AMBERWOODS

FLAGLER COUNTY, FL

OWNER:
U.S. CAPITAL ALLIANCE, LLC
880 AIRPORT RD., SUITE 113
ORMOND BEACH, FL 32174
732-552-5154
EMAIL: JBEREN@HUNTERSRIDGEFL.COM

ENGINEER:
THE ALANN ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
880 AIRPORT RD. STE. 113
ORMOND BEACH, FL 32174
PH. (386) 673-7640 FAX: (386) 673-3927
EMAIL: KAB@AE-GROUP.COM

SURVEYOR:
LANDGARD, LLC
10065 N.W. 136TH DRIVE
ALACHUA, FLORIDA 32615
PH.(352) 493-0640

ENVIRONMENTALIST:
ECS FLORIDA, LLC
11554 DAVIS CREEK COURT
JACKSONVILLE, FL 32256
904-880-0960
EMAIL: JLBRINSON@ECSLIMITED.COM

LANDSCAPE ARCHITECT:
BEEBE & ASSOCIATES, INC.
250 PALM COAST PARKWAY, NE
SUITE 607 PMB 128
PALM COAST, FL 321371
386-931-1202
EMAIL: MICHAEL@BEEBEASSOCIATES.COM

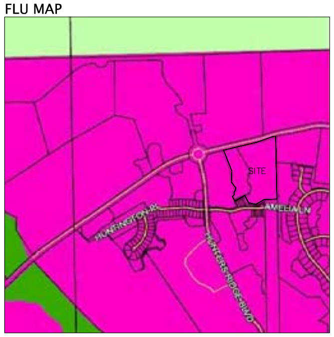
LOCATION MAP (N.T.S.)

TAX PARCEL ID NUMBERS:
22-14-31-0000-01010-0140
22-14-31-0000-01010-0130

SOILS MAP

3: SAMSULA AND HONTOON SOILS — SOIL GROUP A/D
8: HICORIA, RIVIERA, AND GATOR SOILS — SOIL GROUP C/D
16: MALABAR FINE SAND — SOIL GROUP A/D
40: POMONA FINE SAND — SOIL GROUP B/D

FLU MAP



FLU: MIXED USE – LOW INTENSITY

SITE DATA:

SITE AREA:
TOTAL SITE AREA = 14.96 AC
DEVELOPMENT AREA = 9.26 AC

FLOOD ZONE:
X - MAP 12035C0345E D REV. 06/06/2018

ZONING:
PUD - PLANNED UNIT DEVELOPMENT

FUTURE LAND USE:
MIXED USE: LOW INTENSITY; LOW INTENSITY

EXISTING USE:
VACANT

IMPERVIOUS SURFACES:
SIDEWALK: 11,848 SF
ROADS: 38,016 SF
LOTS: (ASSUME 65%: 110' X 50' X 0.65 = 3,575 SF/ LOT)(40 LOTS): 143,000 SF
PROPOSED IMPERVIOUS SURFACE: 192,864 SF (4.43 AC) (29.6%)
PROPOSED PERVIOUS AREA: 458,794 SF (10.53 AC) (70.4%)

PROPOSED POND AREA:
73,347 SF (1.68 AC)

WETLAND IMPACTS:
TOTAL EXISTING: 339,329 SF (7.790 AC)
PRESERVED: 153,178 SF (3.516 AC)
IMPACTS: 186,151 SF (4.273 AC)
WETLAND BUFFER: 25'

LOT CRITERIA:
MINIMUM DEPTH: 110'
MINIMUM WIDTH: 50'
SETBACKS:
FRONT: 25'
REAR: 20'
SIDE: 5'

PROPOSED USES:

SINGLE FAMILY SUBDIVISION/RESIDENTIAL

STATEMENT OF INTENT

TO CONSTRUCT A PLANNED RESIDENTIAL DEVELOPMENT WITH ASSOCIATED UTILITY INFRASTRUCTURE

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL PERTINENT FEATURES WHICH MAY AFFECT HIS BID PRIOR TO BIDDING THE PROJECT. DISCREPANCIES NOTED DURING CONSTRUCTION WILL NOT BE CONSIDERED CAUSE FOR EXTRA PAYMENT ON ANY OF THE PAY ITEMS IN THE CONTRACT.
2. UTILITIES MAY EXIST WHICH ARE NOT SHOWN ACCURATELY ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION.
3. CONTRACTOR SHALL IMMEDIATELY NOTIFY DESIGN ENGINEER, THE COUNTY INSPECTOR, AND THE CITY OF ORMOND BEACH, OF ANY DISCREPANCIES FOUND ON THE PLANS.
4. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE COUNTY WITHOUT DELAY BY TELEPHONE.
5. MAINTENANCE OF TRAFFIC WILL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", & THE 2021 FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS.
6. A MINIMUM OF ONE (1) COMPACTION TEST PER 300 LINEAL FEET OF ROADWAY IS REQUIRED. A COPY OF THE TEST REPORTS SHALL BE GIVEN TO THE FLAGLER COUNTY'S DESIGNATED INSPECTOR.
7. TEMPORARY DRAINAGE SHALL BE PROVIDED DURING CONSTRUCTION TO ELIMINATE ANY FLOODING OF PRIVATE PROPERTY.
8. UNSTABLE MATERIALS SHALL BE REMOVED FROM CONSTRUCTION AREAS AND BACKFILLED WITH SUITABLE MATERIALS.
9. CONSTRUCTION SHALL INCLUDE REPLACING, WITH MATCHING MATERIALS, THE DRIVEWAYS, WALKS, MAILBOXES, CURBS AND LANDSCAPING THAT ARE DAMAGED OR REMOVED DUE TO CONSTRUCTION, THIS WORK SHALL BE COORDINATED WITH PROPERTY OWNERS.
10. ALL STORM SEWER LINES AND INLETS SHALL BE CLEANED OF DEBRIS AND ERODED MATERIALS AT LAST STAGES OF CONSTRUCTION.
11. ANY DRAINAGE PROBLEMS CREATED BY CONSTRUCTION OR EXISTING BEFORE CONSTRUCTION AND NOT ALLEVIATED SHOULD BE BROUGHT TO THE ATTENTION OF, FLAGLER COUNTY AND THE DESIGN ENGINEER.
12. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
13. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY PERFORMED BY A REGISTERED SURVEYOR. SURVEY SHALL INDICATE AS-BUILT OF ALL IMPROVEMENTS.
14. THE CONTRACTOR SHALL CALL FOR LOCATES 2 BUSINESS DAYS PRIOR TO STARTING CONSTRUCTION.
15. NO LAND SHALL BE CLEARED, EXCAVATED OR FILLED AND NO STRUCTURE SHALL BE ERECTED, REPAIRED OR DEMOLISHED WITHOUT PROPER PERMIT(S).
16. ANY CONSTRUCTION CHANGES TO APPROVED PLANS SHALL BE SUBMITTED TO FLAGLER COUNTY FOR APPROVAL PRIOR TO PERFORMING THE WORK.
17. A PRE-PAVING UTILITY INSPECTION MUST BE REQUESTED AND COMPLETED PRIOR TO THE PAVING OF ALL ROADS, STREETS, AND PARKING AREAS.
18. A FINAL INSPECTION, TO BE CONDUCTED BY FLAGLER COUNTY, SHALL BE PERFORMED ON ALL CONSTRUCTION. THE DESIGN ENGINEER SHALL NOTIFY FLAGLER COUNTY ONCE AS-BUILT DRAWINGS AND CLEARANCES HAVE BEEN SUBMITTED.
19. A COMPLETE SET OF AS-BUILT DRAWINGS ARE REQUIRED TO BE SUBMITTED TO FLAGLER COUNTY PRIOR TO REQUESTING A FINAL INSPECTION.

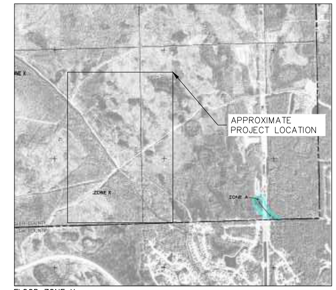
DESCRIPTION:

A PARCEL OF LAND SITUATED IN SECTION 22, TOWNSHIP 14 SOUTH, RANGE 13 EAST, FLAGLER COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF HUNTINGTON VILLAS PHASE 1A, AS SHOWN ON THE PLAT THEREOF, AS RECORDED IN MAP BOOK 38, PAGES 51 THROUGH 54 OF THE PUBLIC RECORDS OF SAID COUNTY, SAID POINT LYING ON THE EASTERLY RIGHT OF WAY LINE OF HUNTER'S RIDGE BOULEVARD (HAVING A RIGHT OF WAY WIDTH OF 80 FEET), AS SHOWN ON THE PLAT OF AIRPORT ROAD / HUNTER'S RIDGE BOULEVARD EXTENSION, AS RECORDED IN MAP BOOK 37, PAGES 38 AND 39 OF SAID PUBLIC RECORDS, THENCE ALONG SAID EASTERLY RIGHT OF WAY LINE THROUGH THE FOLLOWING TWO (2) COURSES: 1) NORTH 3°29'16" WEST, A DISTANCE OF 353.28 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 1280.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 8°10'36" WEST, 209.27 FEET; 2) THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 9°22'41", AN ARC LENGTH OF 209.51 FEET TO THE SOUTHWESTERLY CORNER OF TRACT 4, A DRAINAGE EASEMENT, AS SHOWN ON SAID AIRPORT ROAD / HUNTER'S RIDGE BOULEVARD EXTENSION AND RECORDED IN OFFICIAL RECORDS BOOK 1730, PAGE 1056 OF SAID PUBLIC RECORDS; THENCE ALONG THE SOUTHERLY, EASTERLY AND NORTHERLY LINE OF SAID TRACT 4 THROUGH THE FOLLOWING FIVE (5) COURSES: 1) NORTH 32°32'35" EAST, A DISTANCE OF 237.91 FEET; 2) THENCE NORTH 14°15'19" EAST, A DISTANCE OF 37.65 FEET; 3)THENCE NORTH 4°01'56" WEST, A DISTANCE OF 82.95 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 35.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 54°39'45" WEST, 54.11 FEET; 4) THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 101°14'53", AN ARC LENGTH OF 61.85 FEET; 5)THENCE SOUTH 74°42'26" WEST, A DISTANCE OF 51.56 FEET TO THE SOUTHEASTERLY THE RIGHT OF WAY OF THE ROUNDABOUT AT THE INTERSECTION OF SAID HUNTER'S RIDGE BOULEVARD WITH AIRPORT ROAD (HAVING A RIGHT OF WAY WIDTH OF 100 FEET), AS SHOWN ON THE PLAT OF SAID AIRPORT ROAD / HUNTER'S RIDGE BOULEVARD EXTENSION, SAID POINT BEING ON A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 175.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 12°29'11" EAST, 21.55 FEET; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE AND SAID SOUTHEASTERLY RIGHT OF WAY LINE, THROUGH A CENTRAL ANGLE OF 7°03'35", AN ARC LENGTH OF 21.56 FEET TO THE BEGINNING OF A REVERSE CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 25.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 42°56'40" EAST, 27.95 FEET; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE AND SAID SOUTHEASTERLY RIGHT OF WAY LINE, THROUGH A CENTRAL ANGLE OF 67°58'32", AN ARC LENGTH OF 29.66 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF SAID AIRPORT ROAD; THENCE ALONG THE SOUTHERLY RIGHT OF WAY LINE OF SAID AIRPORT ROAD THROUGH THE FOLLOWING FOUR (4) COURSES: 1) NORTH 76°55'56" EAST, A DISTANCE OF 282.25 FEET; 2) THENCE NORTH 76°56'00" EAST, A DISTANCE OF 248.40 FEET; 3) THENCE NORTH 76°55'56" EAST, A DISTANCE OF 430.60 FEET TO THE BEGINNING OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 1500.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 75°37'03" EAST, 68.82 FEET; 4) THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 2°37'45", AN ARC LENGTH OF 68.83 FEET TO THE WEST LINE OF THE 236.00 FOOT WIDE FLORIDA POWER & LIGHT COMPANY EASEMENT, AS RECORDED IN OFFICIAL RECORDS BOOK 1335, PAGE 502 OF SAID PUBLIC RECORDS; THENCE DEPARTING SAID SOUTHERLY RIGHT OF WAY LINE, SOUTH 1°00'28" EAST, ALONG THE WEST LINE OF SAID EASEMENT, A DISTANCE OF 1068.09 FEET; THENCE DEPARTING THE WEST LINE OF SAID EASEMENT, SOUTH 88°48'28" WEST, A DISTANCE OF 1.20 FEET TO THE NORTHEAST CORNER OF AFOREMENTIONED HUNTINGTON VILLAS PHASE 1; THENCE ALONG THE NORTH LINE OF SAID HUNTINGTON VILLAS PHASE 1, THROUGH THE FOLLOWING NINETEEN (19) COURSES: 1) SOUTH 52°58'48" WEST, A DISTANCE OF 16.63 FEET; 2) THENCE SOUTH 53°02'14" WEST, A DISTANCE OF 47.26 FEET; 3) THENCE SOUTH 58°39'32" WEST, A DISTANCE OF 34.27 FEET; 4) THENCE SOUTH 63°47'39" WEST, A DISTANCE OF 26.83 FEET; 5) THENCE SOUTH 73°20'01" WEST, A DISTANCE OF 34.36 FEET; 6) THENCE SOUTH 74°31'48" WEST, A DISTANCE OF 39.23 FEET; 7) THENCE NORTH 78°20'51" WEST, A DISTANCE OF 32.00 FEET; 8) THENCE NORTH 76°52'54" WEST, A DISTANCE OF 50.00 FEET; 9) THENCE NORTH 84°41'55" WEST, A DISTANCE OF 32.53 FEET; 10) THENCE NORTH 23°52'11" WEST, A DISTANCE OF 147.86 FEET; 11) THENCE SOUTH 65°56'21" WEST, A DISTANCE OF 219.55 FEET; 12) THENCE SOUTH 24°17'20" EAST, A DISTANCE OF 115.58 FEET; 13) THENCE SOUTH 65°11'38" WEST, A DISTANCE OF 80.94 FEET TO THE BEGINNING OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 113.43 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF SOUTH 81°39'28" WEST, 64.29 FEET; 14) THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 32°55'39", AN ARC LENGTH OF 65.19 FEET; 15) THENCE NORTH 80°31'17" WEST, A DISTANCE OF 105.62 FEET; 16) THENCE NORTH 81°01'00" WEST, A DISTANCE OF 27.37 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 700.87 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 85°30'41" WEST, 109.85 FEET; 17) THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 8°59'23", AN ARC LENGTH OF 109.97 FEET; 18) THENCE SOUTH 86°43'32" WEST, A DISTANCE OF 105.93 FEET; 19) THENCE NORTH 48°41'18" WEST, A DISTANCE OF 62.22 FEET TO THE POINT OF BEGINNING.

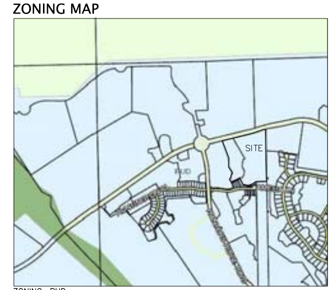
THE ABOVE DESCRIBED LANDS CONTAIN: 24.256ACRES, MORE OR LESS.

FLOOD MAP



FLOOD ZONE X

ZONING MAP



ZONING: PUD

Sheet List Table	
Sheet Number	Sheet Title
C001	COVER
C002	LAYOUT PLAN
C002A	LINE AND CURVE TABLES
C003	EROSION CONTROL PLAN
C004	GRADING & DRAINAGE PLAN
C005	UTILITY PLAN
C006	PLAN & PROFILE– STREET A
C007	PLAN & PROFILE– STREET B
C008	DETAILS
C009	DETAILS
C010	DETAILS
C011	DETAILS
C012	DETAILS
C013	DETAILS
C014	DETAILS
C015	LIFT STATION DETAILS
C016	FDOT DETAILS
C017	FDOT DETAILS
C018	FDOT DETAILS
C019	RECLAIM WATER DETAILS
C020	RECLAIM WATER DETAILS
C021	DIRECTIONAL DRILL DETAILS

ALANN ENGINEERING GROUP, INC.
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880 AIRPORT ROAD, SUITE. 113
ORMOND BEACH, FL 32174
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AMBERWOODS
FLAGLER COUNTY, FL
COVER

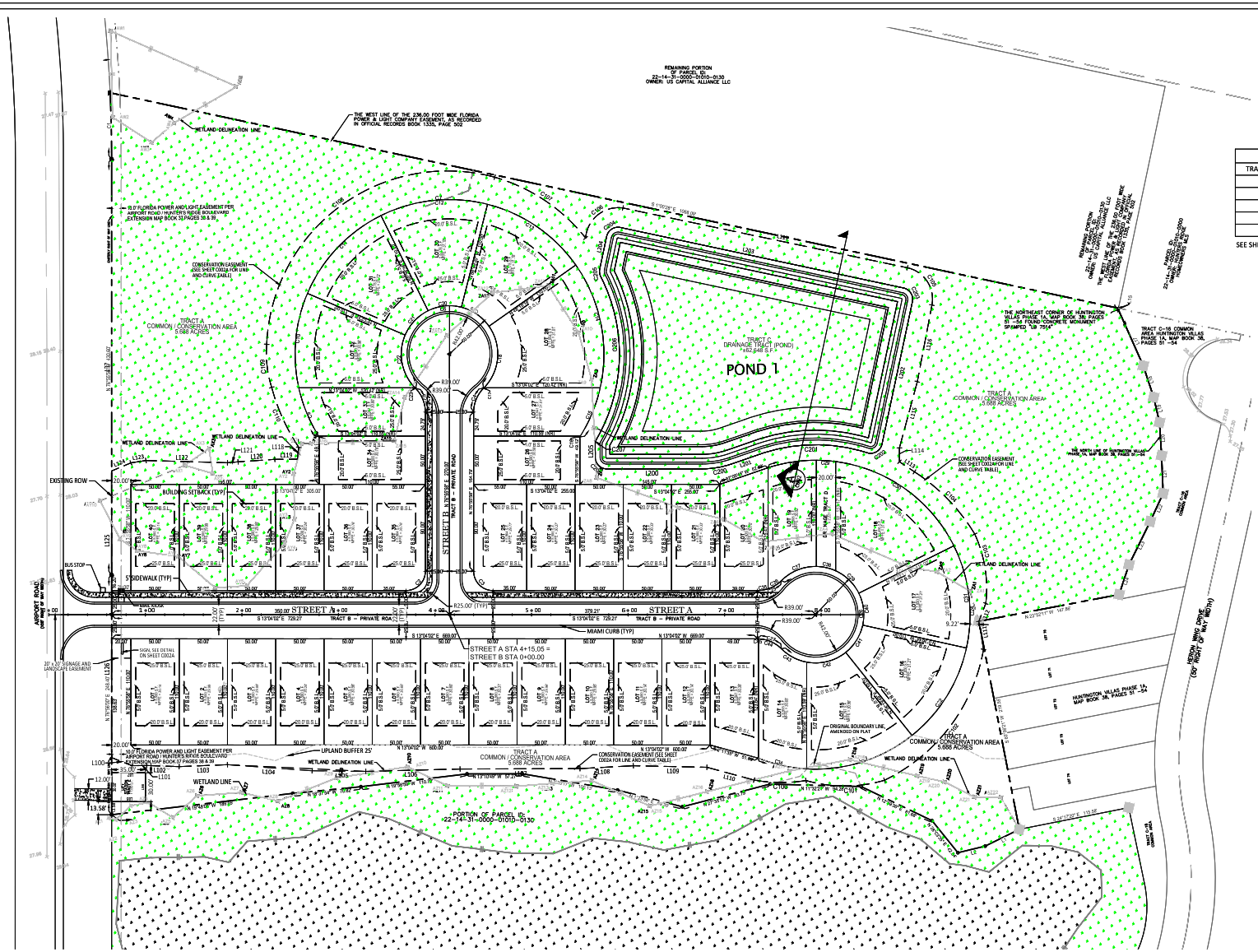
NO.	DATE	REVISION	BY

DESIGNER	FILE	DATE
DWC	2131-1	09/19/22
DRAWN BY	**PROJECT**	**SCALE**
DWC	2131-1	

Kimberly A. Buck, State of Florida, Professional Engineer, License No. 38565
2023.06.09
11:05:17-04'00'

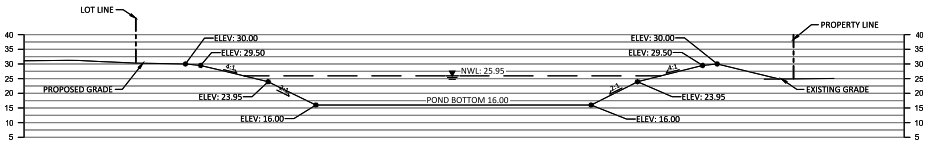
NOT VALID UNLESS SIGNED AND SEALED
KIMBERLY A. BUCK P.E. 38565

SHEET
C001



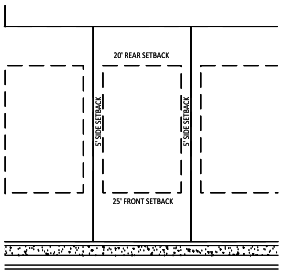
PROPOSED LAND USES		
TRACT A - COMMON / CONSERVATION AREA	247,769 SF	5.688 ACRES
TRACT B - PRIVATE ROAD	59,9475F	1.376 ACRES
DRAINAGE TRACT C (POND)	62,648 SF	1.438 ACRES
DRAINAGE TRACT D	2,221 SF	0.051 ACRES
TRACT E - LIFT STATION	1,050 SF	0.024 ACRES
LOTS 1 - 40	253,239 SF	5.814 ACRES

SEE SHEET C002A FOR LINE AND CURVE TABLES.



A C002 POND 1 TYPICAL CROSS SECTION

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'



TYPICAL LOT LAYOUT

SCALE: 1" = 30'

ALANN ENGINEERING GROUP, INC.
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AMBERWOODS
FLAGLER COUNTY, FL
LAYOUT PLAN

NO.	DATE	REVISION	BY

DESIGNER DWC	FILE 2131-1	DATE 09/19/22	
DRAWN BY DWC	PROJECT 2131-1	SCALE AS NOTED	

SHEET
C002

SURVEY - LINE AND CURVE TABLES

LINE TABLE					
LINE #	DIRECTION	LENGTH	LINE #	DIRECTION	LENGTH
L1	N 39°17'40" W	39.35'	L45	N 64°17'17" W	21.42'
L2	N 26°36'04" W	29.07'	L46	N 0°00'00" E	7.26'
L3	N 38°03'35" E	42.54'	L47	S 35°51'48" E	95.07'
L4	N 12°39'36" E	81.68'	L48	N 67°40'15" E	26.10'
L5	N 11°32'21" W	94.28'	L49	N 47°43'53" W	30.42'
L6	UNUSED		L50	S 3°04'23" W	30.42'
L7	UNUSED		L51	N 60°31'10" E	32.52'
L8	N 27°35'12" W	93.79'	L52	N 17°16'29" E	39.63'
L9	N 1°23'58" E	69.35'	L53	N 3°57'40" W	27.47'
L10	N 3°23'17" W	100.13'	L54	N 10°05'08" E	89.49'
L11	N 13°10'49" W	57.27'	L55	N 19°53'30" W	70.62'
L12	N 19°56'59" W	110.72'	L56	N 16°19'36" E	46.91'
L13	N 18°37'54" W	70.82'	L57	N 1°23'10" E	48.60'
L14	N 19°48'08" W	189.05'	L58	N 7°05'50" E	90.64'
L15	S 88°48'28" W	1.20'	L59	N 74°01'20" E	101.90'
L16	S 52°58'48" W	16.63'	L60	N 61°17'04" E	50.30'
L17	S 53°02'14" W	47.26'	L61	N 44°24'56" E	57.74'
L18	S 58°39'32" W	34.27'	L62	N 20°20'02" W	58.67'
L19	S 63°47'39" W	26.83'	L63	N 56°12'00" W	64.68'
L20	S 73°20'01" W	34.36'	L64	N 68°48'15" W	77.47'
L21	S 74°31'48" W	39.23'	L65	N 89°43'43" W	46.44'
L22	N 78°20'51" W	32.00'	L66	N 14°50'05" W	86.32'
L23	N 76°52'54" W	50.00'	L67	N 13°33'00" W	9.43'
L24	N 84°41'55" W	32.53'	L68	N 87°56'30" W	32.66'
L25	N 47°03'13" E	38.26'	L69	S 75°48'28" W	46.53'
L26	N 12°27'16" W	27.40'	L70	N 80°35'50" W	26.72'
L27	N 13°45'36" E	34.76'	L71	N 61°38'51" W	59.36'
L28	N 0°37'23" W	28.94'	L72	N 16°52'12" W	32.77'
L29	N 0°29'00" E	71.85'	L73	N 27°23'03" E	50.05'
L30	N 23°41'29" W	63.69'	L74	N 5°07'32" W	42.98'
L31	N 27°08'58" W	87.98'	L75	N 20°52'58" E	21.55'
L32	N 27°08'58" W	60.97'	L76	N 49°21'40" E	44.73'
L33	N 10°28'00" E	65.91'	L77	N 00°00'00" E	2.84'
L34	N 17°21'45" W	40.06'	L78	S 76°55'56" W	4.15'
L35	N 17°21'45" W	38.13'	L79	S 1°00'28" E	2.03'
L36	N 12°41'01" W	71.36'	L80	N 75°39'00" E	89.36'
L37	N 12°12'38" E	45.78'	L81	S 10°43'10" W	142.85'
L38	N 21°55'23" W	74.08'	L82	N 43°06'53" W	74.90'
L39	N 34°39'44" W	65.18'	L83	N 54°08'31" W	31.02'
L40	N 0°00'00" E	38.94'	L84	N 19°47'39" E	48.21'
L41	N 17°10'45" W	46.28'	L85	N 13°04'00" W	35.00'
L42	N 55°06'39" W	33.75'	L86	S 76°56'00" W	30.00'
L43	N 18°48'12" E	29.53'	L87	S 13°04'00" E	35.00'
L44	N 23°15'41" W	18.59'			

CURVE TABLE						
CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD DISTANCE
C1	68.83'	1500.00'	2°37'45"	34.42'	N 75°37'03" E	68.82'
C2	31.42'	20.00'	90°00'00"	20.00'	S 58°04'02" E	28.28'
C3	31.42'	20.00'	90°00'00"	20.00'	S 31°55'58" W	28.28'
C4	27.55'	35.00'	45°05'57"	14.53'	N 80°31'04" W	26.84'
C5	27.55'	35.00'	45°05'57"	14.53'	N 54°22'59" E	26.84'
C6	235.79'	50.00'	270°11'54"	49.83'	N 13°04'02" W	70.59'
C7	683.96'	160.00'	244°55'25"	251.52'	S 13°04'02" E	270.00'
C8	1.04'	160.00'	0°22'18"	0.52'	N 44°39'25" E	1.04'
C9	54.33'	160.00'	19°27'16"	27.43'	N 54°34'12" E	54.07'
C10	99.82'	160.00'	35°44'47"	51.60'	N 82°10'13" E	98.21'
C11	113.28'	160.00'	40°34'02"	59.13'	S 59°40'22" E	110.93'
C12	113.28'	160.00'	40°34'02"	59.13'	S 19°06'21" E	110.93'
C13	113.28'	160.00'	40°34'02"	59.13'	S 21°27'41" W	110.93'
C14	133.55'	160.00'	47°49'24"	70.94'	S 65°39'24" W	129.71'
C15	54.33'	160.00'	19°27'16"	27.43'	N 80°42'16" W	54.07'
C16	1.04'	160.00'	0°22'18"	0.52'	N 70°47'29" W	1.04'
C17	0.59'	50.00'	0°40'20"	0.29'	S 58°18'15" E	0.59'
C18	69.48'	50.00'	79°36'53"	41.67'	N 81°33'08" E	64.02'
C19	35.40'	50.00'	40°34'02"	18.48'	N 21°27'41" E	34.67'
C20	35.40'	50.00'	40°34'02"	18.48'	N 19°06'21" W	34.67'
C21	35.40'	50.00'	40°34'02"	18.48'	N 59°40'22" W	34.67'
C22	58.94'	50.00'	67°32'16"	33.43'	S 66°16'29" W	55.58'
C23	0.59'	50.00'	0°40'20"	0.29'	S 32°10'11" W	0.59'
C24	613.33'	160.00'	219°37'54"	444.03'	N 78°50'10" E	301.05'
C25	27.55'	35.00'	45°05'57"	14.53'	S 35°37'01" E	26.84'
C26	235.79'	50.00'	270°11'54"	49.83'	N 76°55'58" E	70.59'
C27	27.55'	35.00'	45°05'57"	14.53'	N 9°28'56" E	26.84'
C28	50.81'	160.00'	18°11'43"	25.62'	N 21°52'55" W	50.60'
C29	20.06'	160.00'	7°10'59"	10.04'	N 9°11'34" W	20.05'
C30	156.51'	160.00'	56°02'47"	85.16'	N 22°25'19" E	150.35'
C31	108.75'	160.00'	38°56'33"	56.57'	N 69°54'59" E	106.67'
C32	108.75'	160.00'	38°56'33"	56.57'	S 71°08'28" E	106.67'
C33	117.01'	160.00'	41°54'08"	61.26'	S 30°43'07" E	114.42'
C34	51.44'	160.00'	18°25'10"	25.94'	S 0°33'28" E	51.22'
C35	11.19'	35.00'	18°18'53"	5.64'	S 22°13'29" E	11.14'
C36	16.36'	35.00'	26°47'03"	8.33'	S 44°46'27" E	16.21'
C37	40.15'	50.00'	46°00'18"	21.23'	N 35°09'50" W	39.08'
C38	20.65'	50.00'	23°39'52"	10.47'	N 0°19'46" W	20.50'
C39	33.98'	50.00'	38°56'33"	17.68'	N 30°58'27" E	33.33'
C40	33.98'	50.00'	38°56'33"	17.68'	N 69°54'59" E	33.33'
C41	33.98'	50.00'	38°56'33"	17.68'	S 71°08'28" E	33.33'
C42	42.95'	50.00'	49°13'00"	22.90'	S 27°03'42" E	41.64'
C43	30.09'	50.00'	34°29'06"	15.52'	S 14°47'21" W	29.64'
C44	26.55'	35.00'	43°27'55"	13.95'	N 10°17'57" E	25.92'
C45	1.00'	35.00'	1°38'02"	0.50'	N 12°15'01" W	1.00'

CONSERVATION EASEMENT - LINE AND CURVE TABLES

LINE TABLE		
LINE #	LENGTH	DIRECTION
L100	22.83'	N08°38'33"E
L101	15.11'	N13°56'31"W
L102	33.66'	N11°10'22"W
L103	50.08'	N15°22'03"W
L104	88.00'	N08°56'56"W
L105	55.50'	N12°24'21"W
L106	97.70'	N14°30'57"W
L107	124.22'	N13°15'17"W
L108	55.33'	N16°10'02"W
L109	76.21'	N11°51'01"W
L110	50.67'	N02°05'07"E
L111	29.52'	S67°29'28"W
L112	19.80'	N81°45'14"W
L113	18.76'	S20°42'49"W
L114	14.37'	S76°52'15"W
L115	71.03'	N87°56'31"W
L116	80.78'	S87°43'38"W
L117	301.16'	S01°12'12"E
L118	12.33'	N83°19'43"E
L119	23.48'	S13°37'59"E
L120	38.09'	S16°54'48"E
L121	11.04'	S18°06'23"E
L122	84.49'	S11°28'38"E
L123	15.74'	S21°56'39"E
L124	21.68'	S35°48'54"E
L125	107.72'	N76°55'56"E
L126	189.21'	N76°56'00"E

CURVE TABLE						
CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD DISTANCE
C100	53.99'	159.28'	19°25'11"	27.26'	N12°34'49"W	53.73'
C101	82.42'	144.73'	32°37'33"	42.36'	N13°14'48"W	81.31'
C102	176.53'	186.22'	54°19'01"	95.53'	N65°56'38"W	170.00'
C103	73.65'	134.77'	31°18'36"	37.77'	S67°54'34"W	72.73'
C104	90.56'	200.09'	25°55'56"	46.07'	S32°51'29"W	89.79'
C105	51.19'	33.12'	88°33'22"	32.30'	S43°39'21"W	46.25'
C106	55.54'	33.94'	93°44'37"	36.24'	S51°54'31"E	49.55'
C107	115.11'	185.66'	35°31'23"	59.47'	S20°42'26"W	113.27'
C108	336.05'	187.44'	102°43'25"	234.48'	S49°18'06"E	292.82'
C109	45.30'	115.28'	22°30'47"	22.94'	N70°19'06"E	45.01'
C110	68.35'	207.37'	18°53'05"	34.49'	N52°36'48"E	68.04'

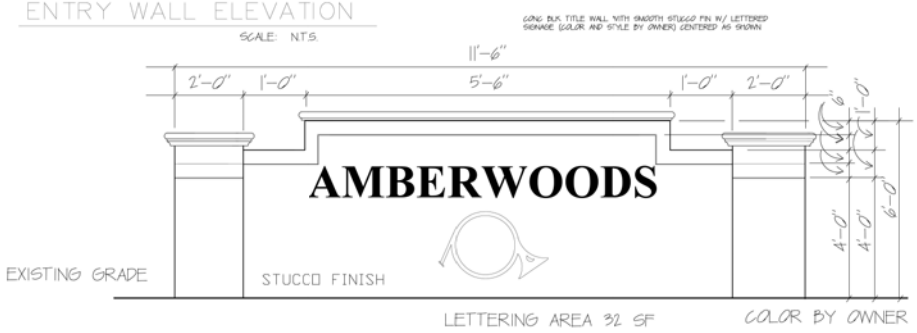
DRAINAGE TRACT (POND) - LINE AND CURVE TABLES

LINE TABLE		
LINE #	LENGTH	DIRECTION
L200	98.56'	S13°04'02"E
L201	28.07'	S32°05'46"E
L202	150.89'	N88°59'32"E
L203	299.85'	N01°00'28"W
L204	34.42'	S88°59'32"W
L205	13.33'	S76°55'58"W

CURVE TABLE						
CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD DISTANCE
C200	31.22'	94.00'	19°01'44"	15.75'	S22°34'54"E	31.08'
C201	115.96'	176.00'	37°45'05"	60.17'	S14°17'07"E	113.88'
C202	20.02'	12.00'	95°35'53"	13.23'	S43°12'31"E	17.78'
C203	18.85'	12.00'	90°00'00"	12.00'	N43°59'32"E	16.97'
C204	18.85'	12.00'	90°00'00"	12.00'	N46°00'28"W	16.97'
C205	8.20'	12.00'	39°10'27"	4.27'	S69°24'18"W	8.05'
C206	175.09'	176.00'	57°00'01"	95.56'	S78°19'05"W	167.96'
C207	6.26'	12.00'	29°53'08"	3.20'	N88°07'28"W	6.19'
C208	18.85'	12.00'	90°00'00"	12.00'	S31°55'58"W	16.97'

ENTRY WALL ELEVATION

SCALE: NTS



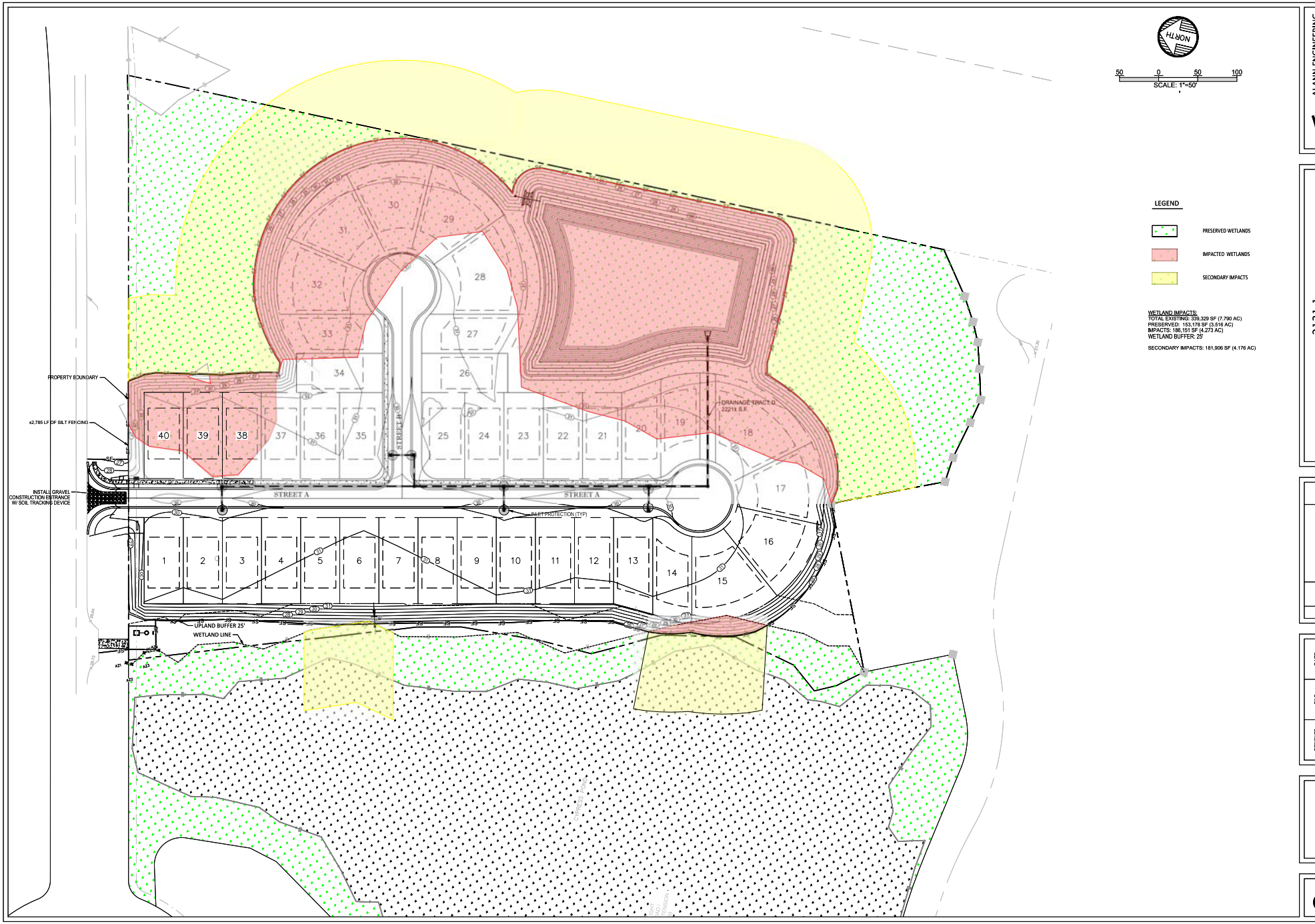
ALANN ENGINEERING GROUP, INC.
CIVIL ENGINEERS
CERTIFICATE No. EB5479
880 AIRPORT ROAD, SUITE 113
ORMOND BEACH, FL 32174
TEL: (386) 673-3926
FAX: (386) 673-3927

AMBERWOODS
FLAGLER COUNTY, FL
LINE AND CURVE TABLES

NO.	DATE	REVISION	BY

DESIGNER: DWC | FILE: 2131-1 | DATE: 09/19/22
DRAWN BY: DWC | PROJECT: 2131-1 | SCALE: AS NOTED

SHEET
C002A



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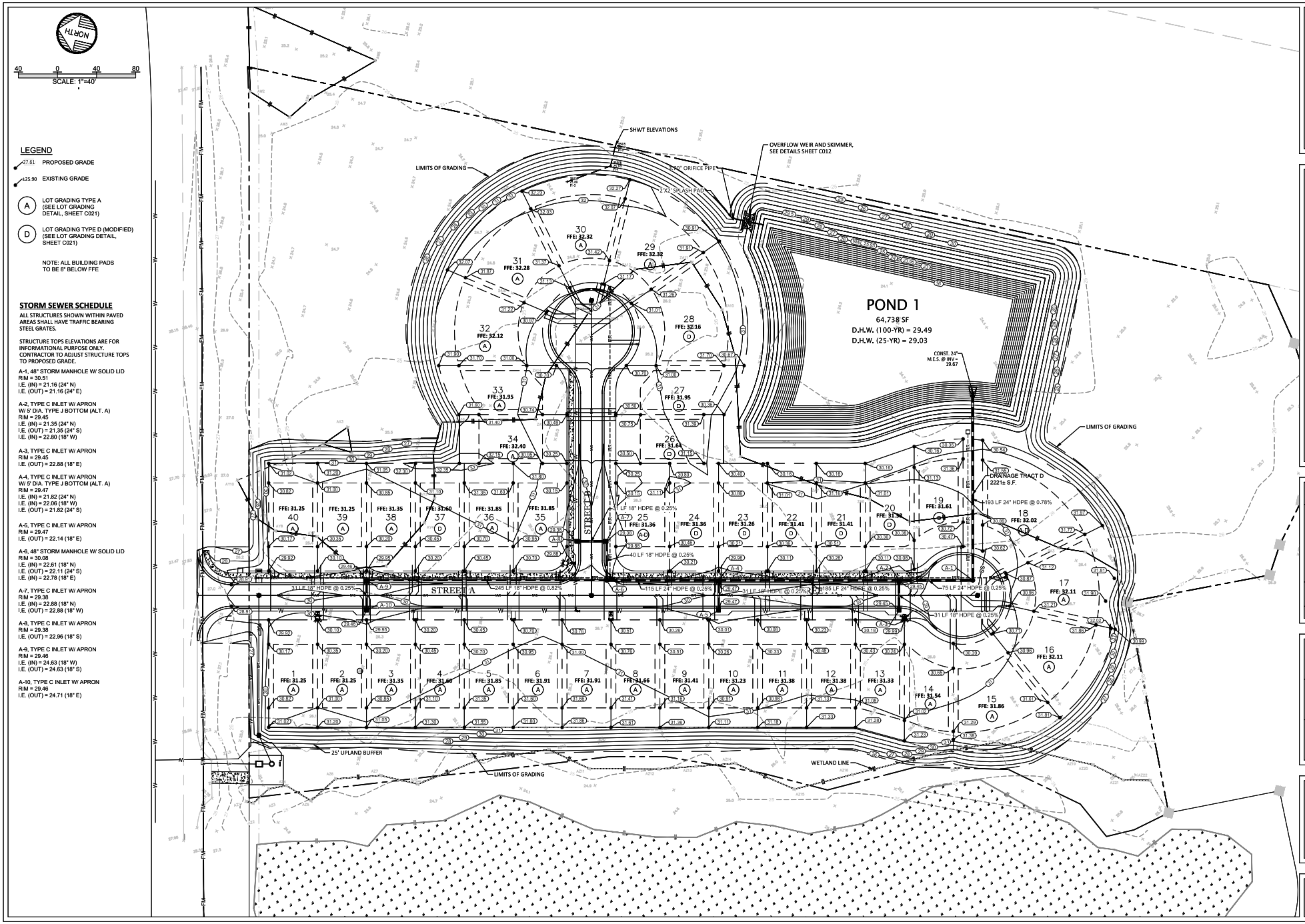
2131-1
FLAGLER COUNTY, FL
EROSION CONTROL PLAN

NO.	DATE	REVISION	BY

DESIGNER DWC	FILE 2131-1	DATE 09/19/22	
DRAWN BY DWC	PROJECT 2131-1	SCALE 1" = 50'	

SHEET
C003



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ORMOND BEACH, FL 32174
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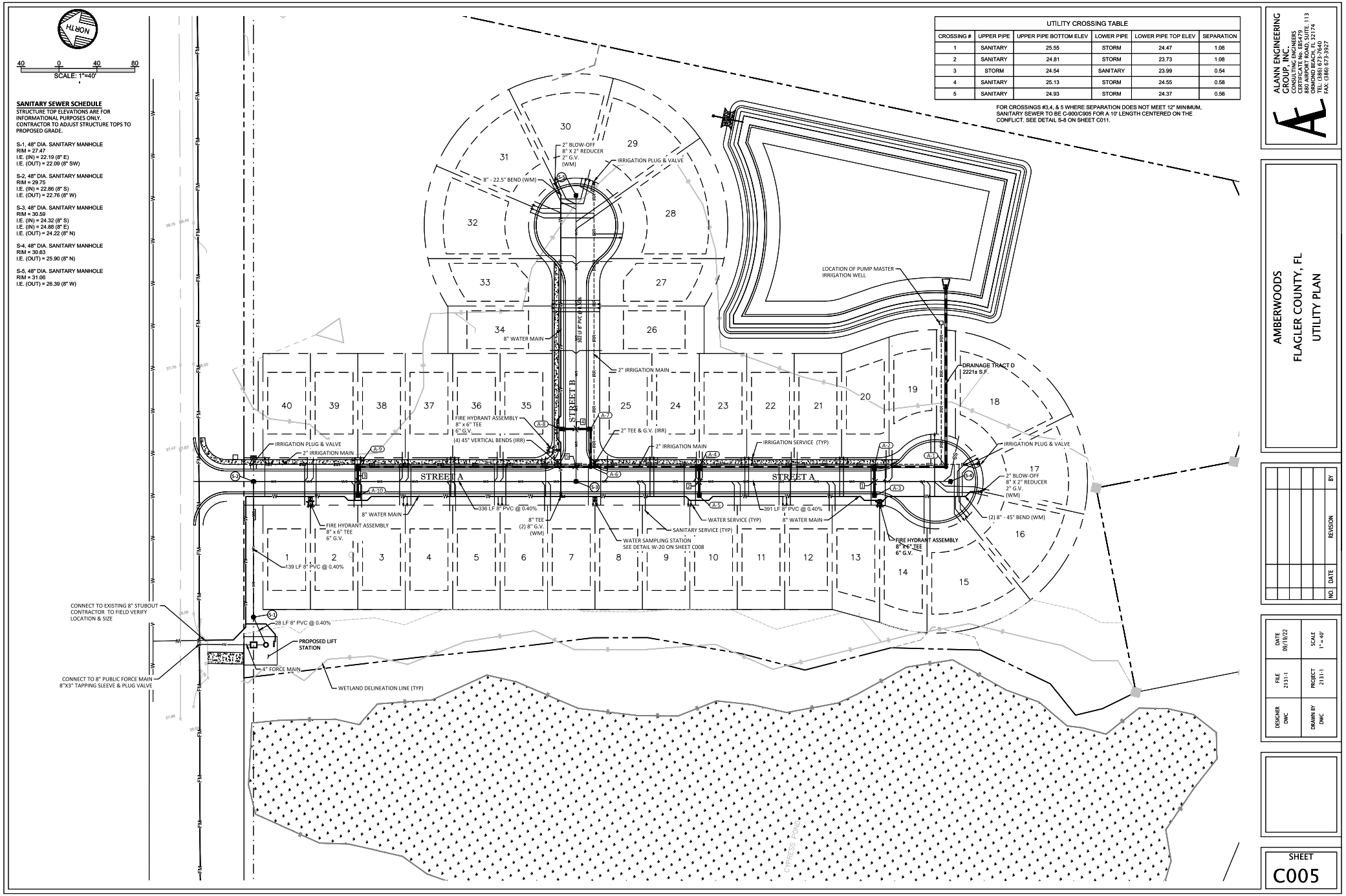
AMBERWOODS
FLAGLER COUNTY, FL
GRADING & DRAINAGE PLAN

NO.	DATE	REVISION	BY

DESIGNER DWC	FILE 2131-1	DATE 09/19/22	
DRAWN BY DWC	PROJECT 2131-1	SCALE 1" = 40'	

SHEET
C004



ALANN ENGINEERING GROUP, INC.
CIVIL ENGINEERS
CERTIFICATE No. EB5479
880 AIRPORT ROAD, SUITE 113
ORMOND BEACH, FL 32174
TEL: (386) 673-3926
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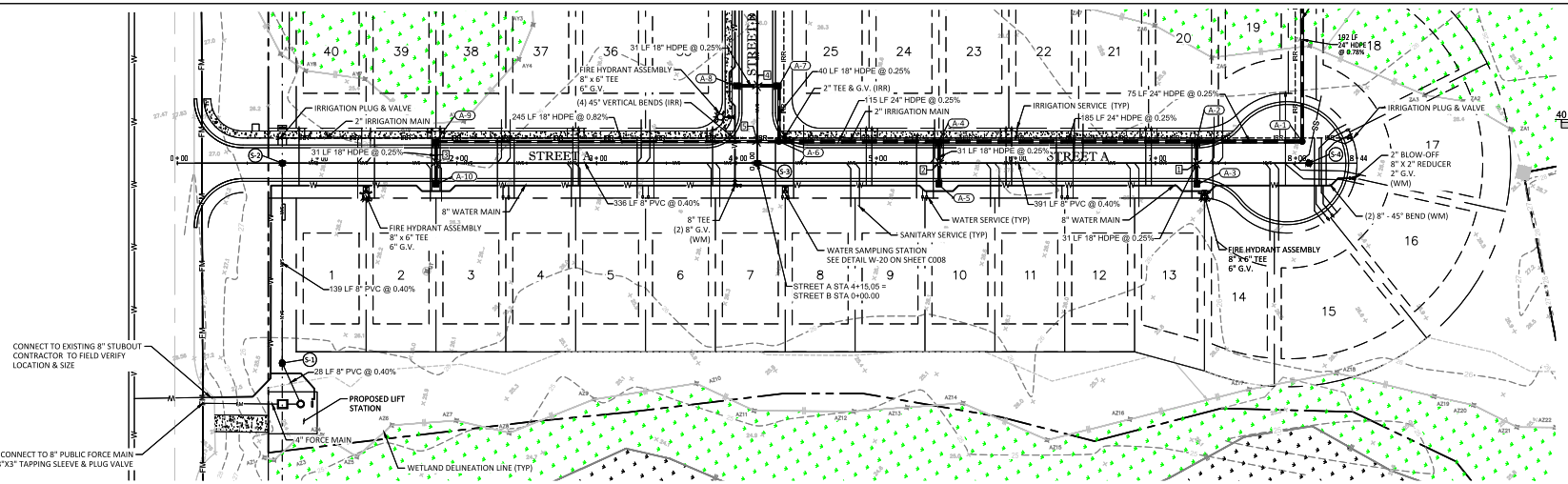
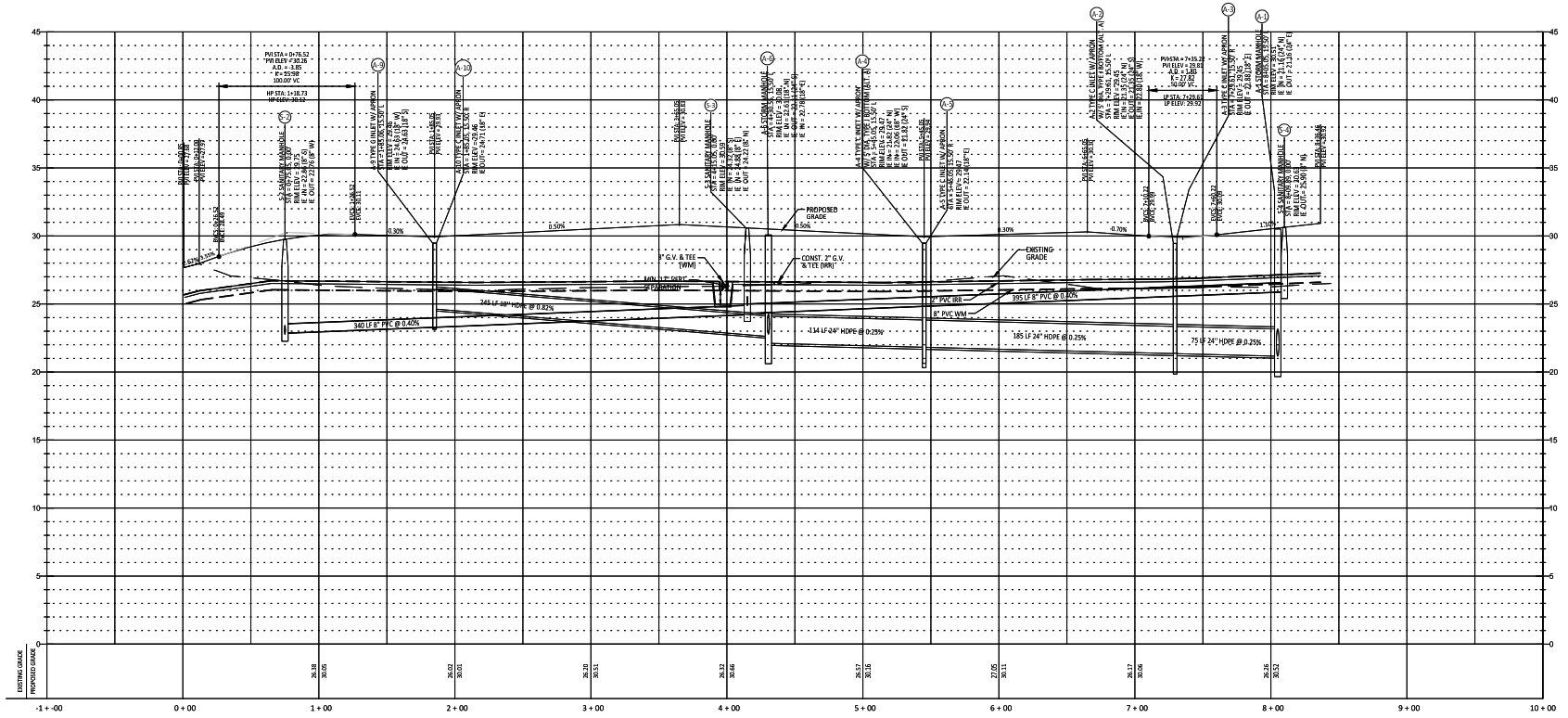
AMBERWOODS
FLAGLER COUNTY, FL
UTILITY PLAN

NO.	DATE	REVISION	BY

DESIGNER DWC	DATE 09/19/22
DRAWN BY DWC	SCALE 1" = 40'
FILE 2131-1	PROJECT 2131-1

SHEET
C005





SCALE: 1" = 40' (HORIZONTAL)
SCALE: 1" = 4' (VERTICAL)

ALANN ENGINEERING GROUP, INC.
CIVIL ENGINEERS
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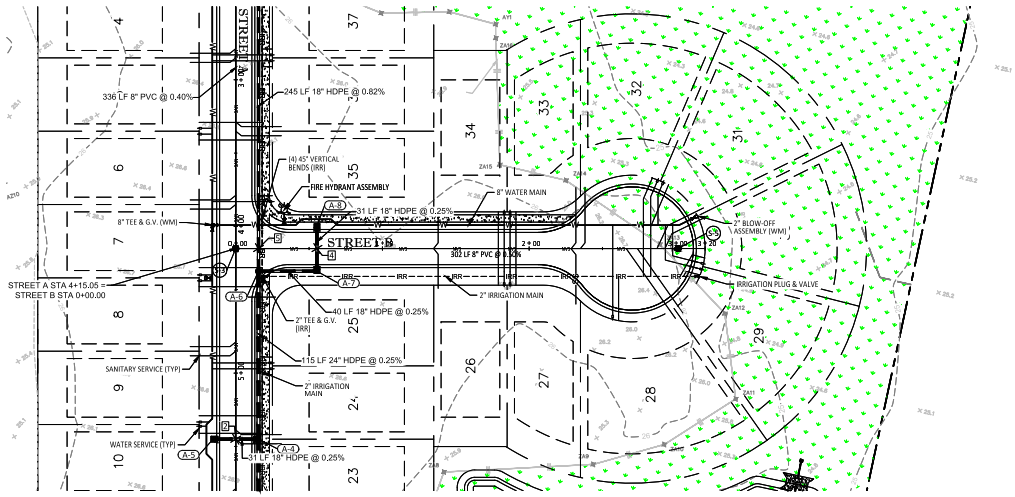
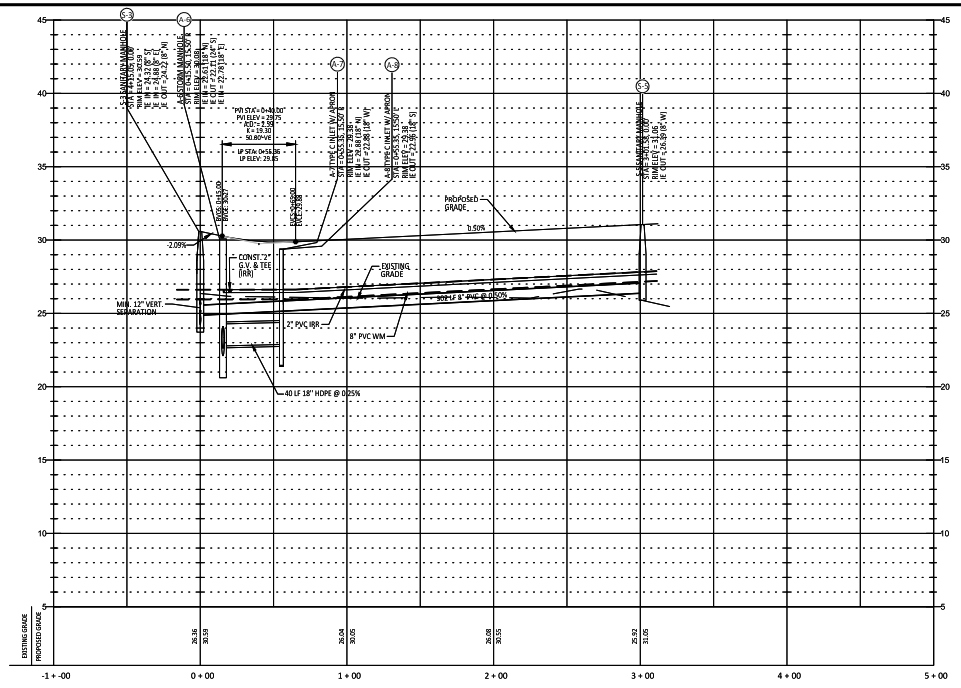
AMBERWOODS
FLAGLER COUNTY, FL
PLAN & PROFILE - STREET A

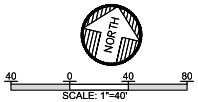
NO.	DATE	REVISION	BY

DESIGNER: DWC
FILE: 2131-1
DRAWN BY: DWC
PROJECT: 2131-1
DATE: 09/19/22
SCALE: 1" = 40'

SHEET
C006







SCALE: 1" = 40' (HORIZONTAL)
SCALE: 1" = 4' (VERTICAL)

ALANN ENGINEERING GROUP, INC.
CIVIL ENGINEERS
CERTIFICATE No. EB5479
880 AIRPORT ROAD, SUITE 113
ORMOND BEACH, FL 32174
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FAX: (386) 673-3927

AMBERWOODS
FLAGLER COUNTY, FL
PLAN & PROFILE - STREET B

NO.	DATE	REVISION	BY

DESIGNER DWC	FILE 2131-1	DATE 09/19/22	
DRAWN BY DWC	PROJECT 2131-1	SCALE 1" = 40'	

SHEET
C007

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

1. THE CITY'S PUBLIC UTILITIES DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.
3. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (AASHTO-T180) IN PAVED AREAS AND 90 PERCENT IN UNPAVED AREAS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY INSPECTOR.
6. METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE.
7. WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR) ; POLYBUTYLENE SHALL NOT BE ALLOWED.
8. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH 4" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 24" ABOVE THE GROUND. WIRE TIES SHALL BE USED TO SECURE THE CURB STOPS TO SUPPORT POSTS.
9. WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET.
10. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
11. APPROVED WATER VALVE TYPES ARE THE FOLLOWING:
    A. STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515).
    B. MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C - 509)
    C. EPOXY COATED (AWWA C - 550)

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION
INDEX W-1A
MAY 2020

GENERAL NOTES
WATER SYSTEM CONSTRUCTION

12. ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.
13. WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF UTILITY DEPARTMENT PERSONNEL.
14. HYDRANTS SHALL BE PLACED AT 500 FEET MAXIMUM SPACING IN RESIDENTIAL DEVELOPMENTS AND AT 300 FEET MAXIMUM SPACING IN BUSINESS AND INDUSTRIAL DEVELOPMENTS. ALL WATER MAINS TO WHICH HYDRANTS ARE CONNECTED SHALL BE 8 INCHES MINIMUM.
15. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF FIRE. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18-24" ABOVE GRADE.
16. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.
17. ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON CLASS 350 MAY BE USED AS APPROVED BY THE CITY.
18. ALL NEWLY CONSTRUCTED WATER MAINS SHALL BE FLUSHED, CLEANED WITH A POLY PIG, PRESSURE TESTED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
19. WATER MAINS SHALL BE AWWA C-900 CL 150, OR D.I.P. CLASS 350 STANDARD CEMENT LINED AWWA C-104.
20. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE HEALTH DEPARTMENT, AND THAT CERTIFIED AS-BUILT DRAWINGS (24"x36") ARE PROVIDED TO THE CITY PRIOR TO PAVING AND ANY USE OF THE SYSTEM. SEE M-1A & M-1B FOR AS-BUILT REQUIREMENTS
21. MEGALUG OR EQUVALENT, RESTRAINED JOINT SYSTEM MAY BE USED ON ALL RESTRAINED FITTINGS, VALVES, ETC. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.
22. ALL DI BENDS, TEES, VALVES, WYE FITTINGS TO BE EPOXY COATED IN ACCORDING WITH AWWA C-550

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION
INDEX W-1B
MAY 2020

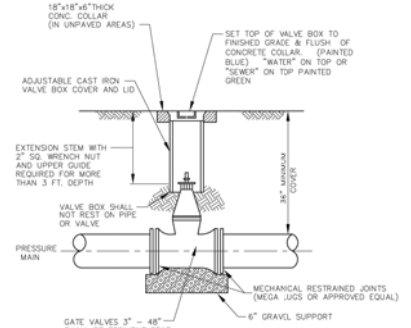
GENERAL NOTES
WATER SYSTEM CONSTRUCTION

23. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY'S INSPECTOR.
24. ALL WATER SERVICES SHALL BE MARKED WITH A "__" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
25. ALL WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. LOCATION OF METAL TABS IN INCHES FROM EDGE OF PAVEMENT SHALL EQUAL DISTANCE IN FEET FROM EDGE OF PAVEMENT TO VALVE.
26. UNIFLANGE 1300 SERIES PIPE RESTRAINTS AS MANUFACTURED BY FORD OR APPROVED EQUAL MAY BE USED AS APPROPRIATE FOR RESTRAINING IN-LINE PRESSURE PIPE EACH SIDE OF PIPE JOINT. AS REQUIRED BY RESTRAINT TABLE.
27. TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
28. NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
29. ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.
30. SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY'S ENGINEERING & PLANNING DEPARTMENT BEFORE FINAL INSPECTION AT COMDEV@ORMONDBEACH.ORG.
31. PIPING FOR RAW WATER SHALL BE WHITE FOR ABOVE GROUND PIPING, BURIED PVC PIPING SHALL BE WHITE WITH LOCATOR TAPE PLACED DIRECTLY ON TOP OF THE PIPE AND AT 12" TO 18" ABOVE THE PIPE. THE TAPE SHALL CONTINUOUSLY READ "CAUTION - RAW WATER MAIN BURIED BELOW" OR WHITE WITH LOCATOR TAPE PLACED 12" TO 18" ABOVE THE TOP OF THE PIPE.
32. SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

MATERIALS		
DIAMETER	MATERIAL	STANDARD
2" - 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" - 12"	PVC DR-18	AWWA C 900
> 4" - 12" (BOXED FIRE LINE)	PVC DR-14	AWWA C 900
14" - 36" (16" - 24" DR - 18) (30" - 36" DR - 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE DPS DR 11	ASTM F 714

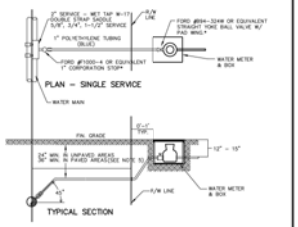
NOTE: PVC PIPE COLOR SHALL BE BLUE FOR POTABLE WATER MAINS, THAT ARE WRAPPED WITH BLUE TAPE OR WHITE WHITE LOCATOR TAPE FOR RAW WATER MAIN.

STANDARD CONSTRUCTION DETAIL
GENERAL NOTES
WATER SYSTEM CONSTRUCTION
INDEX W-1C
MAY 2020



STANDARD CONSTRUCTION DETAIL
GATE VALVE AND VALVE BOX
NTS.
INDEX W-2
MAY 2020

VALVE SCHEDULE
FORD OR EQUIVALENT
WATER SERVICES
VALVES AT MAIN
1" F1000-4
1 1/2" B81-666-NL (REQ. C84-66 PACK JOINT COUPLING)
2" B81-777-NL (REQ. C84-77 PACK JOINT COUPLING)
VALVES AT METER
1" B94-324W-NL
1 1/2"-2" BF43-777W-NL



NOTES:

1. CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
2. HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING AS'M D1248. TUBING SHALL BE ENDIT ENDOTRACE (OR APPROVED EQUAL).
3. REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE
4. ALL SERVICE TJPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVAL OR WITHIN 2'-0" OF BELL OR SPIGOT ENDS.
5. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 CASING FOR PE-TUBING, CASING SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD. 2" CASING FOR 1". 4" CASING FOR 2".
6. ALL IRRIGATION SERVICES (WATER) MUST HAVE AN APPROVED BACKFLOW PREVENTION DEVICE INSTALLED ON CUSTOMERS SIDE OF WATER METER. SEE W-60 FOR COMMERCIAL PROPERTIES OR SEE W-69 FOR RESIDENTIAL PROPERTIES. THE CITY WILL INSTALL ALL CITY-OWNED IRRIGATION BACKFLOW PREVENTERS. THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND CERTIFICATION COST. A COPY OF THE CERTIFICATION MUST BE SENT TO THE CITY OF ORMOND BEACH ENGINEERING DEPARTMENT, PRIOR TO FINAL INSPECTION.
7. WATER METERS INSTALLED IN AREAS SERVED BY RECLAIMED WATER SHALL BE EQUIPPED WITH A DUAL CHECK BACKFLOW PREVENTER.
8. WATER METERS IN AREA SERVED WITH AN ALTERNATE IRRIGATION SUPPLY SHALL BE EQUIPPED WITH BACKFLOW PREVENTION TO BE APPROVED FOR USE BY FDEP.

STANDARD CONSTRUCTION DETAIL
WATER LATERAL SERVICE
5/8", 3/4", 1", 1-1/2", 2" METERS
NTS
INDEX W-3
MAR 2021

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)

FITTING / PIPE SIZE (IN.) :	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	148
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS: TEST PRESSURE: 150 PSIG SOIL TYPE: SP COVER DEPTH: 2.5 FEET SAFETY FACTOR: 1.5 TRENCH TYPE: 3

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

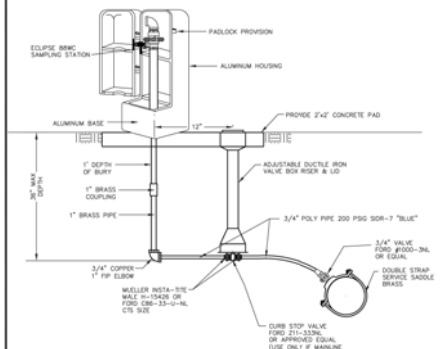
SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)

FITTING / PIPE SIZE (IN.) :	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (21)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36" *	69 (82)	28 (34)	18 (18)	18 (18)	170 (204)
42" *	76 (92)	31 (37)	18 (18)	18 (18)	191 (229)
48" *	90 (106)	40 (46)	18 (18)	18 (18)	212 (254)

TABLE APPLIES TO D.I.P. FOR THE FOLLOWING CONDITIONS: TEST PRESSURE: 150 PSIG SOIL TYPE: SP COVER DEPTH: 2.5 FEET SAFETY FACTOR: 1.5 TRENCH TYPE: 2

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.
VALUES IN PARENTHESIS ARE FOR PIPE ENCASED IN POLYETHYLENE.

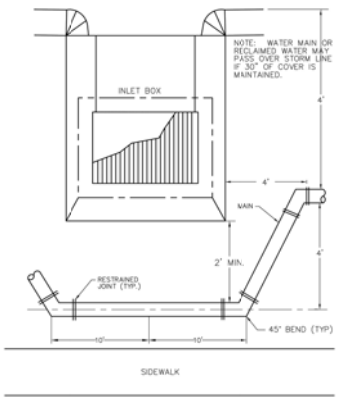
STANDARD CONSTRUCTION DETAIL
PVC AND D.I.P. RESTRAINED JOINT TABLE
INDEX W-5
MAY 2020



ONE SAMPLE STATION REQUIRED IN EACH RESIDENTIAL DEVELOPMENT AND A MINIMUM OF ONE SAMPLING STATION PER 100 LOTS. ONE SAMPLING STATION EVERY 1,000 FEET FOR COMMERCIAL DEVELOPMENTS.

1. LOCATION: Sample stations to be located on a lot line, in the parkstrips between curb and sidewalk as shown on plan or as directed.
2. INSPECTION: Prior to backfilling around the assembly, secure inspection of installation by ENGINEER.
3. SMALL FITTINGS: Provide brass fittings and nipples if not specified otherwise.

STANDARD CONSTRUCTION DETAIL
WATER SAMPLING STATION
NTS
INDEX W-20
AUG 2021



PLAN VIEW

STANDARD CONSTRUCTION DETAIL
WATER MAIN INSTALLATION BETWEEN DRAINAGE INLET AND SIDEWALK
NTS
INDEX W-7
MAY 2020

ALANN ENGINEERING GROUP, INC.
CIVIL ENGINEERS
CERTIFICATE No. EB5479
880 AIRPORT ROAD, SUITE 113
ORMOND BEACH, FL 32174
TEL: (386) 673-3940
FAX: (386) 673-3927

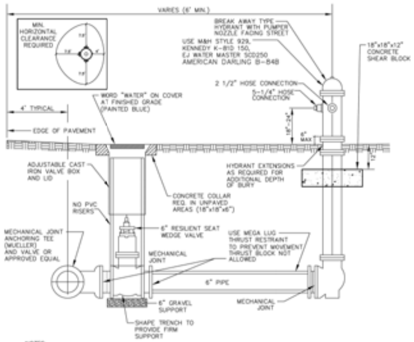
AMBERWOODS
FLAGLER COUNTY, FL
DETAILS

NO.	DATE	REVISION	BY

DESIGNER DWC | FILE 2131-1 | DATE 09/19/22 | SCALE
DRAWN BY DWC | PROJECT 2131-1

NOT VALID UNLESS SIGNED AND SEALED EMBOSSED & DATED PER 5J-17.062(3)

SHEET
C008



NOTES:
1. ALL JOINTS SHALL BE RESTRAINED
2. HYDRANTS TO BE PAINTED SAFETY YELLOW (PUBLIC) OR RED (PRIVATE).
3. HYDRANT BONNET AND CAP TO BE PAINTED ACCORDING TO THE FOLLOWING SCHEME:
   - CLASS AA – 1500 GPM AND GREATER – LIGHT BLUE
   - CLASS A – 1000 GPM TO 1499 GPM – GREEN
   - CLASS B – 500 GPM TO 999 GPM – ORANGE
   - CLASS C – LESS THAN 500 GPM – RED

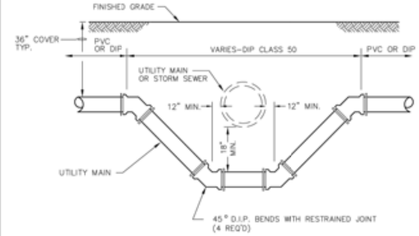
   *GMP SHOWN IS AT 20 PSI
4. HYDRANTS SHALL BE PRIMED WITH A CATALYZED TWO PART PRIMER (DURAPLATE #235), ELECTRICALLY CHARGED AND A CATALYZED URETHANE TOP COAT (ACROLON 218), TWO COMPONENT POLYURETHANE PAINT.
5. HOSE CONNECTIONS TO BE AMERICAN STANDARD THREADS.
6. THE HYDRANT SHOE WILL BE COATED INSIDE WITH FUSION BONDED EPOXY. 6 MIL MINIMUM
7. ADJUSTMENTS OR REPAIRS TO THE HYDRANT AFTER INSTALLATION SHALL BE DONE BY AN UNDERGROUND UTILITY CONTRACTOR OR THE CITY AND ALL COST SHALL BE CHARGED TO THE DEVELOPER. PAYMENT SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY OF PROPERTY.
8. RESTRAINED JOINTS REQUIRED. THRUST BLOCKS NOT PERMITTED.
9. BOLTS SHALL BE 316 STAINLESS STEEL.
10. INSTALL BLUE REFLECTIVE MARKER IN SUCH A MANNER THAT THE REFLECTIVE FACE OF THE MARKER IS PERPENDICULAR TO A LINE PARALLEL TO THE ROADWAY CENTERLINE. THE BLUE REFLECTIVE MARKERS SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE, DIRECTLY ACROSS FROM AND ADJACENT TO EACH FIRE HYDRANT.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR FLOW TEST OF HYDRANT BY A FIRE SUPPRESSION CONTRACTOR / DESIGN FIRM IN ACCORDANCE WITH AWWA M-17.

STANDARD CONSTRUCTION DETAIL
FIRE HYDRANT ASSEMBLY
NTS
INDEX W-8
MAY 2020

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (1)	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORM WATER FORCE MAIN, RECLAIMED WATER (2)	WATER MAIN; 3 FT. MINIMUM	WATER MAIN; 12 INCHES IS THE MINIMUM, EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES PREFERRED	WATER MAIN; ALTERNATE 3 FT. MINIMUM
VACUUM SANITARY SEWER	WATER MAIN; 10 FT. PREFERRED 3 FT. MINIMUM	WATER MAIN; 12 INCHES PREFERRED 6 INCHES MINIMUM	WATER MAIN; ALTERNATE 3 FT. MINIMUM
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY FORCE MAIN, RECLAIMED WATER (4)	WATER MAIN; 10 FT. PREFERRED 6 FT. MINIMUM (3)	WATER MAIN; 12 INCHES IS THE MINIMUM, EXCEPT FOR GRAVITY SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES PREFERRED	WATER MAIN; ALTERNATE 6 FT. MINIMUM
ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 FT. MINIMUM	—	—

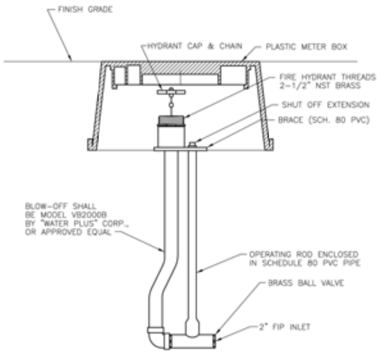
(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 18 INCHES.
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
(3) 3 FT. FOR GRAVITY SEWER WHERE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
DISCLAIMER – THIS DOCUMENT WAS PROVIDED FOR YOUR CONVENIENCE ONLY. PLEASE REFER TO F.A.C. RULE 62-555.314 FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.

STANDARD CONSTRUCTION DETAIL
WATER MAIN SEPARATION
NTS
INDEX W-9A
MAY 2020



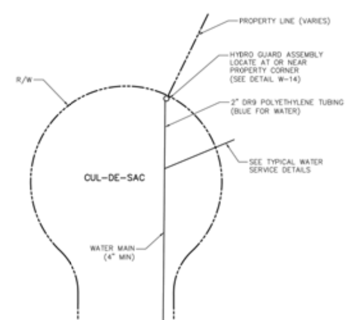
NOTE: ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 18" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

STANDARD CONSTRUCTION DETAIL
PIPE CROSSING
NTS
INDEX W-9B
MAY 2020



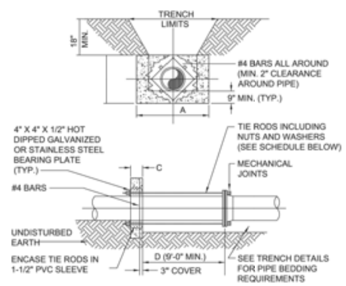
1. WRENCH AND DISCHARGE SPOUT AS SUPPLIED BY MANUFACTURER SHALL BE TURNED OVER TO THE CITY DURING FINAL INSPECTION.

STANDARD CONSTRUCTION DETAIL
BLOW-OFF ASSEMBLY WITH METER BOX
NTS.
INDEX W-11
MAY 2020



NOTE:
1. THIS DETAIL APPLIES ONLY WHEN THE WATER MAIN CANNOT BE LOOPED AND CONSIDERED ON A CASE-BY-CASE BASIS.
2. HYDRO GUARD SHALL BE SET 1' INSIDE RIGHT OF WAY LINE AND ON PROPERTY LINE

STANDARD CONSTRUCTION DETAIL
TYPICAL CUL-DE-SAC WATER PIPING
NTS
INDEX W-15
MAY 2020



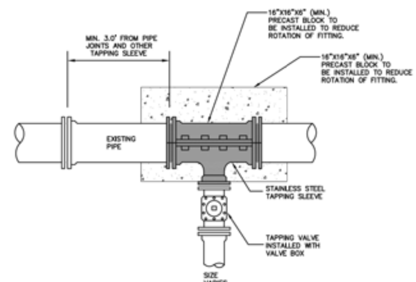
NOTES:
1. ADDITIONAL REINFORCEMENTS SHALL BE SPECIFIED BY THE ENGINEER.
2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
3. BEDDING, BACKFILL AND COMPACTION SHALL BE SPECIFIED IN THE STANDARD DRAWING.
4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILLING.
5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL.
6. DESIGN PRESSURE: 150 PSI.

SCHEDULE OF DIMENSIONS AND MATERIALS

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.
6	2.0	2.0	1.0		3/4	2
8	2.5	2.5	1.0		3/4	2
10	3.5	3.0	1.0		3/4	2
12	5.0	3.0	1.0		3/4	2
16	6.0	4.0	1.5		3/4	4
20	8.0	5.0	1.5		3/4	6
24	9.0	6.0	1.5		3/4	8

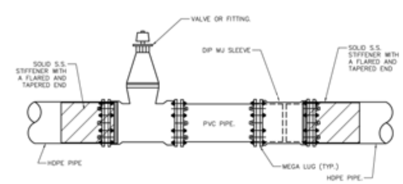
NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

STANDARD CONSTRUCTION DETAIL
WATER MAIN THRUST COLLAR
NTS
INDEX W-16
MAY 2020



NOTES:
1. STAINLESS STEEL SLEEVES ONLY WITH 316 STAINLESS STEEL BOLTS ARE PERMITTED FOR ALL TYPES OF PIPE MATERIALS.
2. INSTALL REQUIRED RESTRAINED JOINTS. IN NO INSTANCE SHALL THRUST BLOCK BE PERMITTED.
3. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CONTRACTOR UNDER SUPERVISION OF A CITY REPRESENTATIVE. ALL MATERIALS TO BE PROVIDED BY DEVELOPER / CONTRACTOR
4. ALL VALVES 2" OR GREATER SHALL BE GATE VALVES. CORPORATION STOPS ARE NOT ALLOWED ON VALVES 2" OR GREATER EXCEPT ON BLOW-OFFS.
5. PRESSURE TEST SHALL BE PERFORMED ON TAPPING VALVE AND SLEEVE.

STANDARD CONSTRUCTION DETAIL
TAPPING VALVE AND SLEEVE
NTS
INDEX W-17
MAY 2020



STANDARD CONSTRUCTION DETAIL
HDPE PIPE – VALVE/FITTING CONNECTION
NTS.
INDEX W-18
MAY 2020

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AMBERWOODS
FLAGLER COUNTY, FL
DETAILS

NO.	DATE	REVISION	BY

DATE	SCALE
09/19/22	
FILE 2131-I	PROJECT 2131-I
DESIGNER DWC	DRAWN BY DWC

NOT VALID UNLESS SIGNED AND SEALED
KIMBERLY A. BUCK P.E. 58565

SHEET
C009

13. SEWER LATERALS SHALL BE VERIFIED AND RECORDED AT THEIR CLEAN-OUT LOCATIONS. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM DOWNSTREAM MANHOLES TOWARDS UPSTREAM MANHOLES.

14. LIFT STATIONS AND FORCE MAINS SHALL BE VERIFIED AND DIMENSIONED FROM STREET CENTERLINES OR LOT LINES AS APPROPRIATE. FORCE MAIN DEPTH AND LOCATION INCLUDING VALVES WILL BE PROVIDED AND TIED TO PERMANENT ABOVE GRADE FEATURES EVERY 500 FEET. DIMENSIONAL AND ELEVATION INFORMATION INDICATED ON THE APPROVED PLAN SHALL BE VERIFIED AND RECORDED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION. BURIED ELECTRICAL SERVICE LINE SHALL BE CLEARLY DIMENSIONED, LOCATED AND LABELED.

15. CURB CUTS OR METAL TABS, USED TO MARK SEWER LATERALS, WATER SERVICES AND WATER VALVES, SHALL BE VERIFIED FOR PRESENCE AND ACCURACY OF LOCATION.

16. WATER MAIN LINES SHALL BE DIMENSIONED OFF THE BACK OF CURB OR EDGE OF PAVEMENT IF NO CURB IS PRESENT. WATER MAIN LINE MATERIAL, SIZE, LENGTH AND DEPTH PLACED SHALL ALSO BE NOTED. THIS INFORMATION TO CLEARLY INDICATE IT AS BEING "AS-BUILT" INFORMATION.

17. WATER VALVES, TEES, ALL SERVICES, BLOW – OFFS AND FIRE HYDRANTS SHALL BE LOCATED BY TYING THEM TO SANITARY SEWER MANHOLES. STATIONING AND OFFSET DISTANCES SHALL BE MEASURED FROM DOWNSTREAM MANHOLES TO UPSTREAM MANHOLES.

THE FOLLOWING INFORMATION IS GENERAL REQUIREMENTS OF ALL "AS-BUILT" DRAWINGS:

18. FOR PERPENDICULAR CROSSINGS OF STORM WATER, SANITARY SEWER, POTABLE WATER, OR RECLAIMED WATER, THE "AS-BUILT" PLANS SHALL CLEARLY INDICATE WHICH UTILITIES ARE LOCATED OVER OR UNDER OTHER UTILITIES, AS NECESSARY.

19. WHEN STORM WATER, POTABLE WATER, RECLAIMED WATER, OR SANITARY SEWER IMPROVEMENTS ARE LOCATED WITHIN AN EASEMENT, THE "AS-BUILT" SHALL ACCURATELY DEPICT THE LOCATION OF THE EASEMENT ITSELF AS WELL AS THE EXACT LOCATION OF THE IMPROVEMENTS WITHIN THE EASEMENT. THIS IS REQUIRED IN ORDER TO VERIFY THAT THE IMPROVEMENTS HAVE BEEN PROPERLY LOCATED AND TO ENSURE THAT FUTURE SUBSURFACE EXCAVATION TO PERFORM REMEDIAL REPAIR CAN BE ACCOMPLISHED WITHOUT DISTURBANCE BEYOND THE EASEMENT. SUCH DOCUMENTATION AND THE ASSOCIATED PROPOSED EASEMENT DOCUMENT WITH LEGAL DESCRIPTION SHALL BE SUBMITTED FOR CITY REVIEW AND APPROVAL PRIOR TO RECORDING OF SAID EASEMENT. UPON CITY APPROVAL, THE EASEMENT SHALL BE RECORDED VIA A SEPARATE LEGAL INSTRUMENT AND SHALL NOT BE INCLUDED AS PART OF HOMEOWNER COVENANTS AND RESTRICTIONS.

20. SUBMIT CERTIFIED PAPER PRELIMINARY "AS-BUILT" (24"x36") WITH REQUEST FOR FINAL INSPECTION. SUBMIT 3 SETS SHOWING WATER FACILITIES, 3 SETS WITH SEWER FACILITIES, AND 3 SETS WITH PAVING AND DRAINAGE FACILITIES. PRELIMINARY "AS-BUILT" MAY BE SUBMITTED IN DIGITAL FORMAT. FOLLOWING FINAL INSPECTION AND COMMENTS, THE CONTRACTOR SHALL REVISE AS-BUILTS TO ADDRESS CITY COMMENTS AND SUBMIT 3 SETS CERTIFIED FINAL "AS-BUILTS" ALONG WITH 1 SET CERTIFIED MYLARS AND 1 CD-ROM CONTAINING AUTO-CAD FILES AND PDF VERSIONS SHOWING ALL "AS-BUILT" SHEETS. ALL "AS-BUILT" DRAWINGS SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR AND ENGINEER OF RECORD. ALL DIGITAL FILES SHALL HAVE A DIGITAL SIGNATURE OF SURVEYOR AND/OR ENGINEER OF RECORD.

21. INDICATE VERTICAL DATUM REFERENCE ON ALL SHEETS.

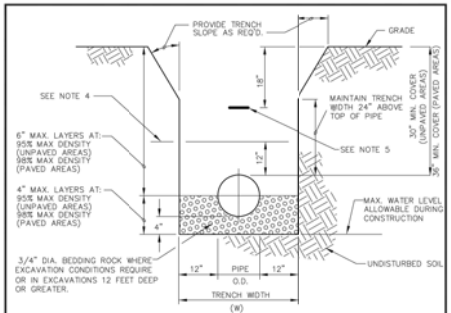
22. CAD FILE OF "AS-BUILTS" SHALL BE IN STATE PLANE COORDINATES; FILE SHOULD INCLUDE REFERENCE TO PROJECTION. (FLORIDA EAST, NAD83)

23. ALL "AS-BUILT" DRAWINGS SHALL BE PREPARED BY A FLORIDA REGISTERED LAND SURVEYOR USING THE FINAL APPROVED SITE DESIGN PREPARED BY THE ENGINEER OF RECORD. LINE WEIGHTS, LINETYPES, AND ANNOTATION SHALL BE MANAGED IN A MANNER THAT CLEARLY DISTINGUISHES DESIGN INFORMATION FROM "AS-BUILT" INFORMATION.

24. ALL "AS-BUILT" SHEETS SHALL INCLUDE A TITLE BLOCK AND CLEARLY STATE PROJECT NAME, PROJECT SURVEYOR, DATE OF FIELD WORK, AS WELL AS PROJECT CERTIFICATION BLOCK FROM THE ENGINEER OF RECORD.

NOTE: REFERENCES TO WATER SHALL MEAN BOTH POTABLE AND RECLAIMED WATER.

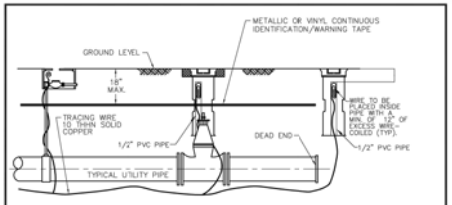
STANDARD CONSTRUCTION DETAIL
REQUIREMENTS FOR AS BUILT DRAWINGS
INDEX M-1B
MAY 2020



PIPE INSTALLATION DETAIL

NOTES:
1. WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180. PROVIDE COPIES OF CERTIFIED TEST REPORTS TO CITY INSPECTOR.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. INSTALL METALLIC TAPE OVER FULL LENGTH OF PIPE.

STANDARD CONSTRUCTION DETAIL
PIPE INSTALLATION
NTS
INDEX M-9
MAY 2020



ALL PVC PIPE, OR OTHER CITY APPROVED NONMETALLIC PIPE INSTALLED WITHIN THE CITY'S WATER, SANITARY SEWER, OR RECLAIMED WATER SYSTEMS, SHALL BE INSTALLED WITH 10 THHN SOLID COPPER TRACING WIRE. IF PIPE IS INSTALLED BY DIRECTIONAL BORE, USE (2) 10 THHN SOLID COPPER TRACING WIRE.

THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT OR OTHER APPLICABLE STRUCTURE.

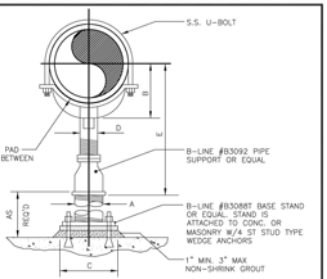
TRACING WIRE BETWEEN INTERVALS SHALL BE INSTALLED SO AS TO PROVIDE CONTINUOUS CURRENT WHEN LINE LOCATION EQUIPMENT IS CONNECTED TO THE TRACING WIRE. WIRE BRANCHING FROM MAIN LINES SHALL BE LINKED BY A CITY APPROVED CONNECTOR SUCH AS KING # 2011 SAFETY SEALED CONNECTORS OR APPROVED EQUAL.

COLOR CODING:

POTABLE WATER SYSTEM:	BLUE
RECLAIMED WATER SYSTEM:	LAVENDER
SANITARY SEWER FORCE MAIN SYSTEM:	GREEN
RAW WATER MAIN SYSTEM:	WHITE

1. POTABLE WATER AND RECLAIMED WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE RISER CONNECTION.
3. SANITARY SEWER FORCE MAINS: WIRE SHALL BE INSTALLED BELOW THE FORCE MAIN AND ATTACHED TO ALL VALVES AND FITTINGS AND BROUGHT TO THE SURFACE AND PLACED IN A METAL CITY APPROVED, VALVE BOX.
4. DEAD END MAINS: WIRE SHALL BE PLACED IN A PROPERLY IDENTIFIED METAL VALVE BOX AT THE END OF THE RUN.
5. WIRE SHALL NOT BE FASTENED OR COILED TO VALVE OPERATING NUT.

STANDARD CONSTRUCTION DETAIL
UTILITY PIPE LOCATION MATERIALS
NTS
INDEX M-10
MAY 2020



NOTES:
1. PROVIDE HALF ROUND RIGID INSULATION & INSULATION PROTECTION SHIELD, SIMILAR TO GRINNED FIG.167 OR ELENA FIG.219 WHEN PIPING IS INSULATED.
2. FOR BASE, HEIGHT, & FLANGE DIMENSIONS, SEE TABLE TO RIGHT. ALL DIMENSIONS IN INCHES.
3. ALL COMPONENTS OF PIPE SUPPORT SHALL BE STAINLESS STEEL.

PIPE SIZE	A	B	C	D	E MIN.	E MAX.
2 1/2	2 1/2	3 1/2	9	1 1/2	8	13
3	2 1/2	3 3/4	9	1 1/2	8 1/4	13 1/4
3 1/2	2 1/2	4	9	1 1/2	8 1/2	13 1/2
4	3	4 1/4	9	2 1/2	9 1/4	14
5	3	4 7/8	9	2 1/2	10	14 3/4
6	3	5 1/2	9	2 1/2	10 1/2	15 1/4
8	3	6 7/8	9	2 1/2	11 3/4	16 1/2
10	3	8 1/2	9	2 1/2	13 1/2	18 1/4
12	3	9 15/16	9	2 1/2	15	19 3/4
14	4	10 15/16	11	3	16 1/4	20 3/4
16	4	12 3/8	11	3	17 3/4	22 1/4
18	6	13 7/8	13 1/2	3 1/2	19 1/2	24
20	6	15 3/8	13 1/2	3 1/2	21	25 1/2
24	6	17 15/16	13 1/2	4	23 3/4	28 1/4

STANDARD CONSTRUCTION DETAIL
ADJUSTABLE PIPE SUPPORT
NT.
INDEX M-22
MAY 2020

SANITARY SEWER CONSTRUCTION GENERAL NOTES

1. THE CITY'S PUBLIC WORKS – UTILITY DIVISION DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY SEWER CONSTRUCTION.
2. ALL GRAVITY SANITARY SEWER LINES SHALL BE A MINIMUM OF 8" IN DIAMETER. SERVICE LATERALS SHALL BE A MINIMUM OF 4" DIAMETER (RESIDENTIAL) OR A MINIMUM OF 6" DIAMETER (COMMERCIAL).
3. ALL SANITARY SEWER LINES SHALL BE PVC SDR 26. IN PLACES WHERE A MINIMUM COVER OF 4.0' CANNOT BE MAINTAINED, C-900 GREEN PVC DR-25, CLASS 100 OR CONCRETE ENCASEMENT SHALL BE USED.
4. MINIMUM ALLOWABLE SANITARY SEWER SLOPES ALLOWED ARE:
   8" PIPE 0.40%
   10" PIPE 0.30%
   12" PIPE 0.22%
5. SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT.
6. THE CONTRACTOR SHALL AT ALL TIMES, DURING PIPE LAYING, DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH.
7. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES WILL NOT BE ACCEPTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY.
8. TRENCHES SHALL BE BACKFILLED WITH CLEAN GRANULAR MATERIAL IN MAX. 1' LIFTS WITH A MINIMUM COMPACTION OF 98 PERCENT (ASSHTO-T180) IN PAVED AREAS AND 95 PERCENT IN UNPAVED AREAS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TEST BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET, AND TO FURNISH COPIES OF TEST REPORTS PROMPTLY TO THE CITY INSPECTOR.
10. EXCAVATION AND BACKFILL: THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING OF EXCAVATION WORK OR USE OF TRENCH BOX IN ORDER TO PROVIDE FOR THE SAFETY OF WORKMEN, AS WELL AS REPRESENTATIVES OF THE CITY, THE DESIGN ENGINEER, AND THE DEVELOPER.
11. THE CONTRACTOR SHALL INSTALL A METALLIZED FOIL LOCATOR TAPE, OR SIMILAR DEVICE AS MAY BE APPROVED BY THE CITY FOR THE FULL LENGTH OF ALL PVC WATER, RECLAIMED WATER AND SEWAGE FORCE MAINS. THIS PIPE LOCATER AID SHALL BE INSTALLED (15) INCHES BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER AND IS IN ADDITION TO THE LOCATER WIRE REQUIRED IN THE UTILITY PIPE LOCATION MATERIALS DETAIL (MISCELLANEOUS DETAILS SECTION – M10).
12. MANHOLES SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 400 FEET.
13. MANHOLE RIMS SHALL MATCH FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.2 FEET ABOVE GRADE IN UNPAVED AREAS.

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14. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.
15. RUBBER BOOTS AND STAINLESS STEEL BANDS SHALL BE UTILIZED IN THE CONNECTION OF THE SEWER MAIN TO THE MANHOLES (SEE RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL).
16. DOGHOUSE TYPE MANHOLES ARE NOT PERMITTED WITHIN THE CITY OF ORMOND BEACH
17. INDIVIDUAL SANITARY SERVICE CONNECTORS ON NEW CONSTRUCTION SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES, BUT TO SEWER MAIN LINES BY USE OF WYE CONNECTIONS.
18. FOR SINGLE FAMILY HOMES, SINGLE FOUR INCH SEWER SERVICES SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE. THESE SERVICES SHALL BE EXTENDED 4 FEET ABOVE GROUND AT THE PROPERTY LINE WITH A PVC RISER AND PLUG BEING EASILY VISIBLE FROM THE ROAD. RUBBER SEAL FITTINGS TO BE USED ON ALL LINES, NO GLUED JOINTS.
19. FOR MULTI-FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.
20. SANITARY SEWER LATERALS LONGER THAN 70 FEET, MEASURED FROM THE SEWER MAIN TO THE RIGHT-OF-WAY LINE MAY BE APPROVED ON A CASE BY CASE BASIS. SUCH LATERALS SHALL BE D.I.P. EPOXY LINED OR C-900 PVC.
21. SANITARY SEWER MANHOLES WHICH HAVE SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM, OR ANY MANHOLE WITHIN 200 FEET OF A LIFT STATION, SHALL BE FIBERGLASS OR PVC LINED. RETRO-FITTING OF MANHOLES WITH LINERS SHALL BE REQUIRED WHEN NEW CONNECTIONS SUCH AS THIS ARE MADE. LINING SHALL BE AGRU SURE-GRIP, RAVEN, SEWPERCOAT, GREEN MONSTER, OR PRE-APPROVED EQUAL.
22. SEE CHART ON DETAIL INDEX S-1C FOR FORCE MAIN AND REUSE PIPE SIZE AND MATERIALS.
23. THE CITY OF ORMOND BEACH REQUIRES THE DEVELOPER/CONTRACTOR TO TELEVISE ALL SANITARY SEWER MAINS AND LATERALS PRIOR TO ACCEPTANCE AND RESERVES THE RIGHT TO REQUEST WATER AND AIR TESTING. A REPUTABLE COMPANY THAT ENGAGES IN THIS TYPE OF WORK SHALL CONDUCT THE TELEVISING PROCESS. THE DVD AND/OR DIGITAL FILE SHALL BE NON STOP WITH AUDIO DESCRIBING WHAT IS BEING REVIEWED. WRITTEN DVD LOGS DESCRIBING THE CONDITION OF THE LINES SHALL ACCOMPANY THE DVD SUBMISSION TO THE CITY. THIS PROCESS SHALL BE WITNESSED BY A REPRESENTATIVE OF THE CITY OF ORMOND BEACH.

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24. ALL MANHOLES CONSTRUCTED IN SIDE YARDS, BACKYARDS, AND EASEMENTS OFF THE RIGHT-OF-WAY SHALL BE OUTFITTED WITH FIBERGLASS LINERS OR OTHER TYPES OF LINERS OR COATINGS APPROVED BY THE CITY. IN ADDITION THE CITY MAY REQUIRE LINERS OR COATINGS TO BE INSTALLED IN OTHER AREAS WHERE THE PUBLIC UTILITY DEPARTMENTS BELIEVE THE NEED IS JUSTIFIED.
25. ALL SEWER LINES WHICH ARE CONSTRUCTED OFF PUBLIC RIGHTS-OF-WAY WITHIN SIDEYARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF C-900 PVC. ABSOLUTELY NO USE OF PLASTIC STYRENE FITTINGS SHALL BE ALLOWED.
26. SEWER LATERAL LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT V, OR BY A METAL TAB SET IN TO THE PAVEMENT.
27. EZ-WRAP PLASTIC, AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION OR APPROVED EQUAL, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WET WELL JOINTS. APPLY ONE LAYER OF 9" WRAP CENTERED ON EACH JOINT. A CITY INSPECTOR SHALL PERSONALLY INSPECT ALL JOINT SEALS PRIOR TO BACKFILLING OPERATIONS.
28. ALL PROPOSED SEWER MAINS, 4" OR GREATER, SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
29. ALL SEWER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES AND A MAXIMUM DEPTH OF 18' TO ANY MANHOLE OR 22' TO ANY WETWELL. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER C900/C905 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
30. FORCE MAIN SYSTEMS SHALL BE PRESSURE TESTED AT 100 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS. TESTS SHALL BE CONDUCTED BEFORE FINAL PAVING AND IN THE PRESENCE OF THE CITY'S INSPECTOR. SUBMIT FOR FDEP CLEARANCE BEFORE PAVING.
31. DURING CONSTRUCTION, CONTRACTOR SHALL ISOLATE NEW SANITARY SEWER CONSTRUCTION FROM EXISTING SANITARY SEWER MAINS. THIS ISOLATION MAY BE BY INSTALLATION OF A BLADDER/PLUG PLACED AT POINT OF CONNECTION OR BY OTHER METHODS. THE PURPOSE OF THIS ISOLATION IS TO ENSURE SURFACE WATER IS NOT RELEASED TO THE TREATMENT PLANT. SURFACE WATER SHALL BE REMOVED PRIOR TO THE BLADDER BEING REMOVED.

FORCE MAIN & REUSE MAIN STANDARDS

DIAMETER	MATERIAL	STANDARD
2" – 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" – 12"	PVC 1120 / CLASS 100	AWWA C 900
14" – 36" (16"– 24" ⟶ DR – 18) (30"– 36" ⟶ DR – 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE (DIPS) DR 13.5	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE GREEN FOR SEWER FORCE MAIN, AND PURPLE FOR REUSE MAIN.

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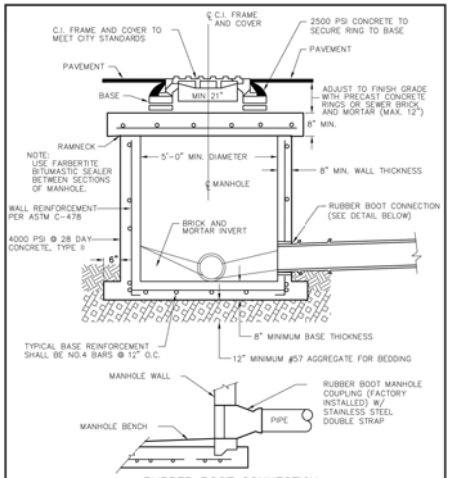

RUBBER BOOT CONNECTION DETAIL
USE FOR MANHOLES OF 5'-0" OR LESS IN DEPTH

STANDARD CONSTRUCTION DETAIL
SHALLOW MANHOLE
NTS.
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AMBERWOODS
FLAGLER COUNTY, FL
DETAILS

NO.	DATE	REVISION	BY

DESIGNER DWC | FILE 2131-1 | DATE 09/19/22
DRAWN BY DWC | PROJECT 2131-1 | SCALE

NOT VALID UNLESS SIGNED AND SEALED IMMEDIATELY BEFORE USE

SHEET
C010