE THE APPLICABLE S&E PERFORMANCE GUARANTEE TO DEVELOPMENT SERVICES AS 105-B UPCHURCH STREET, APEX, NC 27502. THE EROSION CONTROL LETTER OF PLAN APPROVAL WILL NOT BE ISSUED UNTIL THE PERFORMANCE GUARANTEE HAS BEEN SUBMITTED.
- REQUEST A LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL MEASURES FROM WATER RESOURCES STAFF AT (919) 372-7470. SUBMIT THE FINANCIAL RESPONSIBILITY/OWNERSHIP (FRO) FORM AND REQUEST FOR PLAN APPROVAL FOR AT OR WITHIN 7 DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING.
- COMPLETE AND SUBMIT AN ELECTRONIC NOTICE OF INTENT (e-NOI) FORM WITH NCDENR REQUESTING A CERTIFICATE OF COVERAGE (COC) UNDER NCGM CONSTRUCTION STORMWATER GENERAL PERMIT. VISIT THE FOLLOWING WEBSITE: <https://files.nc.gov/ncgov/division-of-environment-and-natural-resources/energy-mineral-and-natural-resources/energy-mineral-and-natural-resources/stormwater-permits/construction-sw-permits>
- COMPLETE A GRADING PERMIT APPLICATION AND RECEIVE A GRADING PERMIT FROM THE BUILDING INSPECTIONS PERMITTING DEPARTMENT AS REQUIRED BY THE NORTH CAROLINA BUILDING CODE APPENDIX J FOR GRADING, BOTH GRADING PERMIT AND COC FROM NCDENR MUST BE SUBMITTED TO THE ENVIRONMENTAL FIELD SERVICES SUPERVISOR PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE ACTIVITY.
- COMPLETE A TREE/PROTECTION FENCING INSTALLATION PERMIT APPLICATION THROUGH THE PLANNING DEPARTMENT.
- HAVE A SURVEYOR FLAG PROPERTY LINES, EASEMENTS, BUFFERS, TREE PROTECTION AREAS, AND FLAG THE PROTECTION LIMITS.
- CONTACT AN APEX PLANNING DEPARTMENT ZONING COMPLIANCE OFFICER AT (919) 249-3428 TO REQUEST APPROVAL FOR TREE PROTECTION FENCING LOCATIONS.
- INSTALL APPROVED TREE PROTECTION FENCING, SIGNS, AND/OR ANY OTHER PROTECTION MEASURES THAT MAY BE REQUIRED. CALL PLANNING AT (919) 249-3428 FOR A FINAL INSPECTION OF PROTECTION MEASURES. PLANNING WILL FORWARD APPROVAL TO WATER RESOURCES EROSION CONTROL FIELD STAFF.
- INSTALL GRAVEL CONSTRUCTION ENTRANCE, TEMPORARY DIVERSIONS, SILT FENCING, SEDIMENT BASINS, BYPASS CHANNELS, AND/OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- WHEN COMPLETED, CALL WATER RESOURCES EROSION CONTROL FIELD STAFF AT (919) 372-7470 FOR AN ON-SITE INSPECTION AND TO REQUEST A CERTIFICATE OF COMPLIANCE. WATER RESOURCES WILL ALSO FORWARD A COPY TO THE BUILDING INSPECTIONS & PERMITTING DEPARTMENT.
- POST GRADING PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- BEGIN CLEARING, LOGGING, GRUBBING, AND ROUGH GRADE OF THE SITE IN ACCORDANCE WITH THE APPROVED GRADING PLAN.
- STOCKPILE A SUFFICIENT AMOUNT OF TOPSOIL TO COVER 3 INCHES OVER LANDSCAPED AREAS AT THE END OF THE PROJECT.
- INSTALL STORM SEWER, IF APPLICABLE, AND PROTECT INLETS WITH INLET PROTECTION DEVICES, SEDIMENT DEVICES, AND/OR OTHER APPROVED MEASURES AS SHOWN ON PLANS. MAINTAIN S&E MEASURES AS NEEDED.
- AFTER COMPLETION OF ANY PHASE OF GRADING OR WHEN LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY CEASED, ESTABLISH GROUNDCOVER ON SWALES AND DITCHES AND GRADED SLOPES STEEPER THAN 3:1 WITHIN 7 CALENDAR DAYS. SLOPES THAT ARE 9:1 OR FLATTER MUST ESTABLISH GROUNDCOVER WITHIN 14 CALENDAR DAYS.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISHED GRADE WITHIN VEGETATION OR PAVING.
- PRIOR TO PLAT APPROVAL, ALL DISTURBED AREAS BOTH PUBLIC AND PRIVATE, MUST BE PROPERLY STABILIZED. ALL TEMPORARY EROSION CONTROL MEASURES MUST BE INSTALLED, BE FUNCTIONING CORRECTLY, AND BE MAINTAINED FOR THE ENTIRE AREA CONTAINED WITHIN THE PLAT.
- FLUSH AND CLEAN ALL STORMWATER SYSTEM PIPES. CLEAN AND REMOVE SEDIMENT FROM TEMPORARY SEDIMENT HOLDING DEVICES. FOLLOW THE SCM CONSTRUCTION SEQUENCE FOUND ON THE GRADING AND/OR SCM DETAIL SHEET ON THE CONSTRUCTION PLAN SET.
- REMOVE ALL TEMPORARY DIVERSIONS, SILT FENCING, SEDIMENT BASINS, ETC. AND PROVIDE ADEQUATE COVER OR PAVE ANY RESULTING BARE AREAS. ALL PERMANENT EROSION CONTROL DEVICES SHOULD BE INSTALLED AT THIS POINT.

SEEDING MIXTURE	40 lbs/acre of: SEE CHART	STREAM RESTORATION PERMANENT SEEDING																														
SEEDING DATES	OPTIMAL SEEDING MONTHS: NOVEMBER, FEBRUARY, OR MARCH	<table border="1"> <thead> <tr> <th>Scientific Name</th> <th>Common Name</th> <th>Seed %</th> </tr> </thead> <tbody> <tr> <td><i>Andropogon virginicus</i></td> <td>Broomsedge</td> <td>15</td> </tr> <tr> <td><i>Carex vulpinoidea</i></td> <td>Fox Sedge</td> <td>10</td> </tr> <tr> <td><i>Chasmanthium laxa</i></td> <td>Wood Oats</td> <td>10</td> </tr> <tr> <td><i>Careopsis major</i></td> <td>Tickseed</td> <td>5</td> </tr> <tr> <td><i>Elymus virginicus</i></td> <td>Virginia Wildrye</td> <td>15</td> </tr> <tr> <td><i>Juncus effusus</i></td> <td>Soft Rush</td> <td>51</td> </tr> <tr> <td><i>Leersia oryzoides</i></td> <td>Rice Cut Grass</td> <td>10</td> </tr> <tr> <td><i>Panicum clandestinum</i></td> <td>Switchgrass</td> <td>10</td> </tr> <tr> <td><i>Scirpus cyperinus</i></td> <td>Woolgrass</td> <td>10</td> </tr> </tbody> </table>	Scientific Name	Common Name	Seed %	<i>Andropogon virginicus</i>	Broomsedge	15	<i>Carex vulpinoidea</i>	Fox Sedge	10	<i>Chasmanthium laxa</i>	Wood Oats	10	<i>Careopsis major</i>	Tickseed	5	<i>Elymus virginicus</i>	Virginia Wildrye	15	<i>Juncus effusus</i>	Soft Rush	51	<i>Leersia oryzoides</i>	Rice Cut Grass	10	<i>Panicum clandestinum</i>	Switchgrass	10	<i>Scirpus cyperinus</i>	Woolgrass	10
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SEEDING AMENDMENTS	<p>Temporary seeding will be required on all stream restoration areas disturbed following all land disturbing activities.</p> <p>All soil in planting areas shall be tested and the rate of fertilization and lining shall be in accordance with the test results.</p> <p>The planting of any species of fescue grass along or adjacent to streams and channels is prohibited unless otherwise approved by the Engineer.</p> <p>All areas shall be mulched for erosion control upon completion of construction activities or as directed by the Engineer.</p> <p>Ground cover: Whenever land disturbing activity is undertaken on a tract comprising more than one (1) acre, a ground cover sufficient to restrain erosion must be planted or provided within 21 calendar days.</p> <p>Graded slopes and fills-- Within 21 calendar days, or completion of any phase of grading, whichever period is shorter, slopes shall be planted or otherwise provided with ground cover, devices, or structures sufficient to restrain erosion.</p> <p>USE PERMANENT SEEDING FOR STREAM BANK STABILIZATION UNLESS NOTED OTHERWISE IN STREAM CROSSING REQUIREMENTS.</p>	<p>NOTE: USE PERMANENT STREAM BANK STABILIZATION</p>																														

PERMANENT SEEDING FOR STREAM BANK STABILIZATION

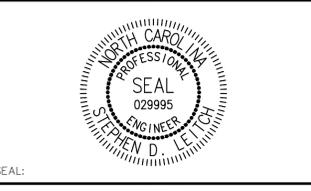
SEEDING MIXTURE	TEMPORARY SEEDING FOR SUMMER AND WINTER SEASONS	
	SUMMER SEASON	WINTER SEASON
40 lbs/acre of: 50% Pearl Millet (<i>Pennisetum glaucum</i>)	50% Browntop Millet (<i>Panicum ramosum</i>)	50 lbs/acre of: 50% Barley (<i>Hordeum sp.</i>) 50% Winter Rye
SEEDING DATES	April 1 - October 31	October 1 - April 1
SEEDING AMENDMENTS	<p>Temporary seeding will be required on all stream restoration areas disturbed following all land disturbing activities.</p> <p>All soil in planting areas shall be tested and the rate of fertilization and lining shall be in accordance with the test results.</p> <p>The planting of any species of fescue grass along or adjacent to streams and channels is prohibited unless otherwise approved by the Engineer.</p> <p>All areas shall be mulched for erosion control upon completion of construction activities or as directed by the Engineer.</p> <p>Ground cover: Whenever land disturbing activity is undertaken on a tract comprising more than one (1) acre, a ground cover sufficient to restrain erosion must be planted or provided within 15 calendar days or 90 calendar days.</p> <p>Graded slopes and fills-- Within 21 calendar days, or completion of any phase of grading, whichever period is shorter, slopes shall be planted or otherwise provided with ground cover, devices, or structures sufficient to restrain erosion.</p>	<p>Temporary seeding will be required on all stream restoration areas disturbed following all land disturbing activities.</p> <p>All soil in planting areas shall be tested and the rate of fertilization and lining shall be in accordance with the test results.</p> <p>The planting of any species of fescue grass along or adjacent to streams and channels is prohibited unless otherwise approved by the Engineer.</p> <p>All areas shall be mulched for erosion control upon completion of construction activities or as directed by the Engineer.</p> <p>Ground cover: Whenever land disturbing activity is undertaken on a tract comprising more than one (1) acre, a ground cover sufficient to restrain erosion must be planted or provided within 15 calendar days or 90 calendar days.</p> <p>Graded slopes and fills-- Within 21 calendar days, or completion of any phase of grading, whichever period is shorter, slopes shall be planted or otherwise provided with ground cover, devices, or structures sufficient to restrain erosion.</p>

TEMPORARY SEEDING AND MULCHING FOR STREAM BANK STABILIZATION

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&E	Parks, Recreation & Cultural Resources
Electric	

No.	REVISIONS	DATE	BY	SCALE:
1	PERMIT SUBMITTAL	12/18/2024	SDL	



CJS Conveyance, PLLC

320 S. ACADEMY ST
CARY, NC 27511

NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

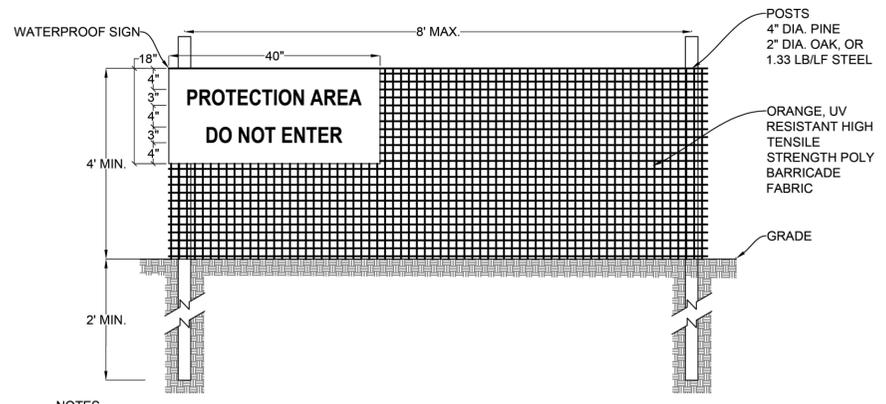
WATER RESOURCES DEPARTMENT

TOWN OF APEX

BIG BRANCH 2 PUMP STATION - FORCE MAIN

EROSION CONTROL NOTES

CJS PROJ. #:	12-18-2024
DATE:	12-18-2024
SCALE:	NTS
PROJECT ENGINEER:	SDL

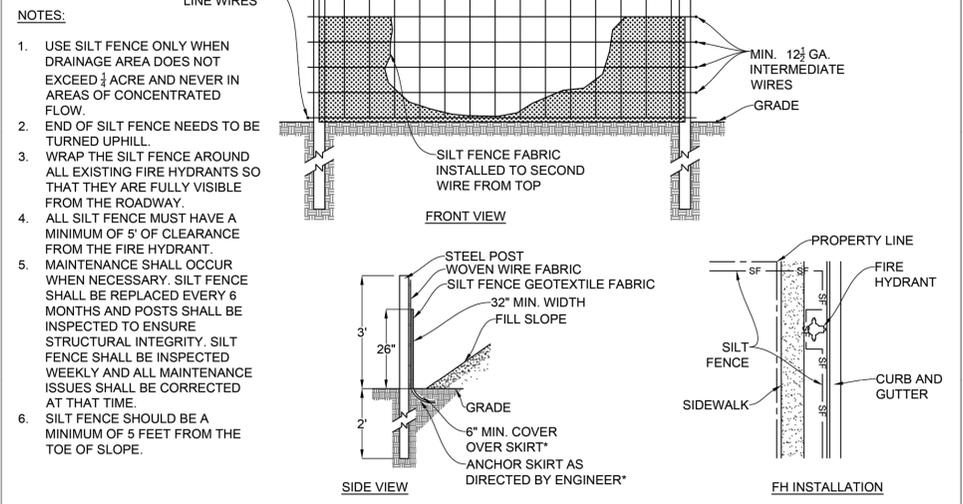


- NOTES:**
1. WARNING SIGNS TO BE MADE OF DURABLE WATERPROOF MATERIAL.
 2. ALL LETTERS TO BE AT LEAST 3-INCHES HIGH, CLEARLY LEGIBLE AND SPACED AS INDICATED ABOVE.
 3. SIGNS TO BE PLACED 200-FEET ON CENTER, MAX.
 4. SIGNS TO BE PLACED AT EACH END OF LINEAR TREE PROTECTION AREA AND 200-FEET ON CENTER THEREAFTER.
 5. FOR TREE PROTECTION AREAS LESS THAN 200-FEET IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA AND/OR SIDE.
 6. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
 7. FABRIC MUST BE ATTACHED TO APPROVED POSTS ONLY. DO NOT ATTACH TO TREES.
 8. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT - FENCING MUST REMAIN UPRIGHT AND SLACK FREE.
 9. ADDITIONAL SIGNS AND/OR PROTECTION MEASURES MAY BE REQUIRED BY THE PLANNING DEPARTMENT BASED UPON ACTUAL FIELD CONDITIONS.
 10. FAILING TO MAINTAIN TREE PROTECTION MEASURES MAY RESULT IN FINES AND/OR PERMIT REVOCATION.

TOWN OF APEX STANDARDS	TREE PROTECTION FENCE	STD. NO. 200.06
EFFECTIVE: FEBRUARY 28, 2023		SHEET 1 OF 1

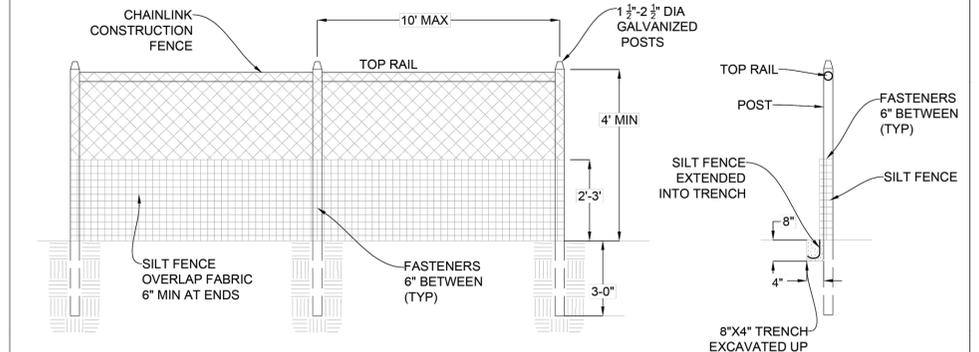
MAINTENANCE: CLEAN OUT AT 50% CAPACITY
LIFE OF FENCING: 6-9 MONTHS
SEE NC DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATION & DESIGN CRITERIA

* USE #57 WASHED STONE FOR REPAIR OF SILT FENCE FAILURES, AND FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.



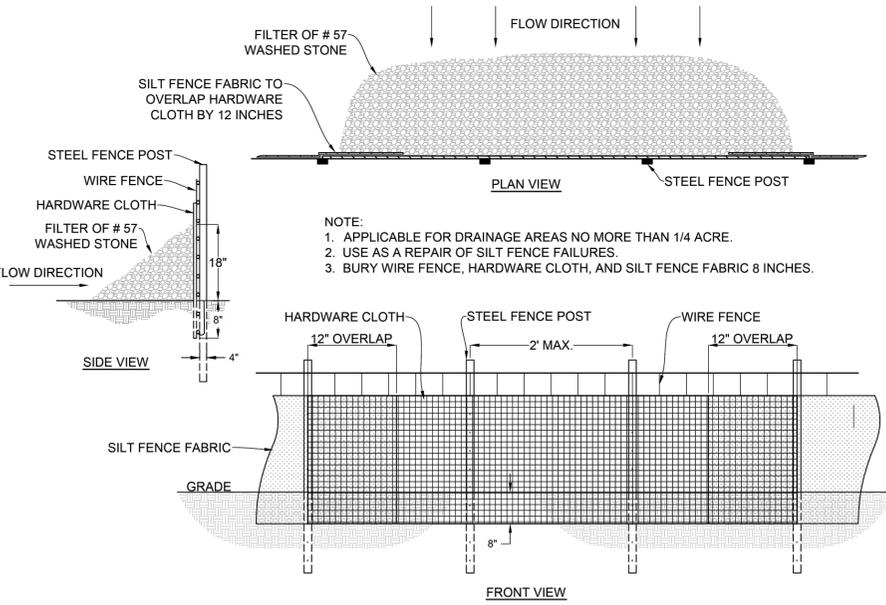
TOWN OF APEX STANDARDS	TEMPORARY SILT FENCE	STD. NO. 400.01
EFFECTIVE: MAY 5, 2020		SHEET 1 OF 2

* ALTERNATIVE SILT FENCE TO BE USED AT LOCATIONS WHERE STANDARD IS INADEQUATE, AS DIRECTED BY THE ENGINEER

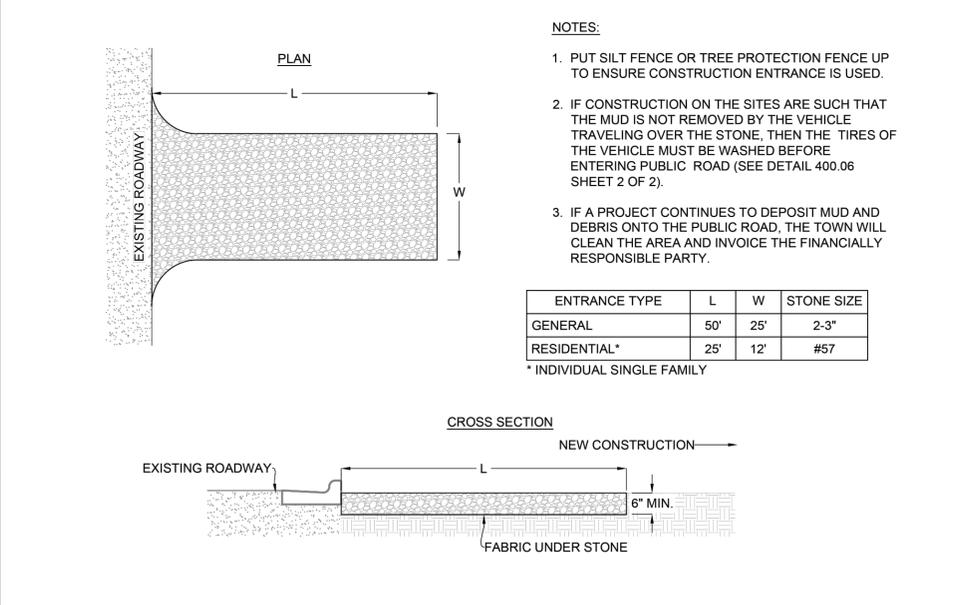


MAINTENANCE: CLEAN OUT AT 50% CAPACITY
LIFE OF FENCING: 6-9 MONTHS
SEE NC DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATION & DESIGN CRITERIA

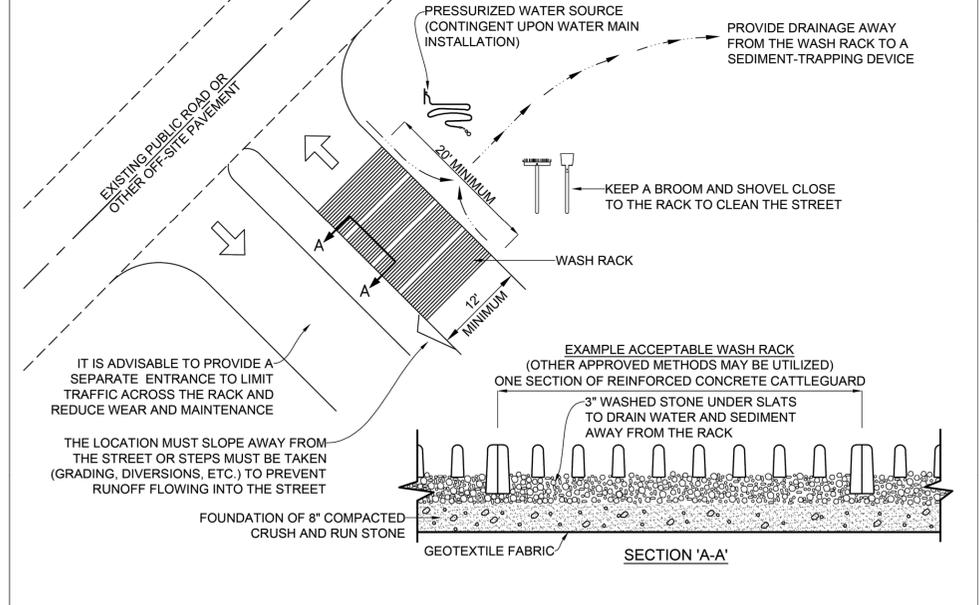
TOWN OF APEX STANDARDS	TEMPORARY SILT FENCE	STD. NO. 400.01
EFFECTIVE: MAY 5, 2020		SHEET 2 OF 2



TOWN OF APEX STANDARDS	TEMPORARY SILT FENCE OUTLET	STD. NO. 400.02
EFFECTIVE: DECEMBER 21, 2010		SHEET 1 OF 1



TOWN OF APEX STANDARDS	CONSTRUCTION ENTRANCE	STD. NO. 400.06
EFFECTIVE: JANUARY 20, 2015		SHEET 1 OF 2



TOWN OF APEX STANDARDS	CONSTRUCTION ENTRANCE	STD. NO. 400.06
EFFECTIVE: JANUARY 20, 2015		SHEET 2 OF 2

- SILT FENCE OUTLET MAINTENANCE NOTES:**
1. INSPECT OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE WATTLE HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

- CONSTRUCTION ENTRANCE MAINTENANCE NOTES:**
1. ADD ADDITIONAL STONE AND "FLUFF" TOP DRESSING WITH 2" STONE.
 2. SEE NC DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATION & DESIGN CRITERIA

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources-Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Plotted By: J. Speers, Layout: 50 EROSION CONTROL DETAILS December 18, 2024 02:25:06pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 P&S\60 - Drawings\Plan Sheets\C-SIT-BIG BRANCH APEX EC DETAILS.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



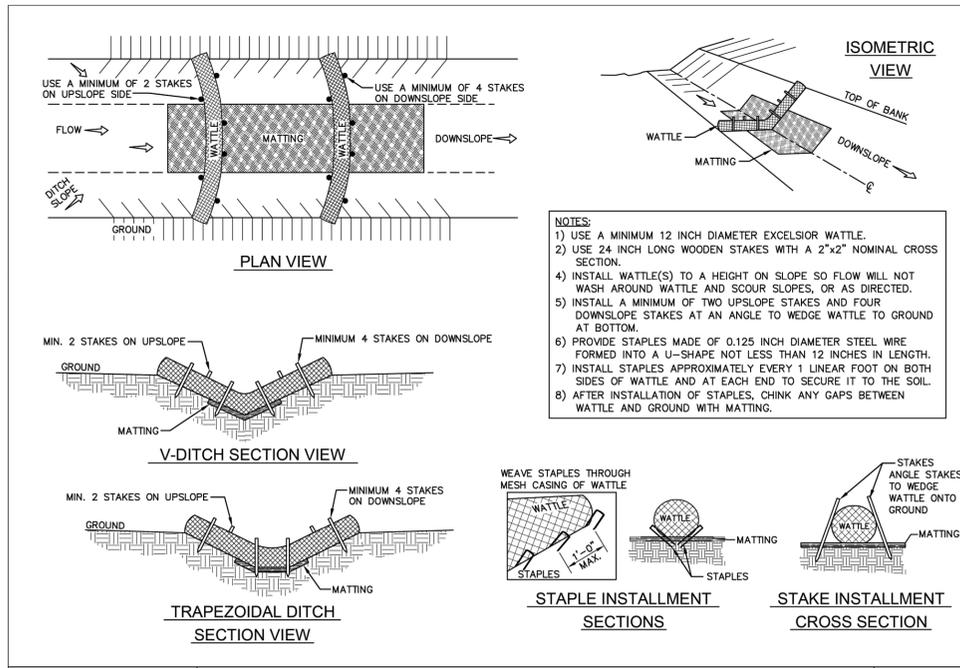
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION - FORCE MAIN

EROSION CONTROL DETAILS

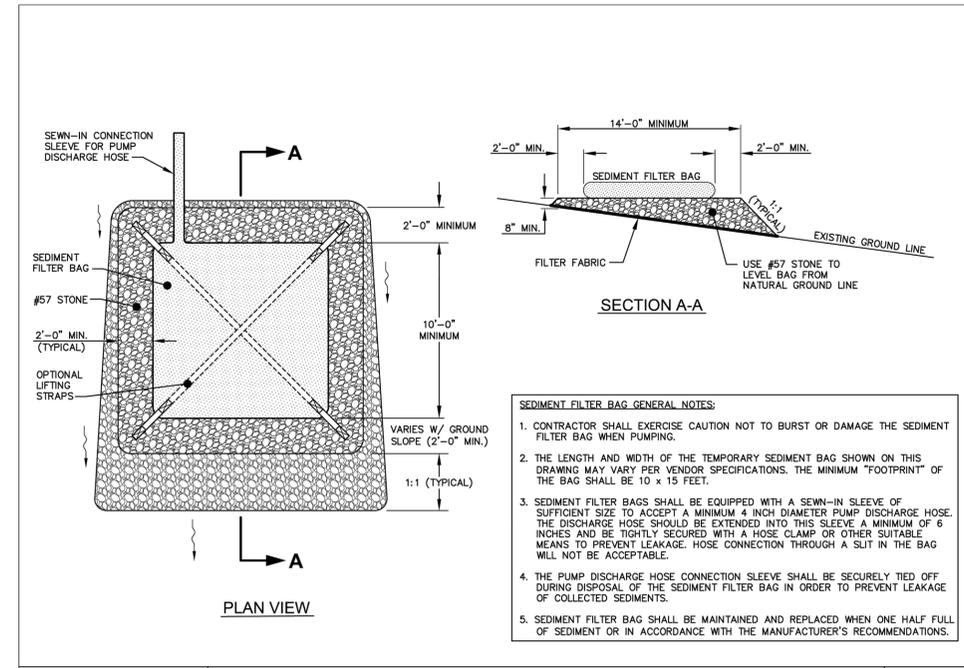
CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	NTS
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC11

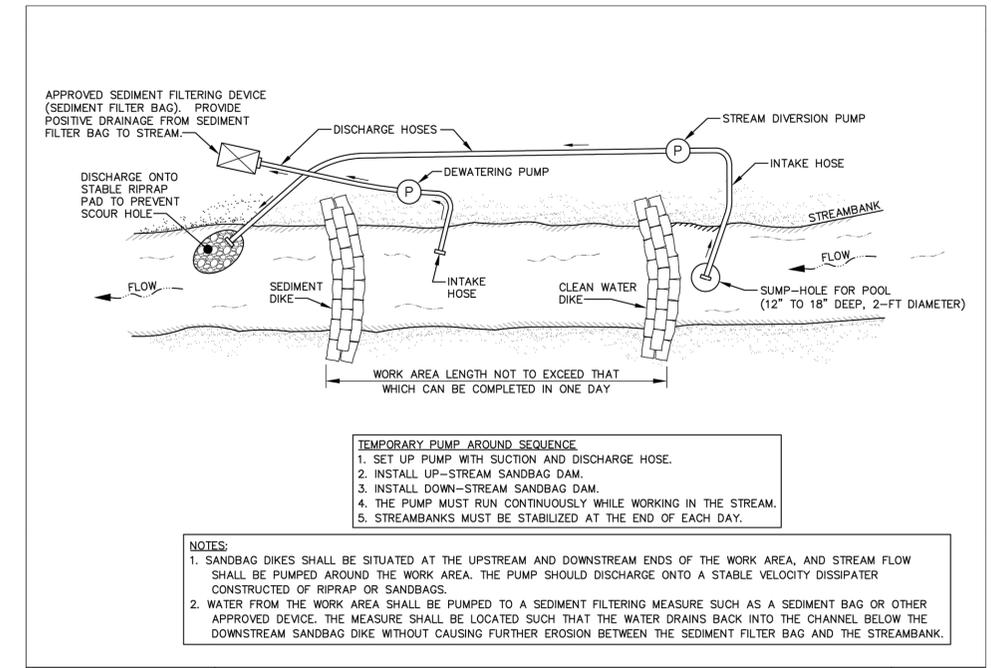
SHEET NUMBER
51 OF 56



TOWN OF APEX STANDARDS	STD. NO.
EFFECTIVE: MAY 5, 2020	400.21
	SHEET 1 OF 1



TOWN OF APEX STANDARDS	STD. NO.
EFFECTIVE: MAY 5, 2020	400.22
	SHEET 1 OF 1



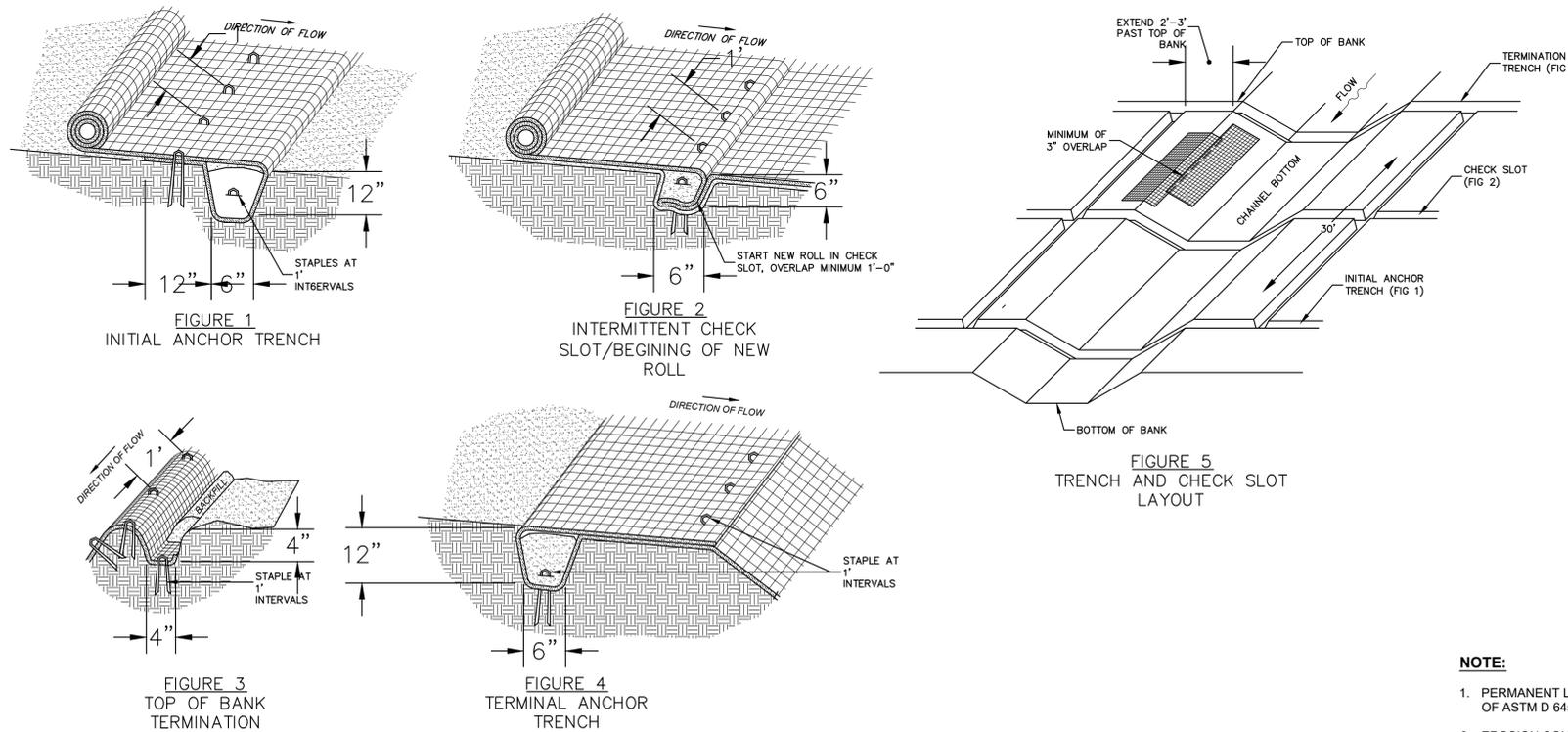
TOWN OF APEX STANDARDS	STD. NO.
EFFECTIVE: MAY 5, 2020	400.23
	SHEET 1 OF 1

WATTLE MAINTENANCE NOTES:

1. INSPECT WATTLE BARRIERS WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS.
2. THE WATTLE BARRIER MUST BE REPLACED IF CLOGGED OR TORN. IF PONDING BECOMES EXCESSIVE, THE WATTLE BARRIER MAY NEED TO BE REPLACED WITH A LARGER DIAMETER OR A DIFFERENT MEASURE. THE WATTLE BARRIER NEEDS TO BE REINSTALLED IF UNDERMINED OR DISLODGED.
3. THE WATTLE BARRIER SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.

FILTER BAG WITH GRAVEL PAD NOTES:

1. INSPECT WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS. REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.
2. THE FILTER BAG MUST BE REPLACED IF CLOGGED OR TORN. IF PONDING BECOMES EXCESSIVE, THE WATTLE BARRIER MAY NEED TO BE REPLACED WITH A LARGER DIAMETER OR A DIFFERENT MEASURE. THE WATTLE BARRIER NEEDS TO BE REINSTALLED IF UNDERMINED OR DISLODGED.
3. THE FILTER BAG SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.
4. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. PAD TOPDRESSING WITH 2-INCH STONE PERIODICALLY.



EROSION CONTROL BLANKET RECOMMENDED INSTALLATION
NOT TO SCALE

PERMANENT LINER INSTALLATION NOTES:

- SITE PREPARATION**
GRADE AND COMPACT AREA.
REMOVE ALL ROCKS, CLODS, VEGETATION, AND OBSTRUCTIONS SO THAT MATTING WILL HAVE DIRECT CONTACT WITH THE SOIL.
PREPARE SEEDBED BY LOOSENING 3 TO 4 INCHES OF TOPSOIL ABOVE FINAL GRADE.
APPLY ANY TREATMENT SUCH AS LIME OR FERTILIZERS TO THE SOIL IF NEEDED.
DO NOT MULCH AREAS WHERE MAT IS TO BE INSTALLED.
- SEEDING**
SEE SEEDING SCHEDULE FOR SEEDING REQUIREMENTS.
APPLY SEED TO SOIL BEFORE PLACING MATTING.
- WHEN USING PERMANENT LINER, APPLY ADDITIONAL SEED AFTER INSTALLATION AND FILL MAT WITH SOIL.
- INSTALLATION ON BANKS**
EXTEND MAT 2 TO 3 FEET OVER CREST OF SLOPE AND EXCAVATE A 12" x 6" TERMINAL ANCHOR TRENCH. SEE FIGURE 4.
ANCHOR MAT IN TRENCH ON 1 FOOT SPACINGS, BACKFILL AND COMPACT SOIL.
OVERLAP ADJACENT MATS 3" AND ANCHOR EVERY 18" ACROSS THE OVERLAP. THE HIGHER ELEVATION MAT SHOULD BE PLACED OVER THE LOWER ELEVATION MAT.
EDGES SHOULD BE SHINGLED AWAY FROM THE FLOW OF WATER.
DO NOT STRETCH TIGHT.
LAY MAT LOOSE TO ALLOW CONTACT WITH SOIL.
- ANCHOR MAT USING U-SHAPED WIRE STAPLES OR GEOTEXTILE PINS.**

INSTALLATION IN STORM WATER CHANNELS

- EXCAVATE INITIAL ANCHOR TRENCH 12"x6" ACROSS THE CHANNEL AT THE LOWER END OF THE PROJECT. SEE FIGURE 1.
PLACE 6" x 6" CHECK SLOTS AT 30' INTERVALS ALONG THE CHANNEL. SEE FIGURE 2.
CUT 4" x 4" TRENCH ALONG TOP OF BANK FOR MAT TERMINATION. EXTEND MAT 2 TO 3 FEET ABOVE CREST IF POSSIBLE. SEE FIGURE 3.
BEGINNING AT THE CENTER OF CHANNEL AT THE DOWNSTREAM END OF THE AREA TO BE LINED, PLACE THE END OF THE ROLL IN ANCHOR TRENCH AND SECURE WITH U-SHAPED WIRE STAPLES OR GEOTEXTILE PINS. SEE FIGURE 1.
PLACE ADJACENT ROLLS IN THE ANCHOR TRENCH WITH A MINIMUM OF 3" OVERLAP. SECURE WITH STAPLES OR GEOTEXTILE PINS, BACKFILL ANCHOR TRENCH, AND COMPACT SOIL.
UNROLL MAT OVER COMPACTED ANCHOR TRENCH, STOP AT NEXT CHECK SLOT OR TERMINAL ANCHOR.
UNROLL ADJACENT ROLLS IN SAME MANNER, WITH A MINIMUM OF 3" OF OVERLAP.
STAPLE AT 18" INTERVALS OVERLAP.
FOLD AND SECURE MAT ROLLS TIGHTLY INTO CHECK SLOTS. LAY MAT IN CHECK SLOT, FOLD BACK AGAINST ITSELF. ANCHOR THROUGH BOTH LAYERS, BACKFILL AND COMPACT SOIL. CONTINUE ROLLING MAP UPSTREAM. SEE FIGURE 2.
BEGIN NEW ROLLS IN CHECK SLOT, AND OVERLAP ENDS MINIMUM OF 1'.
SEE FIGURE 4 FOR TERMINATION AT UPSTREAM END.
SEE FIGURE 5 FOR TRENCH AND CHECK SLOT LAYOUT.

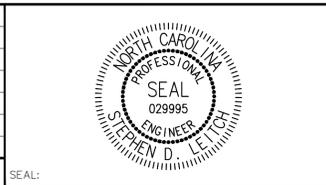
NOTE:

1. PERMANENT LINER MUST MEET OR EXCEED THE REQUIREMENTS OF ASTM D 6459 AND D 6460.
2. EROSION CONTROL BLANKET SHALL BE CURLEX, NAG S150, LANDLOCK CS2 OR APPROVED EQUIVALENT.

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Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	

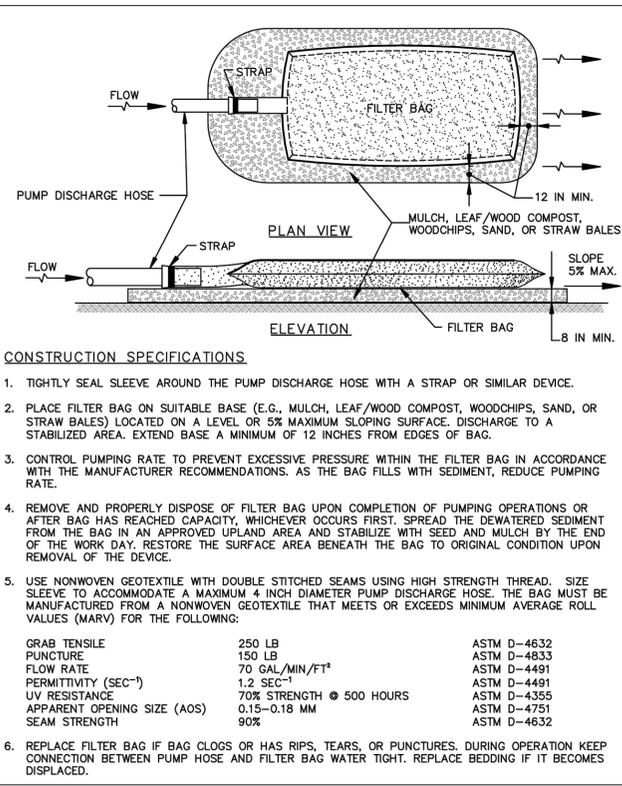


WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION - FORCE MAIN

EROSION CONTROL DETAILS

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	NTS
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

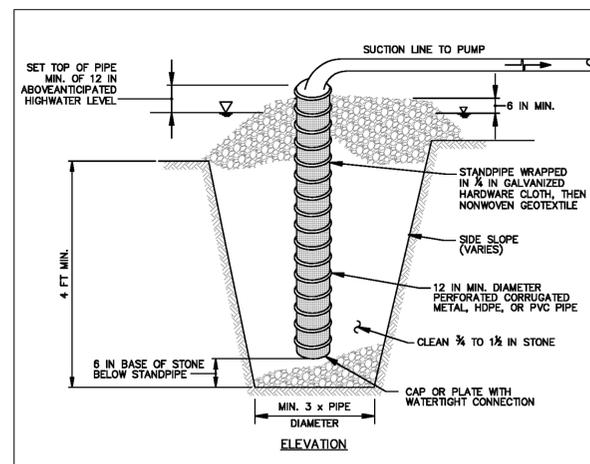
EC12
SHEET NUMBER
52 OF 56



CONSTRUCTION SPECIFICATIONS

- TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
- PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
- CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
- REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
- USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4633
FLOW RATE	70 GAL./MIN./FT ²	ASTM D-4491
PERMITTIVITY (SEC ⁻¹)	1.2 SEC ⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632
- REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.



CONSTRUCTION SPECIFICATIONS

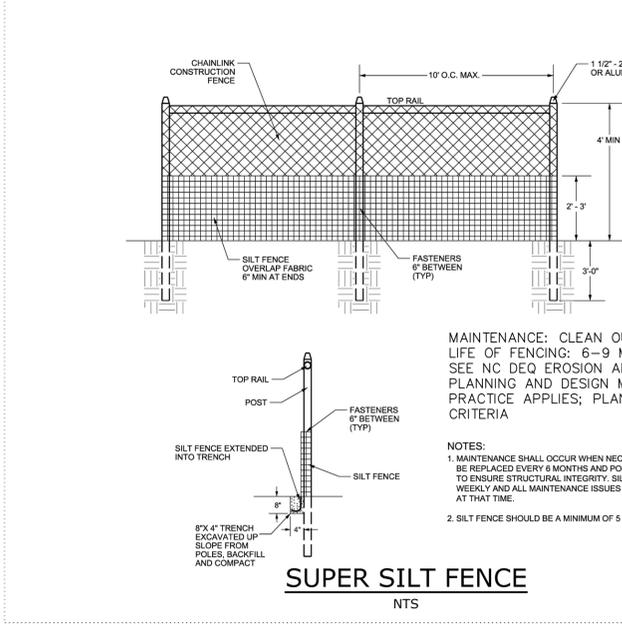
- USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
- WRAP PIPE WITH 1/4 INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
- EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
- SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
- BACKFILL PIT AROUND THE PIPE WITH 3/4 TO 1 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
- DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
- A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

SUMP PIT
NTS

FILTER BAG
NTS

FILTER BAG MAINTENANCE NOTES:

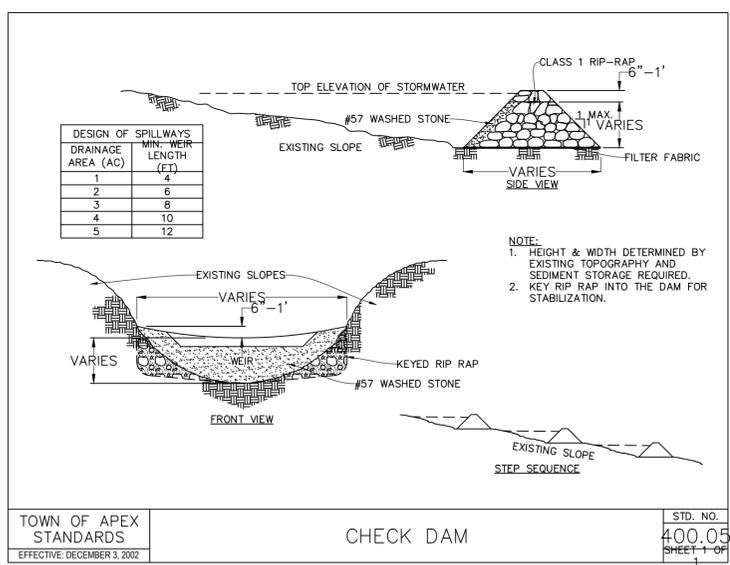
- INSPECT INLET PIPE AND BAG FOR DAMAGE AND BLOCKAGE.
- REPLACE BAG WHEN 3/4 FULL OF SEDIMENT



MAINTENANCE: CLEAN OUT AT 50% CAPACITY
LIFE OF FENCING: 6-9 MONTHS
SEE NC DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATION & DESIGN CRITERIA

NOTES:

- MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT FENCE SHALL BE REPLACED EVERY 6 MONTHS AND POSTS SHALL BE INSPECTED TO ENSURE STRUCTURAL INTEGRITY. SILT FENCE SHALL BE INSPECTED WEEKLY AND ALL MAINTENANCE ISSUES SHALL BE CORRECTED AT THAT TIME.
- SILT FENCE SHOULD BE A MINIMUM OF 5 FEET FROM THE TOE OF SLOPE.

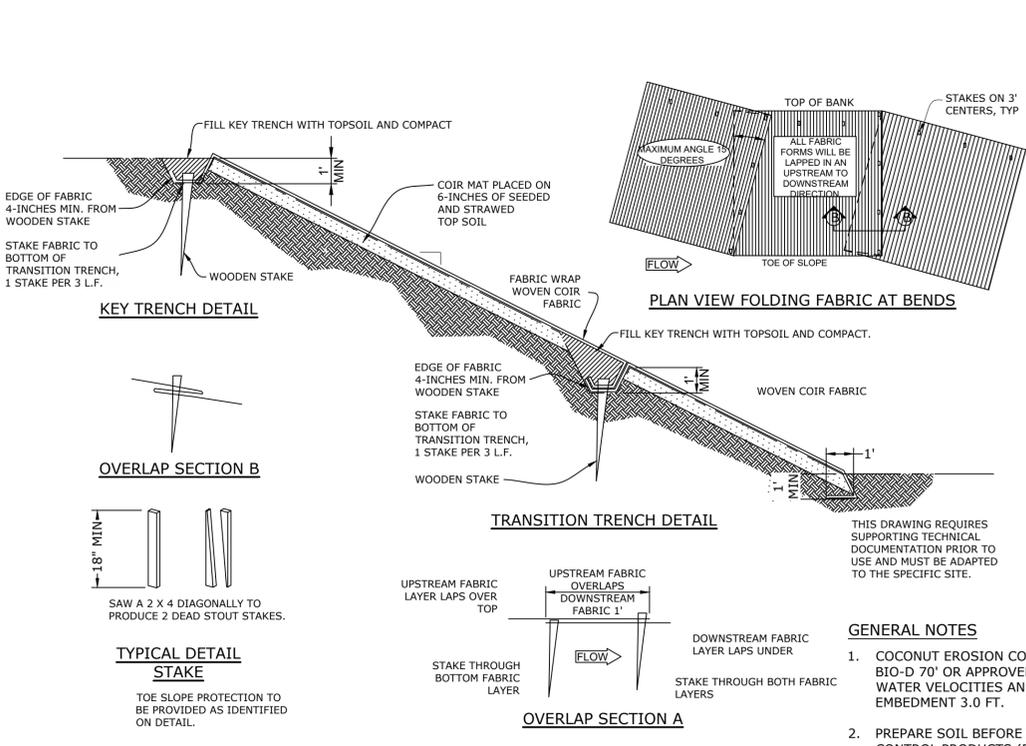


CHECK DAM MAINTENANCE NOTES:

- INSPECT CHECK DAMS WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS.
- THE CHECK DAM SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.

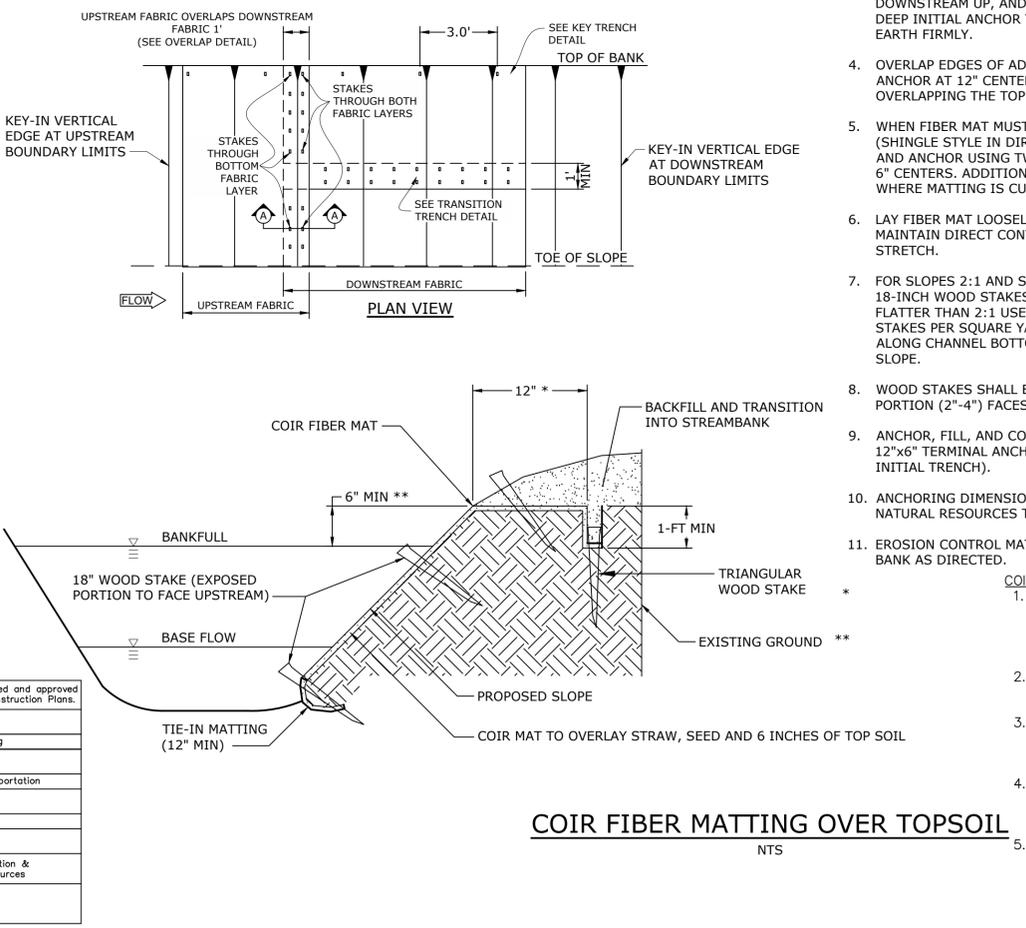
The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&E	Parks, Recreation & Cultural Resources
Electric	



GENERAL NOTES

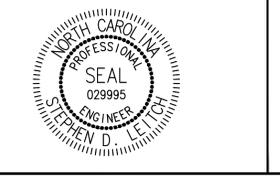
- COCONUT EROSION CONTROL BLANKET SHALL BE 'ROLANKA BIO-D 70' OR APPROVED EQUAL, ABLE TO WITHSTAND 12 FPS WATER VELOCITIES AND 4.5 PSF SHEAR STRESS. FABRIC EMBLEMENT 3.0 FT.
- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
- BEGIN AT THE BOTTOM OF THE SLOPE, WORKING FROM DOWNSTREAM UP, AND ANCHOR FIBER MATTING IN A 12" DEEP INITIAL ANCHOR TRENCH. BACKFILL TRENCH AND TAMP EARTH FIRMLY.
- OVERLAP EDGES OF ADJACENT PARALLEL ROLLS 12" AND ANCHOR AT 12" CENTERS WITH THE UPPER ROLL OVERLAPPING THE TOP OF THE LOWER ROLL.
- WHEN FIBER MAT MUST BE SPICED, PLACE END OVER END (SHINGLE STYLE IN DIRECTION OF FLOW) WITH 12" OVERLAP AND ANCHOR USING TWO STAGGERED ROWS OF STAKES AT 6" CENTERS. ADDITIONAL FASTENING MAY BE REQUIRED WHERE MATTING IS CUT TO INSTALL PLANTINGS.
- LAY FIBER MAT LOOSELY AND ANCHOR SUFFICIENTLY TO MAINTAIN DIRECT CONTACT WITH THE SOIL - DO NOT STRETCH.
- FOR SLOPES 2:1 AND STEEPER USE A MINIMUM OF (3) 18-INCH WOOD STAKES PER SQUARE YARD AND FOR SLOPES FLATTER THAN 2:1 USE A MINIMUM OF (2) 18-INCH WOOD STAKES PER SQUARE YARD. PROVIDE ADDITIONAL STAKING ALONG CHANNEL BOTTOM WHERE COIR MAT FORMS TOE OF SLOPE.
- WOOD STAKES SHALL BE ANGLED SUCH THAT EXPOSED PORTION (2"-4") FACES UPSTREAM.
- ANCHOR, FILL, AND COMPACT END OF FIBER MATTING IN 12"x6" TERMINAL ANCHOR TRENCH (MIRROR IMAGE OF INITIAL TRENCH).
- ANCHORING DIMENSIONS TO BE REDUCED IN AREAS OF NATURAL RESOURCES TO BE PROTECTED.
- EROSION CONTROL MATTING MAY BE EXTENDED UP STREAM BANK AS DIRECTED.



COIR FIBER MATTING MAINTENANCE NOTES:

- INSPECT ROLLED EROSION CONTROL PRODUCTS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT, REPAIR IMMEDIATELY.
- GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, EROSION MUST NOT OCCUR BENEATH RECP.
- ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
- IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
- MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL THE GROUND COVER IS ESTABLISHED.

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



CJS
Conveyance, PLLC

320 S. ACADEMY ST
CARY, NC 27511

NC LICENSE #P-1611 WWW.CJS.CONVEYANCE.COM

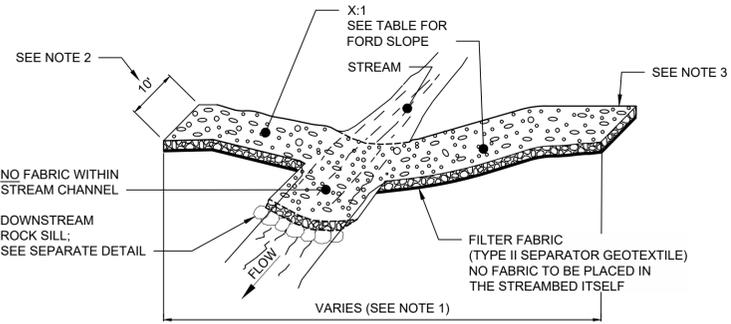
WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN

EROSION CONTROL DETAILS

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 20'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC13

SHEET NUMBER
53 OF 56



NOTES:

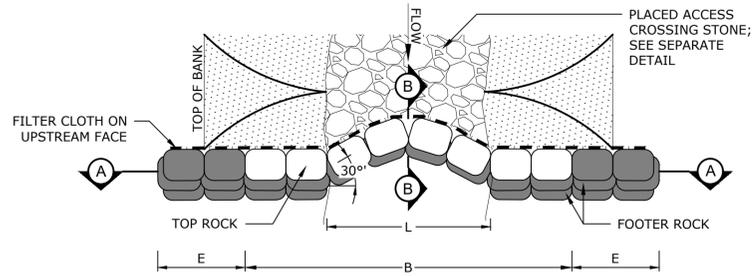
- LENGTHS OF CROSSINGS WILL GENERALLY FOLLOW THE LENGTHS PRESCRIBED IN THE TABLE AND MAY BE VARIED IN THE FIELD TO NOT EXCEED MAXIMUM ALLOWABLE SLOPE.
- STREAM CROSSING SHALL BE NO GREATER THAN 10 FEET WIDE BUT NO LESS THAN 8 FEET.
- WHEN STREAM CROSSINGS ARE INSTALLED FOR THE CONSTRUCTION OF THE PIPELINE, TEMPORARY CONSTRUCTION ENTRANCES SHALL BE REQUIRED AT BOTH ENDS OF THE CROSSING. SEE SEPARATE DETAIL TEMPORARY CONSTRUCTION ENTRANCE DETAIL.
- PERMANENT STREAM CROSSINGS TO REMAIN IN PLACE FROM TOP OF BANK TO TOP OF BANK UNLESS OTHERWISE NOTED ON THE DRAWINGS. PERMANENT WETLANDS CROSSING TO REMAIN IN PLACE THROUGH THE WETLANDS FROM BOUNDARY TO BOUNDARY UNLESS OTHERWISE NOTED ON THE DRAWINGS. MAXIMUM WIDTH SHALL BE 10 FT BUT NO LESS THAN 8 FEET.
- FOR MIX MATERIAL TO BE PLACED AND THICKNESS SEE STONE MIXES TABLE.
- ALL STONE MIXES ARE TO BE CHINKED WITH #2 STONE.

MAINTENANCE REQUIREMENTS:

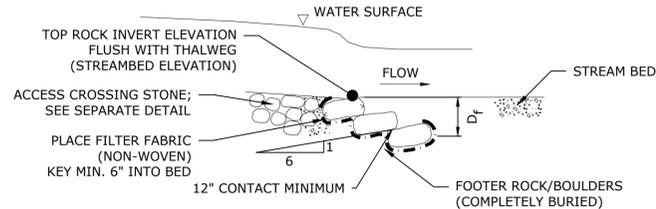
- INSPECT WEEKLY AND AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCH OR MORE OF RAIN.
- CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIRRAP DISPLACEMENT, SLOPE FAILURE, AND PIPING.
- MAKE ALL NEEDED REPAIRS IMMEDIATELY.

PERMANENT STREAM/WETLAND CROSSING

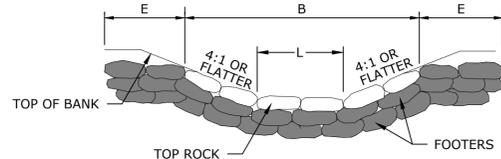
NTS



PLAN VIEW



SECTION B-B



SECTION A-A

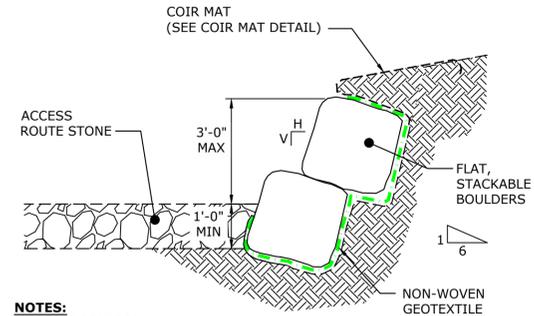
NOTES:

- SILL SHALL BE CONSTRUCTED BY EXCAVATING A TRENCH SLIGHTLY LARGER THAN THE SILL DIMENSIONS.
- SILL SHALL BE PLACED ON FILTER CLOTH WHICH SHALL ALSO COMPLETELY COVER THE UPSTREAM FACE OF THE SILL.
- TOP ROCKS SHALL BE SUPPORTED BY FOOTER ROCKS; ROCKS SHALL BEAR ON EACH OTHER (TOUCH) A MINIMUM OF 12 INCHES. ALL ROCKS TO BE SHINGLED UPSTREAM AND INTO STREAM BANK.
- ROCKS ARE TO BE PLACED AT 6:1 WITH RESPECT TO HORIZONTAL.
- ALL ROCKS SHALL BE INTERLOCKED MINIMIZING OR ELIMINATING GAPS WITH NO VOID/GAPS LARGER THAN 3 INCHES.
- SILL ROCK BOULDERS SHALL BE FLUSH WITH FINISHED GRADE AND CUTOFF ROCKS SHALL EXTEND "E" FEET INTO BANKS.

ROCK SILL (RS) DETAIL

NTS

SILL STRUCTURE SCHEDULE						
LOCATION	B	L	E	Df	MIN BOULDER DIMENSION	NOTES
13+34	18	10	4	6	24	BOULDERS FLAT AND STACKABLE
32+44	20	12	4	6	24	
51+40	24	16	4	6	24	
54+74	14	6	4	6	24	
72+22	22	14	6	6	24	
96+52	18	10	4	6	24	
126+61	24	16	6	6	24	
147+14	16	8	4	6	24	
196+36	18	10	4	6	24	
202+19	10	2	4	6	24	
236+76	10	2	4	6	24	
249+03	12	4	4	6	24	



- NOTES:**
MINIMUM BOULDER DIMENSION = 2' X 2' X 3'

ACCESS ROUTE GRADE BREAK

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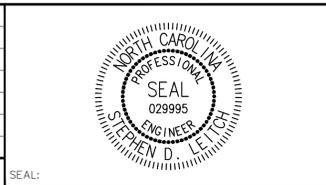
ACCESS ROUTE GRADE BREAK (GB) SCHEDULE												
STRUCTURE #	SITE LOCATION	UPSTREAM STATION	UPSTREAM OFFSET AT FOOTER TOE*	TOP ELEV (UPSTREAM)	BOTTOM ELEV (UPSTREAM)	DOWNSTREAM STATION	DOWNSTREAM OFFSET AT FOOTER TOE*	TOP ELEV (DOWNSTREAM)	BOTTOM ELEV (DOWNSTREAM)	LENGTH*	WALL SLOPE	FOOTER DEPTH D _f
IRW-1	SITE 1 LEFT BANK	STA 1+00	FT 10	MSL 500.0	MSL 490.0	STA 2+00	FT 10	MSL 498.0	MSL 488.0	100.0	H:V 0.5:1	4.0

* OFFSET, BOTTOM ELEVATION, AND LENGTH MEASURED AT TOE OF FOOTER STONE (SEE TYPICAL SECTION)
SEE ROCK SIZING CHART FOR STONE SIZE

STREAM CROSSING SCHEDULE					
STATION	LENGTH	ACCESS FORD SLOPE	MIX	THICKNESS	PLAN SHEET/NOTES
13+34	60	10 TO 1	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-1 Big Branch (east)
32+44	30	PEREX GRADE	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-2
51+40	110	5 TO 1 (EAST); 10 TO 1 (WEST)	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-4
54+74	125	5 TO 1, THEN 10 TO 1 (EAST); 10 TO 1 (WEST)	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-4 White Oak Creek
63+74	30	PEREX GRADE	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-5
72+22	50	5 TO 1	NCDOT Class B	12" to 18"	C-6
89+96	30	PEREX GRADE	NCDOT Class A	12"	C-7
91+10	30	PEREX GRADE	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-8
96+52	30	PEREX GRADE	NCDOT Class B	12" to 18"	C-8
126+61	30	PEREX GRADE	NCDOT Class B	12" to 18"	C-11
147+14	70	5 TO 1 (EAST); PER GRADING PLAN (WEST)	NCDOT Class A	12"	C-12
167+98	40	PEREX GRADE	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-14
196+36	50	5 TO 1	NCDOT Class A	12"	C-17
198+71	55	5 TO 1	NCDOT Class A	12"	C-17
202+19	30	PEREX GRADE	NCDOT Class A	12"	C-17
236+76	60	5 TO 1 (SOUTH); 6 TO 1 (NORTH)	NCDOT Class A	12"	C-20
249+03	30	PEREX GRADE	50/50 Blend of NCDOT Class A and NCDOT Class B	12" to 18"	C-22

Plotted By: J. Speers Layout: E5 MAINTENANCE CROSSING DETAILS December 18, 2024 02:25:33pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PS BD - Drawings\Plan Sheets\C-SHT-BIG BRANCH_APEX_EC_DETAILS.dwg

No.	REVISIONS	DATE	BY	SEAL
1	PERMIT SUBMITTAL	12/18/2024	SDL	



**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

MAINTENANCE CROSSING DETAILS

CJS PROJ. #:	100-005
DATE:	12-18-2024
SCALE:	1" = 20'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC14

SHEET NUMBER
54 OF 56

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

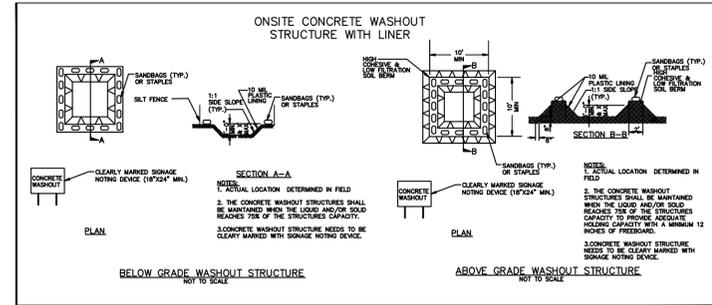
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

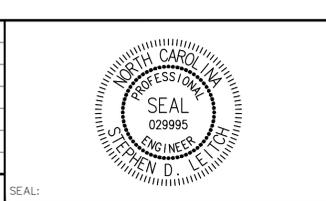
Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

Plotted By: J. Speers Layout: 55 EROSION CONTROL GROUND STABILIZATION December 18, 2024 02:25:35pm S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2 PWS\80 - Drawings\Plan Sheets\C-SHIT-BIG BRANCH APEX EC DETAILS.dwg

1	PERMIT SUBMITTAL	12/18/2024	SDL
No.	REVISIONS	DATE	BY



**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**EROSION CONTROL
GROUND STABILIZATION**

CJS PROJ. #:	12-18-2024
DATE:	12-18-2024
SCALE:	1" = 40'
PROJECT ENGINEER:	SDL
DESIGNED BY:	JJS
DRAWN BY:	JJS
CHECKED BY:	SDL

EC15
SHEET NUMBER
55 OF 56

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
- (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION C: REPORTING

1. Occurrences that Must be Reported

- Permittees shall report the following occurrences:
- (a) Visible sediment deposition in a stream or wetland.
 - (b) Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
 - (c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
 - (d) Anticipated bypasses and unanticipated bypasses.
 - (e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6)]. • Division staff may waive the requirement for a written report on a case-by-case basis.

**PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT**

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
- (b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
- (c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- (d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
- (e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- (f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning-Transportation
Water Resources-Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



**WATER RESOURCES DEPARTMENT
TOWN OF APEX
BIG BRANCH 2 PUMP STATION -
FORCE MAIN**

**EROSION CONTROL
SELF INSPECTION**

CJS PROJ. #:
DATE: 12-18-2024
SCALE: NTS
PROJECT ENGINEER: SDL
DESIGNED BY: JJS
DRAWN BY: JJS
CHECKED BY: SDL

EC16
SHEET NUMBER
56 OF 56

Plotted By: J. Speers, Layout: 55 EROSION CONTROL SELF INSPECTION, December 18, 2024, 02:25:43pm, S:\100 Hazen and Sawyer\100-005 Apex Big Branch 2_PSI\80 - Drawings\Plan Sheets\C-SHT-BIG BRANCH APEX EC DETAILS.dwg

No.	REVISIONS	DATE	BY	SEAL:
1	PERMIT SUBMITTAL	12/18/2024	SDL	