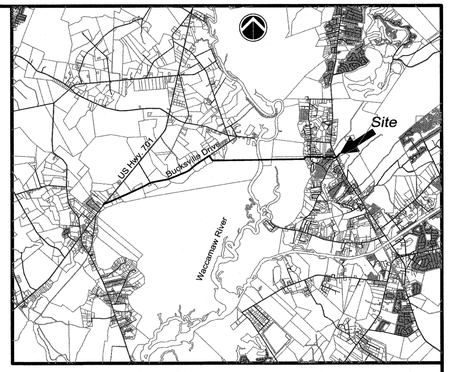
CONSTRUCTION PHASING		
PHASE	START DATE	COMPLETION DATE
1	SEPTEMBER 2019	SEPTEMBER 2020

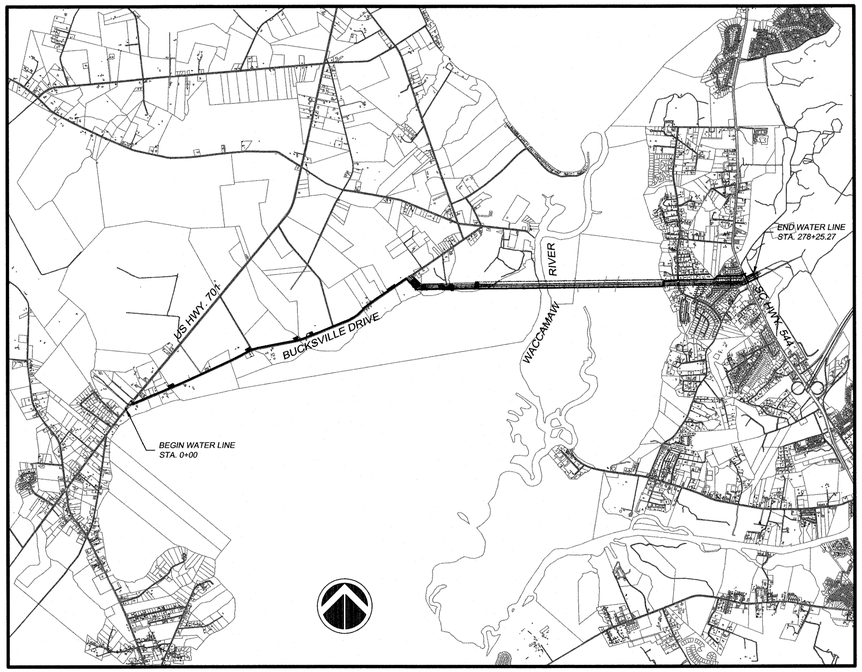
Construction Plans

for

US HWY. 701 TO SC HWY. 544
48" WATER TRANSMISSION LINE
IMPROVEMENT PROJECT



VICINITY MAP
N.T.S.



SITE LAYOUT
SCALE: 1" = 3000'

REVISION OCCURRENCE LIST			
8	8/30/19	REVISED PER GSW&SA COMMENTS	KJG
7	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
6	5/17/19	REVISED PER IN HOUSE REVIEW	KJG
5	4/3/19	REVISED PER IN HOUSE COMMENTS.	PES
4	3/6/19	REVISED PER GSWSA COMMENTS.	KJG
3	9-19-18	ADDED KEY PLAN	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW.	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS.	PES
REVISION NO.	DATE	REVISION DESCRIPTION	BY

Owner:

GRAND STRAND WATER AND
SEWER AUTHORITY
P.O. BOX 2368
CONWAY, SC 29528

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SOUTH CAROLINA
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www.sc811.org
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SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 29814
8/30/19
ERIC K. SANFORD

SOUTH CAROLINA
DDC
ENGINEERS, INC.
No. C00036
CERTIFICATE OF AUTHORIZATION

DDC
ENGINEERS
Consulting Engineers, Surveyors, Planners,
Landscape Architects & Environmentalists
1298 Professional Dr., Myrtle Beach, SC 29577
Phone: (843) 692-3200 Fax: (843) 692-3210

DDC P/N:10.17010E

GSWSA 48" WATER LINE FROM US HWY. 701 TO SC HWY. 544

J:\plans\17\17010E - 48 INCH WATERLINE\17010-COV.dwg, COVER, 8/30/2019 2:10:54 PM, Arch D (landscape), 1:1

GENERAL NOTES:

1. ALL UTILITIES SHOWN ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING 24-HOUR NOTICE TO ALL RESPECTIVE UTILITY COMPANIES FOR FIELD VERIFICATION OF EXISTING UTILITIES. ANY DAMAGES TO EXISTING UTILITIES DUE TO THIS CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. WATER AND SEWER LINES SHALL BE INSTALLED WITH A MINIMUM OF 10 FEET HORIZONTAL SEPARATION. WHEN WATER AND SEWER LINES CROSS, THE SEWER LINE SHALL BE PLACED UNDER THE WATER MAIN WITH A MINIMUM OF 18" VERTICAL SEPARATION. SEWER MAINS IN RELATION TO WATER MAINS MUST CONFORM TO SOUTH CAROLINA STATE PRIMARY DRINKING WATER REGULATIONS (R. 61-58).
3. PROVISIONS SHALL BE MADE TO ENSURE POSITIVE DRAINAGE ON THE SITE AT ALL TIMES. NATURAL DRAINAGE FEATURES DISTURBED BY CONSTRUCTION MUST BE RE-ESTABLISHED. NO PONDING DUE TO SPOILS STOCKPILING OR OTHER ACTIVITIES SHALL BE PERMITTED.
4. WORK WITHIN PUBLIC RIGHT-OF-WAYS OR PRIVATE EASEMENTS SHALL BE ACCOMPLISHED BY THE CONTRACTOR ACCORDING TO THE REQUIREMENTS OR CONDITIONS OF THE ENCROACHMENT PERMIT OR OTHER LEGAL DOCUMENTS AS THOUGH DOCUMENTS WERE ISSUED IN THE CONTRACTORS NAME. THE CONTRACTOR SHALL MAINTAIN COPIES OF THESE DOCUMENTS ON THE SITE AT ALL TIMES.
5. WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY PRIOR TO PROCEEDING AND CONTACT THE ENGINEER.
6. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AGENCIES, THE OWNER, THE ENGINEER AND ALL OTHER CONCERNED PARTIES WHEN CONSTRUCTION IS TO COMMENCE. PRIOR TO ANY CONSTRUCTION A PRE CONSTRUCTION MEETING SHALL BE HELD WITH THE MUNICIPALITY/AUTHORITY, THE CONTRACTOR, THE ENGINEER AND ANY OTHER INTERESTED PARTY.
7. DATA REQUIRED FOR PREPARATION OF AS-BUILT DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR AT THE TIME OF INSTALLATION. THIS DATA SHALL BE ACCUMULATED BY THE CONTRACTOR DURING THE CONSTRUCTION PERIOD AND BE SUBMITTED TO THE ENGINEER IN A NEAT AND LEGIBLE MANNER AFTER COMPLETION OF THE PROJECT. RIM AND INVERT ELEVATIONS WILL BE VERIFIED BY THE ENGINEER'S SURVEYOR.
8. ALL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, SOUTH CAROLINA AND LOCAL ORDINANCES, REGULATIONS, SPECIFICATIONS AND PERMITS. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL LICENSES AND PERMITS AS REQUIRED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER, AND GRAND STRAND WATER AND SEWER AUTHORITY PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL LICENSES AND PERMITS AS REQUIRED BY HORRY COUNTY ORDINANCES.
10. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO GRADING.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SILT BARRIERS AND SEDIMENT CONTROL INSTALLATIONS DURING CONSTRUCTION UNTIL COMPLETION OF THE SITE DEVELOPMENT.
12. FINAL GRADING SHALL CONSIST OF SPREADING TOP SOIL (FOUR INCHES MINIMUM TO GRADES INDICATED) ON ALL DISTURBED AREAS.
13. ALL DISTURBED AREAS SHALL BE GRASSED AND STABILIZED IMMEDIATELY AFTER FINAL GRADING, AS PER THE GRASSING SPECIFICATIONS.
14. ALL SLOPES EXCEEDING 4:1 SHALL BE HYDROSEEDED, AS PER THE GRASSING REQUIREMENTS AND SCDOT SPECIFICATIONS.
15. ALL SILT BARRIERS MUST BE PLACED IMMEDIATELY AS ACCESS IS OBTAINED DURING CLEARING, REGARDLESS OF PLAN REQUIREMENTS. NO GRADING SHALL BE DONE UNTIL SILT BARRIER INSTALLATION HAS BEEN COMPLETED.
16. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SILT BARRIERS AROUND ALL DRAINAGE STRUCTURES UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED.
17. ADDITIONAL EROSION CONTROL MEASURES WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS.
18. PROVISIONS TO PREVENT EROSION OF SOIL FROM THE SITE SHALL BE, AS MINIMUM, IN CONFORMANCE WITH THE REQUIREMENTS OF HORRY COUNTY AND SCDHEC-OCRM DEALING WITH EROSION AND SEDIMENTATION.
19. SITE CONSTRUCTION WILL COMMENCE WITH THE INSTALLATION OF ALL EROSION CONTROL MEASURES NECESSARY TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED WITH PERMANENT VEGETATION.
20. EROSION CONTROL DEVICES MUST BE INSTALLED IMMEDIATELY AFTER LAND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE CONTROL DEVICES MAY BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS, IF DRAINAGE PATTERNS DURING CONSTRUCTION VARY FROM THE FINAL DRAINAGE PATTERNS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SOIL EROSION CONTROL FOR ALL DRAINAGE PATTERNS DURING ALL STAGES OF CONSTRUCTION. ALL INADEQUACIES IN SOIL EROSION CONTROL DURING ANY PHASE OF CONSTRUCTION MUST BE REPORTED IMMEDIATELY TO THE ENGINEER.
21. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE PROPER FUNCTIONING OF ALL DEVICES.
22. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT AND DEBRIS FROM SILT BARRIERS WHEN SILT IS WITHIN TWELVE (12) INCHES OF THE TOP OF THE SILT FENCE.
23. FAILURE TO INSTALL, OPERATE AND MAINTAIN ALL EROSION CONTROL MEASURES, AS SHOWN ON THE APPROVED PLANS OR AS DIRECTED BY THE ENGINEER AND/OR HORRY COUNTY WILL RESULT IN ALL WORK ON THE CONSTRUCTION SITE BEING STOPPED UNTIL PROPER CORRECTIVE MEASURES HAVE BEEN MET, AS REQUIRED AND/OR DIRECTED.
24. SILT BARRIERS MUST BE PLACED AT THE DOWNSTREAM TOE OF ALL FILL SLOPES.
25. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN FOURTEEN (14) DAYS SHALL BE STABILIZED WITH TEMPORARY GRASSING. STABILIZATION MEASURES SHALL BE INITIATED BY THE 14TH DAY, OR AS SOON AS POSSIBLE, AFTER THE TEMPORARY OR PERMANENT CEASE OF CONSTRUCTION ACTIVITY.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES AND FOR REPAIRING ANY DAMAGE TO SAME. UTILITY LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES THAT MAY HAVE SERVICE IN THE AREA FOR AN ACCURATE LOCATION PRIOR TO BEGINNING WORK.
27. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURES AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING LOT CONSTRUCTION OR PROVIDE AN INDIVIDUAL PLAN MEETING SECTION R 72-307 OF THE STORMWATER AND SEDIMENT REDUCTION ACT REQUIREMENTS.
28. THE CONTRACTOR MUST EXCAVATE THE PONDS AS INDICATED ON THE PLANS. THE CONTRACTOR MUST PERIODICALLY REMOVE SILT AND DEBRIS FROM THE PONDS AS MAY BE DIRECTED BY THE OWNER OR ENGINEER. IMMEDIATELY AFTER ALL EXCAVATION HAS BEEN COMPLETED, THE CONTRACTOR SHALL STABILIZE THE POND SLOPES AS PER THE GRASSING SPECIFICATIONS.
29. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PERCIPITATION DURING ANY 24 HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED. ON SITE INSPECTOR: DDC ENGINEERS, INC PHONE # 843-692-3200.
30. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 21 DAYS.
31. DATA REQUIRED FOR PREPARATION OF RECORD DRAWINGS SHALL BE OBTAINED AND RECORDED BY THE CONTRACTOR AT THE TIME OF INSTALLATION. THIS DATA SHALL BE ACCUMULATED BY THE CONTRACTOR DURING THE CONSTRUCTION PERIOD AND EVIDENCE PROVIDED TO THE ENGINEER AS PART OF THE MONTHLY PAY REQUEST. PAY REQUESTS WILL NOT BE APPROVED BY THE ENGINEER IF THIS DATA IS NOT SUBMITTED WITH THE PAY REQUEST. CONTRACTOR IS TO PROVIDE NEAT AND LEGIBLE COMPLETED RECORD DRAWINGS TO THE ENGINEER AT THE COMPLETION OF THE PROJECT.
32. CONTRACTOR IS TO COMPLY WITH ALL PROVISIONS OF THE "SOUTH CAROLINA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" SECTION V, WHEN WORKING IN OR ADJACENT TO AN EXISTING PUBLIC HIGHWAY RIGHT OF WAY. THIS SECTION COVERS CONSTRUCTION SIGNAGE, FLAGGING, AND OTHER TRAFFIC CONTROL DEVICES.

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		RIGHT-OF-WAY
		CENTERLINE
		EASEMENT
		SWALE / DITCH
		TREES
		TREE LINE
		PAVEMENT
		EX. ROAD
2	2	CONTOUR
×4.01	×5.00	SPOT ELEVATION
MB		MAILBOX
		POWER POLE
		GUY WIRE
T		TELEPHONE PEDESTAL
		OVERHEAD ELECTRIC
		UNDERGROUND ELECTRIC
G		GAS
		SIGN
W		WATER
WV		WATER VALVE
WM		WATER METER
		FIRE HYDRANT
S		SANITARY SEWER
Ⓢ		SANITARY SEWER MANHOLE
		FORCE MAIN
		STORM DRAIN
□		STORM DRAIN STRUCTURE

SHEET SCHEDULE

SHEET TITLE	SHEET NUMBER	ORIGINAL DATE	REVISION DATE
COVER SHEET	1	APRIL 28, 2017	JULY 1, 2019
GENERAL NOTES, LEGEND AND SHEET SCHEDULE	2	APRIL 28, 2017	JULY 1, 2019
KEY PLAN	KEY	SEPT. 19, 2018	MARCH 6, 2019
48" WATER LINE PLAN AND PROFILE	3	APRIL 28, 2017	AUGUST 30, 2019
48" WATER LINE PLAN AND PROFILE	4	APRIL 28, 2017	JULY 1, 2019
48" WATER LINE PLAN AND PROFILE	5	APRIL 28, 2017	OCTOBER 27, 2017
48" WATER LINE PLAN AND PROFILE	6	APRIL 28, 2017	JULY 1, 2019
48" WATER LINE PLAN AND PROFILE	7	APRIL 28, 2017	JULY 1, 2017
48" WATER LINE PLAN AND PROFILE	8	APRIL 28, 2017	JULY 1, 2019
48" WATER LINE PLAN AND PROFILE	9	APRIL 28, 2017	JULY 1, 2017
48" WATER LINE PLAN AND PROFILE	10	APRIL 28, 2017	JULY 1, 2019
48" WATER LINE PLAN AND PROFILE	11	APRIL 28, 2017	JULY 1, 2019
48" WATER LINE PLAN AND PROFILE	12	APRIL 28, 2017	JULY 1, 2019
48" WATER LINE PLAN AND PROFILE	13	APRIL 28, 2017	MAY 17, 2019
48" WATER LINE PLAN AND PROFILE	14	APRIL 28, 2017	MAY 17, 2019
48" WATER LINE PLAN AND PROFILE	15	APRIL 28, 2017	AUGUST 30, 2019
48" WATER LINE PLAN AND PROFILE	16	APRIL 28, 2017	AUGUST 30, 2019
48" WATER LINE PLAN AND PROFILE	17	APRIL 28, 2017	AUGUST 30, 2019
48" WATER LINE PLAN AND PROFILE	18	APRIL 28, 2017	MAY 17, 2019
48" WATER LINE PLAN AND PROFILE	19	APRIL 28, 2017	AUGUST 30, 2019
48" WATER LINE PLAN AND PROFILE	20	APRIL 28, 2017	AUGUST 30, 2019
48" WATER LINE PLAN AND PROFILE	21	APRIL 28, 2017	AUGUST 30, 2019
30" FORCEMAIN PLAN AND PROFILES	22	APRIL 28, 2017	OCTOBER 27, 2017
SEDIMENT AND EROSION CONTROL DETAILS	23	APRIL 28, 2017	OCTOBER 27, 2017
GENERAL DETAILS	24	APRIL 28, 2017	AUGUST 30, 2019
GENERAL DETAILS	25	APRIL 28, 2017	APRIL 3, 2019
GENERAL DETAILS	26	APRIL 28, 2017	MAY 17, 2019
GENERAL DETAILS	27	APRIL 28, 2017	AUGUST 30, 2019

This set is current through sheet dated AUGUST 30, 2019

EROSION CONTROL LEGEND

SYMBOL	PRACTICE	DESCRIPTION
IP	INLET PROTECTION	A TEMPORARY SEDIMENT BARRIER LAID AROUND A STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
OP	OUTLET PROTECTION	RIP RAP CHANNEL / BANK PLACED BELOW DRAINAGE OUTLETS TO REDUCE THE VELOCITY OF FLOW, EROSION, AND STABILIZE GRADES DOWNSTREAM OF OUTLET STRUCTURES.
CD	TEMPORARY CHECK DAM	RIP RAP BANK PLACED BELOW DRAINAGE OUTLETS TO REDUCE THE VELOCITY OF FLOW, EROSION AND STABILIZE GRADES DOWN STREAM OF DRAINAGE OUTLETS.
SF	SILT FENCE	A TEMPORARY STRUCTURE USED TO SLOW THE VELOCITY OF RUN-OFF, CAUSE SEDIMENT DEPOSITION AT THE STRUCTURE, AND FILTER SEDIMENT FROM RUN-OFF.
SF_2	DOUBLE ROW SILT FENCE	A TEMPORARY STRUCTURE USED TO SLOW THE VELOCITY OF RUN-OFF, CAUSE SEDIMENT DEPOSITION AT THE STRUCTURE, AND FILTER SEDIMENT FROM RUN-OFF.
CL	CONSTRUCTION LIMITS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.
ECB	PERMANENT EROSION CONTROL MATTING (HIGH PERFORMANCE TRM PYRAMAT BY SI GEOSOLUTIONS OR EQUAL)	A PERMANENT REINFORCEMENT MAT TO PREVENT SOIL EROSION AND MAINTAIN PERMANENT GROUND COVER.
Ds3	DISTURBED AREA STABILIZATION (WITH TEMPORARY VEGETATION)	ESTABLISHING PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, SOD, OR LEGUMES ON DISTURBED AREAS.
ST	SEDIMENT TUBE	SEDIMENT TUBE PLACED IN EXISTING OR PROPOSED DITCH SECTIONS TO REDUCE THE VELOCITY OF FLOW, EROSION AND STABILIZE GRADES DOWN STREAM OR DRAINAGE OUTLETS.

SEEDING NOTES:

1. *INCLUDES RURAL AREAS ADJACENT TO WELL-DEVELOPED LAWNS.*
2. *NOT REQUIRED ON SHOULDERS, MEDIANS, ETC.., AND SLOPES UNDER 5 FEET IN HEIGHT.*
3. *GIANT BERMUDA SEED, INCLUDING NK-37, SHALL NOT BE USED.*
4. *RESEEDING CRIMSON CLOVER SHALL BE INOCULATED IN ACCORDANCE WITH SUBSECTION 810.05. DO NOT PLANT CLOVER IN MEDIANS OR IN RURAL AREAS ADJACENT TO WELL-DEVELOPED LAWNS.*
5. *PENSACOLA BAHIA SHALL BE ALLOWED ONLY AS SHOWN IN SEEDING SCHEDULES 3 AND 4 AT THE RATE OF 50 POUNDS PER ACRE ONLY WHEN SEEDING PIT AREAS THAT ARE GOVERNED BY THE SOUTH CAROLINA MINING ACT. OTHERWISE, DO NOT INCLUDE BAHIA SEED IN THE MIX.*
6. *THE CONTRACTOR SHALL OBTAIN A SATISFACTORY STAND OF PERENNIAL VEGETATION WHOSE ROOT SYSTEM SHALL BE DEVELOPED SUFFICIENTLY TO SURVIVE DRY PERIODS AND WINTER WEATHER, AND BE CAPABLE OF RE-ESTABLISHMENT IN THE SPRING. THE PERENNIAL VEGETATIVE COVER SHALL HAVE A MINIMUM COVERAGE DENSITY OF 70% FOR THE SEEDED AREAS. CONTRACTOR SHALL DETERMINE ALL RATES OF APPLICATION NECESSARY TO PRODUCE THE REQUIRED STAND OF GRASS, AND SHALL FOLLOW THE APPLICATION PROCEDURES AS SPECIFIED HEREIN.*
7. *GIANT BERMUDA SEED, INCLUDING NK-37, SHALL NOT BE USED.*

SEEDING SCHEDULE FOR TEMPORARY VEGETATION Ds3

SCHEDULE NO.	COMMON NAME OF SEED	RATE PER ACRE (LBS.)	PLANTING DATES
1	COMMON BERMUDA (HULLED)	210	MARCH 16 TO AUG. 31
	TALL FESCUE	140	
2	COMMON BERMUDA (UNHULLED)	175	SEPT. 1 TO MARCH 15
	ANNUAL RYEGRASS	175	

NOTES:

THE CONTRACTOR SHALL OBTAIN A SATISFACTORY STAND OF PERENNIAL VEGETATION WHOSE ROOT SYSTEM SHALL BE DEVELOPED SUFFICIENTLY TO SURVIVE DRY PERIODS AND WINTER WEATHER, AND BE CAPABLE OF RE-ESTABLISHMENT IN THE SPRING. THE PERENNIAL VEGETATIVE COVER SHALL HAVE A MINIMUM COVERAGE DENSITY OF 70% FOR THE SEEDED AREAS. CONTRACTOR SHALL DETERMINE ALL RATES OF APPLICATION NECESSARY TO PRODUCE THE REQUIRED STAND OF GRASS, AND SHALL FOLLOW THE APPLICATION PROCEDURES AS SPECIFIED HEREIN.

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SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SIMMONS No. 28914

SOUTH CAROLINA AUTHORIZATION DDC ENGINEERS, INC No. C00036 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
7	8/30/19	REVISED PER GSWSA	KJG
6	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
5	5/17/19	REVISED PER IN HOUSE REVIEW	KJG
4	4-3-19	REVISED PER IN HOUSE REVIEW.	PES
3	9-19-18	ADDED KEY PLAN	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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GENERAL NOTES, LEGEND AND SHEET SCHEDULE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
HORRY COUNTY, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	NO SCALE
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

2

FILE NO.: 17010E

PLOT SCALE 1=1 PCP FILE NEW/ADD/CTB

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PLOT SCALE: 1 = 1
PLOT FILE: NEW-SIZE C.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 29814
ERIC K. SANFORD
9-7-19

SOUTH CAROLINA
DDC ENGINEERS, INC.
No. C00035
CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
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48" WATER LINE - KAY PLAN

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

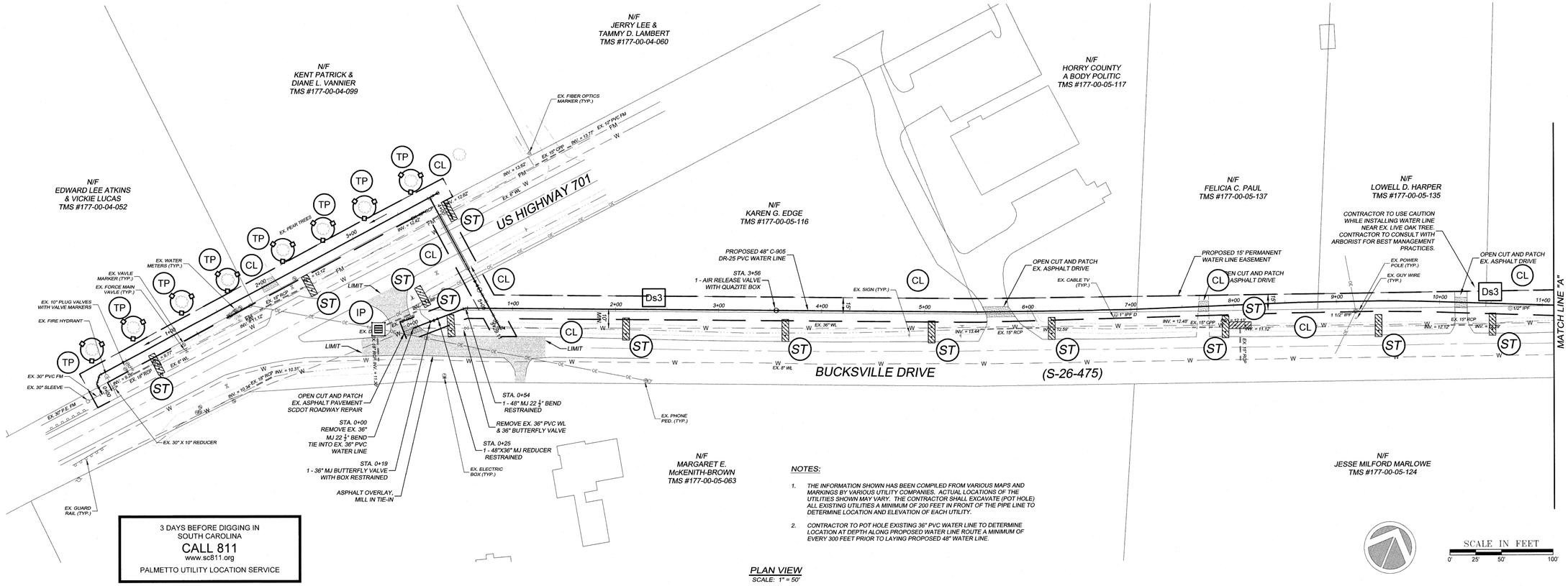
PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	
DATE:	9/19/18
DESIGNED BY:	EKS
DRAWN BY:	PES / KJG
APROV. BY:	EKS
PROJECT NO.:	17010E

KEY

FILE NO.:

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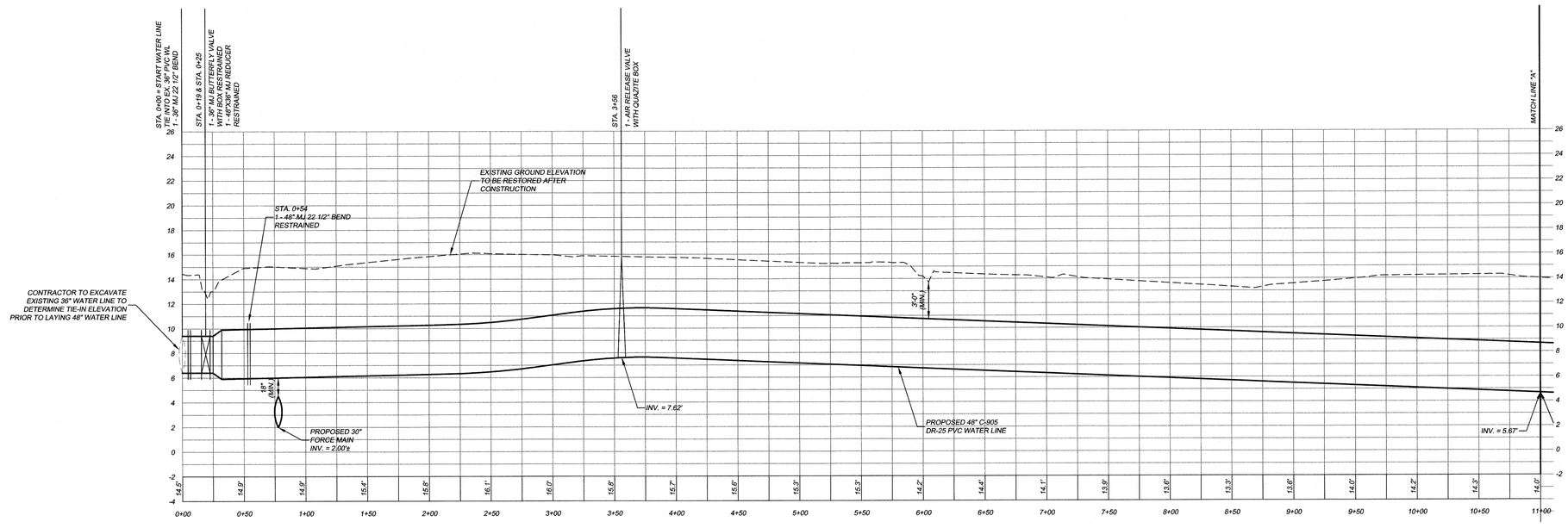


3 DAYS BEFORE DIGGING IN
SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE

NOTES:

1. *THE INFORMATION SHOWN HAS BEEN COMPILED FROM VARIOUS MAPS AND MARKINGS BY VARIOUS UTILITY COMPANIES. ACTUAL LOCATIONS OF THE UTILITIES SHOWN MAY VARY. THE CONTRACTOR SHALL EXCAVATE (POT HOLE) ALL EXISTING UTILITIES A MINIMUM OF 200 FEET IN FRONT OF THE PIPE LINE TO DETERMINE LOCATION AND ELEVATION OF EACH UTILITY.*
2. *CONTRACTOR TO POT HOLE EXISTING 36" PVC WATER LINE TO DETERMINE LOCATION AT DEPTH ALONG PROPOSED WATER LINE ROUTE A MINIMUM OF EVERY 300 FEET PRIOR TO LAYING PROPOSED 48" WATER LINE.*

PLAN VIEW
SCALE: 1" = 50'



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

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SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER — No. 29814 — ERIC K. SINNOTT

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — DDC ENGINEERS, INC. — No. C00036

NO.	DATE	REVISION DESCRIPTION	BY
5	8/30/19	REVISED PER GSWSA COMMENTS	KJG
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
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1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

3

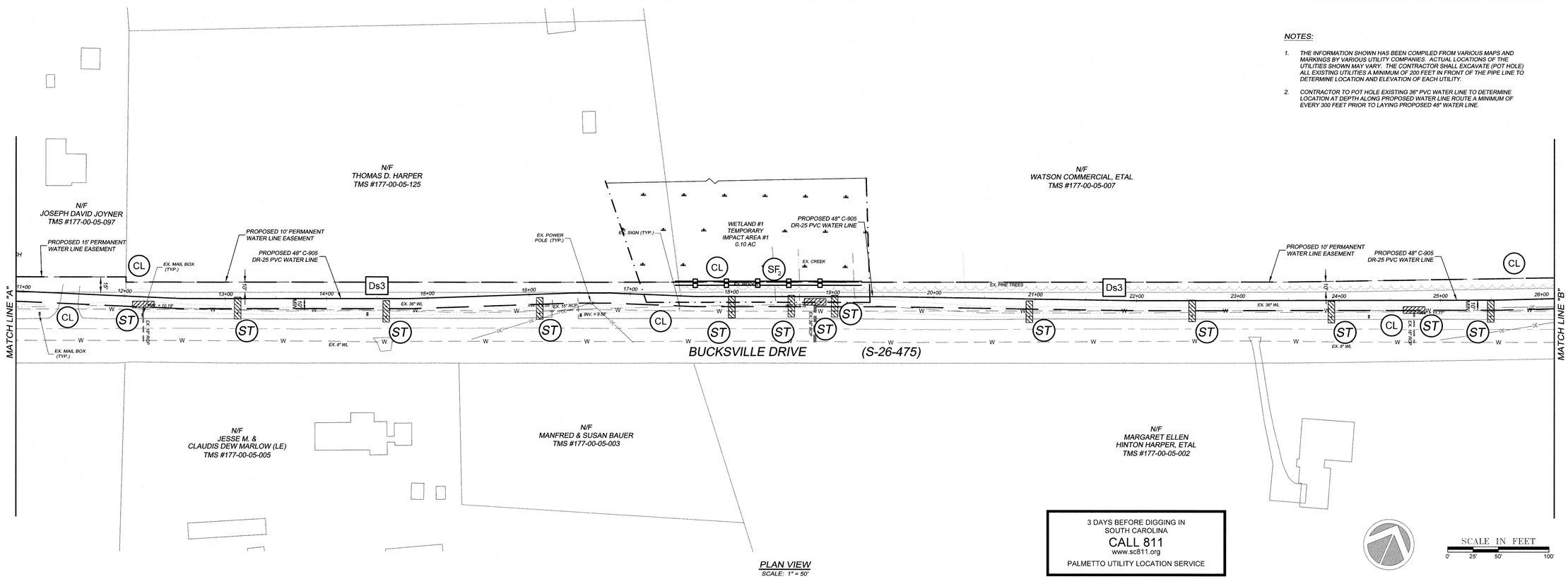
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PLOT SCALE 1 = 1 PCP FILE NEW.DOC.CTB

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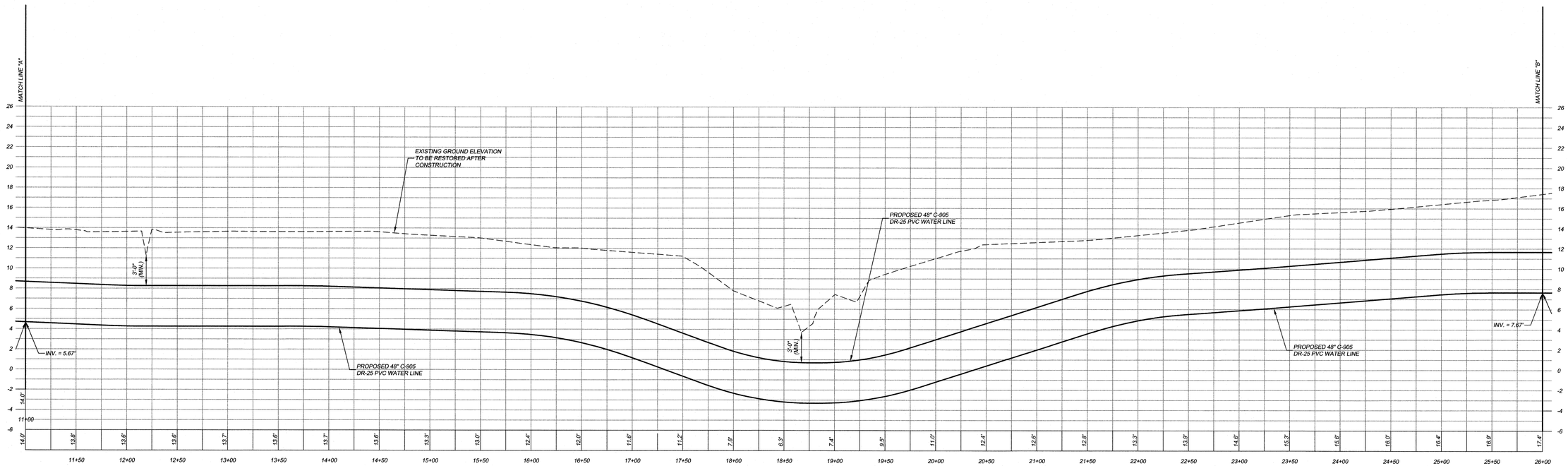
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PLAN VIEW
SCALE: 1" = 50'

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE

SCALE IN FEET
0' 25' 50' 100'



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

DDC ENGINEERS
Consulting Engineers, Surveyors, Planners, Landscape Architects & Environmentalists
1298 Professional Dr., Myrtle Beach, SC 29577
Phone: (843) 692-3200 Fax: (843) 692-3210

SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SUMNER No. 29814

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC No. C00036

NO.	DATE	REVISION DESCRIPTION	BY
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
3	5/17/19	ADDED WETLANDS PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

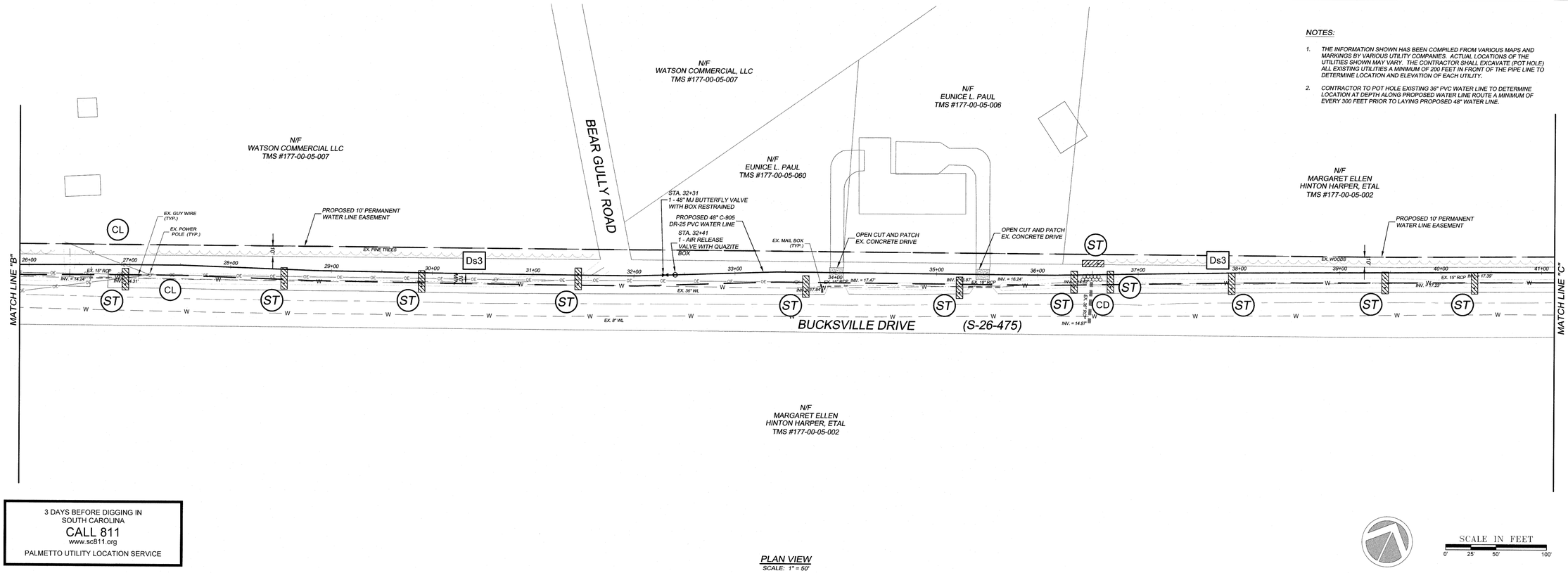
PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

4

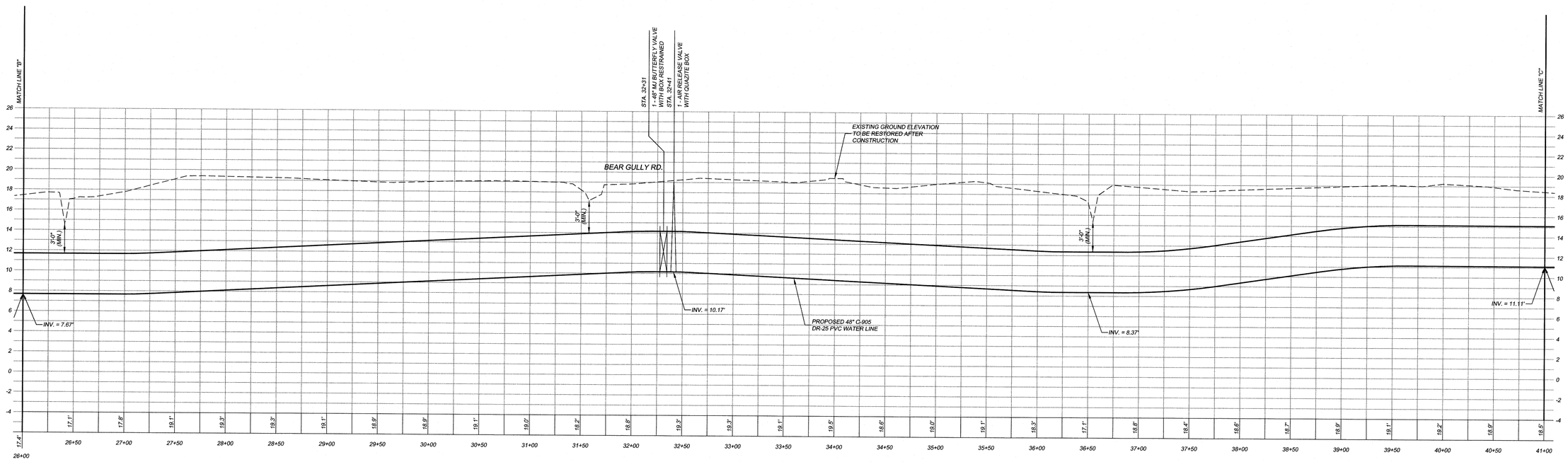
FILE NO.: 17010E

PLOT SCALE: 1=1
PLOT FILE: NEWADC.CTB



PLAN VIEW
SCALE: 1" = 50'

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PALMETTO UTILITY LOCATION SERVICE



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE 1 = 1 PLOT FILE: NEWBDG.CTB

J:\plans\17\17010E - 48 INCH WATERLINE\E\17010E-sit.dwg, SHT-5, 7/30/2019 1:48:16 PM, Arch D (landscape), 1:1

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SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K SANDFORD No. 29814

SOUTH CAROLINA DDC ENGINEERS, INC. No. C00035 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
2	10-27-17	REVISIONS PER IN HOUSE REVIEW.	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

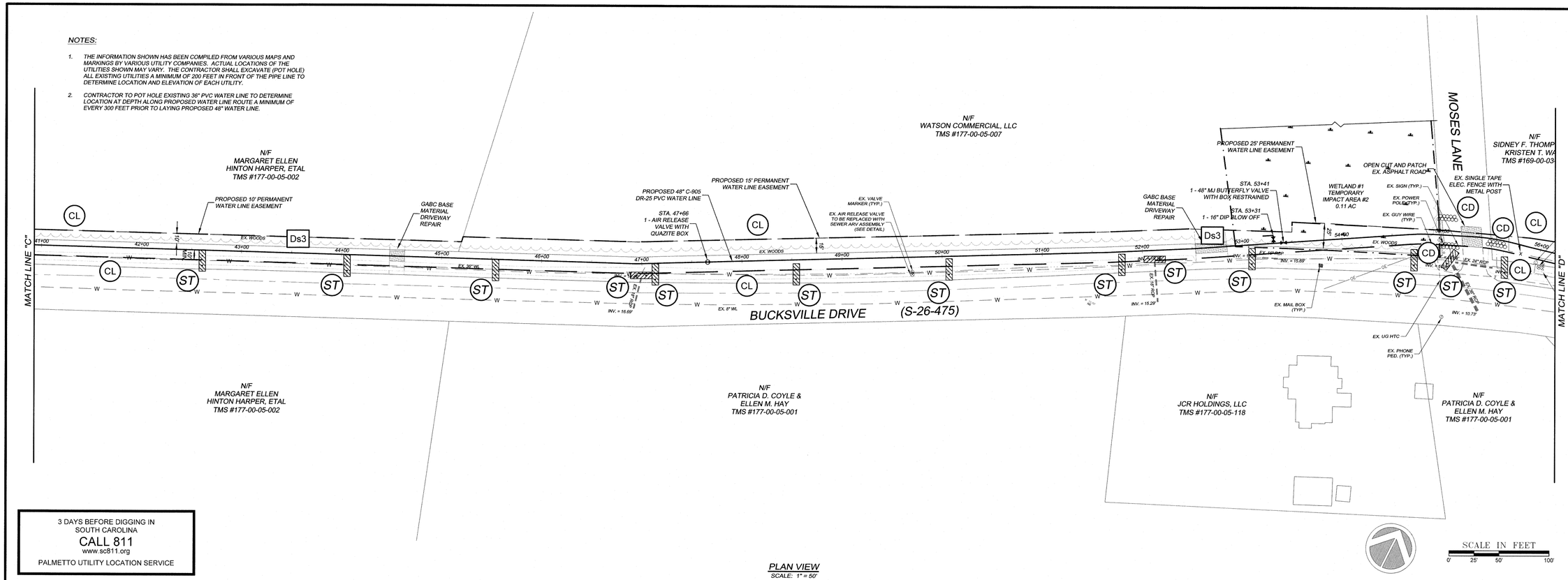
SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

5

FILE NO.: 17010E

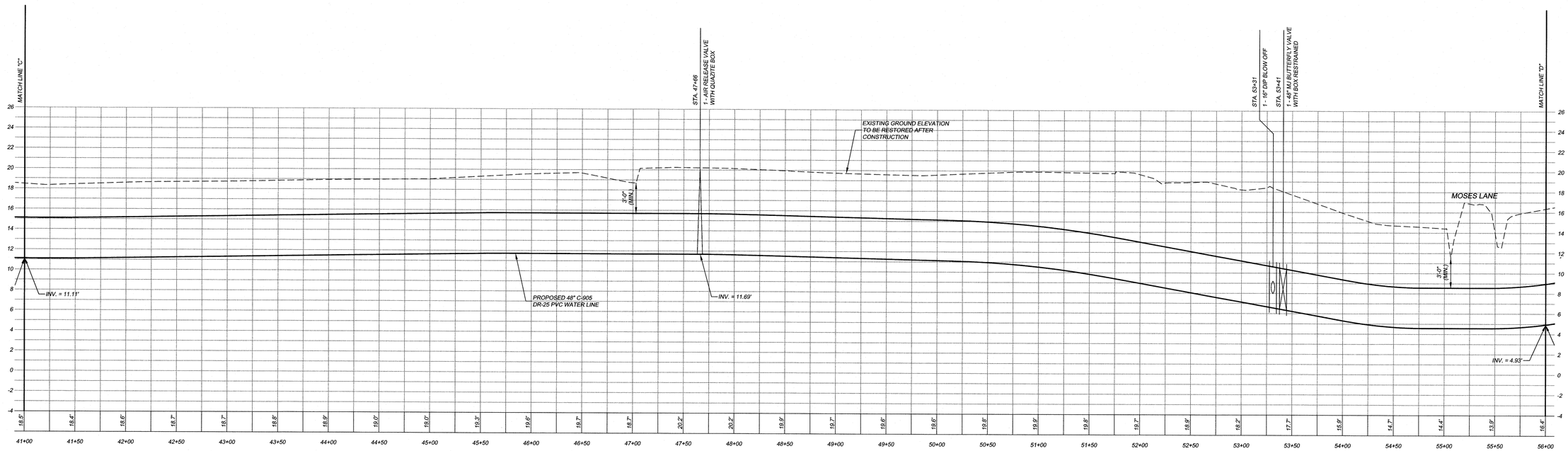
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PLAN VIEW
SCALE: 1" = 50'

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE 1=1 PCP FILE NEWDOC.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29814 ERIC K. SANFORD 8/21/19

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No. C00038

NO.	DATE	REVISION DESCRIPTION	BY
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
3	5/17/19	ADDED WETLANDS PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
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48" WATER LINE PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

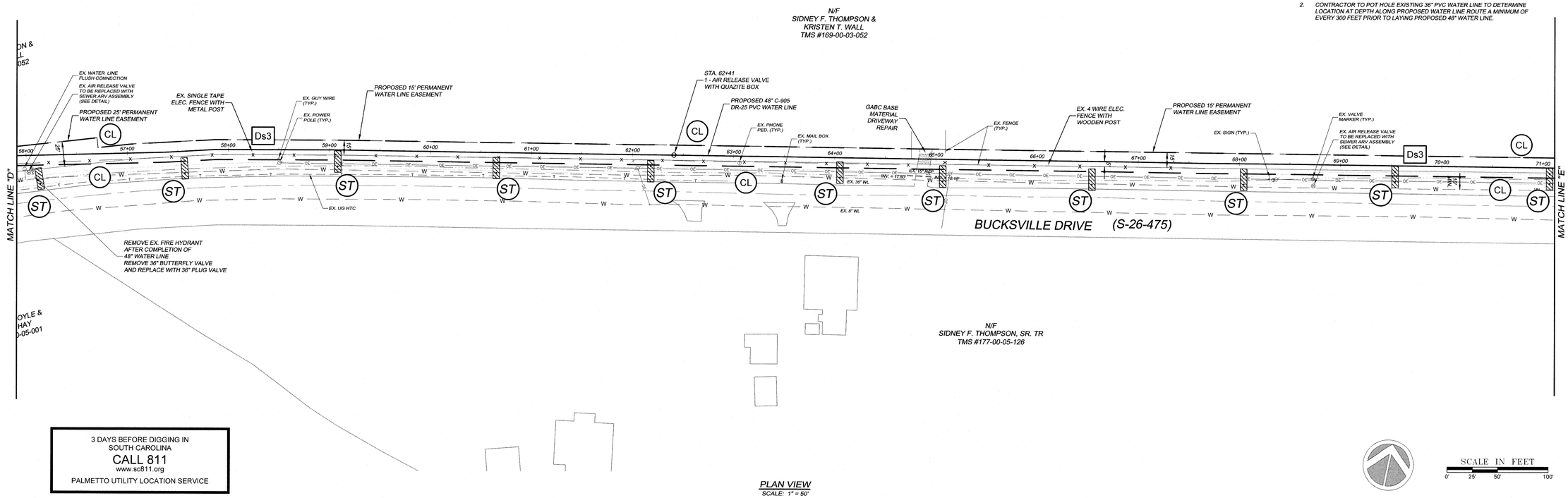
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FILE NO.: 17010E

NOTES:

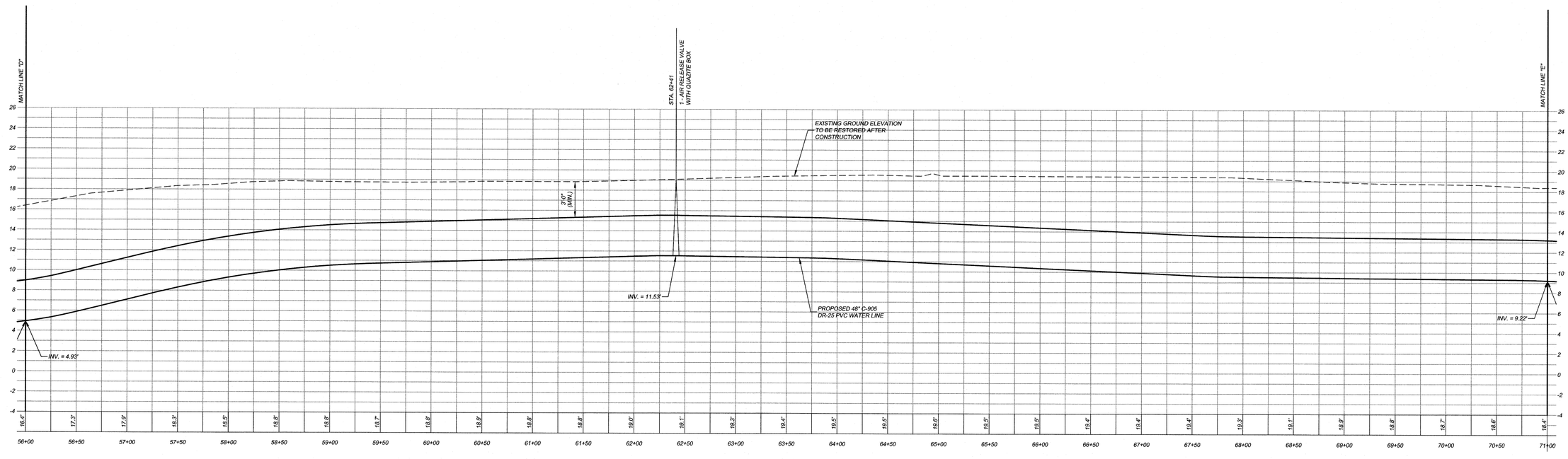
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PLAN VIEW
SCALE: 1" = 50'

3 DAYS BEFORE DIGGING IN
SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE 1 = 1 PLOT FILE NEW24X36.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29814 ERIC K. SANDERSON 5/21/18

SOUTH CAROLINA NOTIFICATION CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No. C005000

NO.	DATE	REVISION DESCRIPTION	BY
3	7/1/19	REVISED PER IN-HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

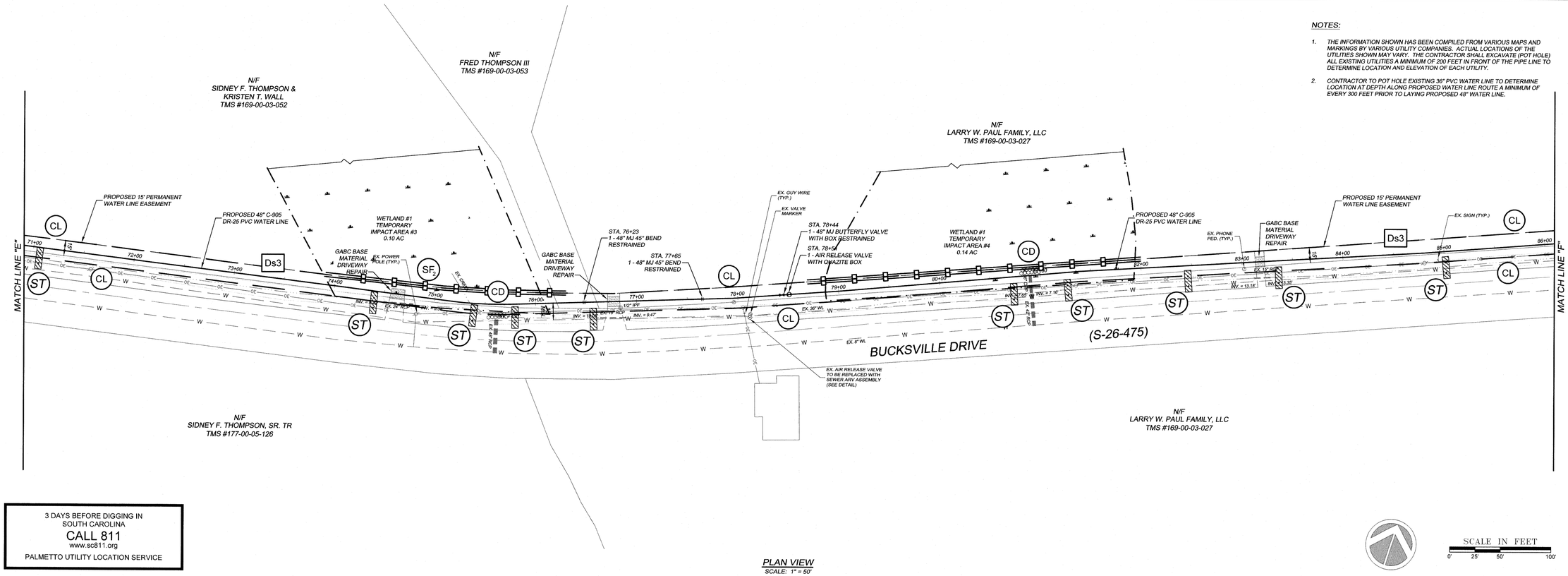
SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

7

FILE NO.: 17010E

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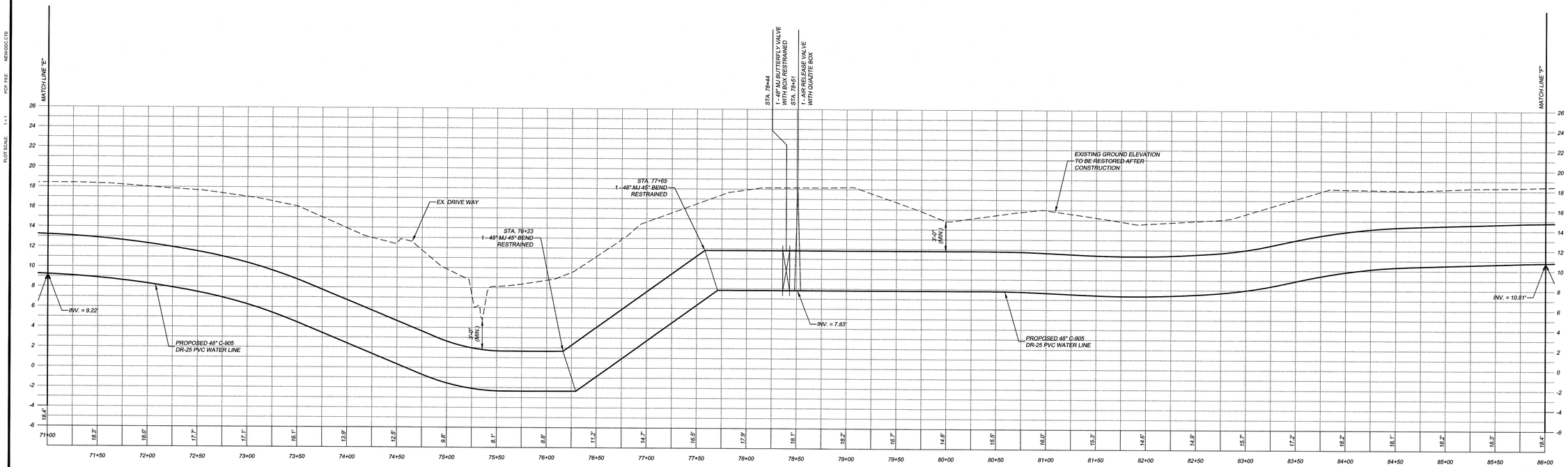
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PLAN VIEW
SCALE: 1" = 50'

SCALE IN FEET
0' 25' 50' 100'

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE: 1 = 1
PCP FILE: NEW.00C.CTB

J:\plans\17\17010E - 48 INCH WATERLINE\E\17010E-sit.dwg, SHT-8, 7/2/2019 8:44:51 AM, Arch D (landscape), 1:1

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29814 ERIC K. SANFORD

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No. C00206

NO.	DATE	REVISION DESCRIPTION	BY
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
3	5/17/19	ADDED WETLANDS PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	KJG
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

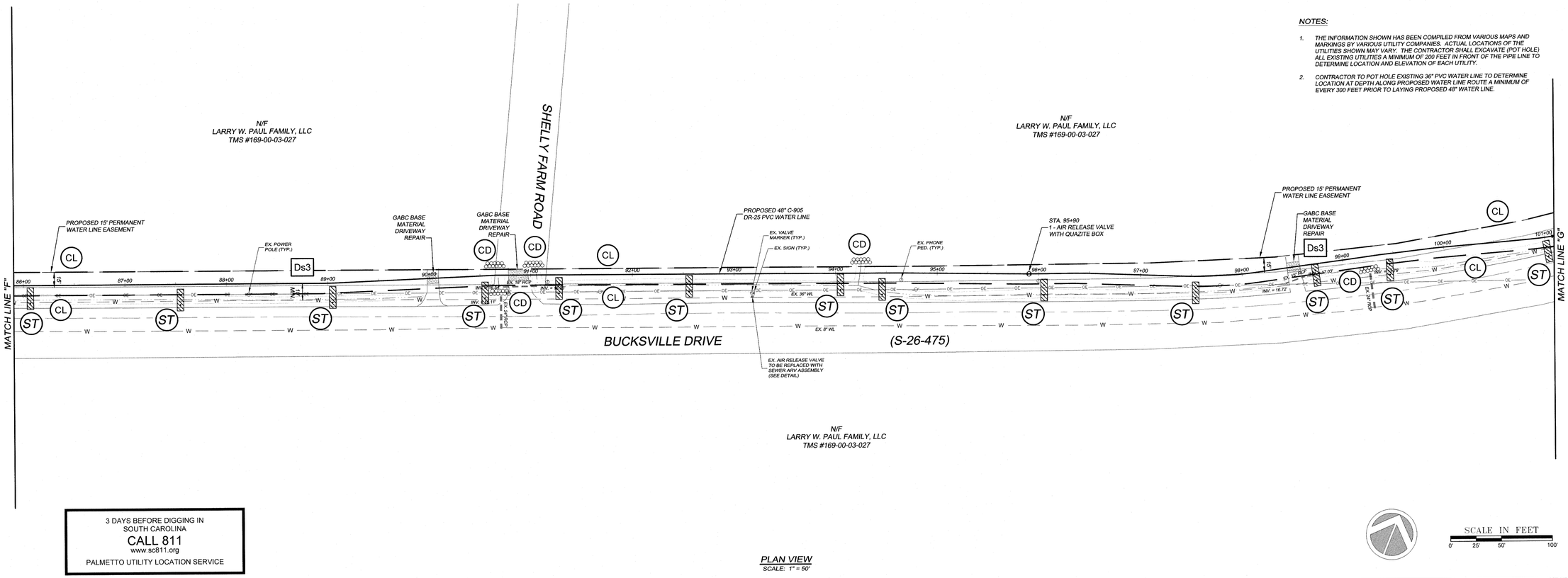
SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

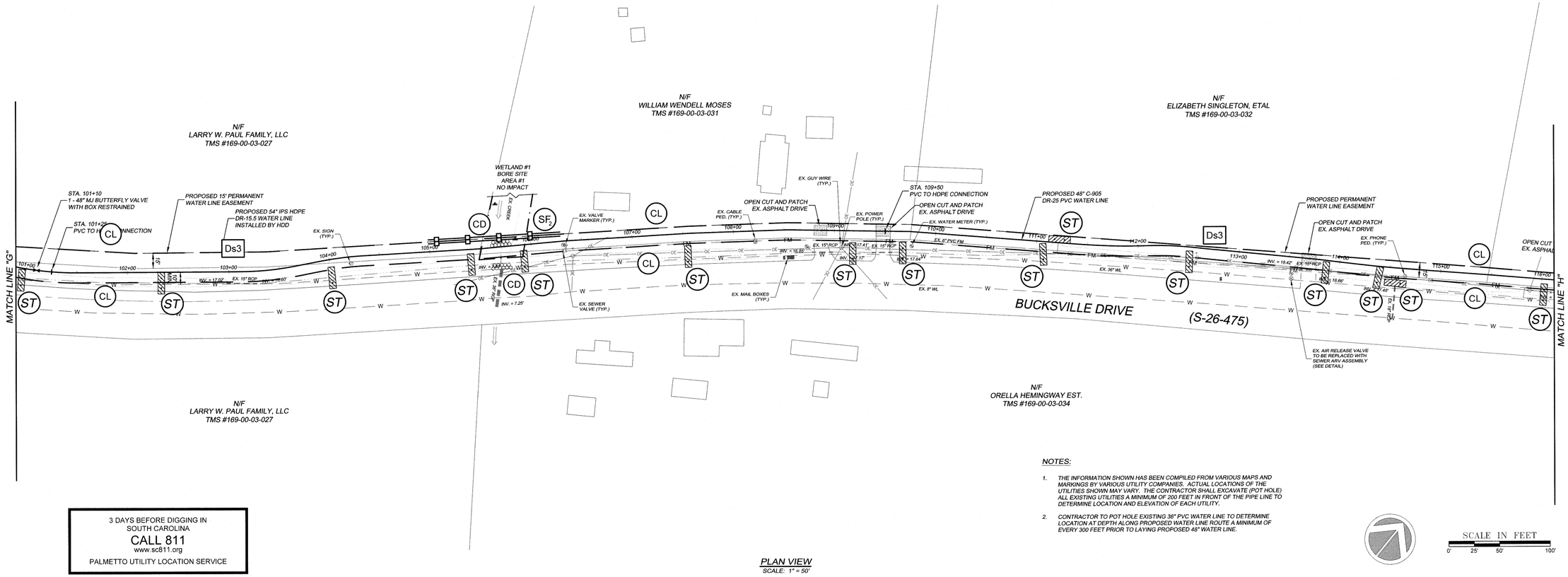
8

FILE NO.: 17010E

NOTES:

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N/F
LARRY W. PAUL FAMILY, LLC
TMS #169-00-03-027
SHELLY FARM ROAD
PROPOSED 15' PERMANENT WATER LINE EASEMENT
EX. POWER POLE (TYP.)
GABC BASE MATERIAL DRIVEWAY REPAIR
PROPOSED 48" C-905 DR-25 PVC WATER LINE
EX. VALVE MARKER (TYP.)
EX. SIGN (TYP.)
EX. PHONE PED. (TYP.)
STA. 95+90
1 - AIR RELEASE VALVE WITH QUAZITE BOX
MATCH LINE "F"
MATCH LINE "G"
BUCKSVILLE DRIVE
(S-26-475)
EX. 18" RCP
EX. 36" WL
EX. 8" WL
EX. AIR RELEASE VALVE TO BE REPLACED WITH SEWER ARV ASSEMBLY (SEE DETAIL)
INV. = 16.72'
INV. = 16.78'
INV. = 16.68'
INV. = 16.58'
INV. = 16.48'
INV. = 16.38'
INV. = 16.28'
INV. = 16.18'
INV. = 16.08'
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INV. = 1.58'
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INV. = 1.38'
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INV. = 1.18'
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INV. = 0.18'
INV. = 0.08'
INV. = -0.02'
INV. = -0.12'
INV. = -0.22'
INV. = -0.32'
INV. = -0.42'
INV. = -0.52'
INV. = -0.62'
INV. = -0.72'
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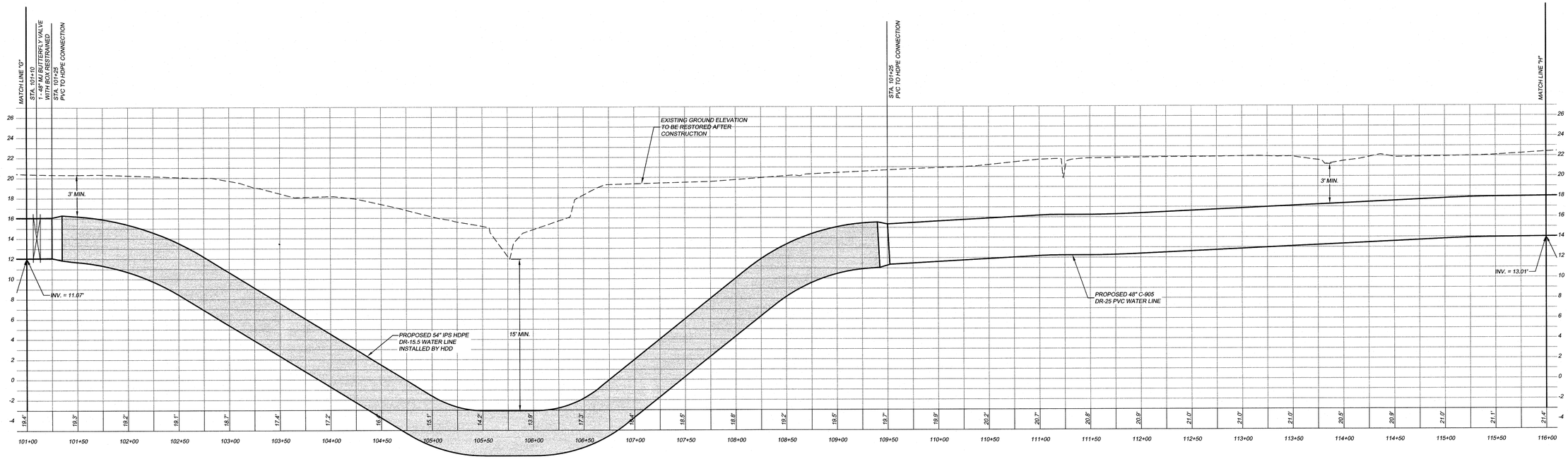


PLAN VIEW
SCALE: 1" = 50'

3 DAYS BEFORE DIGGING IN
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PALMETTO UTILITY LOCATION SERVICE

NOTES:

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WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

DDC
ENGINEERS
Consulting Engineers, Surveyors, Planners,
Landscape Architects & Environmentalists
1298 Professional Dr., Myrtle Beach, SC 29577
Phone: (843) 692-3200 Fax: (843) 692-3210

SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SANDIFORD No. 29814

SOUTH CAROLINA DDC ENGINEERS, INC. No. C00036 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
4	7/1/19	REVISED PER IN-HOUSE REVIEW	KJS
3	5/17/19	REVISED PER IN-HOUSE REVIEW	KJS
2	10-27-17	REVISIONS PER IN-HOUSE REVIEW.	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

10

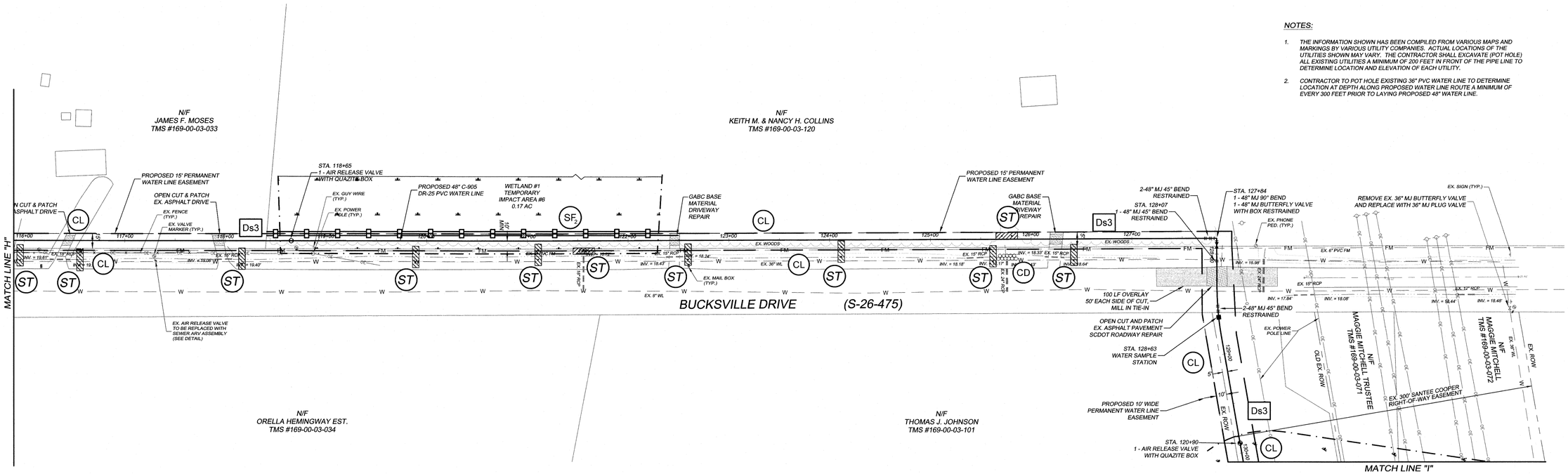
FILE NO.: 17010E

PLOT SCALE 1 = 1 PSP FILE NEWDOC.CTB

J:\plans\17\17010E - 48 INCH WATERLINE\E\17010E-sit.dwg, SHT-10, 7/2/2019 2:29:30 PM, Arch D (landscape), 1:1

NOTES:

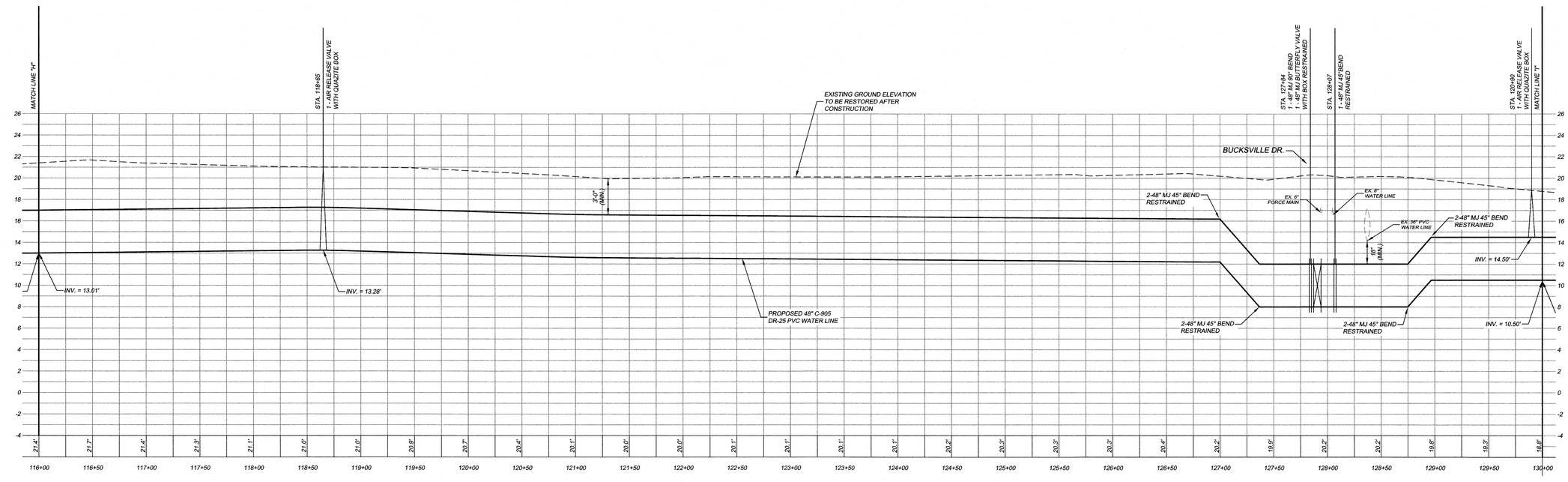
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2. CONTRACTOR TO POT HOLE EXISTING 36" PVC WATER LINE TO DETERMINE LOCATION AT DEPTH ALONG PROPOSED WATER LINE ROUTE A MINIMUM OF EVERY 300 FEET PRIOR TO LAYING PROPOSED 48" WATER LINE.



PLAN VIEW
SCALE: 1" = 50'

SCALE IN FEET
0' 25' 50' 100'

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
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www.sc811.org
PALMETTO UTILITY LOCATION SERVICE



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE: 1=1 PCP FILE: NEW.DOC CTB

NO.	DATE	REVISION DESCRIPTION	BY
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES
2	10-22-17	REVISIONS PER IN HOUSE REVIEW	PES
3	4-3-18	REVISED PER IN HOUSE REVIEW	PES
4	5/17/19	REVISED PER IN HOUSE REVIEW	KJG
5	7/1/19	REVISED PER IN HOUSE REVIEW	KJG

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48" WATER LINE PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

11

FILE NO.: 17010E

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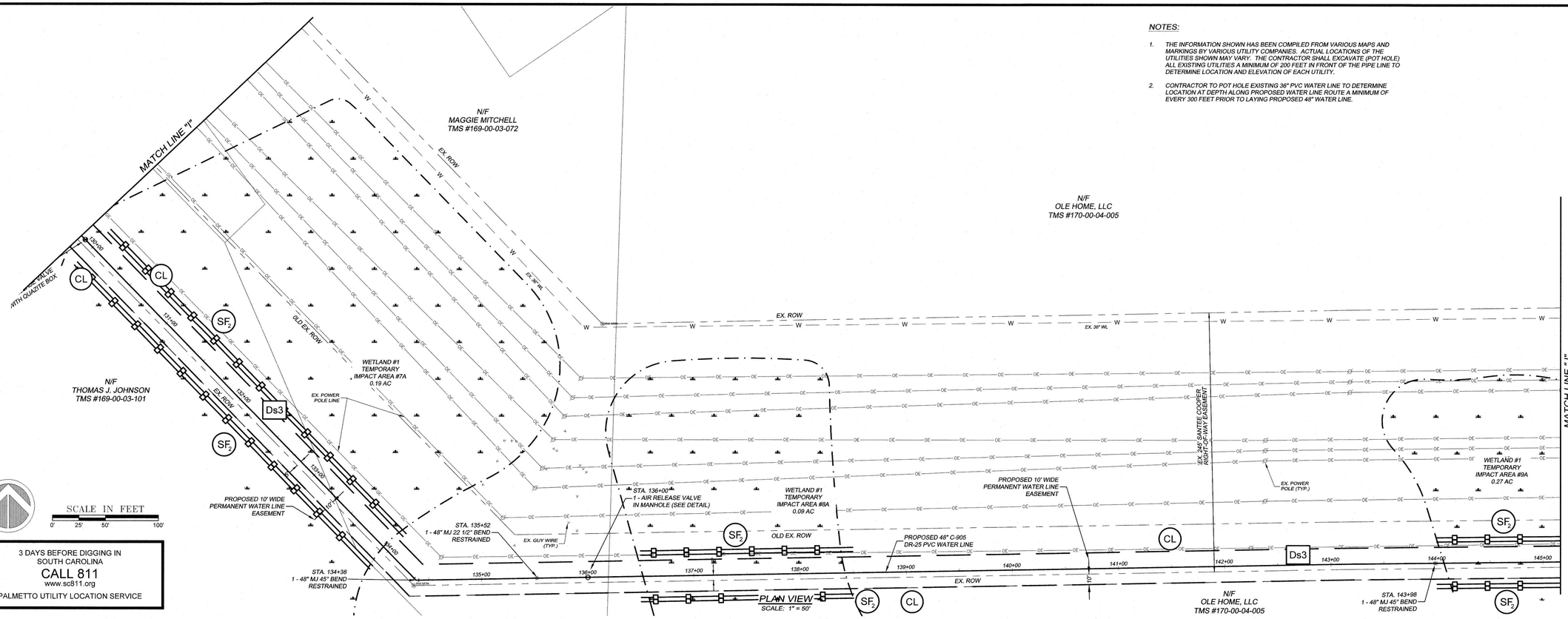
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER ERIC K. SUMMERLIN No. 28814 6-14-19

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No: C00036

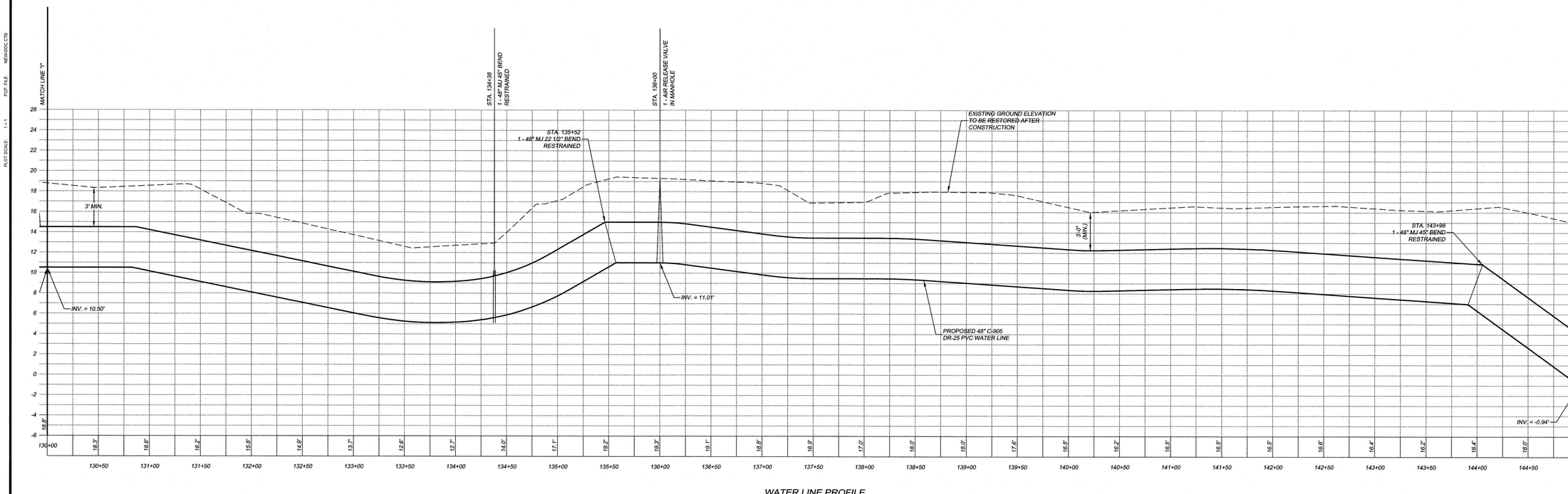
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NOTES:

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2. CONTRACTOR TO POT HOLE EXISTING 36" PVC WATER LINE TO DETERMINE LOCATION AT DEPTH ALONG PROPOSED WATER LINE ROUTE A MINIMUM OF EVERY 300 FEET PRIOR TO LAYING PROPOSED 48" WATER LINE.



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WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE: 1 = 1
POP FILE: NEWDOC.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 23814
ERIC K. SANDFORD
7/18/19

SOUTH CAROLINA
DDC ENGINEERS, INC.
No. C00008
CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
3	5/17/19	ADDED WETLANDS PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50 V = 1"=5
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

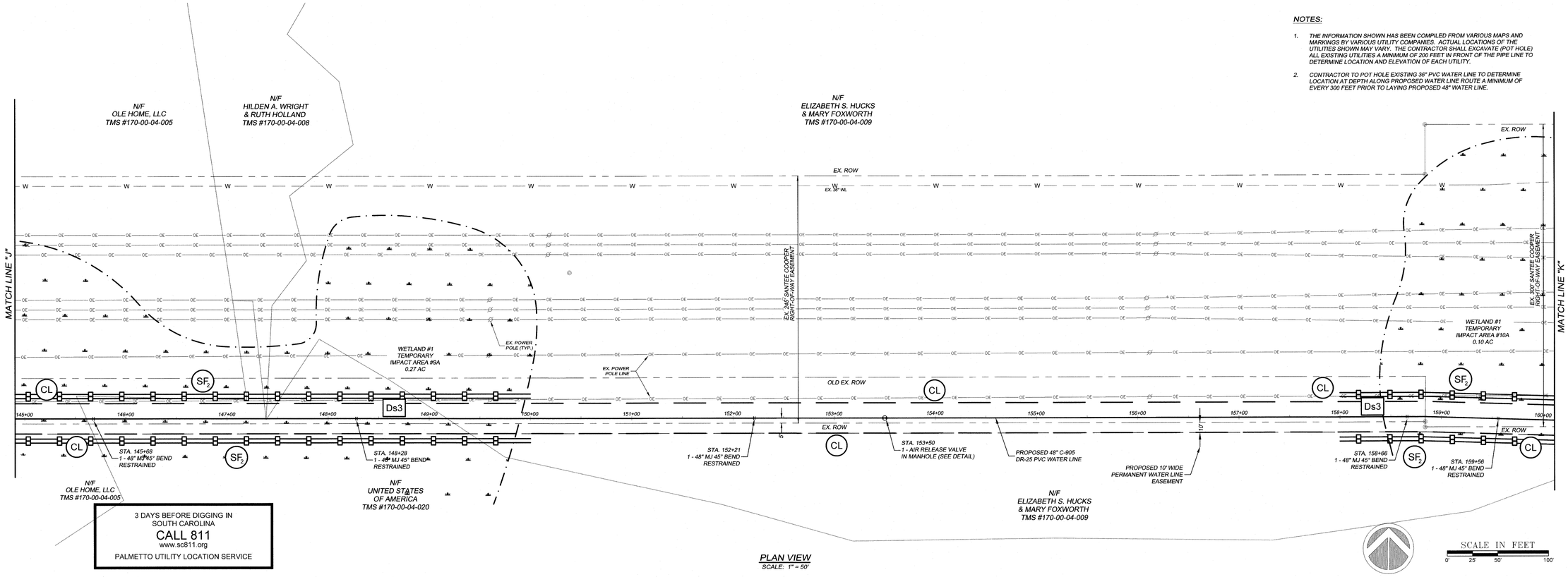
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FILE NO.: 17010E

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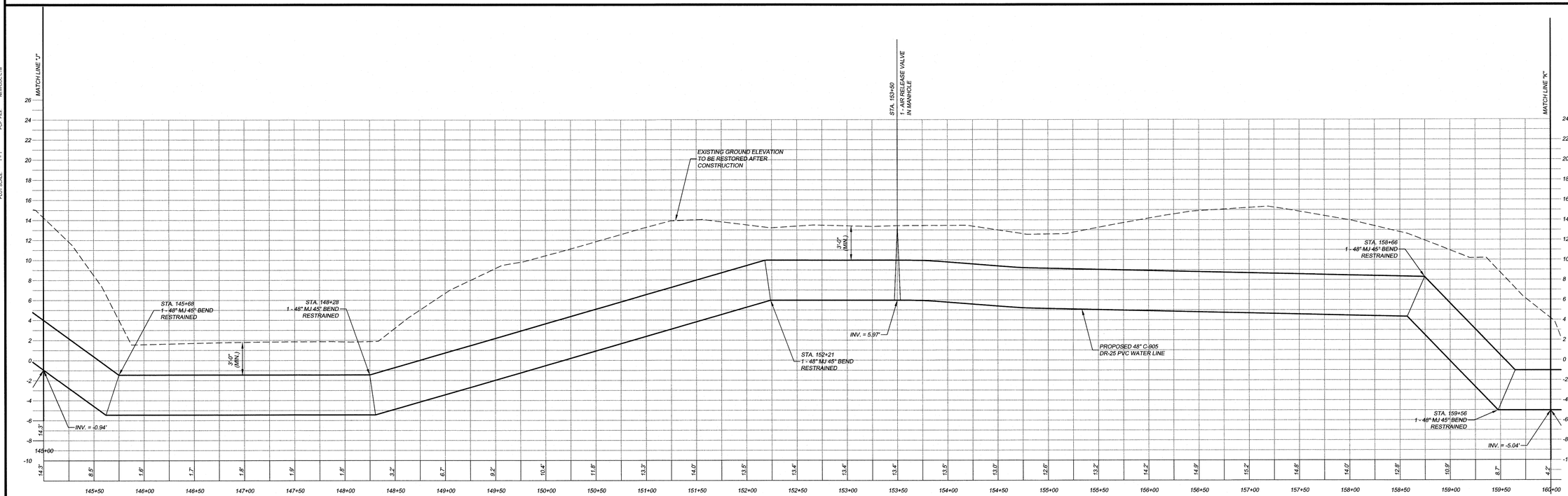
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PALMETTO UTILITY LOCATION SERVICE

PLAN VIEW
SCALE: 1" = 50'



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE 1 = 1 PCP FILE NEWSOC.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SANFORD No. 29814 6/17/19

CERTIFICATE OF AUTHORIZATION SOUTH CAROLINA DDC ENGINEERS, INC. No. C00036

NO.	DATE	REVISION DESCRIPTION	BY
3	5/17/19	ADDED WETLANDS PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE PLAN AND PROFILE

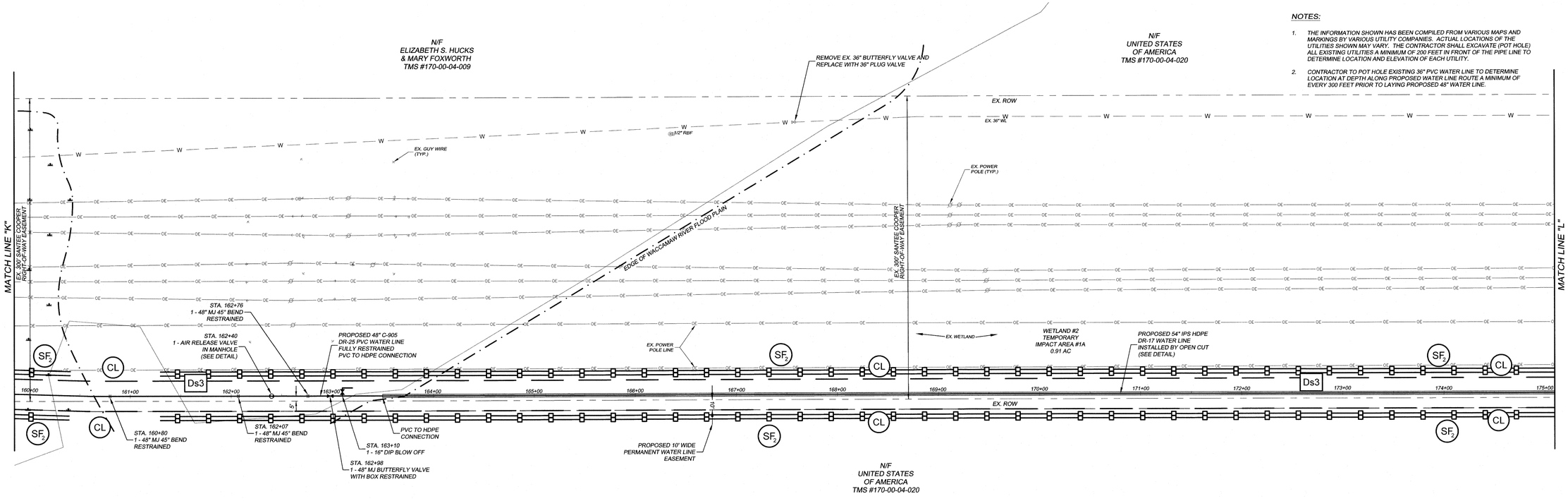
GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

13

FILE NO.: 17010E



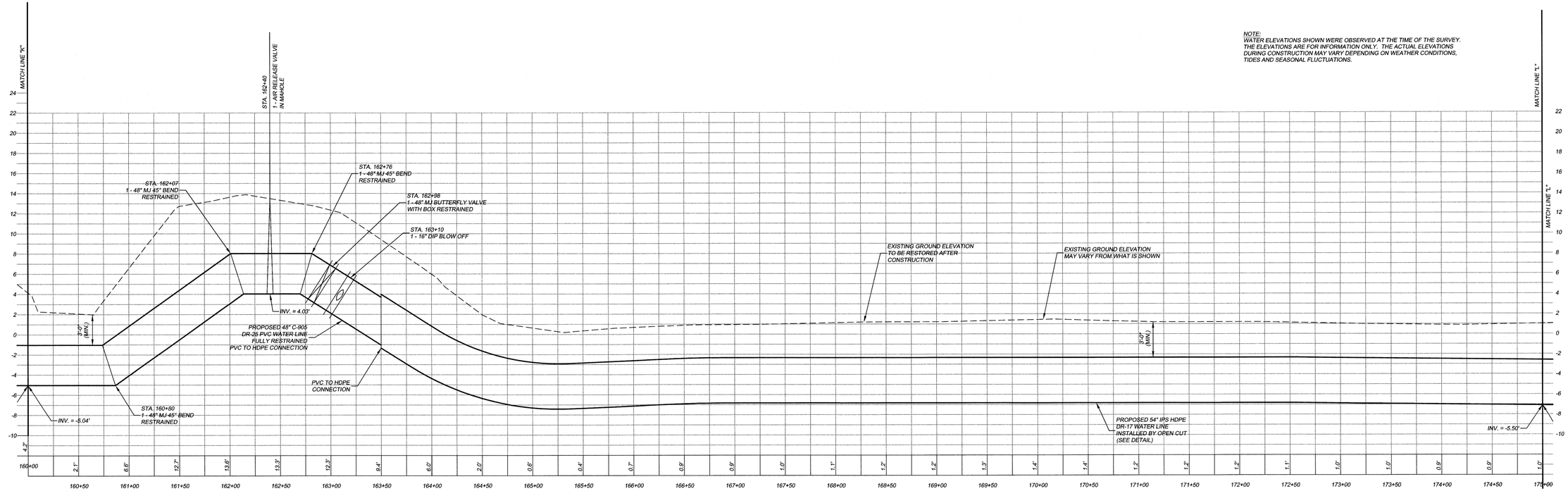
NOTES:

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2. CONTRACTOR TO POT HOLE EXISTING 36" PVC WATER LINE TO DETERMINE LOCATION AT DEPTH ALONG PROPOSED WATER LINE ROUTE A MINIMUM OF EVERY 300 FEET PRIOR TO LAYING PROPOSED 48" WATER LINE.

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PLAN VIEW
SCALE: 1" = 50'

SCALE IN FEET
0' 25' 50' 100'



NOTE:
WATER ELEVATIONS SHOWN WERE OBSERVED AT THE TIME OF THE SURVEY. THE ELEVATIONS ARE FOR INFORMATION ONLY. THE ACTUAL ELEVATIONS DURING CONSTRUCTION MAY VARY DEPENDING ON WEATHER CONDITIONS, TIDES AND SEASONAL FLUCTUATIONS.

WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

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SOUTH CAROLINA NOT VALID FOR CONSTRUCTION DDC ENGINEERS, INC. No. C00036 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
3	5/17/19	ADDED WETLANDS PER IN HOUSE REVIEW	KJS
2	10-27-17	REVISIONS PER IN HOUSE REVIEW.	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS.	PES

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48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

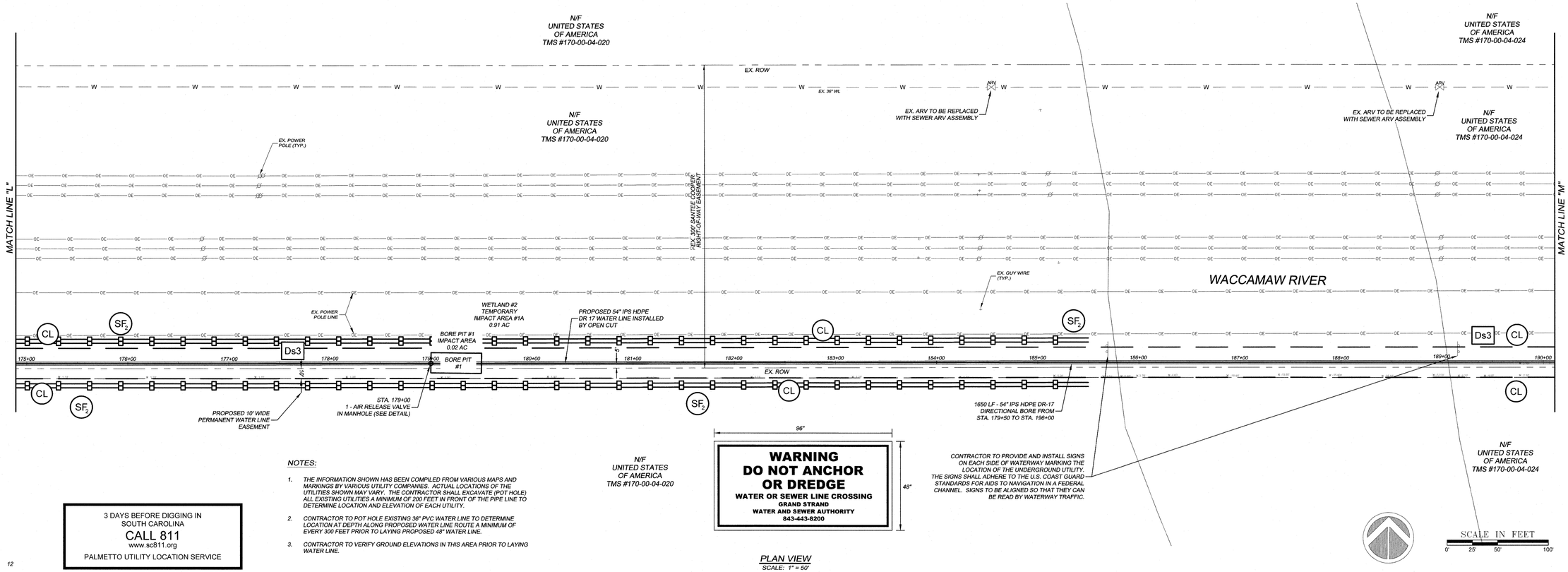
SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

14

FILE NO.: 17010E

PLOT SCALE 1=1 PCP FILE NEWDOC.CTB

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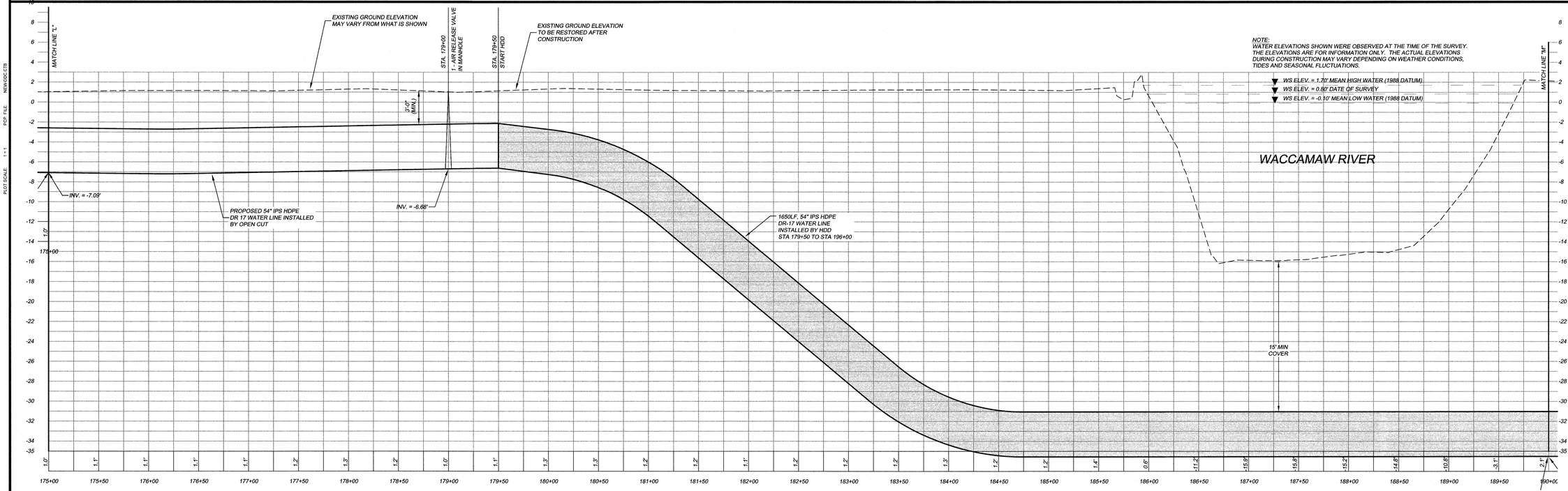


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NOTES:

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2. CONTRACTOR TO POT HOLE EXISTING 36" PVC WATER LINE TO DETERMINE LOCATION AT DEPTH ALONG PROPOSED WATER LINE ROUTE A MINIMUM OF EVERY 300 FEET PRIOR TO LAYING PROPOSED 48" WATER LINE.
3. CONTRACTOR TO VERIFY GROUND ELEVATIONS IN THIS AREA PRIOR TO LAYING WATER LINE.

PLAN VIEW
SCALE: 1" = 50'



WATER LINE PROFILE
SCALE: HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE: 1 = 1 POT FILE: NEW-DDC-CTB

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NOLVSouth Carolina DDC ENGINEERS, INC. No. C06556 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
5	8/30/19	REVISED PER GSWSA COMMENTS	K/S
4	7/1/19	REVISED PER IN HOUSE REVIEW	K/S
3	5/17/19	REVISIONS PER IN HOUSE REVIEW	PES
2	10.27.17	REVISIONS PER GSWSA COMMENTS	PES
1	8.14.17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

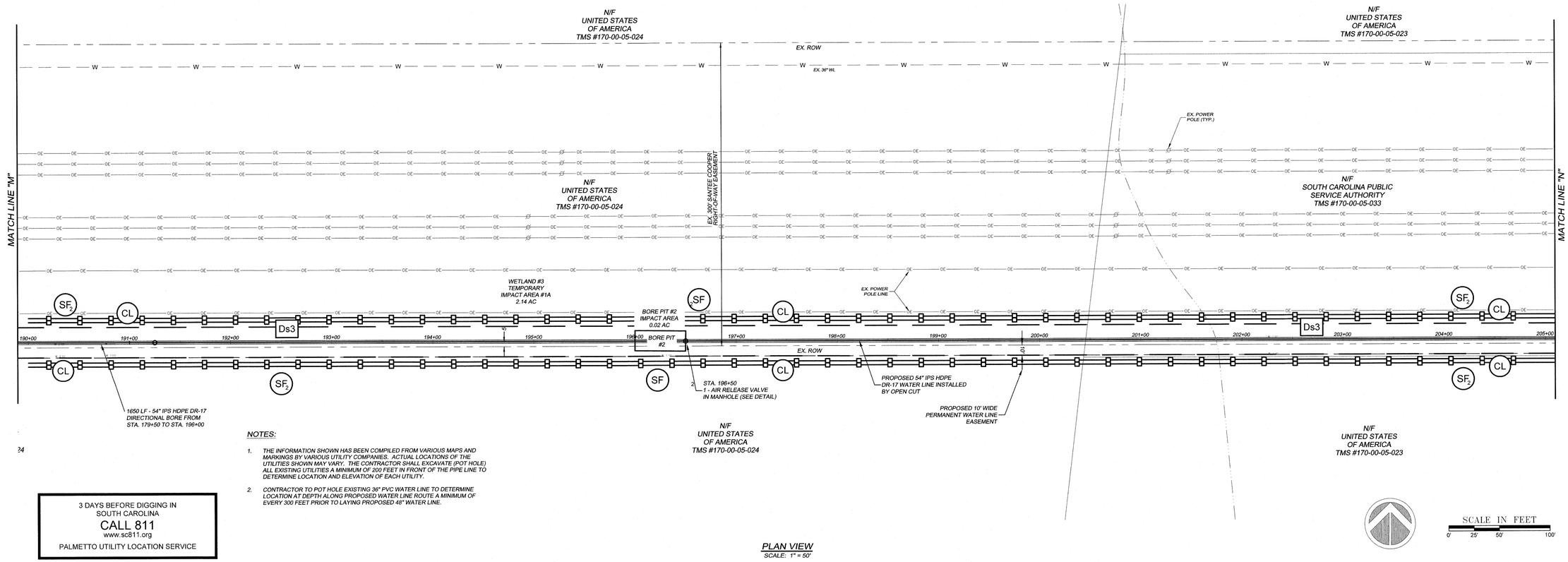
PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

15

FILE NO.: 17010E

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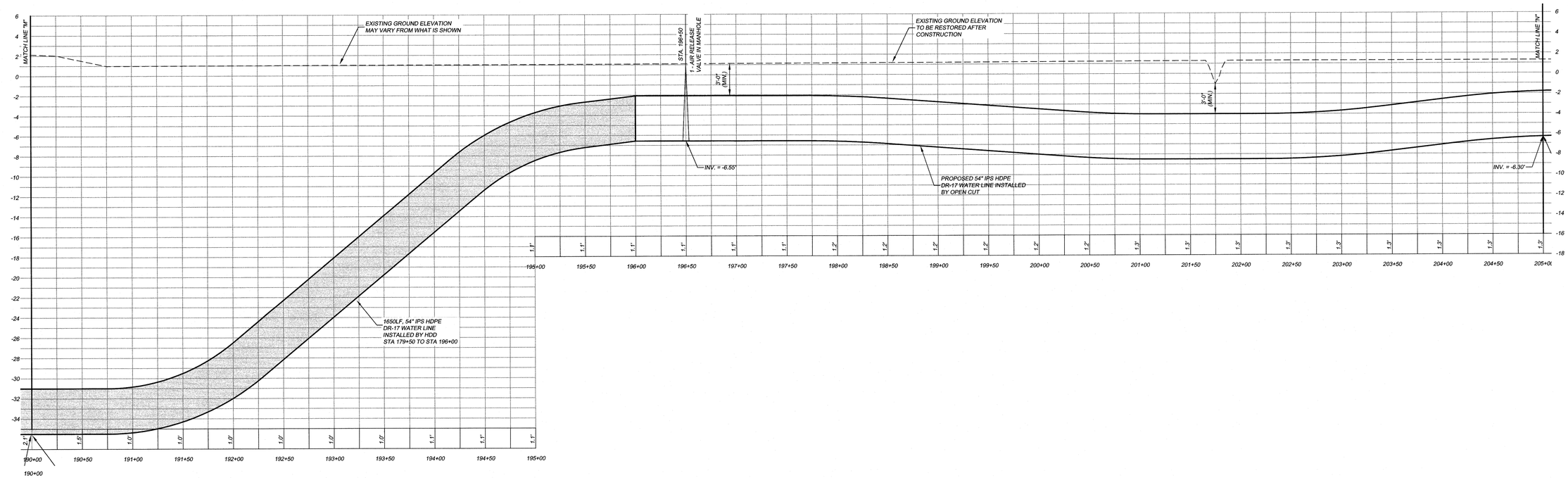


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PLAN VIEW
SCALE: 1" = 50'



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE: 1 = 1 PCP FILE: NEW-DOC.CTB

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NO.	DATE	REVISION DESCRIPTION	BY
5.	8/30/19	REVISED PER CP/HSA COMMENTS	KJS
4.	7/1/19	REVISED PER IN HOUSE REVIEW	KJS
3.	5/17/19	REVISED PER IN HOUSE REVIEW	KJS
2.	10.27.17	REVISIONS PER IN HOUSE REVIEW	PES
1.	8.14.17	REVISIONS PER GSWSA COMMENTS	PES

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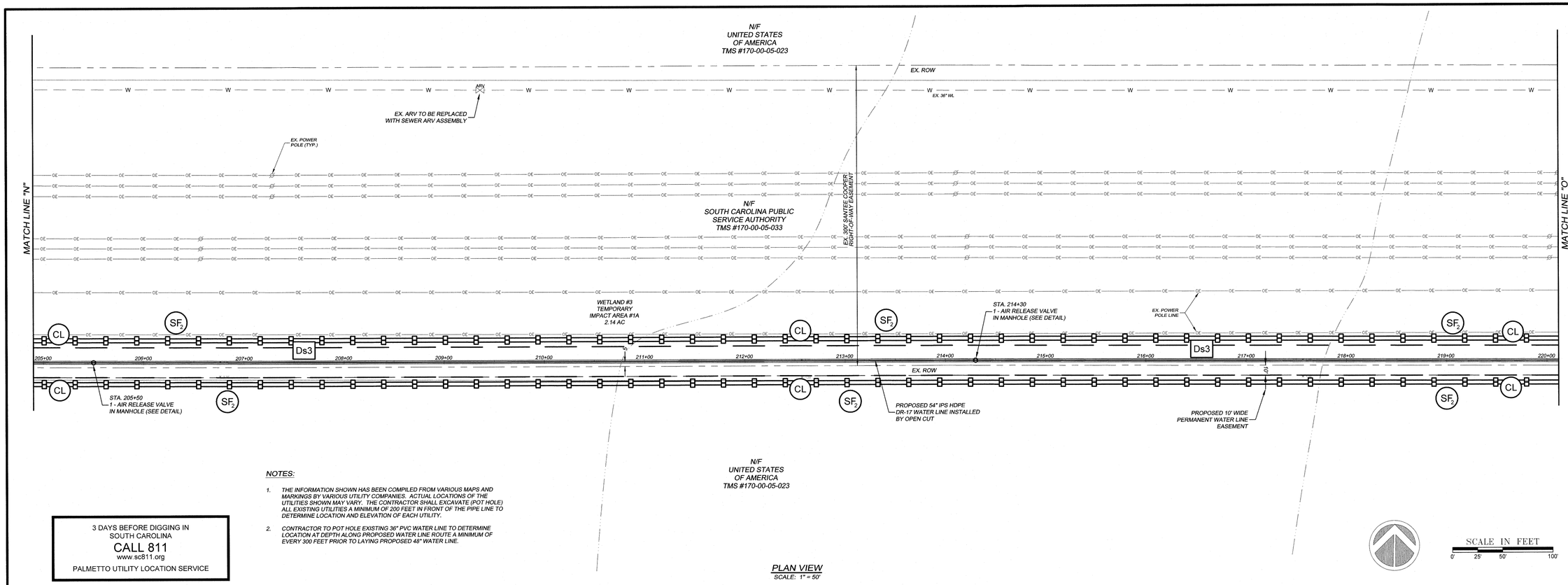
48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E
	16
FILE NO.:	17010E

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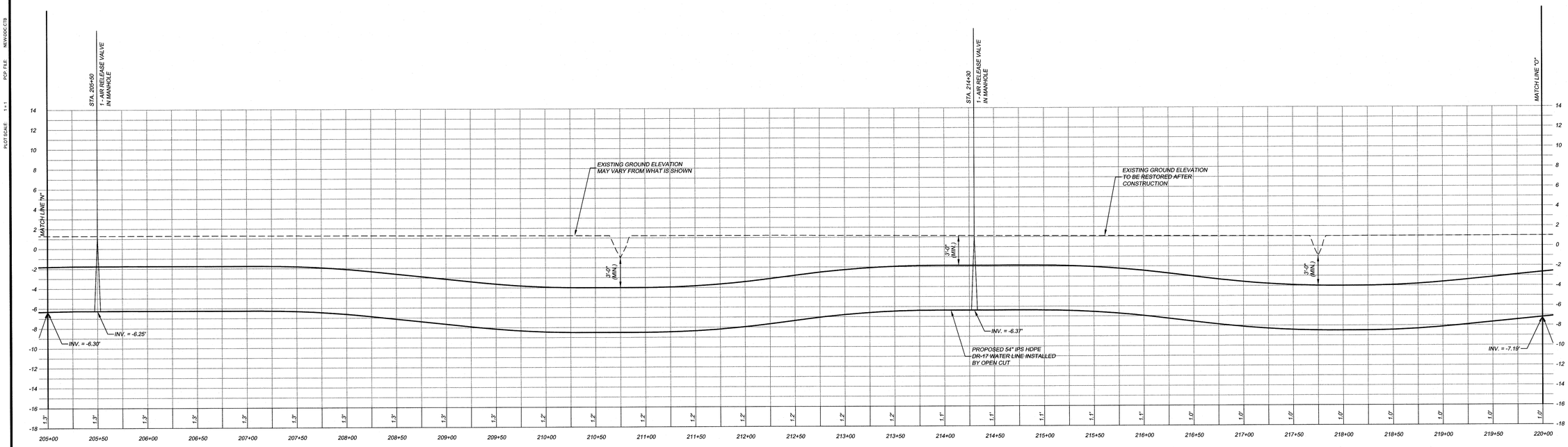
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3 DAYS BEFORE DIGGING IN
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PALMETTO UTILITY LOCATION SERVICE

PLAN VIEW
SCALE: 1" = 50'

SCALE IN FEET
0' 25' 50' 100'



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE 1=1 PCP FILE NEWJOC.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 29814
ERIC K. SAMUELSON
9/6/19

NORTH CAROLINA
DDC ENGINEERS, INC.
No. C00356
CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
4	8/30/19	REVISED PER GSWSA COMMENTS	KJG
3	5/17/19	REVISED PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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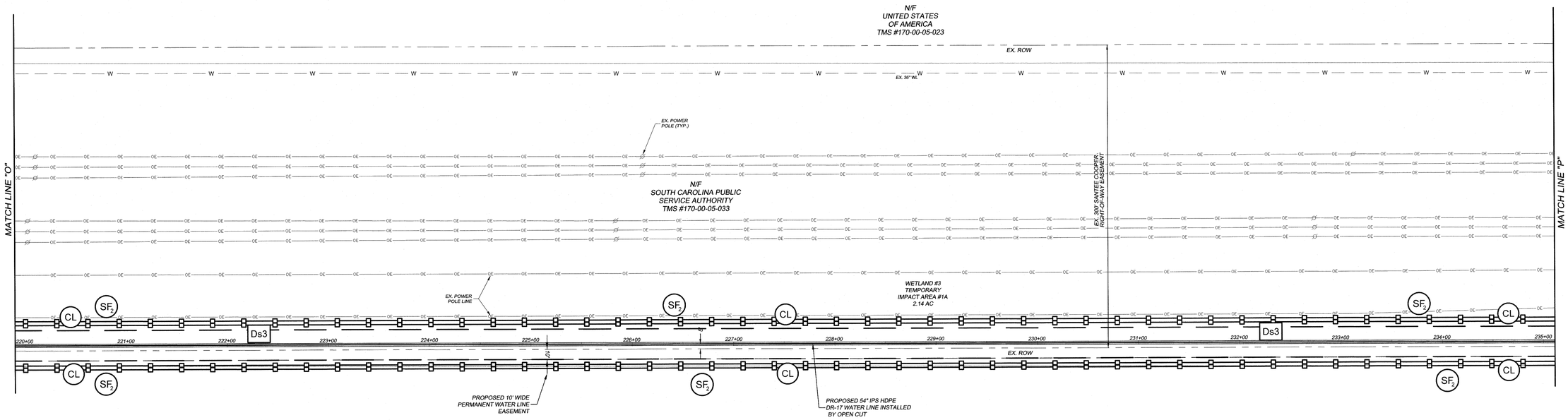
48" WATER LINE
PLAN AND PROFILE

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	H = 1"=50' V = 1"=5'
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E
	17
FILE NO.:	17010E

J:\plans\17\17010E - 48 INCH WATERLINE\E\17010E-SIT.dwg, SHT-17, 8/30/2019 7:17:56 AM, Arch D (landscape), 1:1



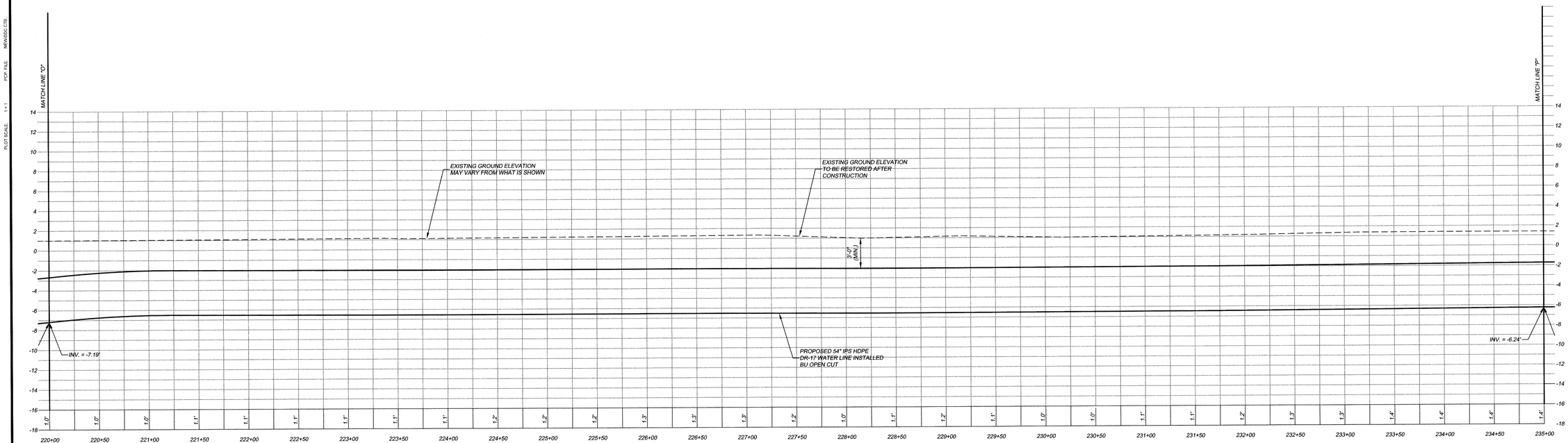
NOTES:

1. THE INFORMATION SHOWN HAS BEEN COMPILED FROM VARIOUS MAPS AND MARKINGS BY VARIOUS UTILITY COMPANIES. ACTUAL LOCATIONS OF THE UTILITIES SHOWN MAY VARY. THE CONTRACTOR SHALL EXCAVATE (POT HOLE) ALL EXISTING UTILITIES A MINIMUM OF 200 FEET IN FRONT OF THE PIPE LINE TO DETERMINE LOCATION AND ELEVATION OF EACH UTILITY.
2. CONTRACTOR TO POT HOLE EXISTING 36" PVC WATER LINE TO DETERMINE LOCATION AT DEPTH ALONG PROPOSED WATER LINE ROUTE A MINIMUM OF EVERY 300 FEET PRIOR TO LAYING PROPOSED 48" WATER LINE.

3 DAYS BEFORE DIGGING IN
SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE

PLAN VIEW
SCALE: 1" = 50'

SCALE IN FEET
0' 25' 50' 100'



WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

PLOT SCALE 1=1 PCP FILE NEWSOC.CTB

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SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SANFORD No. 29814 5/21/19

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No. C00036

NO.	DATE	REVISION DESCRIPTION	BY
3	5/17/19	REVISED PER IN HOUSE REVIEW	KJG
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	5-14-17	REVISIONS PER GSWSA COMMENTS	PES

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48" WATER LINE PLAN AND PROFILE

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MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

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PROJECT NO.:	17010E

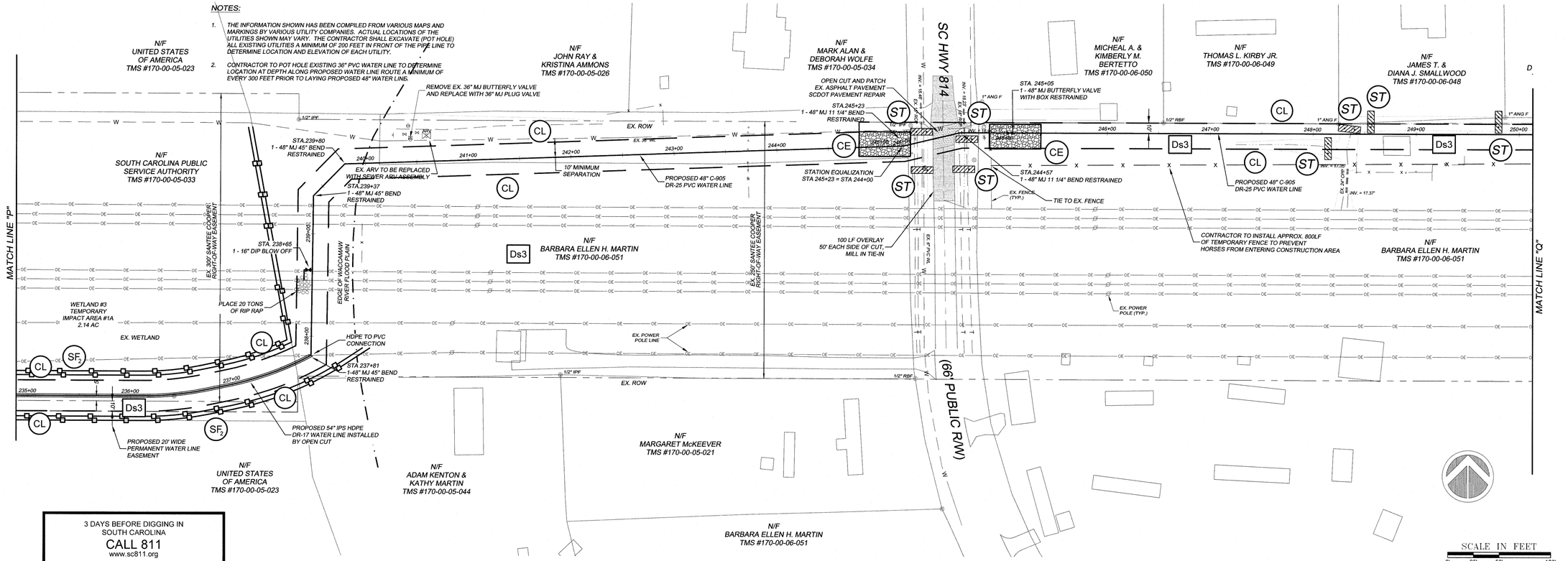
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FILE NO.: 17010E

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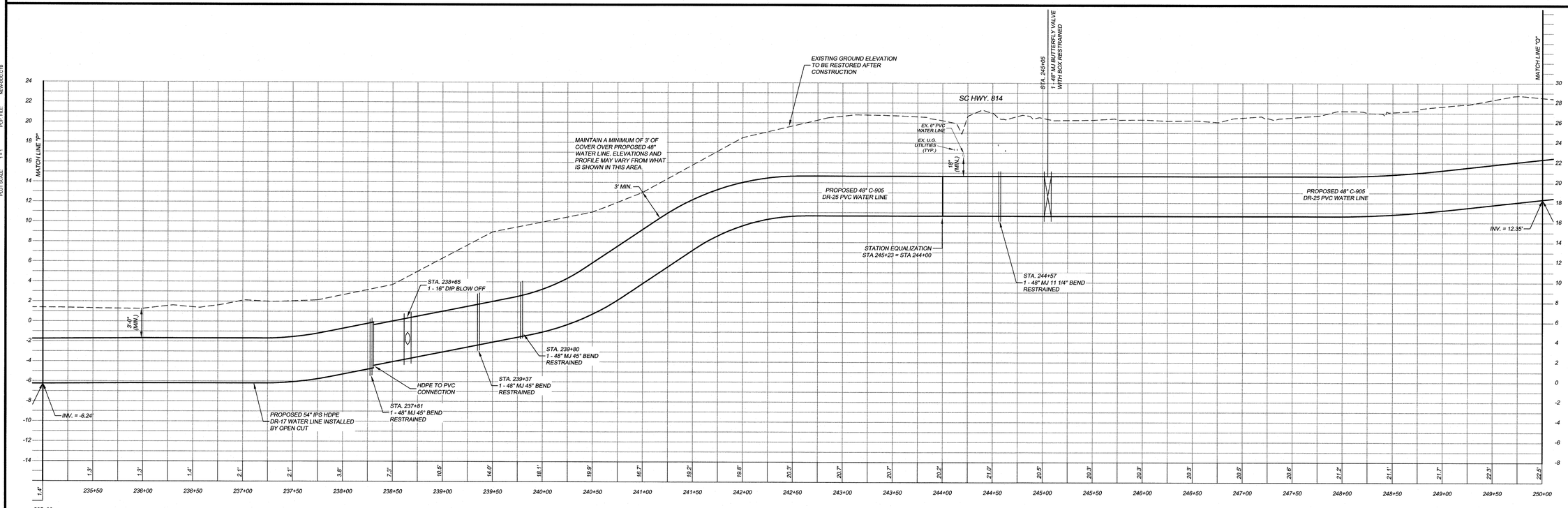
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PLAN VIEW
SCALE: 1" = 50'

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WATER LINE PROFILE
SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

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SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SAMANEGO No. 29814

SOUTH CAROLINA DDC ENGINEERS, INC. No. C00036 CERTIFICATE OF AUTHORITY

NO.	DATE	REVISION DESCRIPTION	BY
6	8/30/19	REVISED PER GSWS&A COMMENTS	KJG
5	5/17/19	ADDED WETLANDS TO PLAN	KJG
5	4-3-19	REVISED PER IN HOUSE REVIEW	PES
3	3/6/19	REVISED PER GSWSA COMMENTS	KJG
2	10-2-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-24-17	REVISIONS PER IN HOUSE REVIEW	PES

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48" WATER LINE PLAN AND PROFILE

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MYRTLE BEACH, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

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FILE NO.: 17010E

PLOT SCALE: 1 = 1 PCP FILE NEW.DDC CTB

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N/F D & S SITEWORK, INC. TMS #170-00-06-047
N/F D & S SITEWORK, INC. TMS #170-00-06-237
N/F HOWARD WESLEY BARNES TMS #170-00-06-080
N/F WAVEL C. SR. & REBA WHIPKEY TMS #170-00-06-076
N/F WILLIAM C. SHEPARD TMS #170-00-06-075
N/F ANN B. HARVEY TMS #170-00-06-223
N/F DONNA REE SCOTT TMS #170-00-06-138
N/F DANA L. HOLLEY TMS #170-20-03-004
N/F LAWRENCE W. BETUSH TMS #170-20-03-003
N/F TRUDY H. CAUSEY TMS #170-20-03-001
N/F TODD KRUPINSKI TMS #170-20-03-002
N/F BARBARA ELLEN H. MARTIN TMS #170-00-06-051
N/F BRIAN K. & HELEN R. SILVER TMS #170-20-03-010
N/F LINDA D. BENNETT TMS #170-20-03-009
N/F JOSEPH D. RICHARDSON TMS #170-20-03-012
N/F JOE SETH & STEFANIE MORROW TMS #170-20-03-011
N/F CONNIE C. MARTIN TMS #170-20-03-014
N/F KIMBERLY M. YARNELL TMS #170-20-03-013

PEACHTREE LANE

MATCH LINE "Q"
MATCH LINE "R"

PROPOSED 48" C-905 DR-25 PVC WATER LINE
PROPOSED 20' WIDE PERMANENT WATER LINE EASEMENT
PROPOSED 2" ASPHALT OVERLAY MILL IN TIE-IN POINTS
OPEN CUT AND PATCH EX. ASPHALT PAVEMENT
STA. 255+50 1 - AIR RELEASE VALVE IN QUAZITE BOX
STA. 259+87 1 - 48" MJ 45° BEND RESTRAINED
STA. 261+59 1 - 48" MJ 45° BEND RESTRAINED
TIE TO EX. FENCE
EX. FENCE (TYP.)
EX. 250' SANTEE COOPER RIGHT-OF-WAY EASEMENT
EX. POWER POLE (TYP.)
EX. POWER POLE LINE
EX. ROW
EX. 36" WL
EX. CONC. DRIVE

PEACHTREE LANE NOTES:
1. ALL ASPHALT DRIVEWAYS TO BE OVERLAID TO RIGHT-OF-WAY.
2. ONE LANE OF TRAFFIC HAS TO BE OPEN AT ALL TIMES.
3. NO OPEN TRENCHES WILL BE LEFT OPEN AT END OF THE WORKDAY.
4. CONTRACTOR TO GIVE SEVEN (7) DAYS NOTICE TO ALL RESIDENTS ON PEACHTREE LANE AND HORRY COUNTY THAT CONSTRUCTION IS ABOUT TO BEGIN.

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
www.sc811.org
PALMETTO UTILITY LOCATION SERVICE

PLAN VIEW
SCALE: 1" = 50'

SCALE IN FEET
0' 25' 50' 100'

WATER LINE PROFILE

SCALE:
HORIZONTAL: 1"= 50'
VERTICAL: 1"= 5'

EXISTING GROUND ELEVATION TO BE RESTORED AFTER CONSTRUCTION
EX. 36" WATER LINE
INV. = 12.35'
INV. = 15.22'
INV. = 22.48'
3'-0" (MIN.)
18" (MIN.)

PLOT SCALE: 1 = 1
PLOT FILE: NEW.DOC.CTB

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SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 29614 ERIC K. KNOX

DDC ENGINEERS, INC No. C00036 CERTIFICATE OF AUTHORIZATION SOUTH CAROLINA

NO.	DATE	REVISION DESCRIPTION	BY
5	8/30/19	REVISED PER GSWSA COMMENTS	KJG
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
3	4-3-19	REVISED PER IN HOUSE REVIEW.	PES
2	10-27-17	REVISIONS PER IN HOUSE REVIEW.	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS.	PES

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MYRTLE BEACH, SOUTH CAROLINA

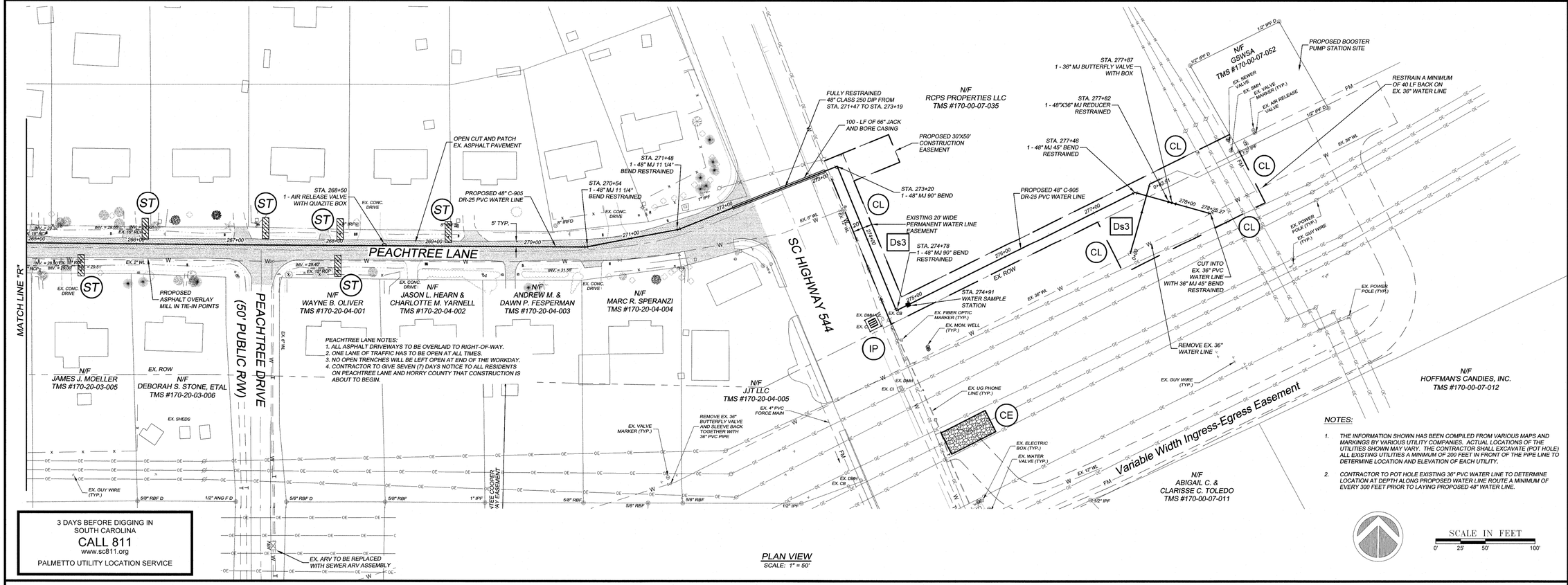
PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

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FILE NO.: 17010E

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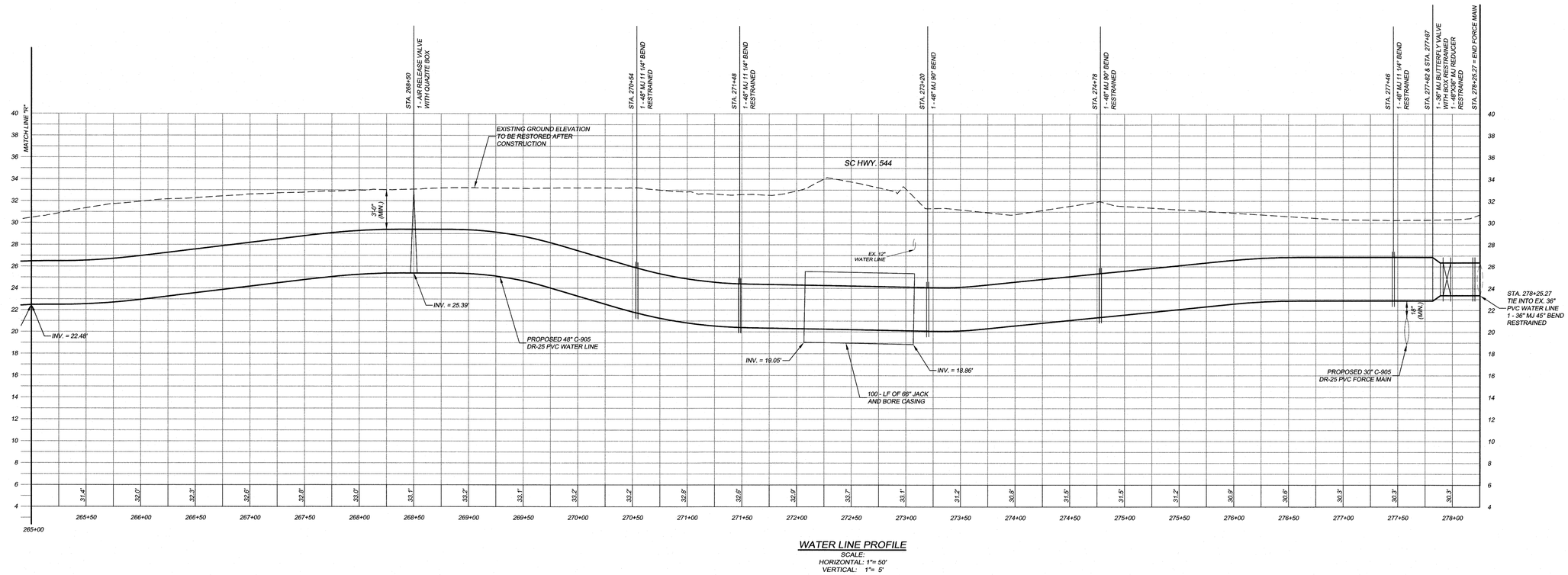


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www.sc811.org
PALMETTO UTILITY LOCATION SERVICE

PLAN VIEW
SCALE: 1" = 50'

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WATER LINE PROFILE
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VERTICAL: 1"= 5'

PLOT SCALE: 1 = 1 PCP FILE: NEWDOC.CTB

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NORTH CAROLINA / SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29814 ERIC K. SINCLAIR

CERTIFICATE OF AUTHORIZATION — SOUTH CAROLINA — DDC ENGINEERS, INC. — No. C05006

NO.	DATE	REVISION DESCRIPTION	BY
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES
2	9-27-18	REVISED PER IN HOUSE REVIEW	PES
3	4-3-19	REVISED PER IN HOUSE REVIEW	PES
4	7/1/19	REVISED PER IN HOUSE REVIEW	KJG
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48" WATER LINE PLAN AND PROFILE

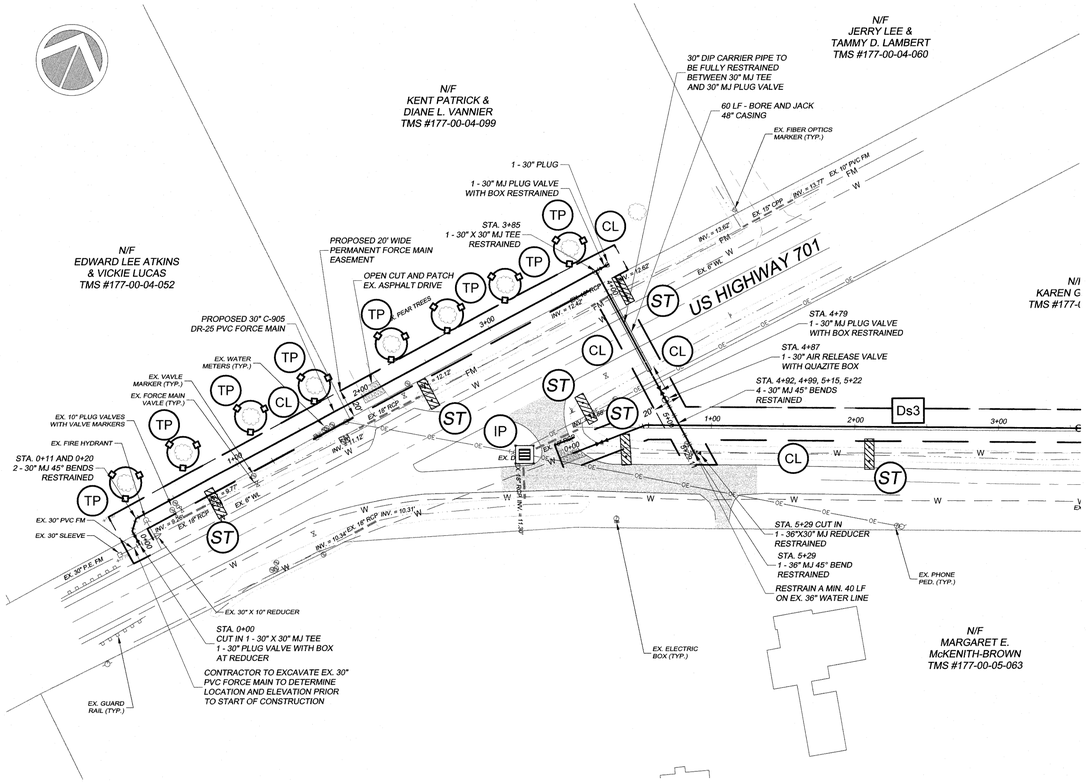
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PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

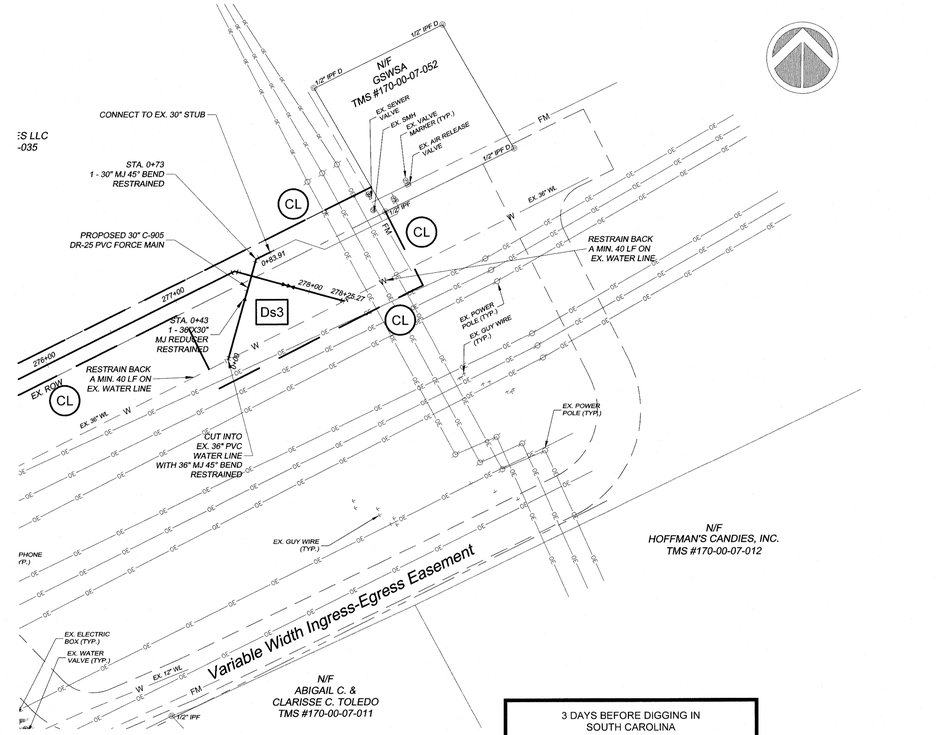
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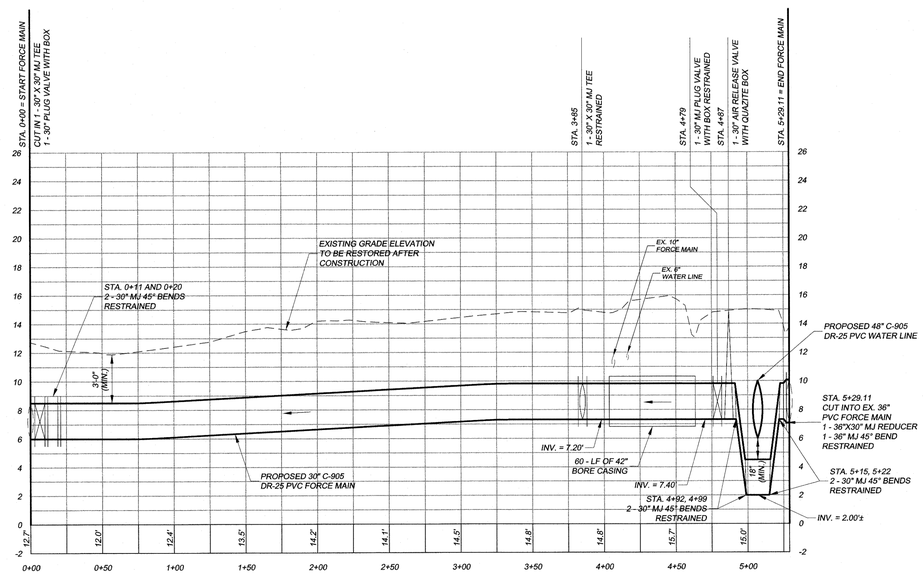


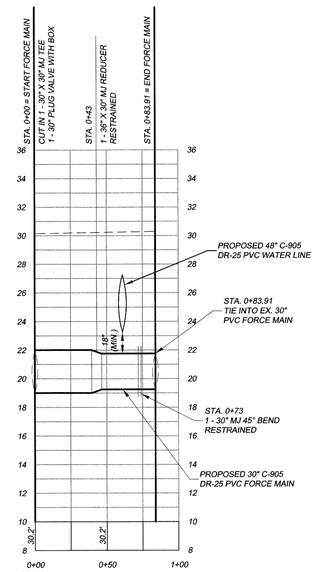
PLAN VIEW
SCALE: 1" = 50'



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PALMETTO UTILITY LOCATION SERVICE

SCALE IN FEET
0' 25' 50' 100'





FORCE MAIN PROFILES
SCALE:
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SOUTH CAROLINA PROFESSIONAL ENGINEER ERIC K. SANFORD No. 29814 8/2/19

NOLA WHITE NOTARY PUBLIC SOUTH CAROLINA DDC ENGINEERS, INC. No. C00036 CERTIFICATE OF AUTHORIZATION

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30" FORCE MAIN PLAN AND PROFILES

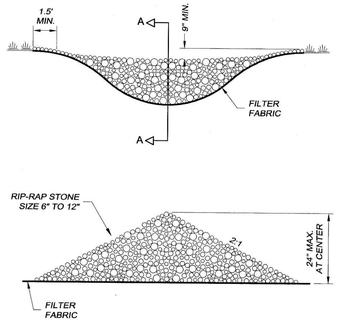
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FILE NO.:	17010E

PLOT SCALE: 1 = 1 PCP FILE: NEW-30C-CTB

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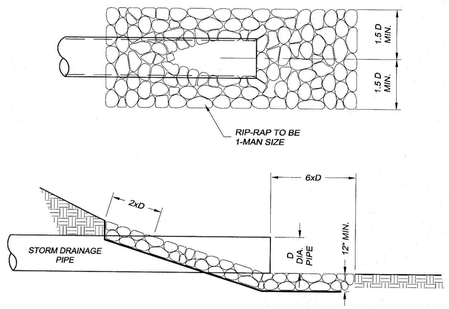
SECTION A-A

STONE CHECK DAM

SCALE: N.T.S.

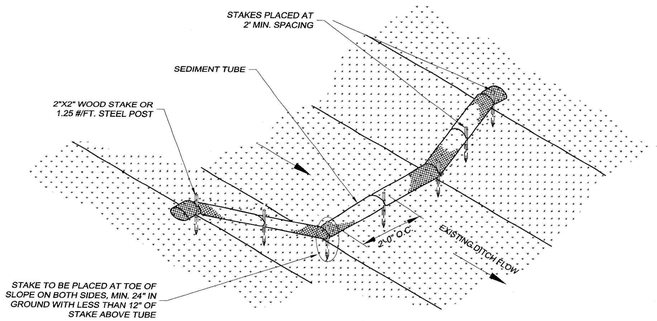
NOTES:

1. FILTER FABRIC TO BE INSTALLED BENEATH STONE RIP-RAP.
2. WHEN PIPE EMPTIES INTO A DITCH OR SWALE, THE RIP-RAP WILL TAKE THE SHAPE OF THE DITCH OR SWALE

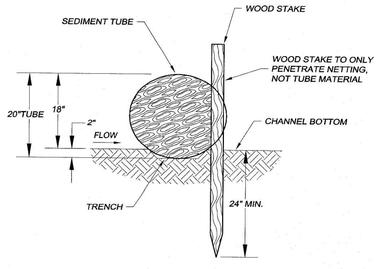


OP **RIP-RAP PIPE OUTLET**

SCALE: N.T.S.



SEDIMENT TUBE CHECK DAM DETAIL (NO BLANKET)



1 1/8" x 1 1/8" x 48" WOODEN STAKES ARE RECOMMENDED FOR 20" SEDIMENT LOGS.

STAKE DETAIL (WITH TRENCH)

SEDIMENT TUBES - GENERAL NOTES

1. SEDIMENT TUBES MAY BE INSTALLED ALONG CONTOURS, IN DRAINAGE CONVEYANCE CHANNELS, AND AROUND INLETS TO HELP PREVENT OFF SITE DISCHARGE OF SEDIMENT LADEN STORM WATER RUNOFF.
2. SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER, OR HARDWOOD MULCH. STRAW, PINE NEEDLE AND LEAF MULCH FILLED SEDIMENT TUBES ARE NOT PERMITTED.
3. THE OUTER NETTING OF THE SEDIMENT TUBE SHOULD CONSIST OF SEAMLESS, HIGH DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH DENSITY POLYETHYLENE NON DEGRADABLE MATERIAL.
4. SEDIMENT TUBES, WHEN USED AS CHECKS WITHIN CHANNELS, SHOULD RANGE BETWEEN 18 INCHES AND 24 INCHES DEPENDING ON CHANNEL DIMENSIONS. DIAMETERS OUTSIDE THIS RANGE MAY BE ALLOWED WHERE NECESSARY WHEN APPROVED.
5. CURLED EXCELSIOR WOOD, OR NATURAL COCONUT PRODUCTS THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED.
6. SEDIMENT TUBES SHOULD BE STAKED USING WOODEN STAKES (2" X 2") OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) AT A MINIMUM OF 48 INCHES IN LENGTH PLACED ON 2 FOOT CENTERS.
7. INSTALL ALL SEDIMENT TUBES TO ENSURE THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE TUBE. MANUFACTURER'S RECOMMENDATIONS SHOULD ALWAYS BE CONSULTED BEFORE INSTALLATION.
8. THE ENDS OF ADJACENT SEDIMENT TUBES SHOULD BE OVERLAPPED 6 INCHES TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT.
9. SEDIMENT TUBES SHOULD NOT BE STACKED ON TOP OF ONE ANOTHER, UNLESS RECOMMENDED BY MANUFACTURER.
10. EACH SEDIMENT TUBE SHOULD BE INSTALLED IN A TRENCH WITH A DEPTH EQUAL TO 1/5 THE DIAMETER OF THE SEDIMENT TUBE.
11. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW DEPTH OF THE CHANNEL.
12. INSTALL STAKES AT A DIAGONAL FACING INCOMING RUNOFF.

SEDIMENT TUBES - INSPECTION & MAINTENANCE

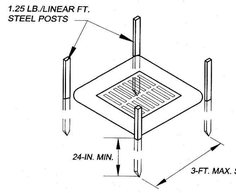
1. THE KEY TO FUNCTIONAL SEDIMENT TUBES IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE AND REGULAR SEDIMENT REMOVAL.
2. REGULAR INSPECTIONS OF SEDIMENT TUBES SHALL BE CONDUCTED ONCE EVERY CALENDAR WEEK AND, AS RECOMMENDED, WITHIN 24 HOURS AFTER EACH RAINFALL EVEN THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION.
3. ATTENTION TO SEDIMENT ACCUMULATIONS IN FRONT OF THE SEDIMENT TUBE IS EXTREMELY IMPORTANT. ACCUMULATED SEDIMENT SHOULD BE CONTINUALLY MONITORED AND REMOVED WHEN NECESSARY.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3 THE HEIGHT OF THE SEDIMENT TUBE.
5. REMOVED SEDIMENT SHALL BE PLACED IN STOCKPILE STORAGE AREAS OR SPREAD THINLY ACROSS DISTURBED AREA. STABILIZE THE REMOVED SEDIMENT AFTER IT IS RELOCATED.
6. LARGE DEBRIS, TRASH AND LEAVES SHOULD BE REMOVED FROM IN FRONT OF TUBES WHEN FOUND.
7. IF EROSION CAUSES THE EDGES TO FALL TO A HEIGHT EQUAL TO OR BELOW THE HEIGHT OF THE SEDIMENT TUBE, REPAIRS SHOULD BE MADE IMMEDIATELY TO PREVENT RUNOFF FROM BYPASSING TUBE.
8. SEDIMENT TUBES SHOULD BE REMOVED AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETELY STABILIZED. PERMANENT VEGETATION SHOULD REPLACE AREAS FROM WHICH SEDIMENT TUBES HAVE BEEN REMOVED.

SEDIMENT TUBE SPACING

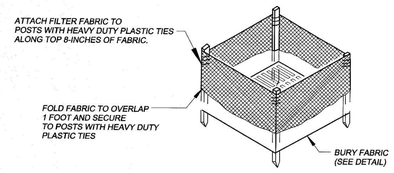
SLOPE	MAX. SEDIMENT TUBE SPACING
LESS THAN 2%	150-FEET
2%	100-FEET
3%	75-FEET
4%	50-FEET
5%	40-FEET
6%	30-FEET
GREATER THAN 6%	25-FEET

ST **SEDIMENT TUBE DETAIL**

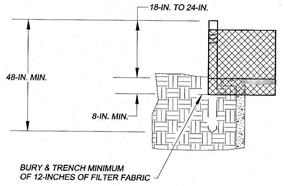
SCALE: N.T.S.



POST INSTALLATION DETAIL



FILTER FABRIC INSTALLATION DETAIL



FILTER FABRIC BURIAL DETAIL

TYPE A - POST REQUIREMENTS

1. SILT FENCE POSTS MUST BE 48 INCH LONG STEEL POSTS THAT MEET, AT A MINIMUM, THE FOLLOWING PHYSICAL CHARACTERISTICS.
   - COMPOSED OF A HIGH STRENGTH STEEL WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
   - INCLUDE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38 INCHES AND A NOMINAL "T" LENGTH OF 1.48 INCHES.
   - WEIGH 1.25 POUNDS PER FOOT (±8%).
2. POSTS SHALL BE EQUIPPED WITH PROJECTIONS TO AID IN FASTENING OF FILTER FABRIC.
3. INSTALL POSTS TO A MINIMUM OF 24 INCHES. A MINIMUM HEIGHT OF 1 TO 2 INCHES ABOVE THE FABRIC SHALL BE MAINTAINED, AND A MAXIMUM HEIGHT OF 3 FEET SHALL BE MAINTAINED ABOVE THE GROUND.
4. POST SPACING SHALL BE AT A MAXIMUM OF 3 FEET ON CENTER.

TYPE A - FILTER FABRIC REQUIREMENTS

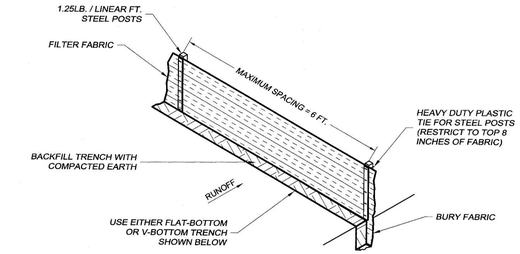
1. SILT FENCE MUST BE COMPOSED OF WOVEN GEOTEXTILE FILTER FABRIC THAT CONSISTS OF THE FOLLOWING REQUIREMENTS:
   - COMPOSED OF FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS OF AT LEAST 85% BY WEIGHT OF POLYOLEFINS, POLYESTERS OR POLYAMIDES THAT ARE FORMED INTO A NETWORK SUCH THAT THE FILAMENTS OR YARNS RETAIN DIMENSIONAL STABILITY RELATIVE TO EACH OTHER;
   - FREE OF ANY TREATMENT OR COATING WHICH MIGHT ADVERSELY ALTER ITS PHYSICAL PROPERTIES AFTER INSTALLATION;
   - FREE OF ANY DEFECTS OR FLAWS THAT SIGNIFICANTLY AFFECT ITS PHYSICAL AND/OR FILTERING PROPERTIES; AND,
   - HAVE A MINIMUM WIDTH OF 36 INCHES.
2. USE ONLY FABRIC APPEARING ON SC DOT'S QUALIFIED PRODUCTS LISTING (QPL), APPROVAL SHEET #34 MEETING THE REQUIREMENTS OF THE MOST CURRENT EDITION OF THE SC DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. 12 INCHES OF THE FABRIC SHOULD BE PLACED WITHIN EXCAVATED TRENCH AND TOED IN WHEN THE TRENCH IS BACKFILLED.
4. FILTER FABRIC SHALL BE PURCHASED IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS.
5. FILTER FABRIC SHALL BE INSTALLED AT A MINIMUM OF 24 INCHES ABOVE THE GROUND.

TYPE A - INSPECTION & MAINTENANCE

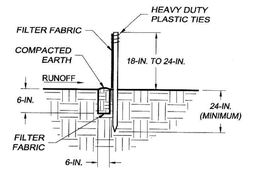
1. THE KEY TO FUNCTIONAL INLET PROTECTION IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE AND REGULAR SEDIMENT REMOVAL.
2. REGULAR INSPECTIONS OF INLET PROTECTION SHALL BE CONDUCTED ONCE EVERY CALENDAR WEEK AND, AS RECOMMENDED, WITHIN 24 HOURS AFTER EACH RAINFALL EVEN THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION.
3. ATTENTION TO SEDIMENT ACCUMULATIONS ALONG THE FILTER FABRIC IS EXTREMELY IMPORTANT. ACCUMULATED SEDIMENT SHOULD BE CONTINUALLY MONITORED AND REMOVED WHEN NECESSARY.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3 THE HEIGHT OF THE FILTER FABRIC. WHEN A SUMP IS INSTALLED IN FRONT OF THE FABRIC, SEDIMENT SHOULD BE REMOVED WHEN IT FILLS APPROXIMATELY 1/3 THE DEPTH OF THE SUMP.
5. REMOVED SEDIMENT SHALL BE PLACED IN STOCKPILE STORAGE AREAS OR SPREAD THINLY ACROSS DISTURBED AREA. STABILIZE THE REMOVED SEDIMENT AFTER IT IS RELOCATED.
6. CHECK FOR AREAS WHERE STORM WATER RUNOFF HAS ERODED A CHANNEL BENEATH THE FILTER FABRIC, BENEATH THE FILTER FABRIC, OR WHERE THE FABRIC HAS SAGGED OR COLLAPSED DUE TO RUNOFF OVERTOPPING THE INLET PROTECTION.
7. CHECK FOR TEARS WITHIN THE FILTER FABRIC, AREAS WHERE FABRIC HAS BEGUN TO DECOMPOSE, AND FOR ANY OTHER CIRCUMSTANCE THAT MAY RENDER THE INLET PROTECTION INEFFECTIVE. REMOVE DAMAGED FABRIC AND REINSTALL NEW FILTER FABRIC IMMEDIATELY.
8. INLET PROTECTION STRUCTURES SHOULD BE REMOVED AFTER ALL THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. STABILIZE ALL BARE AREAS IMMEDIATELY.

IP **INLET PROTECTION**

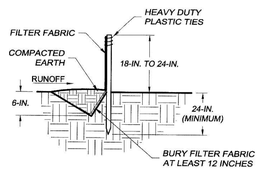
SCALE: N.T.S.



SILT FENCE INSTALLATION



FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL

SILT FENCE - GENERAL NOTES:

1. DO NOT PLACE SILT FENCE ACROSS CHANNELS OR IN OTHER AREAS SUBJECT TO CONCENTRATED FLOWS. SILT FENCE SHOULD NOT BE USED AS A VELOCITY CONTROL BMP. CONCENTRATED FLOWS ARE ANY FLOWS GREATER THAN 0.5 CFS.
2. MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE SILT FENCE SHALL BE 100 FEET.
3. MAXIMUM SLOPE STEEPNESS (NORMAL [PERPENDICULAR] TO THE FENCE LINE) SHALL BE 2:1.
4. SILT FENCE JOINTS, WHEN NECESSARY SHALL BE COMPLETED BY ONE OF THE FOLLOWING OPTIONS:
   - WRAP EACH FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 1 FOOT MINIMUM OVERLAP.
   - OVERLAP SILT FENCE BY INSTALLING 3 FEET PAST THE SUPPORT POST TO WHICH THE NEW SILT FENCE ROLL IS ATTACHED. ATTACH OLD ROLL TO NEW ROLL WITH HEAVY DUTY PLASTIC TIES; OR
   - OVERLAP ENTIRE WIDTH OF EACH SILT FENCE ROLL FROM ONE SUPPORT POST TO THE NEXT SUPPORT POST.
5. ATTACH FILTER FABRIC TO THE STEEL POSTS USING HEAVY DUTY PLASTIC TIES THAT ARE EVENLY SPACED WITHIN THE TOP 8 INCHES OF THE FABRIC.
6. INSTALL THE SILT FENCE PERPENDICULAR TO THE DIRECTION OF THE STORM WATER FLOW AND PLACE THE SILT FENCE THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEAN OUT.
7. INSTALL SILT FENCE CHECKS (TIE-BACKS) EVERY 50-100 FEET, DEPENDENT ON SLOPE, ALONG SILT FENCE THAT IS INSTALLED WITH SLOPE AND WHERE CONCENTRATED FLOWS ARE EXPECTED OR ARE DOCUMENTED ALONG THE PROPOSED / INSTALLED SILT FENCE.

SILT FENCE - POST REQUIREMENTS

1. SILT FENCE POSTS MUST BE 48 INCH LONG STEEL POSTS THAT MEET, AT A MINIMUM, THE FOLLOWING PHYSICAL CHARACTERISTICS.
   - COMPOSED OF A HIGH STRENGTH STEEL WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
   - INCLUDE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38 INCHES AND A NOMINAL "T" LENGTH OF 1.48 INCHES.
   - WEIGH 1.25 POUNDS PER FOOT (±8%).
2. POSTS SHALL BE EQUIPPED WITH PROJECTIONS TO AID IN FASTENING OF FILTER FABRIC.
3. STEEL POSTS MAY NEED TO HAVE A METAL SOIL STABILIZATION PLATE WELDED NEAR THE BOTTOM WHEN INSTALLED ALONG STEEP SLOPES OR INSTALLED IN LOOSE SOILS. THE PLATE SHOULD HAVE A MINIMUM CROSS SECTION OF 17 SQUARE INCHES AND BE COMPOSED OF 15 GAUGE STEEL AT A MINIMUM. THE METAL SOIL STABILIZATION PLATE SHOULD BE COMPLETELY BURIED.
4. INSTALL POSTS A MINIMUM OF 24 INCHES. A MINIMUM HEIGHT OF 1 TO 2 INCHES ABOVE THE FABRIC SHALL BE MAINTAINED, AND A MAXIMUM HEIGHT OF 3 FEET SHALL BE MAINTAINED ABOVE THE GROUND.
5. POST SPACING SHALL BE AT A MAXIMUM OF 6 FEET ON CENTER.

SILT FENCE - FABRIC REQUIREMENTS

1. SILT FENCE MUST BE COMPOSED OF WOVEN GEOTEXTILE FILTER FABRIC THAT CONSISTS OF THE FOLLOWING REQUIREMENTS:
   - COMPOSED OF FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS OF AT LEAST 85% BY WEIGHT OF POLYOLEFINS, POLYESTERS OR POLYAMIDES THAT ARE FORMED INTO A NETWORK SUCH THAT THE FILAMENTS OR YARNS RETAIN DIMENSIONAL STABILITY RELATIVE TO EACH OTHER;
   - FREE OF ANY TREATMENT OR COATING WHICH MIGHT ADVERSELY ALTER ITS PHYSICAL PROPERTIES AFTER INSTALLATION;
   - FREE OF ANY DEFECTS OR FLAWS THAT SIGNIFICANTLY AFFECT ITS PHYSICAL AND/OR FILTERING PROPERTIES; AND,
   - HAVE A MINIMUM WIDTH OF 36 INCHES.
2. USE ONLY FABRIC APPEARING ON SC DOT'S QUALIFIED PRODUCTS LISTING (QPL), APPROVAL SHEET #34 MEETING THE REQUIREMENTS OF THE MOST CURRENT EDITION OF THE SC DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. 12 INCHES OF THE FABRIC SHOULD BE PLACED WITHIN EXCAVATED TRENCH AND TOED IN WHEN THE TRENCH IS BACKFILLED.
4. FILTER FABRIC SHALL BE PURCHASED IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS.
5. FILTER FABRIC SHALL BE INSTALLED AT A MINIMUM OF 24 INCHES ABOVE THE GROUND.

SILT FENCE - INSPECTION & MAINTENANCE

1. THE KEY TO FUNCTIONAL SILT FENCE IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE AND REGULAR SEDIMENT REMOVAL.
2. REGULAR INSPECTIONS OF SILT FENCE SHALL BE CONDUCTED ONCE EVERY CALENDAR WEEK AND, AS RECOMMENDED, WITHIN 24 HOURS AFTER EACH RAINFALL EVEN THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION.
3. ATTENTION TO SEDIMENT ACCUMULATIONS ALONG THE SILT FENCE IS EXTREMELY IMPORTANT. ACCUMULATED SEDIMENT SHOULD BE CONTINUALLY MONITORED AND REMOVED WHEN NECESSARY.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3 THE HEIGHT OF THE SILT FENCE.
5. REMOVED SEDIMENT SHALL BE PLACED IN STOCKPILE STORAGE AREAS OR SPREAD THINLY ACROSS DISTURBED AREA. STABILIZE THE REMOVED SEDIMENT AFTER IT IS RELOCATED.
6. CHECK FOR AREAS WHERE STORM WATER RUNOFF HAS ERODED A CHANNEL BENEATH THE SILT FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED DUE TO RUNOFF OVERTOPPING THE SILT FENCE. INSTALL CHECKS/TIE-BACKS AND/OR REINSTALL SILT FENCE, AS NECESSARY.
7. CHECK FOR TEARS WITHIN THE SILT FENCE, AREAS WHERE SILT FENCE HAS BEGUN TO DECOMPOSE, AND FOR ANY OTHER CIRCUMSTANCE THAT MAY RENDER THE SILT FENCE INEFFECTIVE. REMOVE DAMAGED SILT FENCE AND REINSTALL NEW SILT FENCE IMMEDIATELY.
8. SILT FENCE SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED AND ONCE IT IS REMOVED, THE RESULTING DISTURBED AREA SHALL BE PERMANENTLY STABILIZED.

SF **CONSTRUCTION OF A SILT FENCE**

SCALE: N.T.S.

DDC ENGINEERS®
Consulting Engineers, Surveyors, Planners, Landscape Architects & Environmentalists
1298 Professional Dr., Myrtle Beach, SC 29577
Phone: (843) 692-3200 Fax: (843) 692-3210

SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 2924 ERIC K. SASS

SOUTH CAROLINA DDC ENGINEERS, INC. No. C00900 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
1	8-14-17	REVISIONS PER GSWSA COMMENTS.	PES
2	10-27-17	REVISIONS PER IN HOUSE REVIEW.	PES

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SEDIMENT AND EROSION CONTROL DETAILS

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
HORRY COUNTY, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	NO SCALE
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

23

FILE NO.: 17010E

PDF FILE 18"x24" PLOT SCALE 1=1 REVIDOC.DTB

EROSION CONTROL NOTES:

1. TOTAL DEVELOPMENT AREA : 13.1 ± ACRES
2. DISTURBED AREA THIS PHASE: 13.1 ± ACRES
3. IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
4. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW:

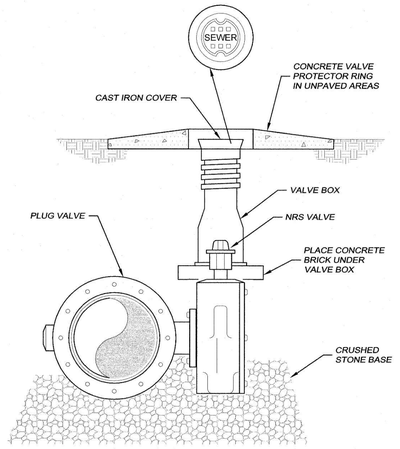
   - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.

   - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

5. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY OR INCORRECTLY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
6. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE ANY SEDIMENTS BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
7. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFF SITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
8. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAYS FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
9. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 ET SEQ. AND SCR 100000.
10. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
11. ALL WATERS OF THE STATE (WoS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50 FOOT BUFFER CANNOT BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WoS. A 10 FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WoS.
12. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
13. A COPY OF THE SWPPP, INSPECTION RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.
14. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.
15. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
16. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.
17. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPs (SEDIMENT BASIN, FILTER BAG, ETC.).
18. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:

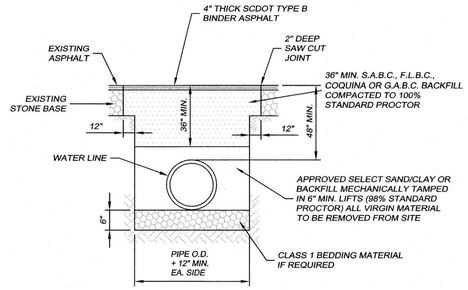
   - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
   - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
   - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

19. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
20. IF EXISTING BMPs NEED TO BE MODIFIED OR IF ADDITIONAL BMPs ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND / OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPs MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.
21. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SILT BARRIERS AND SEDIMENT CONTROL INSTALLATIONS DURING CONSTRUCTION UNTIL THE COMPLETION OF THE SITE DEVELOPMENT.
23. EROSION CONTROL DEVICES MUST BE INSTALLED IMMEDIATELY AFTER LAND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE CONTROL DEVICES MAY BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS, IF DRAINAGE PATTERNS DURING CONSTRUCTION VARY FROM THE FINAL DRAINAGE PATTERNS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE SOIL EROSION CONTROL FOR ALL DRAINAGE PATTERNS DURING ALL STAGES OF CONSTRUCTION. ALL INADEQUACIES IN SOIL EROSION CONTROL DURING ANY PHASE OF CONSTRUCTION MUST BE REPORTED IMMEDIATELY TO THE ENGINEER.
24. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE PROPER FUNCTIONING OF ALL DEVICES.
25. FAILURE TO INSTALL, OPERATE AND MAINTAIN ALL EROSION CONTROL MEASURES, AS SHOWN ON THE APPROVED PLANS OR AS DIRECTED BY THE ENGINEER AND/OR OCRM WILL RESULT IN ALL WORK ON THE CONSTRUCTION SITE BEING STOPPED UNTIL PROPER CORRECTIVE MEASURES HAVE BEEN MET, AS REQUIRED AND/OR DIRECTED.
26. ALL LAND DISTURBING ACTIVITIES REQUIRES COMPLIANCE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM THE CONSTRUCTION ACTIVITIES (PERMIT NO. SCR100000). ANY NONCOMPLIANCE WITH THESE REGULATIONS IS A VIOLATION OF THE FEDERAL CLEAN WATER ACT AND MAY REQUIRE ENFORCEMENT ACTION BY HORRY COUNTY OR SCDHEC.
27. CONTRACTOR SHALL PROVIDE A WATER TIGHT ENCLOSURE FOR STORAGE OF THE OCRM CERTIFIED PLANS AND INSPECTION REPORTS. ENCLOSURE SHALL BE LOCATED IN AN AREA ACCESSIBLE TO REGULATORY PERSONNEL.
28. ALL STOCKPILE TO BE PROTECTED WITH SILT FENCE.
29. ALL CONCRETE TO BE WASHED OUT IN AN APPROVED AREA.



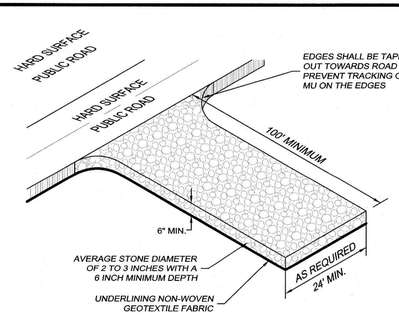
PLUG VALVE AND BOX DETAIL

SCALE: N.T.S.



HORRY COUNTY ROAD PAVEMENT REPAIR

SCALE: N.T.S.



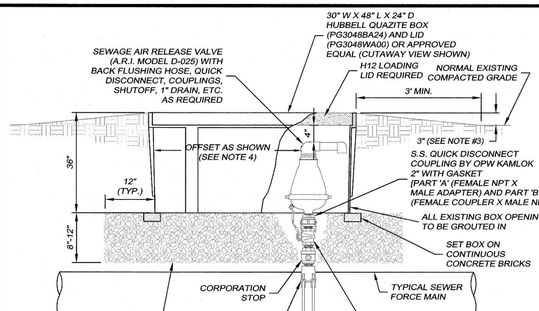
NOTE:

- INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.
- DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN OR OTHER SEDIMENT TRAPPING STRUCTURE.
- ENTRANCES SHALL COMPLY WITH SCDOT STANDARD DRAWING 651-115-01

STABILIZIED CONSTRUCTION ENTRANCE

CE

SCALE: N.T.S.

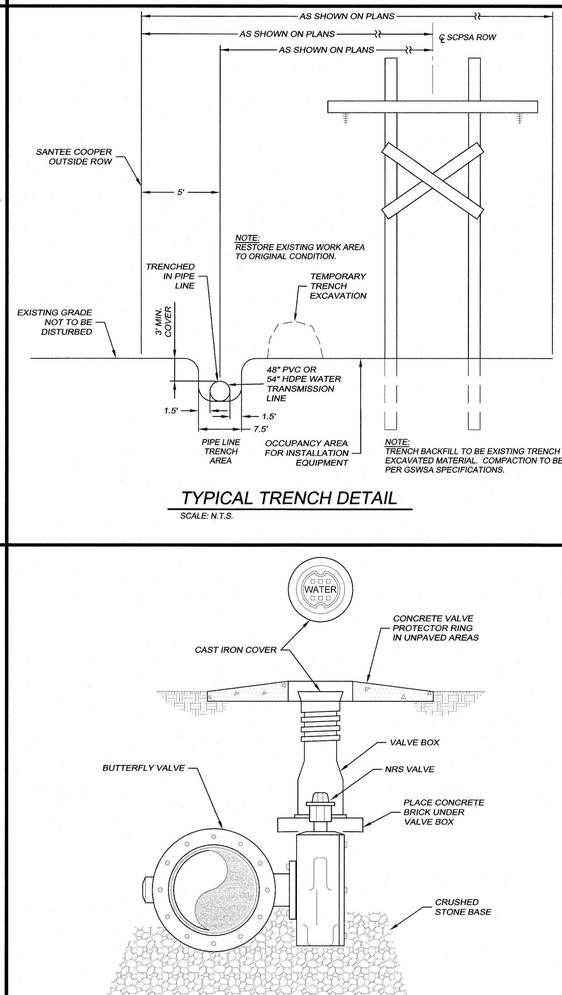


NOTES:

1. USE AN APPROVED JOINT COMPOUND ON ALL THREADED CONNECTIONS.
2. ROTATION AND LOCATION OF BOX SETTING TO BE APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION.
3. ARV ASSEMBLIES INSTALLED IN ROAD RIGHTS-OF-WAY MUST BE FLUSH WITH EXISTING SHOULDER GRADE. INSTALLATIONS IN EASEMENT AREAS SHALL BE RAISED ABOVE EXISTING GRADE AS SHOWN IN DETAIL.
4. ARV ASSEMBLY SHOULD BE OFFSET TO ONE SIDE OF THE BOX AS SHOWN TO ALLOW EASIER ACCESS TO QUICK DISCONNECT AND BALL VALVE HANDLE.
5. 2" S.S. NIPPLES SHALL BE USED IF NEEDED.

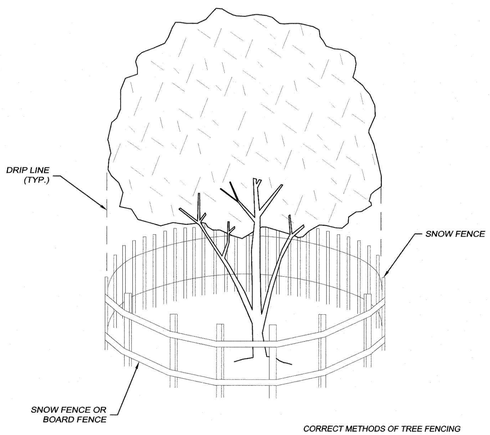
TYPICAL SEWER FORCEMAIN AIR RELEASE VALVE ASSEMBLY

SCALE: N.T.S.



TYPICAL TRENCH DETAIL

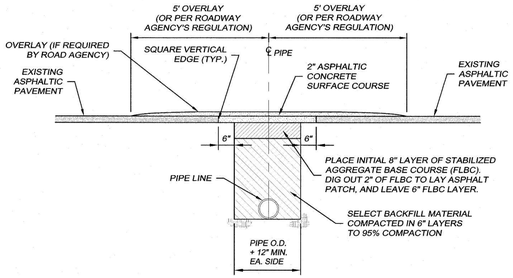
SCALE: N.T.S.



CORRECT METHODS OF TREE FENCING

TREE PROTECTION DETAIL

SCALE: N.T.S.



NOTES:

1. PAVEMENT CUT TO EXTEND 6" BEYOND EDGES OF TRENCH AS SHOWN. PAVEMENT SHALL BE CUT TO TRUE LINE AND REMOVED BEFORE TRENCH IS CUT. ALL PAVEMENT REPAIRS TO BE IN ACCORDANCE WITH ROAD AGENCY SPECS.
2. ROAD AGENCY MAY REQUIRE A CUT & PATCH OF TRENCH AREA AND AN OVERLAY OF ENTIRE APRON OR ENTRANCE FROM THE EDGE OF THE MAIN ROAD TO THE EDGE OF THE ROAD RIGHT-OF-WAY (SEE ENCROACHMENT PERMIT).
3. WHERE EXISTING PAVEMENT IS INSUFFICIENT THICKNESS TO DEVELOP TIGHT SEAL WITH NEW SURFACE, NEW PAVEMENT SHALL LAP EXISTING SURFACE WITH AT LEAST A 10' OVERLAP ON BOTH SIDES FOR SMOOTH TRANSITION OR AS PER SPEC'S OF ROAD AGENCY.

OPEN CUT REPAIR FOR LOW VOLUME ASPHALT PAVEMENT

SCALE: N.T.S.

BUTTERFLY VALVE AND BOX DETAIL

SCALE: N.T.S.

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SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 2814 ERIC K. SANDERSON

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No. C05508

NO.	DATE	REVISION DESCRIPTION	BY
4	8/30/19	REVISED PER GSWSA COMMENTS	KJG
5	4-3-19	REVISED PER IN HOUSE REVIEW	PES
2	10-27-17	REVISIONS PER IN HOUSE REVIEW	PES
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES

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GENERAL DETAILS

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
HORRY COUNTY, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

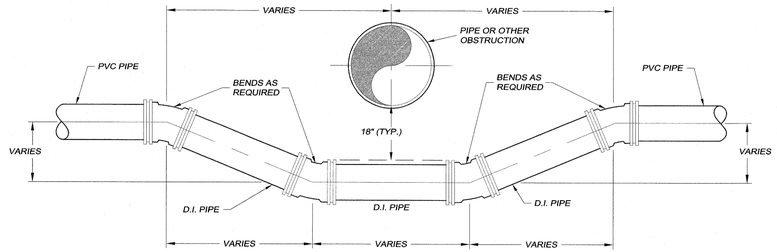
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DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

24

FILE NO.: 17010E

PLOT SCALE: 1 = 1 PCP FILE: NEWDOC.CTB

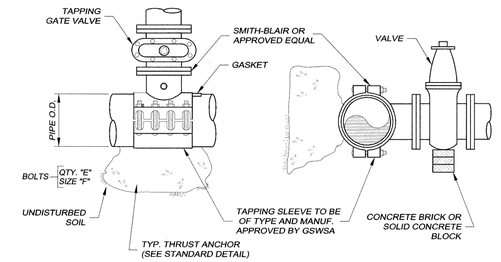
J:\plans\17\17010E - 48 INCH WATERLINE\E\17010-DET.dwg, DETAILS-SHT 24, 8/30/2019 7:54:59 AM, Arch D (landscape), 1:1



NOTE: ALL FITTINGS SHALL BE DUCTILE IRON, RESTRAINED MECHANICAL JOINTS.

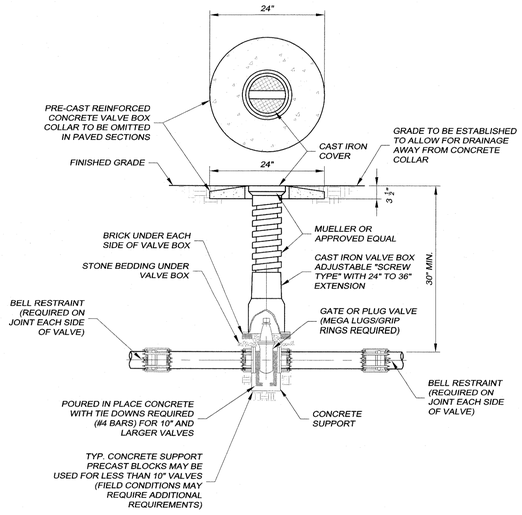
OBSTRUCTION BYPASS

SCALE: N.T.S.



TYPICAL TAPPLING SLEEVE (FOR WATER LINE OR SEWER FORCE MAIN)

SCALE: N.T.S.

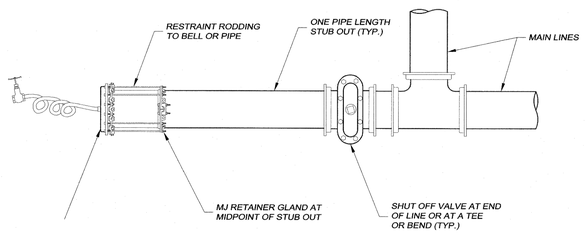


NOTES:

1. SEE "TYPICAL FITTING AND JOINT RESTRAINT" DETAIL FOR VALVE RESTRAINTS.
2. TOP OF VALVE BOX AND COLLAR SHALL BE PAINTED GREEN FOR SEWER FORCE MAIN AND BLUE FOR WATER.
3. EXTENSION STEM WILL BE REQUIRED TO BE WITHIN 2 FT. OF THE SURFACE IF OPERATING NUT IS OVER 5 FT. BELOW GRADE. EXTENSIONS SHALL BE PERMANENTLY ATTACHED TO VALVE NUT AND SHALL BE PROVIDED WITH HORIZONTAL SPACERS FOR VERTICAL ALIGNMENT WITHIN THE VALVE BOX.
4. PER GSWSA STANDARDS, MATERIAL APPROVAL THROUGH THE SUBMITTAL PROCESS IS REQUIRED PRIOR TO ANY INSTALLATIONS.

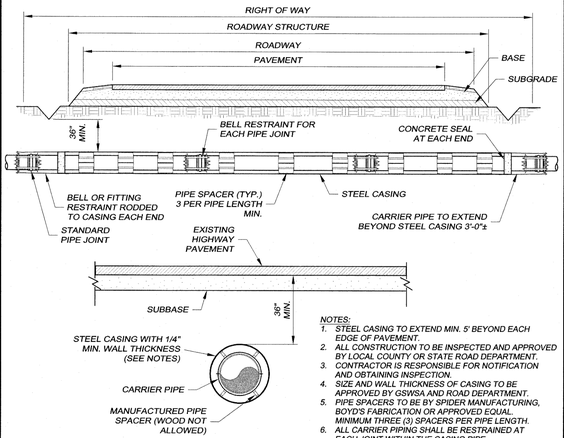
TYPICAL VALVE AND VALVE BOX

SCALE: N.T.S.



TYPICAL FUTURE WATER LINE OR FORCE MAIN STUBOUT

SCALE: N.T.S.

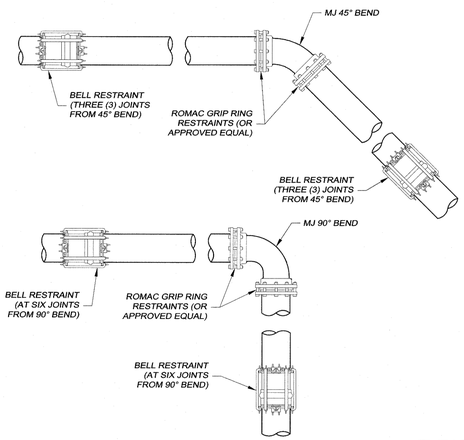


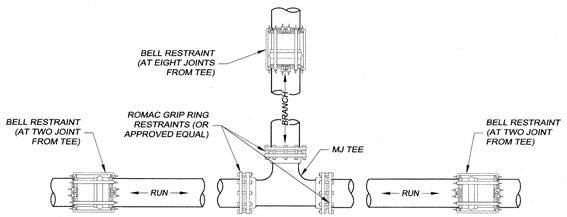
NOTES:

1. STEEL CASING TO EXTEND MIN. 5' BEYOND EACH EDGE OF PAVEMENT.
2. ALL CONSTRUCTION TO BE INSPECTED AND APPROVED BY LOCAL COUNTY OR STATE ROAD DEPARTMENT.
3. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION AND OBTAINING INSPECTION.
4. SIZE AND WALL THICKNESS OF CASING TO BE APPROVED BY GSWSA AND ROAD DEPARTMENT.
5. PIPE SPACERS TO BE BY SPIDER MANUFACTURING, BOYD'S FABRICATION OR APPROVED EQUAL. MINIMUM THREE (3) SPACERS PER PIPE LENGTH.
6. ALL CARRIER PIPING SHALL BE RESTRAINED AT EACH JOINT WITHIN THE CASING PIPE.

TYPICAL ROADWAY BORE AND JACK

SCALE: N.T.S.





VALVE	RESTRAINED JOINTS
IN LINE VALVES	BELL RESTRT'S REQUIRED 1 JOINT EACH SIDE/VALVE (SEE WS1)

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

48" PIPE	
FITTING	RESTRAINED JOINTS
11.25° BEND	11 LF OR 1 EACH SIDE
22.5° BEND	22 LF OR 2 EACH SIDE
45° BEND	45 LF OR 3 EACH SIDE
90° BEND	143 LF OR 6 EACH SIDE
TEE	40 LF OR 2 EACH SIDE/RUN 8 ON BRANCH
IN LINE VALVES	2 JOINTS EACH SIDE OF VALVE

NOTES:

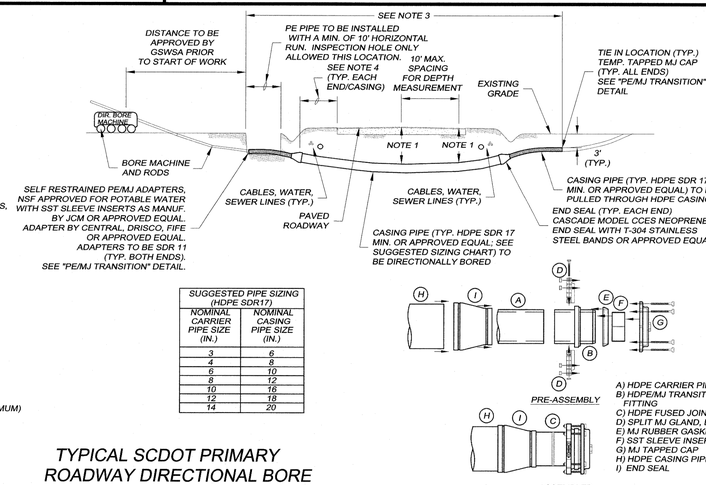
1. TABLE OF NO. OF RESTRAINTS REQUIRED ARE FOR SIZES THROUGH 12"; FOR LARGER THAN 12" NO. REQUIRED IS TO BE DETERMINED BY GSWSA.
2. PER GSWSA STANDARDS, MATERIAL APPROVAL THROUGH THE SUBMITTAL PROCESS IS REQUIRED PRIOR TO ANY INSTALLATIONS.
3. PIPE BELL RESTRAINTS ARE REQUIRED TO BE INSTALLED ON THE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

TYPICAL FITTING AND JOINT RESTRAINT

SCALE: N.T.S.

NOTES:

1. AN ELECTRONICALLY-DEVELOPED PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR. THIS SHALL INCLUDE ACCURATE HORIZONTAL AND VERTICAL DIMENSIONS.
2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER GSWSA STANDARDS BOTH UPON COMPLETION OF THE ABOVE GROUND FUSION OPERATION AND AGAIN AFTER INSTALLATION, WHICH IS PRIOR TO CONNECTION TO THE MAIN PROJECT WATER/SEWER LINE. A FINAL TEST WILL BE A PART OF THE TOTAL MAIN LINE SYSTEM TEST.
3. LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF P.E. PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION AND TIE-IN POINTS ARE TO BE APPROVED BY GSWSA PRIOR TO ANY START OF WORK OR ORDERING OF MATERIALS.
4. ON CONVENTIONAL HIGHWAYS, AS A MINIMUM, THE CASING PIPE SHALL EXTEND TO THE SHOULDER BREAK OR 6 FEET BEYOND THE EDGE OF PAVEMENT ON FILL SLOPES, WHICHEVER IS THE GREATER; 3 FEET BEYOND THE DITCH LINE IN CUTS; AND ON CURBED SECTIONS TO THE BACK OF THE SIDEWALK AREA. ON FREEWAYS, EXPRESSWAYS AND OTHER CONTROLLED ACCESS HIGHWAYS, THE ENCASEMENT WILL BE REQUIRED TO EXTEND TO THE ACCESS CONTROL LINES, TO THE OUTSIDE OF FRONTAGE ROADS, OR A SUFFICIENT DISTANCE TO ALLOW FOR FUTURE HIGHWAY IMPROVEMENTS. EXCEPTIONS TO THE ABOVE DEFINED ENCASEMENT LIMITS MUST BE JUSTIFIED BY THE UTILITY COMPNAY AND APPROVED BY THE SCDOT ENGINEER.
5. THE BORE DEVELOPED FOR THE LEAD END OF THE CASING PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION. THE AUGER HEAD SIZE SHALL BE APPROVED BY THE AUTHORITY PRIOR TO THE START OF WORK. THE LEADING END OF THE CARRIER PIPE SHALL BE PULLED THROUGH WITHOUT THE HDPE/MJ TRANSITION FITTING AND D.I. M.J. RING FLANGE ATTACHED. THE HDPE/MJ TRANSITION FITTING AND D.I. M.J. RING FLANGE FOR SAID LEADING END SHALL BE INSTALLED AFTER THE CARRIER PIPE INSTALLATION WITH THE USE OF A SPLIT D.I. M.J. FLANGE PER THE DETAIL DRAWING.
6. THE MANUFACTURER AND TYPE OF DRILLERS MUD SELECTED FOR USE SHALL BE APPROVED BY THE AUTHORITY PRIOR TO THE START OF WORK.
7. PIPE BELL RESTRAINTS ARE REQUIRED TO BE INSTALLED ON THE TWO JOINTS (MINIMUM) IMMEDIATELY FOLLOWING THE PE/MJ ADAPTERS ON EACH END OF HDPE PIPE.



SUGGESTED PIPE SIZING (HDPE SDR17)	
NOMINAL CARRIER PIPE SIZE (IN.)	NOMINAL CASING PIPE SIZE (IN.)
3	6
4	8
6	10
8	12
10	16
12	18
14	20

A) HDPE CARRIER PIPE
B) HDPE/MJ TRANSITION FITTING
C) HDPE FUSED JOINT
D) SPLIT MJ GLAND, D.I.
E) MJ RUBBER GASKET
F) SST SLEEVE INSERT
G) MJ TAPPED CAP
H) HDPE CASING PIPE
I) END SEAL

PE/MJ TRANSITION ASSEMBLY AND END SEAL

TYPICAL SCDOT PRIMARY ROADWAY DIRECTIONAL BORE FOR POLYETHYLENE (PE) PIPE

SCALE: N.T.S.

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29814 ERIC K. SANFORD

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DDC ENGINEERS, INC. No. C00036

NO	DATE	REVISION DESCRIPTION	BY
5	4-3-19	REVISED PER IH HOUSE REVIEW.	PES

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GENERAL DETAILS

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
HORRY COUNTY, SOUTH CAROLINA

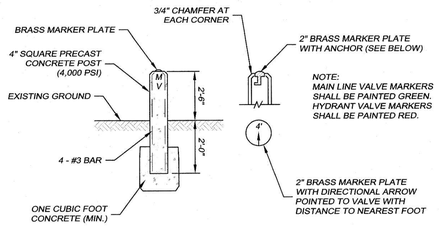
PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	NO SCALE
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

25

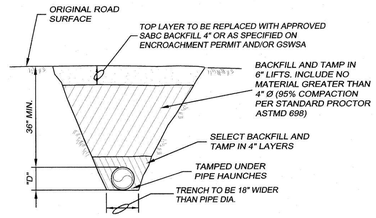
FILE NO.: 17010E

PLOT SCALE: 1 = 1 PLOT FILE: NEW.DDC.CTB



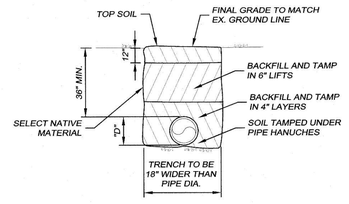
TYPICAL CONCRETE VALVE MARKER

SCALE: N.T.S.



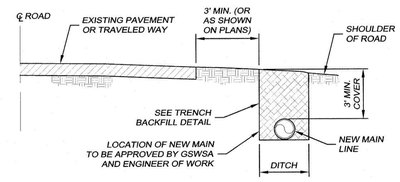
UNPAVED ROADWAY BEDDING DETAIL

SCALE: N.T.S.



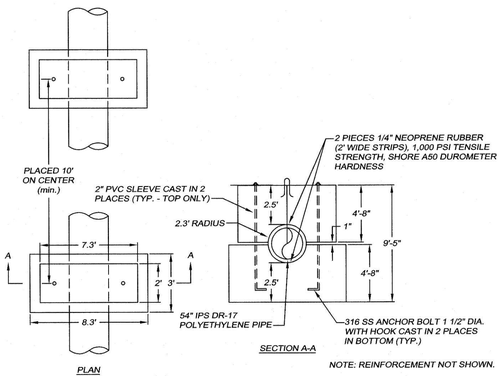
TYPICAL PIPE BEDDING DETAIL

SCALE: N.T.S.

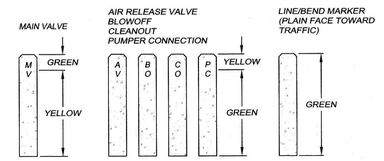


TYPICAL MAIN LINE LOCATION IN EDGE OF TRAVEL WAY

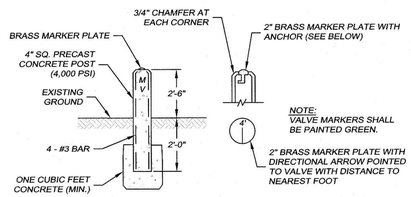
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PRECAST CONCRETE GRAVITY ANCHORS FOR POLYETHYLENE PIPE

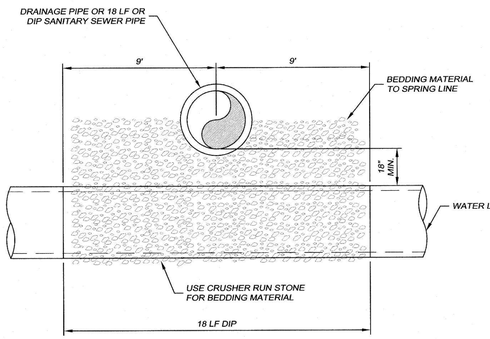


CONCRETE MARKER PAINT CODES



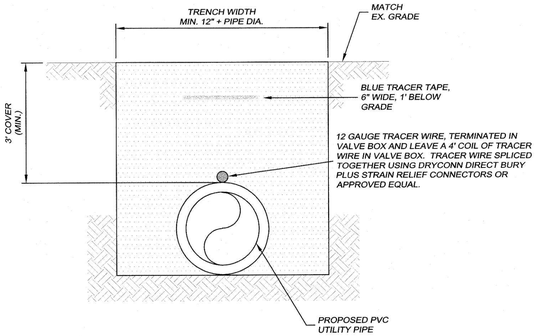
TYPICAL CONCRETE MARKERS (VALVE, ARV, BLOWOFF, CLEANOUT, PUMPER CONNECTION, LINE/BEND)

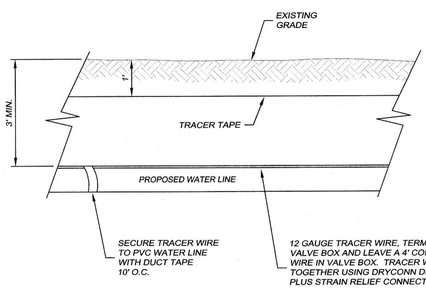
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STORM DRAINAGE PIPE OR SANITARY SEWER PIPE CROSSING WATER MAIN

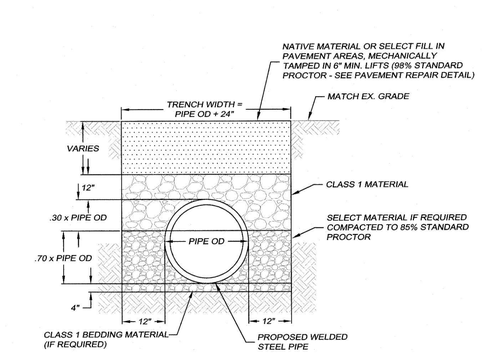
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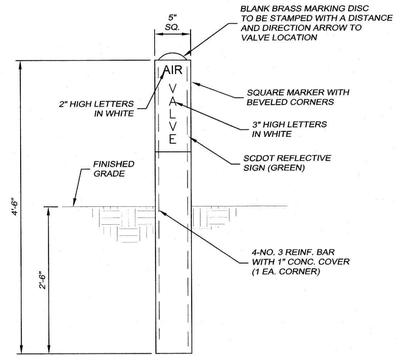
TRACER WIRE DETAIL FOR PVC PIPE

SCALE: N.T.S.



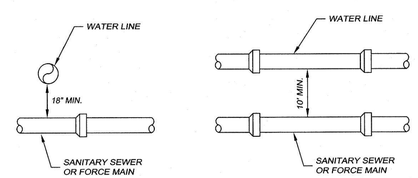
BACKFILL FOR WELDED STEEL PIPE

SCALE: N.T.S.



TYPICAL AIR RELEASE VALVE MARKER

SCALE: N.T.S.



HORIZONTAL AND VERTICAL PIPE SEPARATION

SCALE: N.T.S.

PLOT SCALE: 1 = 1
PCP FILE: NCW.GDC.CTB

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SOUTH CAROLINA ERIC K. SAMUELSON No. 29814 5/17/19

SOUTH CAROLINA DDC ENGINEERS, INC. No. C00036 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION DESCRIPTION	BY
3	5/17/19	ADDED ANCHOR DETAIL	K.S
2	10-27-17	REVISIONS PER IN HOUSE REVIEW.	PES

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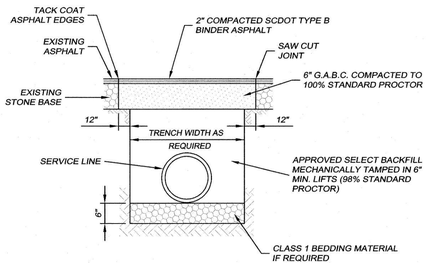
PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	NO SCALE
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APROV. BY:	EKS
PROJECT NO.:	17010E

26

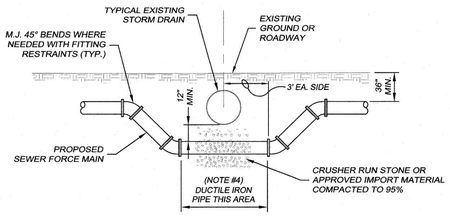
FILE NO.: 17010E

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ASPHALT DRIVEWAY PAVEMENT REPAIR

SCALE: N.T.S.

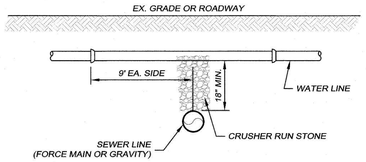


NOTES:

1. IN CASES WHERE D.I.P. FORCE MAIN IS NEEDED AT STORM DRAIN, D.I.P. SECTION MUST BE AT A SUFFICIENT ELEVATION TO KEEP IT FULL AT ALL TIMES. IF SECTION OF FORCE MAIN CALLING FOR D.I.P. DOES NOT MEET THIS REQUIREMENT, THEN C900 SDR 18 PVC PIPE SHALL BE USED INSTEAD.
2. DEPRESS FORCE MAIN WHENEVER POSSIBLE TO ACCOMPLISH CLEARANCE WITHOUT USE OF FITTINGS.
3. SEWER FORCE MAIN MAY BE PLACED ABOVE STORM DRAIN IF THERE IS 12" MIN. CLEARANCE OF STORM DRAIN, 30" GROUND COVER ABOVE AND AROUND, AND IT MEETS REQUIREMENT OF NOTE #1.
4. SEE PROJECT DRAWINGS FOR USE OF DR18 C900 PVC WHERE APPLICABLE.

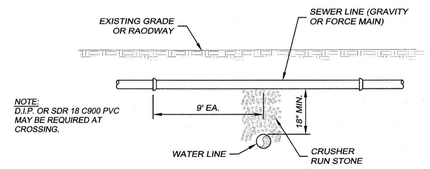
TYPICAL STORM DRAIN CROSSING

SCALE: N.T.S.

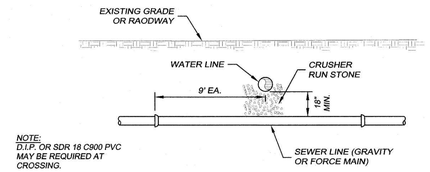


TYPICAL SEWER LINE CROSSING

SCALE: N.T.S.



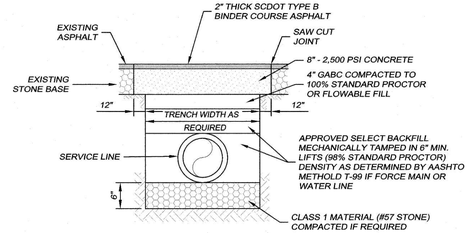
SEWERLINE OVER WATERLINE



WATERLINE OVER SEWERLINE

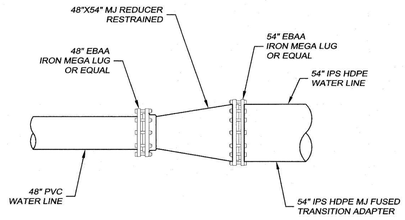
WATER LINE CROSSING

SCALE: N.T.S.

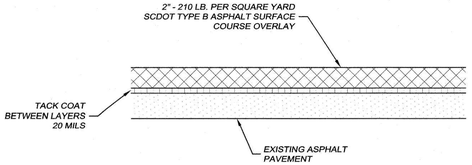


TYPICAL SCDOT ASPHALT ROADWAY PAVEMENT REPAIR

SCALE: N.T.S.



PVC TO HDPE CONNECTION



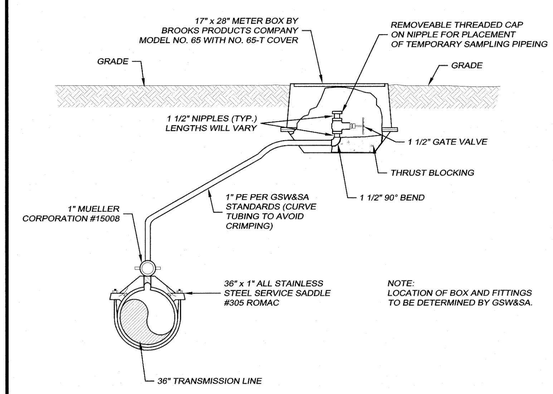
NOTE:
THE CONTRACTOR MUST MILL AND OVERLAY AREAS OF THE PROJECT AS SHOWN ON THE PLANS.

EXISTING PAVEMENT OVERLAY

SCALE: N.T.S.

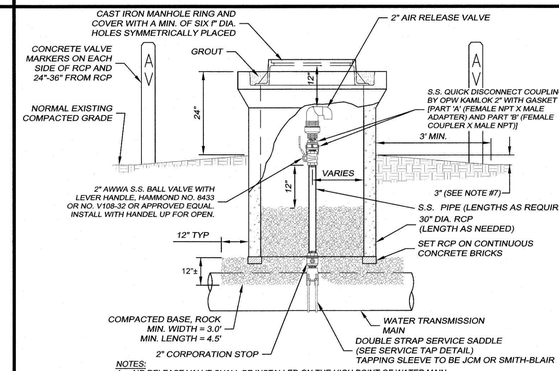
PVC PIPE CONNECTION

SCALE: N.T.S.



TYPICAL WATER SAMPLING ASSEMBLY

SCALE: N.T.S.

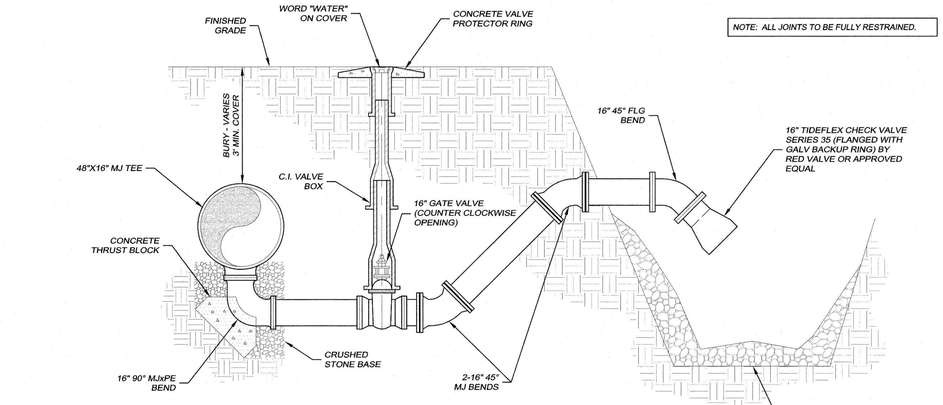


NOTES:

1. AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
2. ALL MATERIALS AND EQUIPMENT TO BE PER AWWA SPEC'S.
3. AIR RELEASE SHALL BE A.R.I. MODEL D-040.2.
4. CORPORATION STOP, S.S. PIPE, FITTINGS AND PIPING TO BE SAME DIAMETER AS AIR RELEASE VALVE INLET.
5. AIR RELEASE VALVES MUST BE NSF APPROVED.
6. LIMIT OF PAY ITEMS INCLUDES SERVICE SADDLE.
7. AIR RELEASE VALVE ASSEMBLIES INSTALLED IN ROAD RIGHT-OF WAYS MUST BE FLUSH WITH EXISTING SHOULDER GRADE. INSTALLATIONS IN EASEMENT AREAS SHALL BE RAISED ABOVE EXISTING GRADE AS SHOWN IN DETAIL.

TYPICAL AIR RELEASE VALVE ASSEMBLY

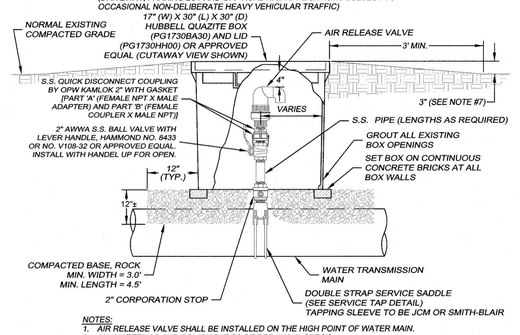
SCALE: N.T.S.



16" DIP BLOWOFF DETAIL

SCALE: N.T.S.

ENCLOSURE BOX AND LID SHALL BE MINIMUM "TIER 22" LOAD RATING:
VERTICAL: 22,500 LBS. (DESIGN) / 33,750 LBS. (TEST)
LATERAL: 800 LBS. / SF (DESIGN) / 1,200 LBS. / SF (TEST)
(DRIVEWAY, PARKING LOT AND OFF-ROADWAY APPLICATIONS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC)



NOTES:

1. AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
2. ALL MATERIALS AND EQUIPMENT TO BE PER AWWA SPEC'S.
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4. CORPORATION STOP, S.S. PIPE, FITTINGS AND PIPING TO BE SAME DIAMETER AS AIR RELEASE VALVE INLET.
5. AIR RELEASE VALVES MUST BE NSF APPROVED.
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7. AIR RELEASE VALVE ASSEMBLIES INSTALLED IN ROAD RIGHT-OF WAYS MUST BE FLUSH WITH EXISTING SHOULDER GRADE. INSTALLATIONS IN EASEMENT AREAS SHALL BE RAISED ABOVE EXISTING GRADE AS SHOWN IN DETAIL.

TYPICAL AIR RELEASE VALVE ASSEMBLY

SCALE: N.T.S.

DDC ENGINEERS®
Consulting Engineers, Surveyors, Planners, Landscape Architects & Environmentalists
1298 Professional Dr., Myrtle Beach, SC 29577
Phone: (843) 692-3200 Fax: (843) 692-3210

SOUTH CAROLINA PROFESSIONAL ENGINEER — ERIC K. SIMMONS — No. 28814 — 6/20/19

SOUTH CAROLINA — CERTIFICATE OF AUTHORIZATION — DDC ENGINEERS, INC. No. C00036

NO.	DATE	REVISION DESCRIPTION	BY
1	8-14-17	REVISIONS PER GSWSA COMMENTS	PES
5	4-3-19	REVISED PER IN HOUSE REVIEW.	PES
3	7/1/19	REVISE PIPE CONNECTION DETAIL	KJS
4	8/30/19	REVISED PER GSWSA COMMENTS	KJS

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GENERAL DETAILS

GSWSA WATER LINE FROM US HWY. 701 TO SC HWY. 544
HORRY COUNTY, SOUTH CAROLINA

PREPARED FOR: GRAND STRAND WATER AND SEWER AUTHORITY

SCALE:	NO SCALE
DATE:	4-28-17
DESIGNED BY:	EKS
DRAWN BY:	PES
APROV. BY:	EKS
PROJECT NO.:	17010E

27

FILE NO.: 17010E

PLOT SCALE: 1 = 1 PCP: R.E.F. NEW.DOC.CTB

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