

# WOODSIDE AT ORMOND STATION

LOCATION MAP (N.T.S.)



TAX PARCEL ID NUMBER:  
21-14-31-0000-01010-0000

## SITE DEVELOPMENT PLAN

FLAGLER COUNTY, FL

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

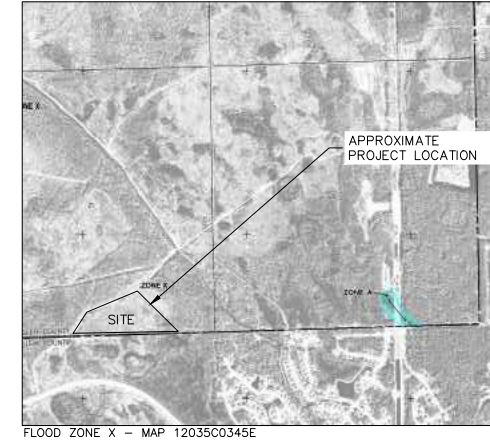
**ENGINEER:**  
THE ALANN ENGINEERING GROUP, INC.  
CONSULTING ENGINEERS  
880 AIRPORT RD. STE. 113  
ORMOND BEACH, FL 32174  
PH. (386) 673-7640 FAX: (386) 673-3927  
EMAIL: KAB@AE-GROUP.COM

**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 32137  
386-931-1202  
EMAIL: MICHAEL@BEEBEASSOCIATES.COM

FLOOD MAP



FLOOD ZONE X - MAP 12035C0345E

VICINITY MAP

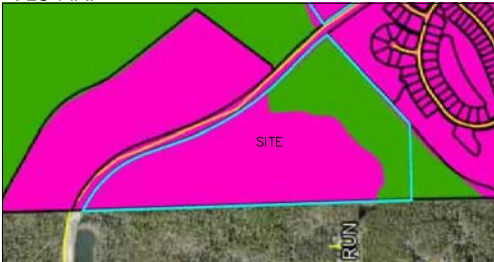


SOILS MAP



2: RIVIERA FINE SAND SOIL GROUP A/D  
12: PLACID, BASINGER AND ST JOHNS SOILS SOIL GROUP A/D  
40: POMONA FINE SAND SOIL GROUP B/D

FLU MAP



FLU: MIXED USE - LOW INTENSITY & CONSERVATION

ZONING MAP



ZONING: PUD - PLANNED UNIT DEVELOPMENT & CONSERVATION

**SITE DATA:**

**SITE AREA:**  
TOTAL SITE AREA = 21.236 AC  
DEVELOPMENT AREA = 13.274 AC

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

**ZONING:**  
PUD - PLANNED UNIT DEVELOPMENT & CONSERVATION

**FUTURE LAND USE:**  
MIXED USE: LOW INTENSITY & CONSERVATION

**EXISTING USE:**  
VACANT

**IMPERVIOUS SURFACES:**

SIDEWALK:	10,898 SF
ROADS:	48,253 SF
LOTS (ASSUME 65%):	216,239 SF
PROPOSED IMPERVIOUS SURFACE:	275,390 SF (6.322 AC) (30%)
PROPOSED PAVEMENT AREA:	649,632 SF (14.913 AC) (70%)

**PROPOSED POND AREA:**  
127,940 SF (2.937 AC)

**WETLAND IMPACTS:**

TOTAL EXISTING:	211,403 SF (4.853 AC)
PRESERVED:	75,594 SF (1.735 AC)
IMPACTS:	135,809 SF (3.118 AC)
WETLAND BUFFER:	25'

**LOT CRITERIA:**

MINIMUM DEPTH:	120'
MINIMUM WIDTH:	40'
SETBACKS:	
FRONT:	25'
REAR:	20'
SIDE:	5'

**BUILDINGS:**

MAXIMUM BUILDING HEIGHT:	35'
# OF RESIDENTIAL UNITS PROPOSED:	63
DENSITY:	2.97 UNITS/AC
PRICE RANGE(\$/SF OF CONDITIONED SPACE):	\$250-300/SF

**PROPOSED USES:**

SINGLE FAMILY SUBDIVISION/RESIDENTIAL

**STATEMENT OF INTENT**

TO CONSTRUCT A PLANNED RESIDENTIAL DEVELOPMENT WITH ASSOCIATED UTILITY INFRASTRUCTURE

**DESCRIPTION:**

A PARCEL OF LAND SITUATED IN SECTION 21, TOWNSHIP 14 SOUTH, RANGE 31 EAST, FLAGLER COUNTY, FLORIDA, LYING EASTERLY AND SOUTHERLY OF AIRPORT ROAD (HAVING A RIGHT OF WAY WIDTH OF 100 FEET), AS SHOWN ON THE PLAT OF AIRPORT ROAD/HUNTER'S RIDGE BOULEVARD EXTENSION AS SHOWN ON THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 37, PAGES 38 AND 39 OF PUBLIC RECORDS OF SAID COUNTY, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHEAST CORNER OF SAID SECTION 21, THENCE SOUTH 88°06'02" WEST, ALONG THE SOUTH LINE OF SAID SECTION 21, A DISTANCE OF 1325.73 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE SOUTH 88°06'02" WEST, ALONG THE SOUTH LINE OF SAID SECTION 21, A DISTANCE OF 1320.00 FEET TO THE SOUTH 1/4 CORNER OF SAID SECTION 21; THENCE SOUTH 88°08'35" WEST, ALONG THE SOUTH LINE OF SAID SECTION 21, A DISTANCE OF 471.26 FEET TO THE EASTERLY RIGHT OF WAY LINE OF SAID AIRPORT ROAD, SAID POINT BEING ON A CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 1050.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 47°57'01" EAST, 823.87 FEET; THENCE ALONG THE EASTERLY AND SOUTHERLY RIGHT OF WAY LINE OF SAID AIRPORT ROAD THROUGH THE FOLLOWING THREE (3) COURSES: 1) NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 46°11'53", AND ARC LENGTH OF 846.62 FEET TO THE END OF SAID CURVE; 2) THENCE NORTH 71°03'23" EAST, A DISTANCE OF 336.93 FEET TO THE BEGINNING OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 2550.00 FEET AND BEING SUBTENDED BY A CHORD HAVING A BEARING AND DISTANCE OF NORTH 64°30'03" EAST, 581.75 FEET; 3) THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 13°06'00", AND ARC LENGTH OF 583.02 FEET; DEPARTING THE SOUTHERLY RIGHT OF WAY LINE OF SAID AIRPORT ROAD, SOUTH 21°26'07" EAST, A DISTANCE OF 915.97 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED LANDS CONTAIN: 21.236 ACRES, MORE OR LESS

**GENERAL NOTES:**

- 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.
- 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.
- CONTRACTOR SHALL IMMEDIATELY NOTIFY DESIGN ENGINEER, THE COUNTY INSPECTOR, AND THE CITY OF ORMOND BEACH, OF ANY DISCREPANCIES FOUND ON THE PLANS.
- 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.
- 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.
- 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.
- TEMPORARY DRAINAGE SHALL BE PROVIDED DURING CONSTRUCTION TO ELIMINATE ANY FLOODING OF PRIVATE PROPERTY.
- UNSTABLE MATERIALS SHALL BE REMOVED FROM CONSTRUCTION AREAS AND BACKFILLED WITH SUITABLE MATERIALS.
- 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.
- ALL STORM SEWER LINES AND INLETS SHALL BE CLEARED OF DEBRIS AND ERODED MATERIALS AT LAST STAGES OF CONSTRUCTION.
- 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.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
- CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY PERFORMED BY A REGISTERED SURVEYOR. SURVEY SHALL INDICATE AS-BUILT OF ALL IMPROVEMENTS.
- THE CONTRACTOR SHALL CALL FOR LOCATES 2 BUSINESS DAYS PRIOR TO STARTING CONSTRUCTION.
- NO LAND SHALL BE CLEARED, EXCAVATED OR FILLED AND NO STRUCTURE SHALL BE ERRECTED, REPAIRED OR DEMOLISHED WITHOUT PROPER PERMIT(S).
- ANY CONSTRUCTION CHANGES TO APPROVED PLANS SHALL BE SUBMITTED TO FLAGLER COUNTY FOR APPROVAL PRIOR TO PERFORMING THE WORK.
- A PRE-PAVING UTILITY INSPECTION MUST BE REQUESTED AND COMPLETED PRIOR TO THE PAVING OF ALL ROADS, STREETS, AND PARKING AREAS.
- 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.
- A COMPLETE SET OF AS-BUILT DRAWINGS ARE REQUIRED TO BE SUBMITTED TO FLAGLER COUNTY PRIOR TO REQUESTING A FINAL INSPECTION.
- ADJACENT ROADWAYS ARE TO BE SWEEPED DAILY TO MAINTAIN PUBLIC ROADS FREE FROM DIRT/DEBRIS. CONTRACTOR TO PROVIDE WEEKLY INSPECTION. WATER TRUCK TO REMAIN ON-SITE TO KEEP DUST UNDER CONTROL.

Sheet List Table	
Sheet Number	Sheet Title
C00	COVER
C01	OVERALL LAYOUT, EROSION CONTROL, & WETLAND IMPACTS
C02	LAYOUT PLAN
C03	LAYOUT PLAN
C04	GRADING PLAN
C05	GRADING PLAN
C06	OVERALL UTILITY PLAN
C07	PLAN AND PROFILE
C08	PLAN AND PROFILE
C09	PLAN AND PROFILE
C10	PLAN AND PROFILE
C11	WATER MAIN - PLAN AND PROFILE
C12	WATER MAIN - PLAN AND PROFILE
C13	WATER MAIN & FORCE MAIN - PLAN AND PROFILE
C14	WATER MAIN & FORCE MAIN - PLAN AND PROFILE
C15	WATER MAIN & FORCE MAIN - PLAN AND PROFILE
C16	WATER MAIN & FORCE MAIN - PLAN AND PROFILE
C17	WATER MAIN & FORCE MAIN - PLAN AND PROFILE
C18	FORCE MAIN - PLAN AND PROFILE
C19	FORCE MAIN - PLAN AND PROFILE
C20	WATER MAIN - PLAN AND PROFILE
C21	DETAILS
C22	DETAILS
C23	DETAILS
C24	DETAILS
C25	DETAILS
C26	DETAILS
C27	DETAILS
C28	DETAILS
C29	LIFT STATION DETAILS
C30	FDOT DETAILS
C31	FDOT DETAILS
C32	FDOT DETAILS
C33	FDOT DETAILS
C34	RECLAIMED WATER DETAILS
C35	RECLAIMED WATER DETAILS
C36	DIRECTIONAL DRILL DETAILS

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FAX: (386) 673-3927

WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
COVER

NO.	DATE	PER COUNTY COMMENTS	BY
1	07/21/23		
2	08/24/23		

FILE	PROJECT	SCALE	N/A
2221-1	2221-1		

Kimberly A. Buck, State of Florida, Professional Engineer, License No. 38565, 2023.08.25, 15:06:21-0400\*

SHEET  
C00

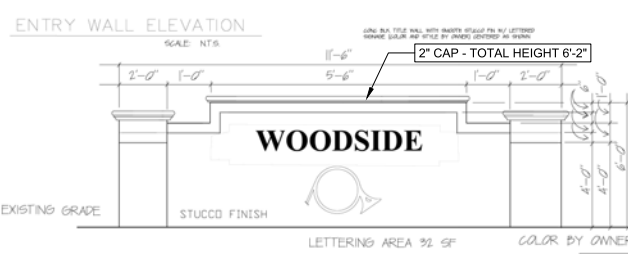
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PARCEL LINE DATA			
SEGMENT	LENGTH	DIRECTION	
L35	8.51	S40° 27' 04"W	
L41	25.00	S19° 08' 58"E	
L42	50.00	S19° 08' 58"E	
L43	30.00	N70° 51' 02"E	
L44	22.71	S71° 03' 23"W	
L45	30.00	N70° 51' 02"E	
L46	25.00	S19° 08' 58"E	
L47	21.67	S26° 03' 23"W	
L48	120.00	N45° 21' 42"E	
L49	7.87	S38° 39' 34"E	

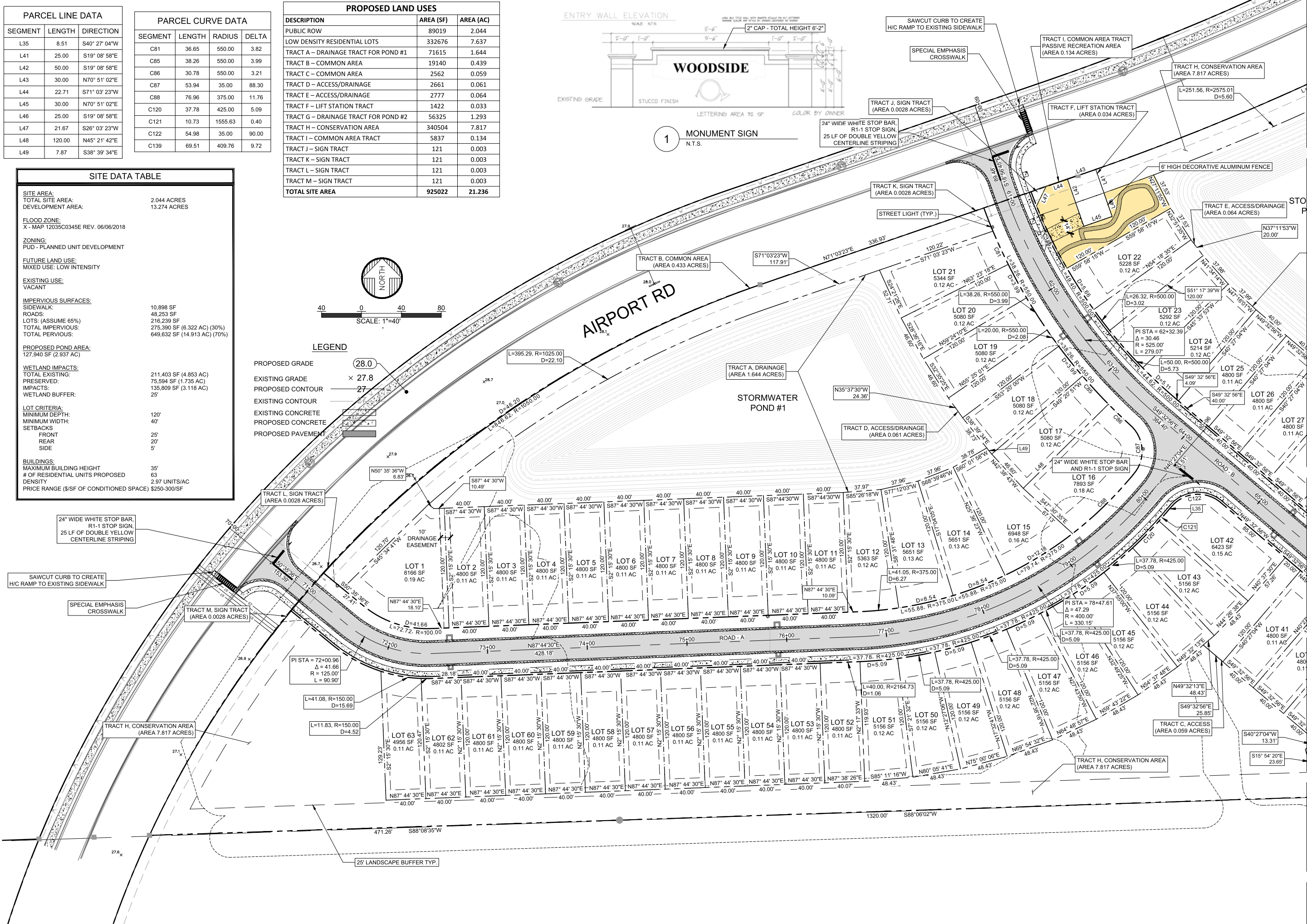
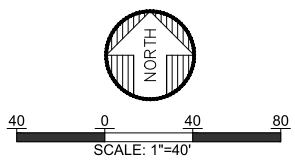
PARCEL CURVE DATA			
SEGMENT	LENGTH	RADIUS	DELTA
C81	36.65	550.00	3.82
C85	38.26	550.00	3.99
C86	30.78	550.00	3.21
C87	53.94	35.00	88.30
C88	76.96	375.00	11.76
C120	37.78	425.00	5.09
C121	10.73	1555.63	0.40
C122	54.98	35.00	90.00
C139	69.51	409.76	9.72

PROPOSED LAND USES		
DESCRIPTION	AREA (SF)	AREA (AC)
PUBLIC ROW	89019	2.044
LOW DENSITY RESIDENTIAL LOTS	332676	7.637
TRACT A - DRAINAGE TRACT FOR POND #1	71615	1.644
TRACT B - COMMON AREA	19140	0.439
TRACT C - COMMON AREA	2562	0.059
TRACT D - ACCESS/DRAINAGE	2661	0.061
TRACT E - ACCESS/DRAINAGE	2777	0.064
TRACT F - LIFT STATION TRACT	1422	0.033
TRACT G - DRAINAGE TRACT FOR POND #2	56325	1.293
TRACT H - CONSERVATION AREA	340504	7.817
TRACT I - COMMON AREA TRACT	5837	0.134
TRACT J - SIGN TRACT	121	0.003
TRACT K - SIGN TRACT	121	0.003
TRACT L - SIGN TRACT	121	0.003
TRACT M - SIGN TRACT	121	0.003
<b>TOTAL SITE AREA</b>	<b>925022</b>	<b>21.236</b>



SITE DATA TABLE	
SITE AREA:	2.044 ACRES
TOTAL SITE AREA:	13.274 ACRES
DEVELOPMENT AREA:	
FLOOD ZONE:	X - MAP 12035C0345E REV. 06/06/2018
ZONING:	PUD - PLANNED UNIT DEVELOPMENT
FUTURE LAND USE:	MIXED USE: LOW INTENSITY
EXISTING USE:	VACANT
IMPERVIOUS SURFACES:	
SIDEWALK:	10,898 SF
ROADS:	48,253 SF
LOTS: (ASSUME 65%):	216,239 SF
TOTAL IMPERVIOUS:	275,390 SF (6.322 AC) (30%)
TOTAL PAVEMENT:	649,632 SF (14.913 AC) (70%)
PROPOSED POND AREA:	127,940 SF (2.937 AC)
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PRESERVED:	75,594 SF (1.735 AC)
IMPACTS:	135,809 SF (3.118 AC)
WETLAND BUFFER:	25'
LOT CRITERIA:	
MINIMUM DEPTH:	120'
MINIMUM WIDTH:	40'
SETBACKS:	
FRONT:	25'
REAR:	20'
SIDE:	5'
BUILDINGS:	
MAXIMUM BUILDING HEIGHT:	35'
# OF RESIDENTIAL UNITS PROPOSED:	63
DENSITY:	2.97 UNITS/AC
PRICE RANGE (\$/SF OF CONDITIONED SPACE):	\$250-300/SF

LEGEND	
PROPOSED GRADE	28.0
EXISTING GRADE	27.8
PROPOSED CONTOUR	27
EXISTING CONTOUR	
EXISTING CONCRETE	
PROPOSED CONCRETE	
PROPOSED PAVEMENT	



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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
LAYOUT PLAN

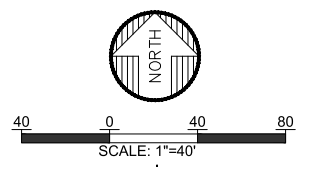
NO.	DATE	REVISION
1.	07/21/23	PER COUNTY COMMENTS
2.	08/24/23	PER COUNTY COMMENTS

DESIGNER	DRAWN BY	PROJECT	SCALE	DATE
KAB	PFH	2221-1	AS NOTED	8/25/2023

NOT VALID UNLESS SIGNED AND SEALED  
IN ACCORDANCE WITH F.S. 481.005

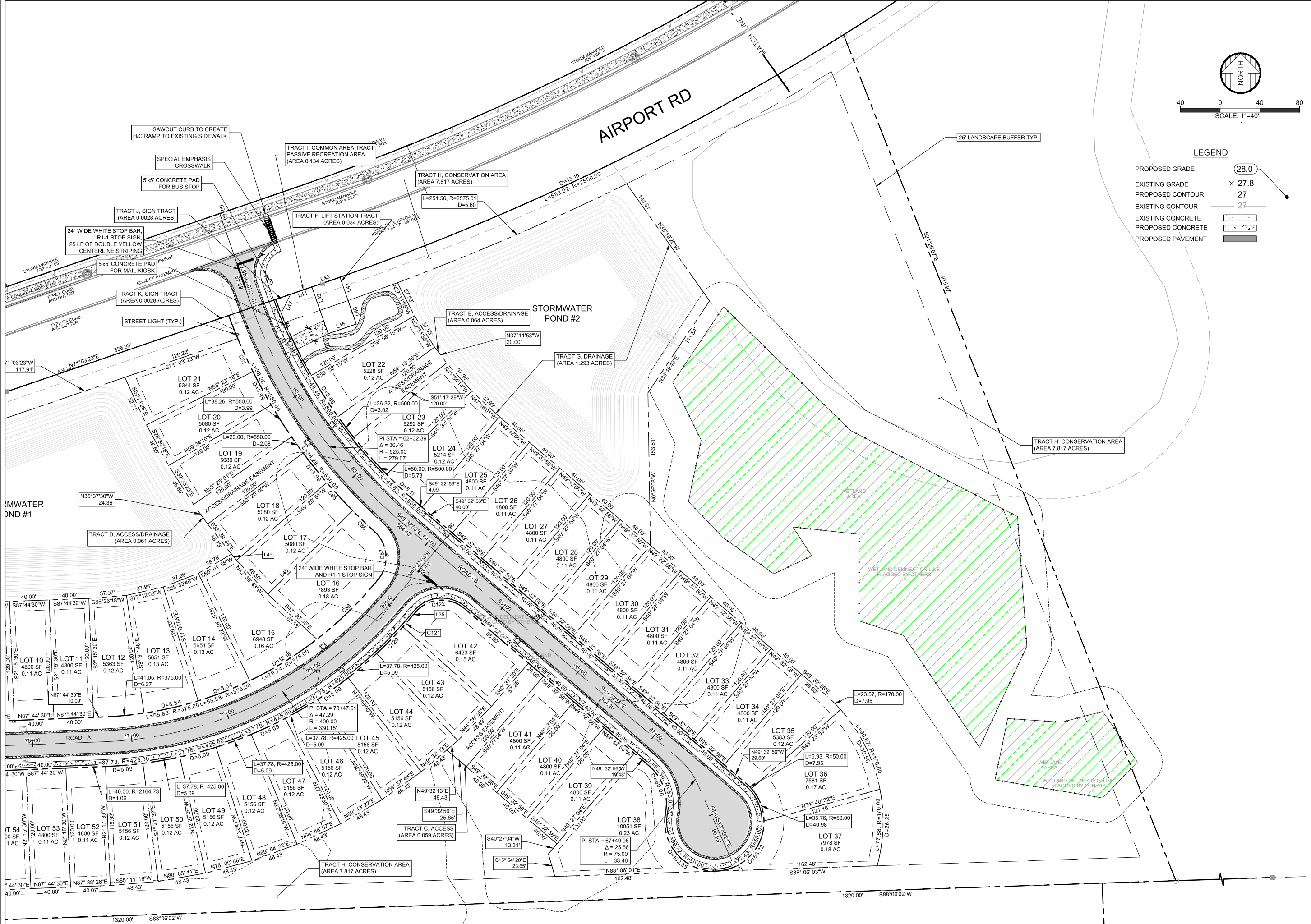
SHEET  
C02

WOODSIDE AT ORMOND STATION  
 FLAGLER COUNTY, FL  
 LAYOUT PLAN



**LEGEND**

PROPOSED GRADE	(28.0)
EXISTING GRADE	× 27.8
PROPOSED CONTOUR	— 27 —
EXISTING CONTOUR	— 27 —
EXISTING CONCRETE	[Pattern]
PROPOSED CONCRETE	[Pattern]
PROPOSED PAVEMENT	[Pattern]

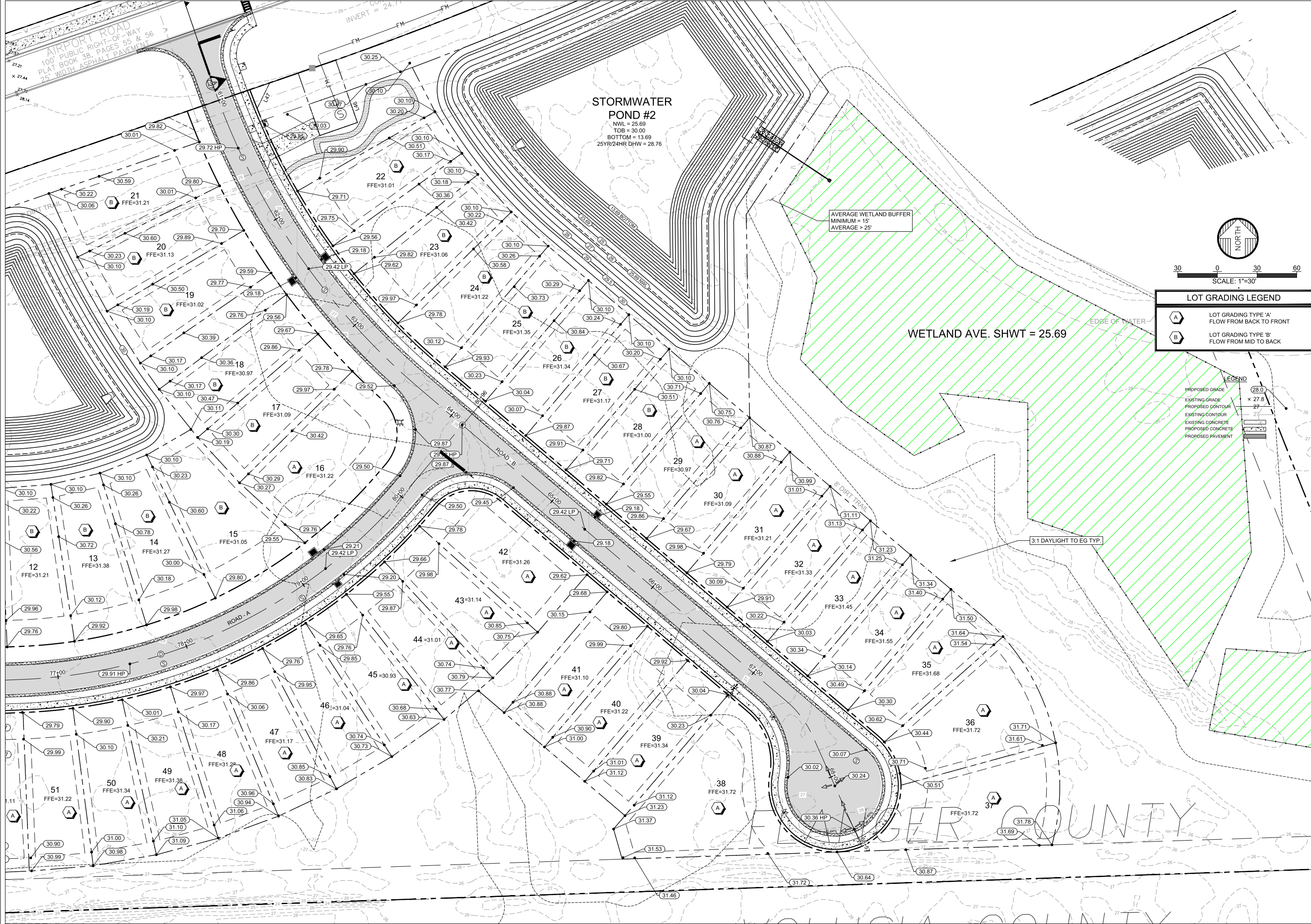


NO.	DATE	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB
1.	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	FILE	DATE	SCALE
KAB	2221-1	8/25/2023	AS NOTED

NOT VALID UNLESS SIGNED AND SEALED  
 NUMBER & BLOCK FACE (386)





**STORMWATER POND #2**  
 NWL = 25.69  
 TOB = 30.00  
 BOTTOM = 13.69  
 25YR/24HR DHW = 28.76

AVERAGE WETLAND BUFFER  
 MINIMUM = 15'  
 AVERAGE > 25'

WETLAND AVE. SHWT = 25.69



SCALE: 1"=30'

**LOT GRADING LEGEND**

(A)	LOT GRADING TYPE 'A' FLOW FROM BACK TO FRONT
(B)	LOT GRADING TYPE 'B' FLOW FROM MID TO BACK

**LEGEND**

(Symbol)	PROPOSED GRADE	(Symbol)	28.0
(Symbol)	EXISTING GRADE	(Symbol)	x 27.8
(Symbol)	PROPOSED CONTOUR	(Symbol)	27
(Symbol)	EXISTING CONTOUR	(Symbol)	27
(Symbol)	EXISTING CONCRETE	(Symbol)	27
(Symbol)	PROPOSED CONCRETE	(Symbol)	27
(Symbol)	PROPOSED PAVEMENT	(Symbol)	27

NO.	DATE	PER COUNTY COMMENTS	KAB	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB		
1.	07/21/23	PER COUNTY COMMENTS	KAB		

DESIGNER	FILE	DATE	SCALE	AS NOTED
KAB	2221-1	8/25/2023	SCALE	AS NOTED
DRAWN BY	PROJECT	DATE	SCALE	AS NOTED
PFH	2221-1	8/25/2023	SCALE	AS NOTED

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 NUMBER & BACK P.E. 18551











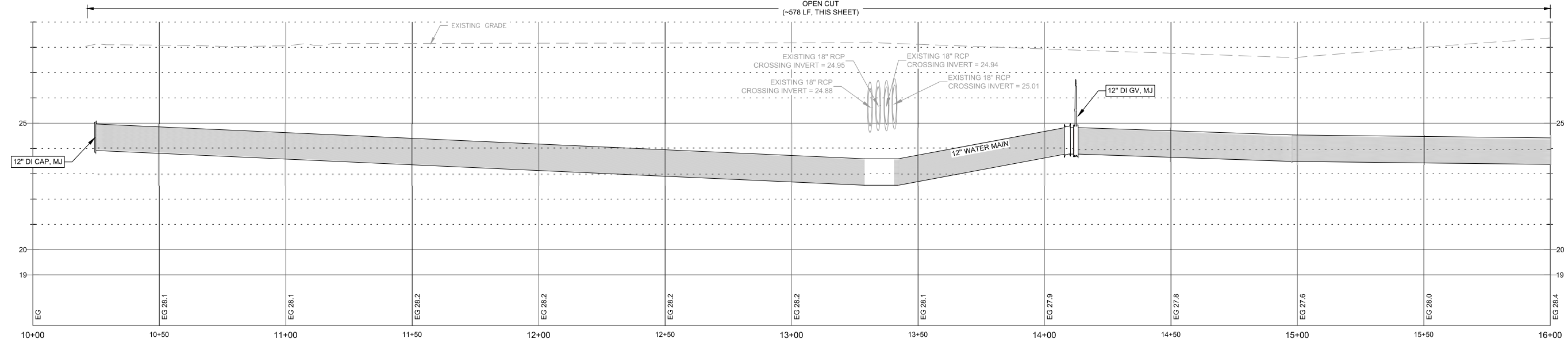
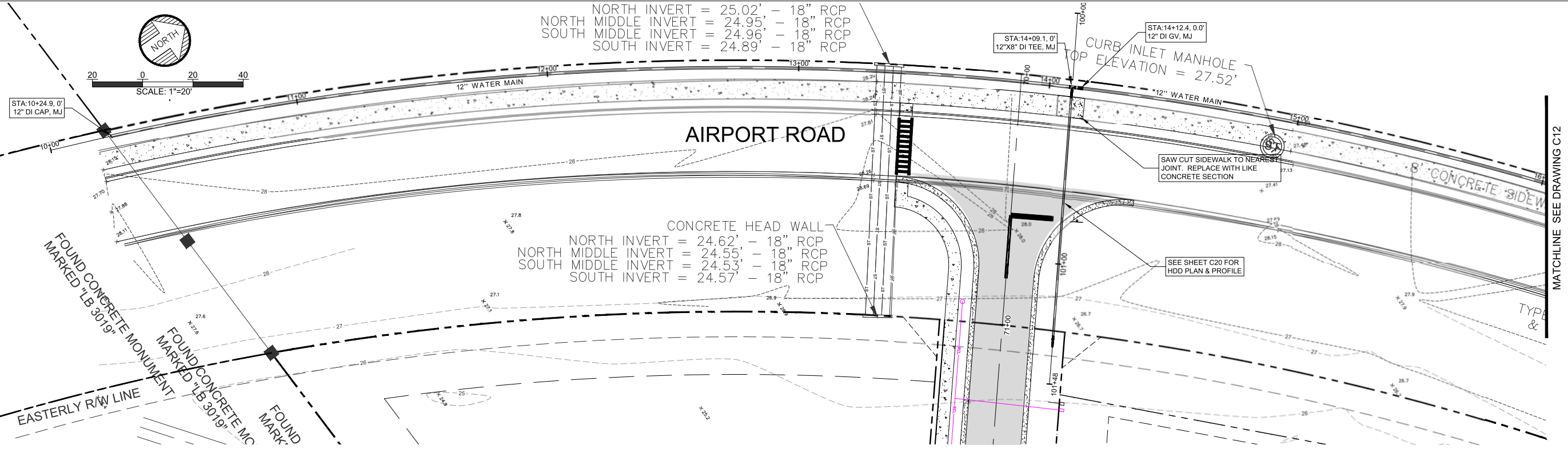




SCALE: 1"=20'

NORTH INVERT = 25.02' - 18" RCP  
MIDDLE INVERT = 24.95' - 18" RCP  
SOUTH INVERT = 24.96' - 18" RCP

CONCRETE HEAD WALL  
NORTH INVERT = 24.62' - 18" RCP  
MIDDLE INVERT = 24.55' - 18" RCP  
SOUTH INVERT = 24.53' - 18" RCP  
SOUTH INVERT = 24.57' - 18" RCP



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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
WATER MAIN - PLAN AND PROFILE

NO.	DATE	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB
1.	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	KAB	DATE	8/25/2023
DRAWN BY	PFH	SCALE	AS NOTED
PROJECT	2221-1	AS NOTED	

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IN ACCORDANCE WITH F.S. 318.05

SHEET  
C11

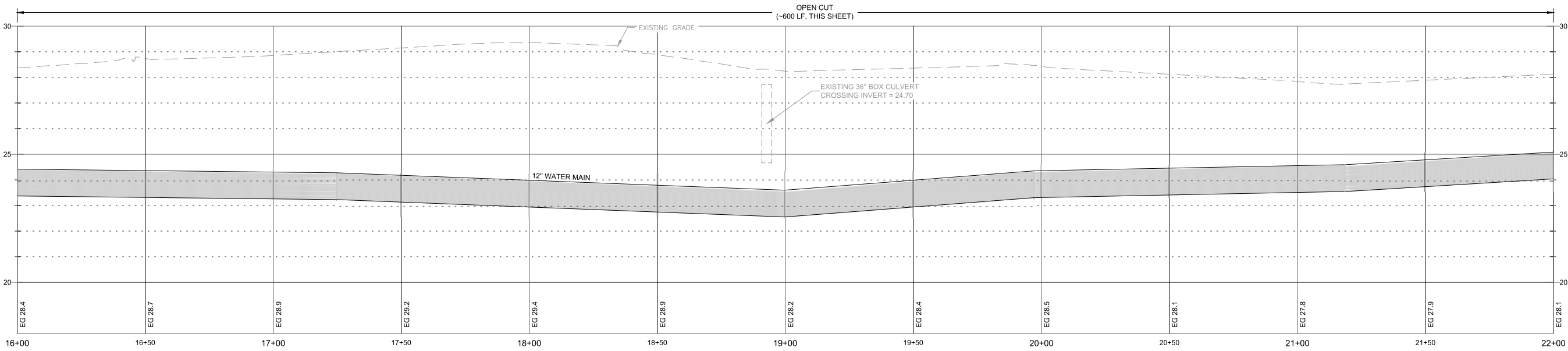
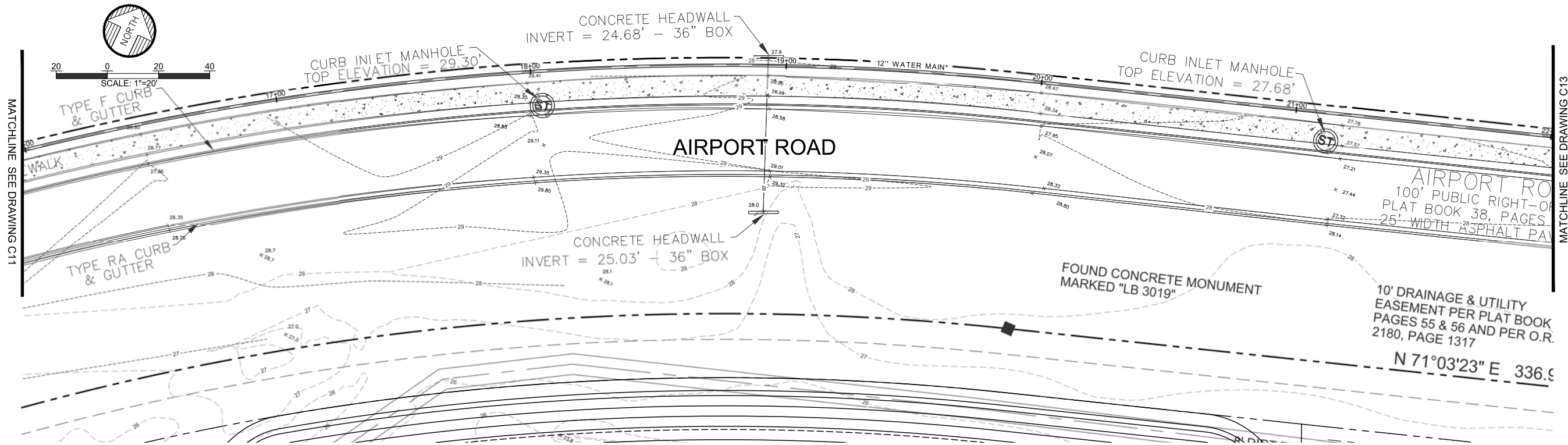
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SCALE: 1"=20'

MATCHLINE SEE DRAWING C11

MATCHLINE SEE DRAWING C13



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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
WATER MAIN - PLAN AND PROFILE

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1.	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	KAB	DATE	8/25/2023
DRAWN BY	PFH	SCALE	AS NOTED
PROJECT	2221-1	PROJECT	2221-1

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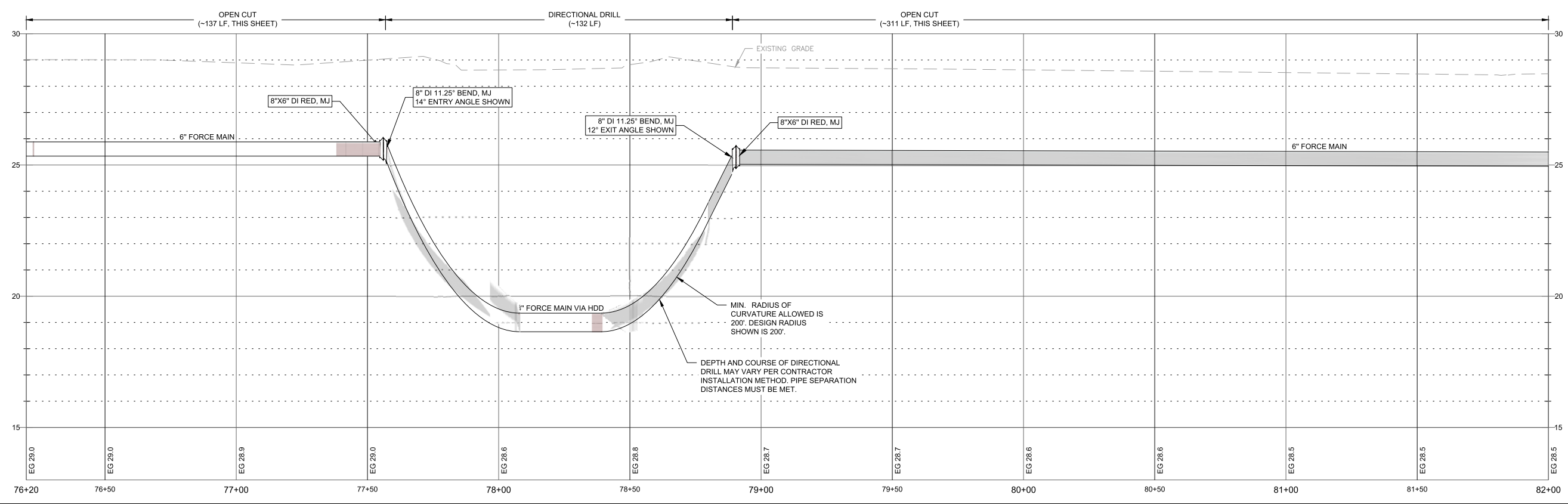
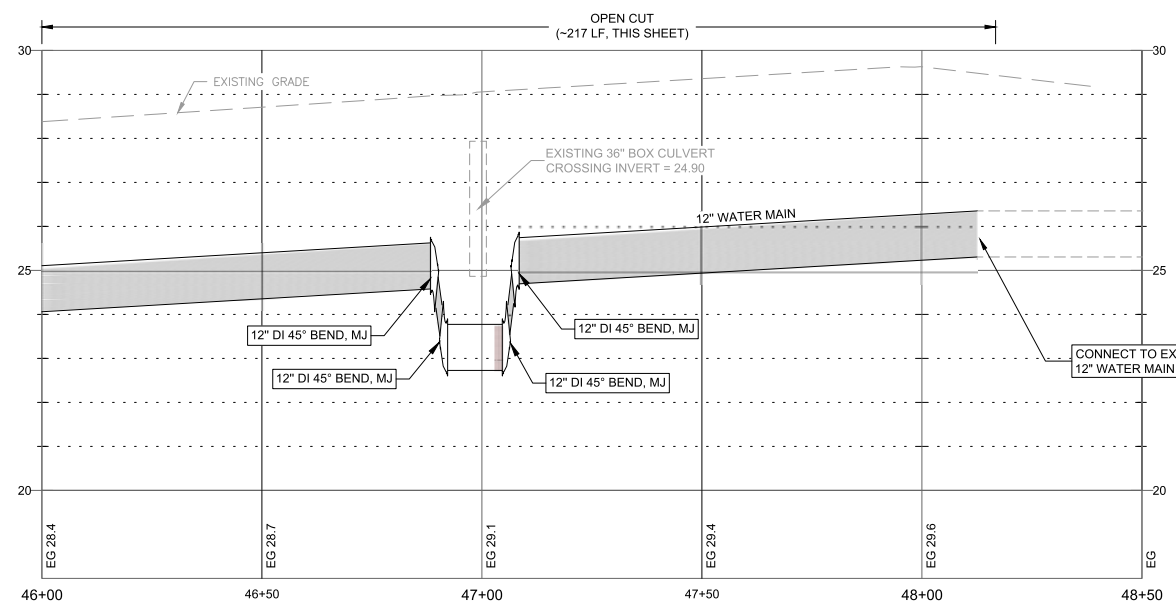
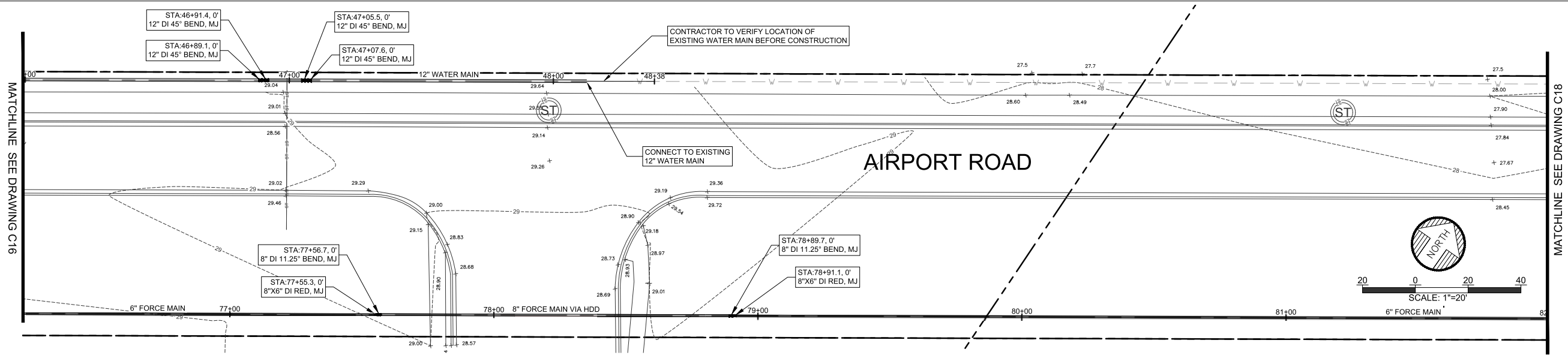












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FLAGLER COUNTY, FL  
WATER MAIN & FORCE MAIN - PLAN AND PROFILE

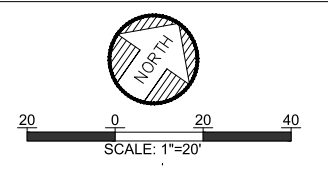
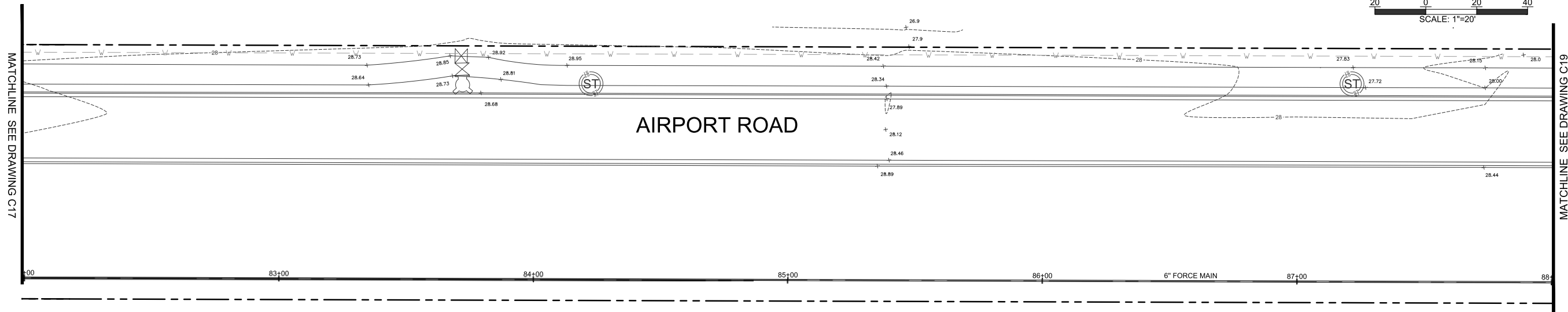
NO.	DATE	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB
1.	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	KAB	DATE	8/25/2023
FILE	2221-1	SCALE	AS NOTED
PROJECT	2221-1	SCALE	AS NOTED
DRAWN BY	PFH	SCALE	AS NOTED

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NUMBER & BLOCK # (386)

SHEET  
C17

PL2023-11 provided by the County of Flagler, Florida. The information on this drawing is based on the information provided by the County of Flagler, Florida. The information on this drawing is based on the information provided by the County of Flagler, Florida. The information on this drawing is based on the information provided by the County of Flagler, Florida.



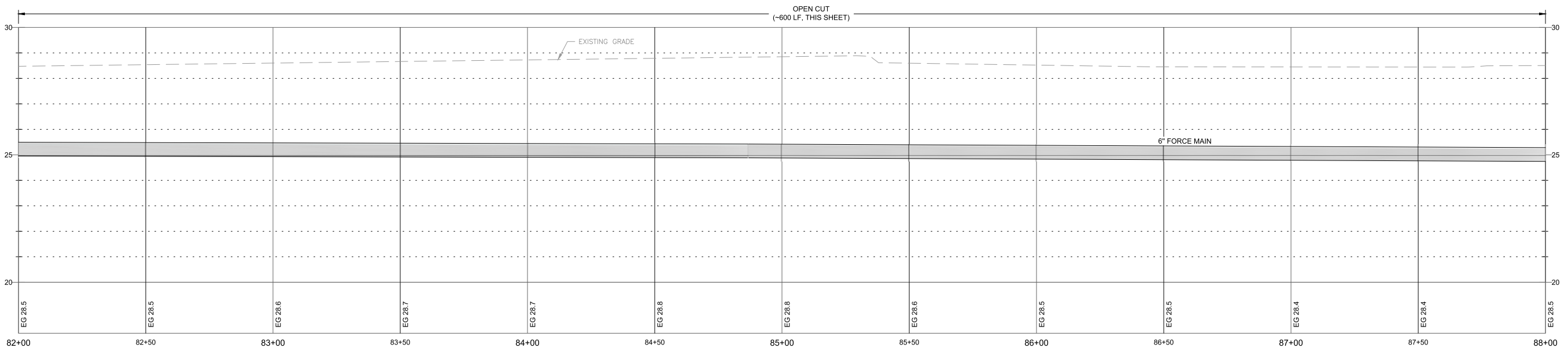
ALANN ENGINEERING GROUP, INC.  
 CONSULTING ENGINEERS  
 CERTIFICATE NO. EB5479  
 880 AIRPORT ROAD, SUITE 113  
 ORMOND BEACH, FL 32174  
 TEL: (386) 673-7640  
 FAX: (386) 673-3927

WOODSIDE AT ORMOND STATION  
 FLAGLER COUNTY, FL  
 FORCE MAIN - PLAN AND PROFILE

NO.	DATE	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB
1.	07/21/23	PER COUNTY COMMENTS	KAB

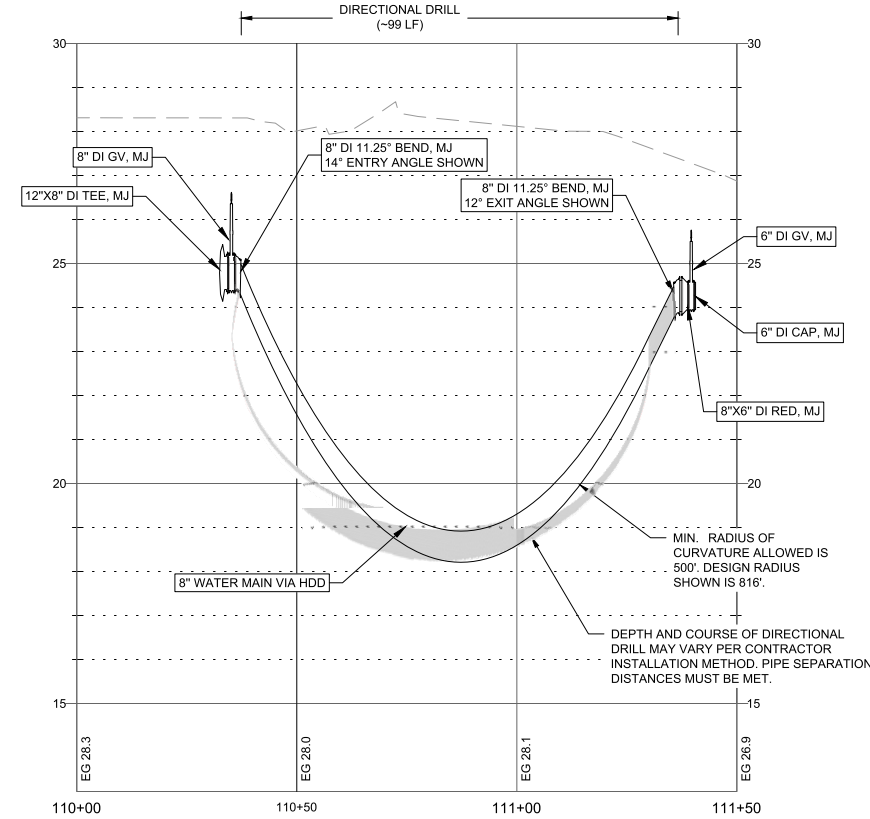
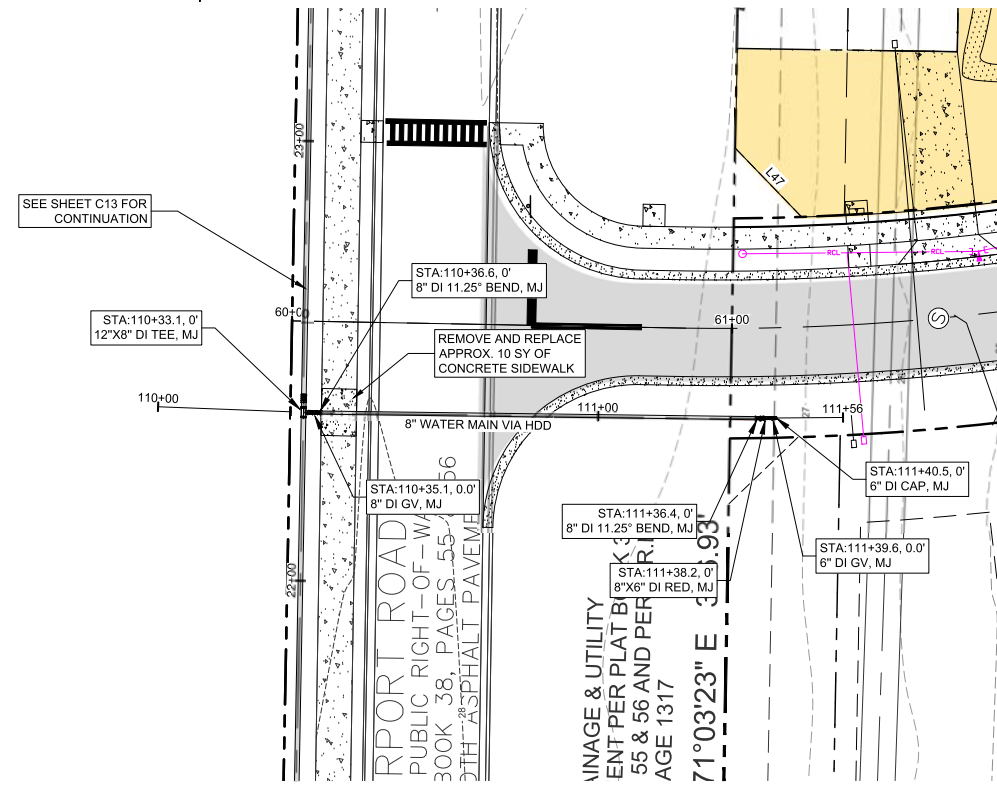
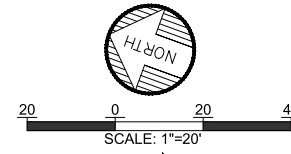
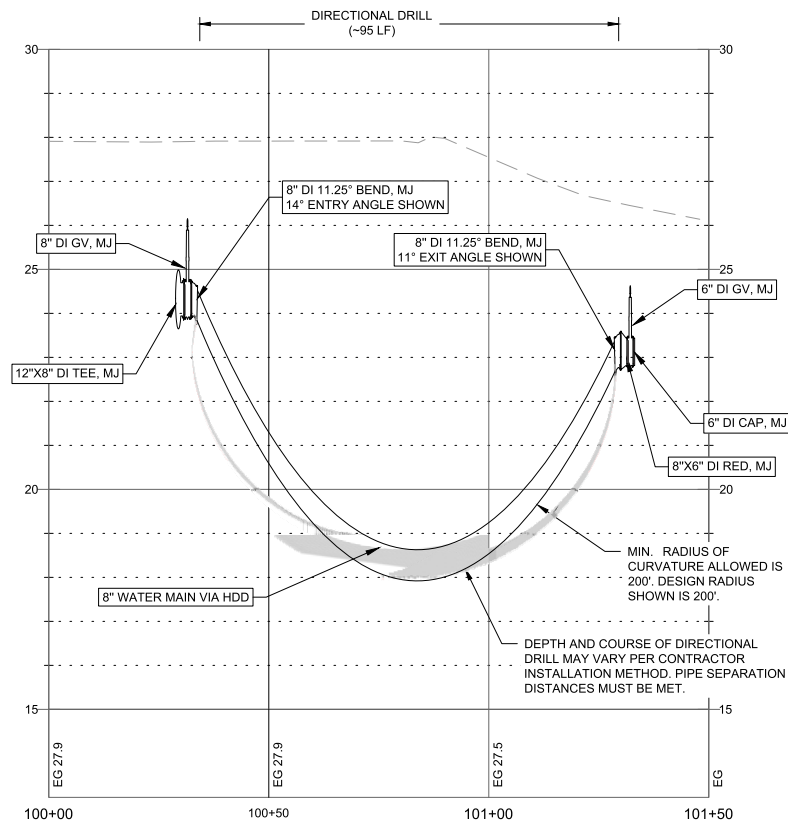
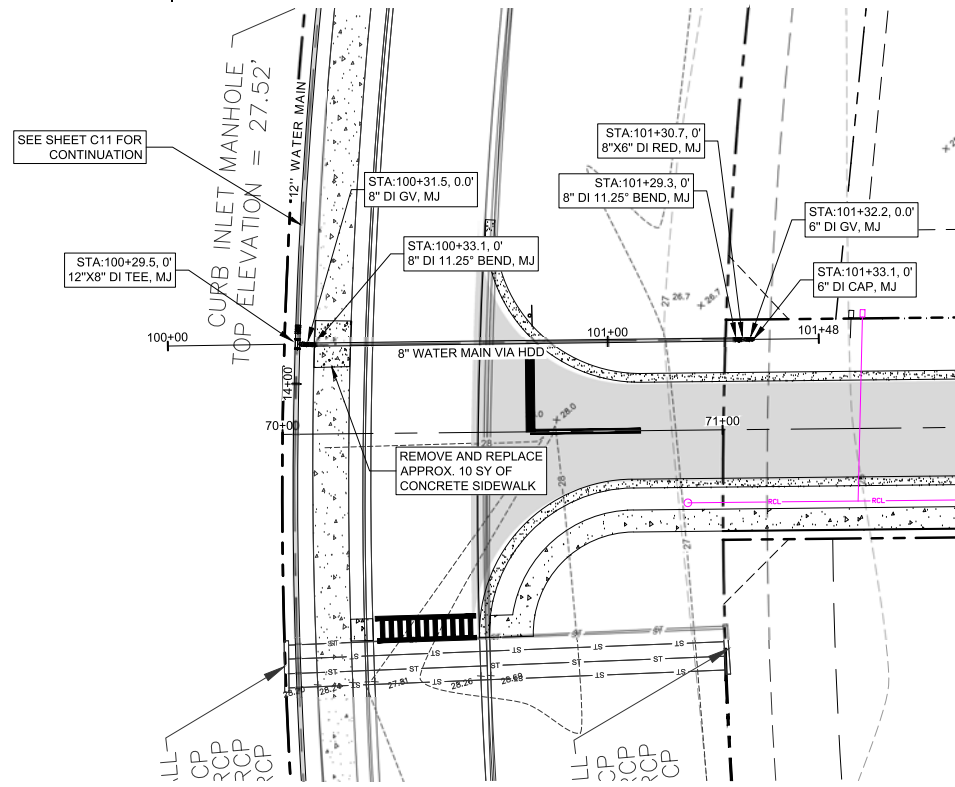
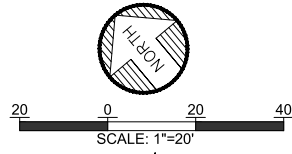
DESIGNER	KAB	DATE	8/25/2023
DRAWN BY	PFH	PROJECT	2221-1
		SCALE	AS NOTED

NOT VALID UNLESS SIGNED AND SEALED  
 NUMBER & BLOCK # (SEE)



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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
WATER MAIN - PLAN AND PROFILE

NO.	DATE	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB
1.	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	FILE	DATE	SCALE	DRAWN BY	PROJECT	AS NOTED
KAB	2221-1	8/25/2023	AS NOTED	PFH	2221-1	

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NUMBER & BLOCK # (SEE)

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GENERAL NOTES  
WATER SYSTEM CONSTRUCTION

- THE CITY'S PUBLIC UTILITIES DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY WATER SYSTEM CONSTRUCTION.
- DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.
- 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.
- 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.
- 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.
- 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.
- WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (BLUE IN COLOR); POLYBUTYLENE SHALL NOT BE ALLOWED.
- 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.
- WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 500 FEET.
- AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
- APPROVED WATER VALVE TYPES ARE THE FOLLOWING:
  - STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515).
  - MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C - 509)
  - EPOXY COATED (AWWA C - 550)

GENERAL NOTES  
WATER SYSTEM CONSTRUCTION

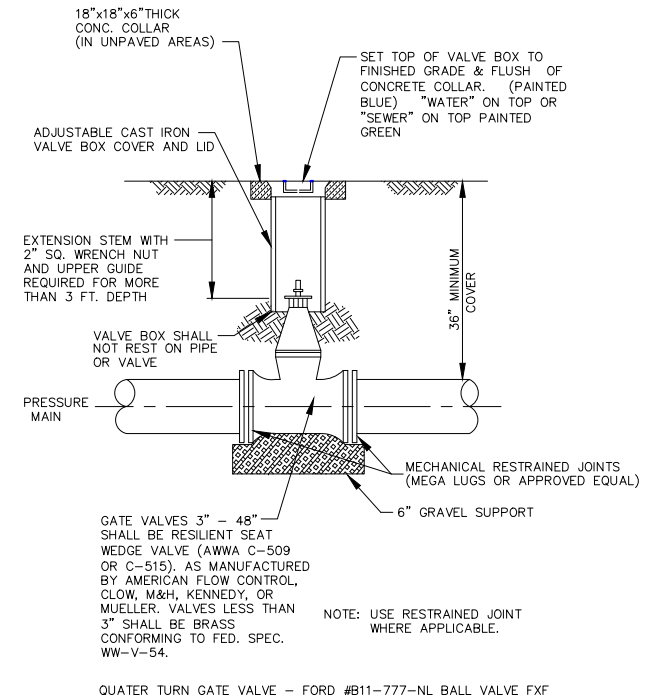
- ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.
- WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS IN THE PRESENCE OF UTILITY DEPARTMENT PERSONNEL.
- HYDRANTS SHALL BE PLACED AT 500 FEET 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.
- 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.
- AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.
- 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.
- 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.
- WATER MAINS SHALL BE AWWA C-900 CL 150, OR D.I.P. CLASS 350 STANDARD CEMENT LINED AWWA C-104.
- 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.
- MEGALUG OR EQUIVALENT, 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.
- ALL DI BENDS, TEES, VALVES, WYE FITTINGS TO BE EPOXY COATED IN ACCORDING WITH AWWA C-550

GENERAL NOTES  
WATER SYSTEM CONSTRUCTION

- 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.
- ALL WATER SERVICES SHALL BE MARKED WITH A " " SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
- 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.
- UNIFLANCE 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.
- TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
- NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
- ALL WATER METERS SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY REGARDLESS OF SIZE.
- SUBMIT ASSEMBLY CERTIFICATION FOR ALL BACKFLOW PREVENTERS TO THE CITY'S ENGINEERING & PLANNING DEPARTMENT BEFORE FINAL INSPECTION AT COMDEV@ORMONDBEACH.ORG.
- 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.
- SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

M A T E R I A L S		
DIAMETER	MATERIAL	STANDARD
2" - 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" - 12"	PVC DR-18	AWWA C 900
> 4" - 12" DEDICATED 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 DIPS DR 11	ASTM F 714

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



STANDARD CONSTRUCTION DETAIL  
GENERAL NOTES  
WATER SYSTEM CONSTRUCTION

INDEX  
W-1A  
MAY 2020



STANDARD CONSTRUCTION DETAIL  
GENERAL NOTES  
WATER SYSTEM CONSTRUCTION

INDEX  
W-1B  
MAY 2020



STANDARD CONSTRUCTION DETAIL  
GENERAL NOTES  
WATER SYSTEM CONSTRUCTION

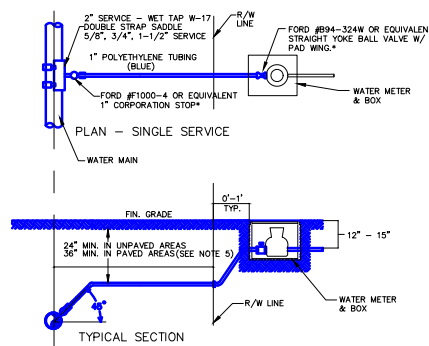
INDEX  
W-1C  
MAY 2020



STANDARD CONSTRUCTION DETAIL  
GATE VALVE AND VALVE BOX  
NTS

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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



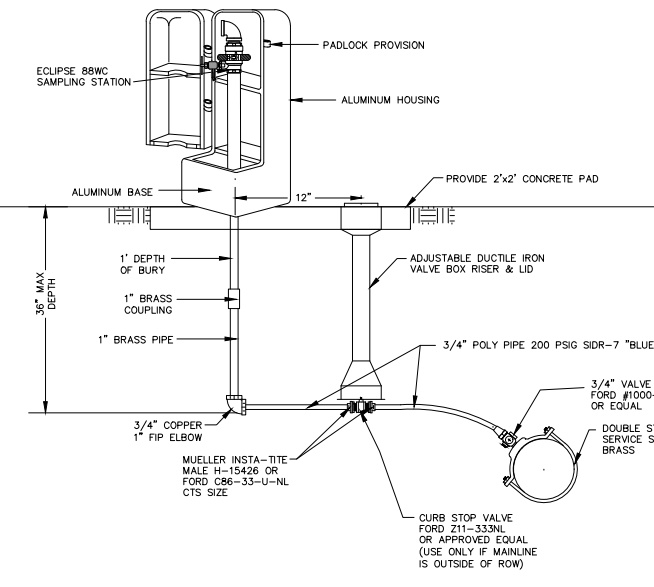
- NOTES:
- CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
  - HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL).
  - REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE
  - ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2"-0" STAGGERED INTERVAL OR WITHIN 2"-0" OF BELL OR SPIGOT ENDS.
  - 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".
  - 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-6F 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.
  - WATER METERS INSTALLED IN AREAS SERVED BY RECLAIMED WATER SHALL BE EQUIPPED WITH A DUAL CHECK BACKFLOW PREVENTER.
  - WATER METERS IN AREA SERVED WITH AN ALTERNATE IRRIGATION SUPPLY SHALL BE EQUIPPED WITH BACKFLOW PREVENTION TO BE APPROVED FOR USE BY FDPD.

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)						
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END	
PIPE SIZE (IN.) :						
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	

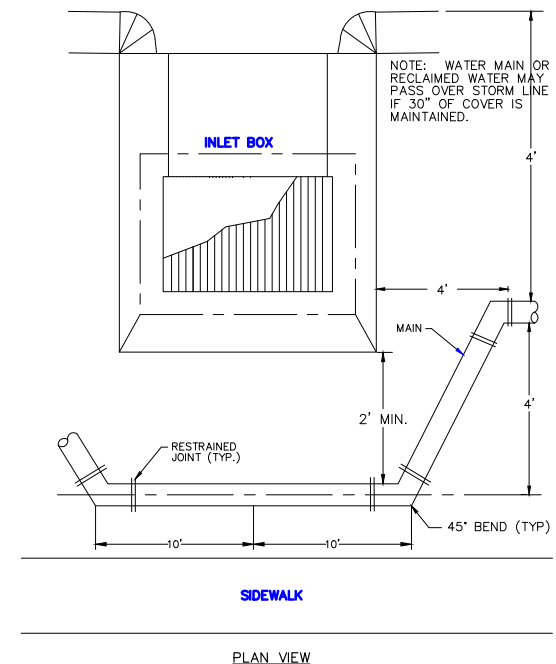
TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:  
TEST PRESSURE: 150 PSIG  
SOIL TYPE: SP  
COVER DEPTH: 2.5 FEET  
SAFETY FACTOR: 1.5  
TRENCH TYPE: 3

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)						
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END	
PIPE SIZE (IN.) :						
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 (22)	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



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



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

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W-3  
MAR 2021



STANDARD CONSTRUCTION DETAIL  
PVC AND D.I.P. RESTRAINED JOINT TABLE

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W-5  
MAY 2020



STANDARD CONSTRUCTION DETAIL  
WATER SAMPLING STATION  
NTS

INDEX  
W-20  
AUG 2021



STANDARD CONSTRUCTION DETAIL  
WATER MAIN INSTALLATION BETWEEN DRAINAGE INLET AND SIDEWALK  
NTS

INDEX  
W-7  
MAY 2020

ALLAN ENGINEERING GROUP, INC.  
CONSULTING ENGINEERS  
CERTIFICATE NO. EB5479  
880 AIRPORT ROAD, SUITE 113  
ORMOND BEACH, FL 32174  
TEL: (386) 673-7640  
FAX: (386) 673-3927

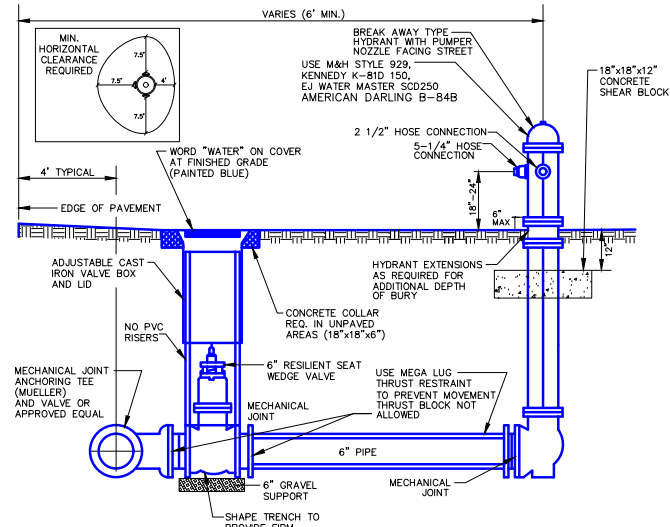
WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
DETAILS

NO.	DATE	PER COUNTY COMMENTS	PER COUNTY COMMENTS	BY
2.	08/24/23			KAB
1.	07/21/23			KAB

DESIGNER	FILE	DATE	SCALE	PROJECT	REVISION
KAB	2221-1	06/30/23	N/A	2221-1	

NOT VALID UNLESS SIGNED AND SEALED  
SIGNED & SEAL FILE NUMBER

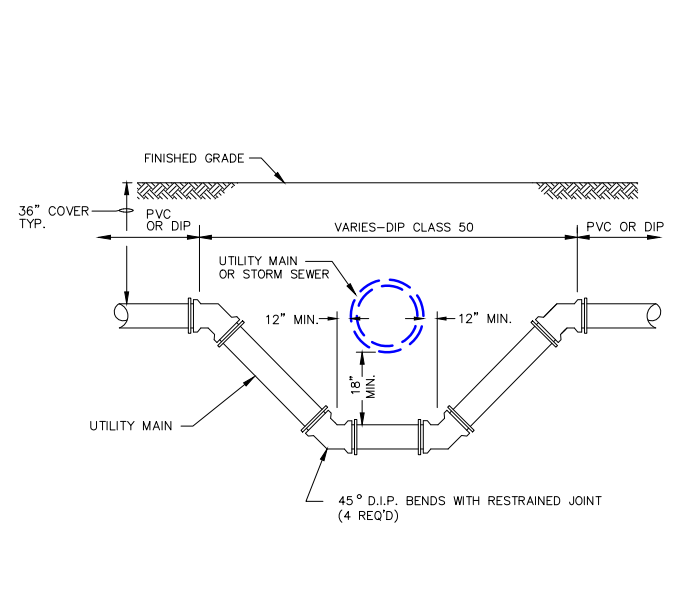
SHEET  
C21



- 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 \*GPM SHOWN IS AT 20 PSI  
 CLASS A - 1000 GPM TO 1499 GPM - GREEN  
 CLASS B - 500 GPM TO 999 GPM - ORANGE  
 CLASS C - LESS THAN 500 GPM - RED
  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.

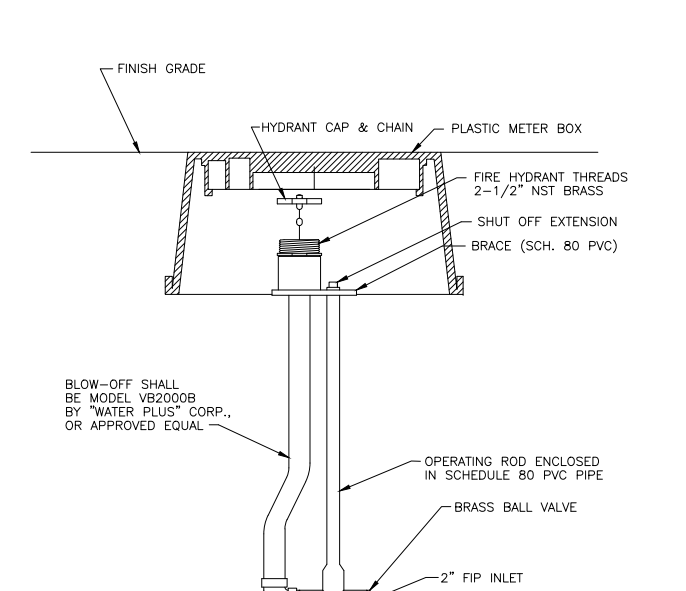
ON-SITE SERVICE TREATMENT & DISCHARGE SYSTEM	GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER, RECLAIMED WATER (4)	VACUUM SANITARY SEWER	STORM WATER FORCE MAIN, RECLAIMED WATER (2)	OTHER PIPE
10 FT. MINIMUM	10 FT. PREFERRED 6 FT. MINIMUM (3)	10 FT. PREFERRED 3 FT. MINIMUM	3 FT. MINIMUM	HORIZONTAL SEPARATION
	12 INCHES IS THE MINIMUM EXCEPT FOR GRANT'S TRENCH SYSTEMS WHICH IS 12 INCHES PREFERRED	12 INCHES IS THE MINIMUM EXCEPT FOR GRANT'S TRENCH SYSTEMS WHICH IS 12 INCHES PREFERRED	12 INCHES IS THE MINIMUM EXCEPT FOR GRANT'S TRENCH SYSTEMS WHICH IS 12 INCHES PREFERRED	CROSSINGS (1)
	ALTERNATE 6 FT. MINIMUM	ALTERNATE 3 FT. MINIMUM	ALTERNATE 3 FT. MINIMUM	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)

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



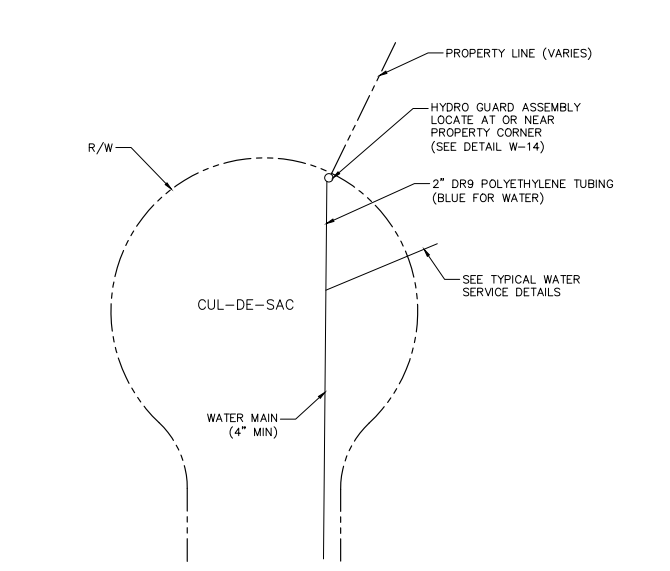
- NOTE: ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 18" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

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

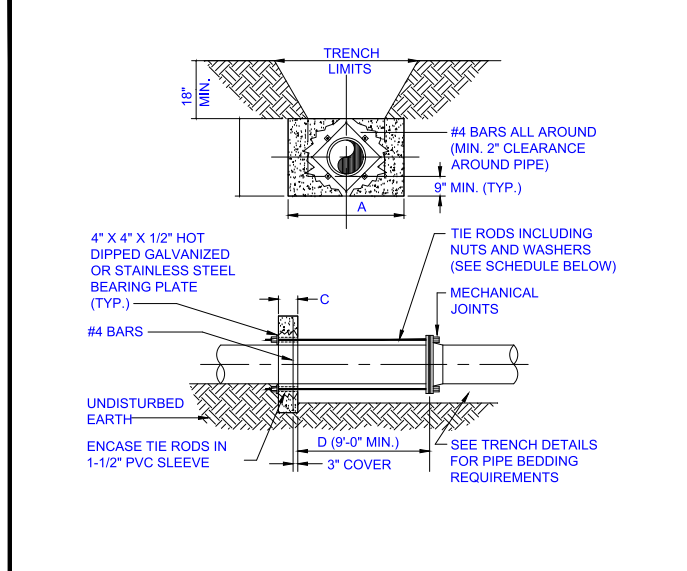


1. WRENCH AND DISCHARGE SPOUT AS SUPPLIED BY MANUFACTURER SHALL BE TURNED OVER TO THE CITY DURING FINAL INSPECTION.

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



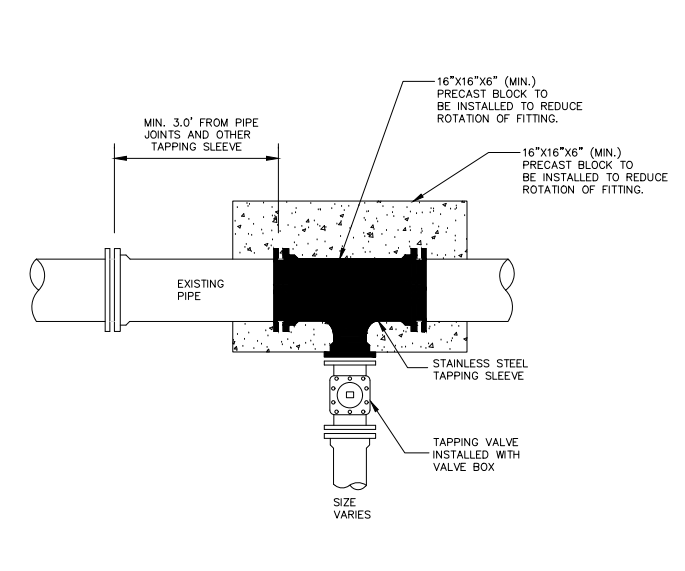
NOTES:

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.

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS/REOD DIA. NO.
	A	B	C	D	
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

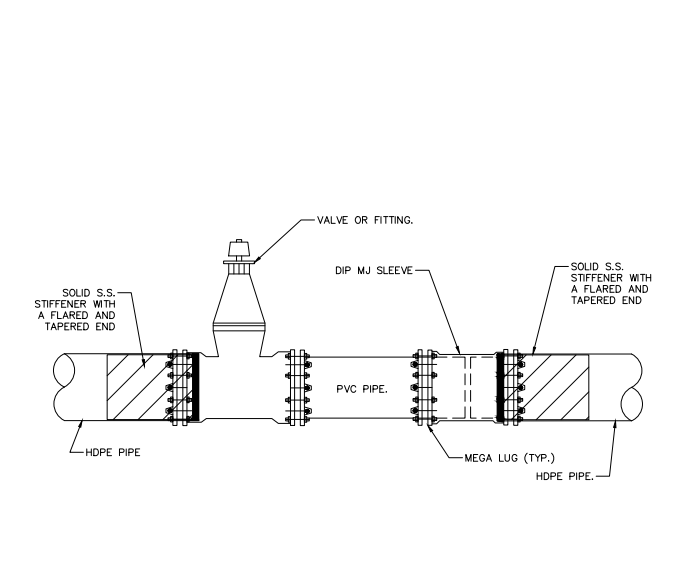
NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

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



- 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  
HDPE PIPE - VALVE/FITTING CONNECTION  
NTS  
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MAY 2020

ALANN ENGINEERING GROUP, INC.  
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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
DETAILS

NO.	DATE	PER COUNTY COMMENTS	BY
1	07/21/23	PER COUNTY COMMENTS	KAB
2	08/24/23	PER COUNTY COMMENTS	KAB

DESIGNER	DATE	SCALE
KAB	06/30/23	N/A

FILE	PROJECT
2221-1	2221-1

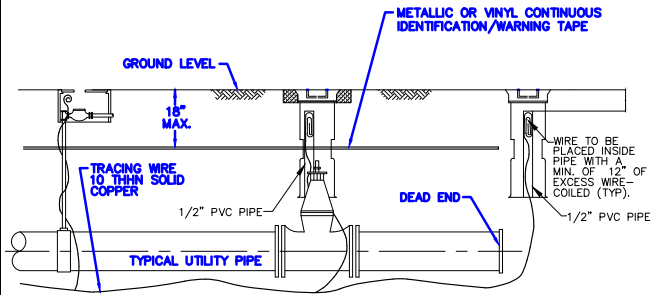
SHEET  
C22

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.



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 THIN SOLID COPPER TRACING WIRE. IF PIPE IS INSTALLED BY DIRECTIONAL BORE, USE (2) 10 THIN SOLID COPPER TRACING WIRE.

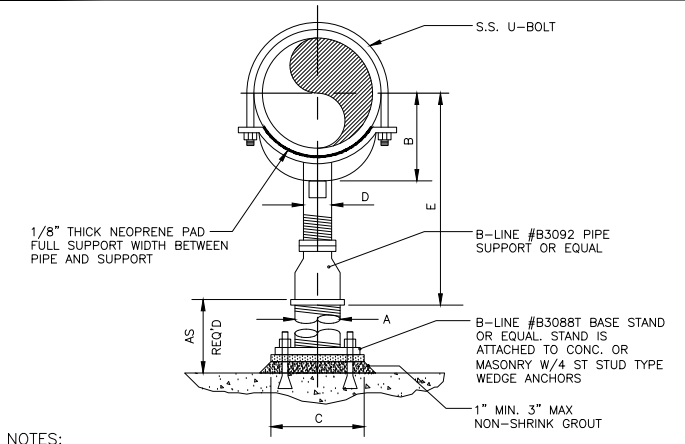
THE TRACING WIRE MUST BE INSTALLED DIRECTLY BELOW THE PIPE AND BROUGHT TO THE SURFACE AT 500' MINIMUM INTERVALS. WIRE SHALL EXTEND A MINIMUM OF 12" ABOVE GRADE AT EACH INTERVAL AND BE COILED AND PLACED IN A VALVE BOX, METER BOX, MANHOLE, CLEANOUT OR OTHER APPLICABLE STRUCTURE.

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

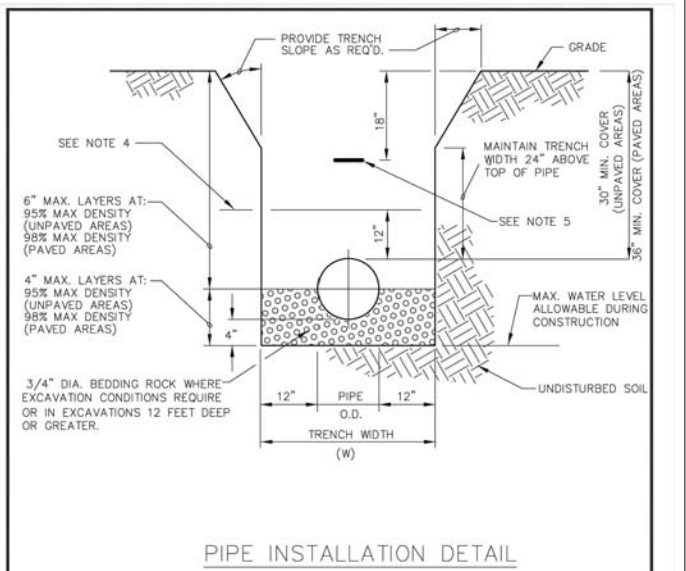
1. POTABLE WATER AND RECLAIMED WATER SYSTEMS: WIRE SHALL BE INSTALLED BELOW ALL MAINS AND SERVICE LINES AND ATTACHED TO VALVES, HYDRANTS AND FITTINGS. WIRE INSTALLED WITH SERVICE LINES SHALL CONNECT TO THE WIRE INSTALLED BELOW THE MAIN AND EXTEND TO THE CURB STOP.
2. FIRE SPRINKLER LINES: WIRE SHALL 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.



**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.	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



**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  
REQUIREMENTS FOR AS BUILT DRAWINGS

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STANDARD CONSTRUCTION DETAIL  
UTILITY PIPE LOCATION MATERIALS

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STANDARD CONSTRUCTION DETAIL  
ADJUSTABLE PIPE SUPPORT

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STANDARD CONSTRUCTION DETAIL  
PIPE INSTALLATION

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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
DETAILS

NO.	DATE	REVISION	BY
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1	07/21/23	PER COUNTY COMMENTS	KAB

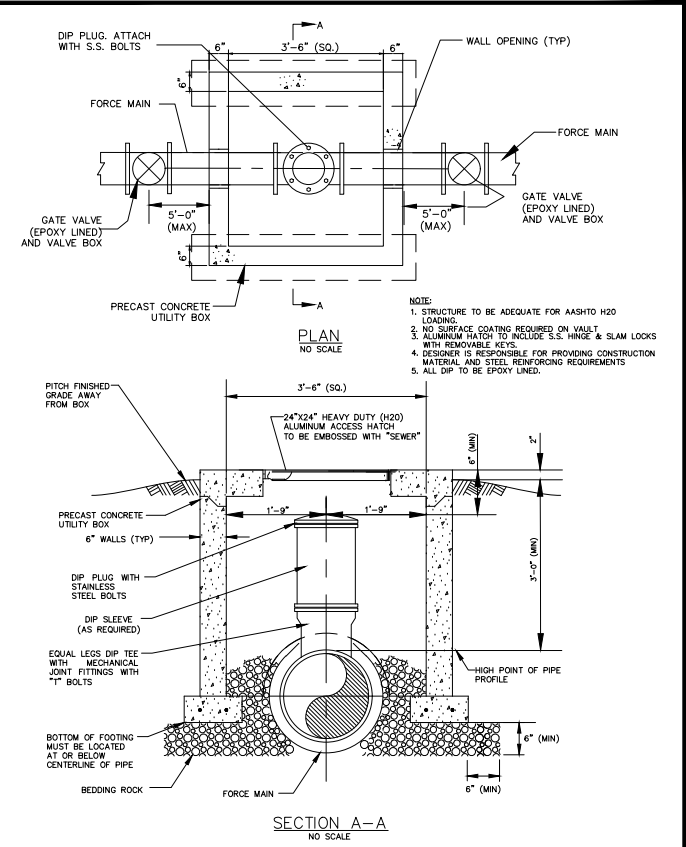
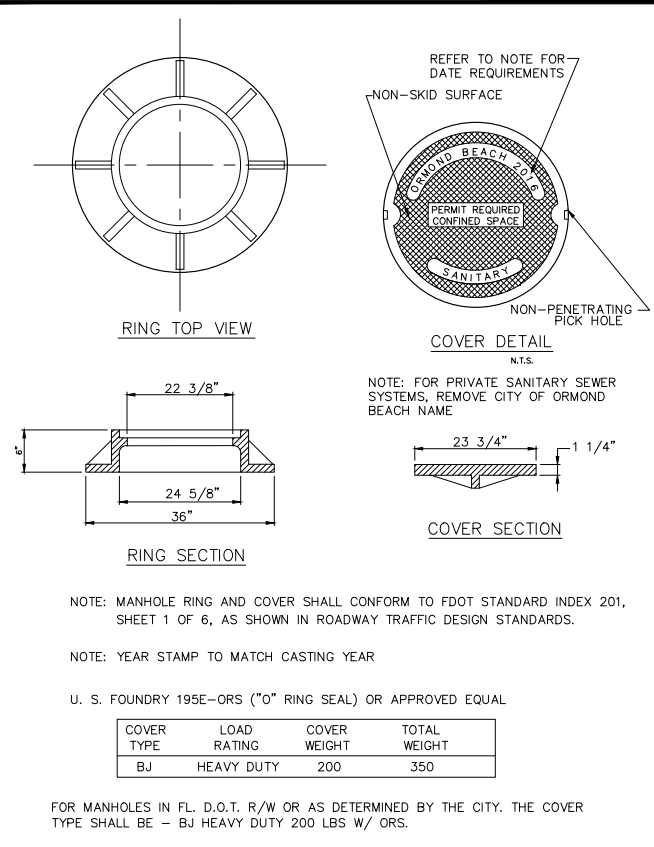
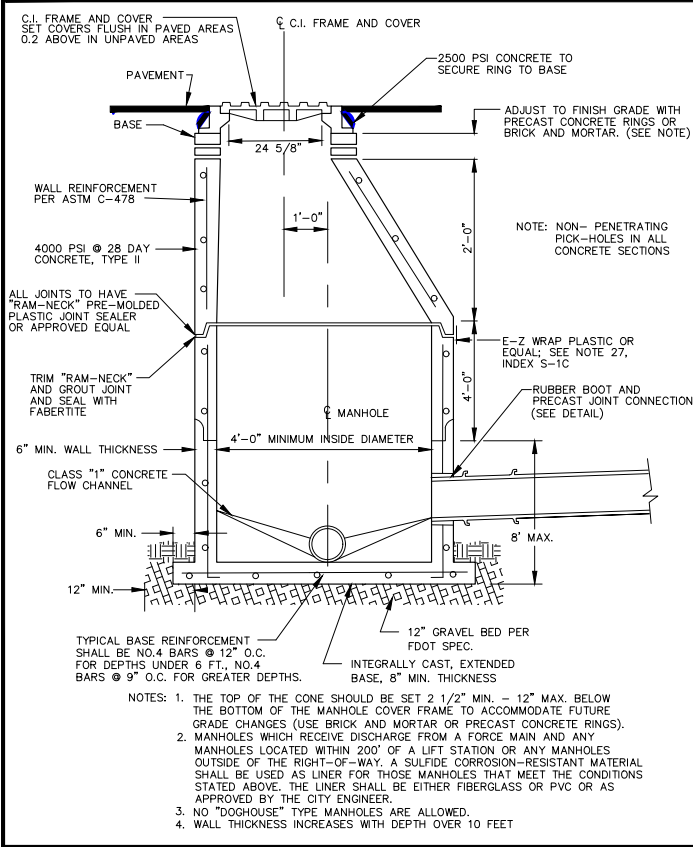
DESIGNER	FILE	DATE	DRAWN BY	PROJECT	SCALE
KAB	2221-1	06/30/23	SCB	2221-1	N/A

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SIGNED & SEAL: [Signature]

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STANDARD CONSTRUCTION DETAIL

TYPE "A" PRECAST MANHOLE

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STANDARD CONSTRUCTION DETAIL

MANHOLE RING AND COVER DETAIL

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STANDARD CONSTRUCTION DETAIL

POLY PIG LAUNCHING VAULT

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MAY 2020

ALANN ENGINEERING GROUP, INC. CONSULTING ENGINEERS CERTIFICATE No. EB5479 880 AIRPORT ROAD, SUITE 113 ORMOND BEACH, FL 32174 TEL: (386) 673-7640 FAX: (386) 673-3927

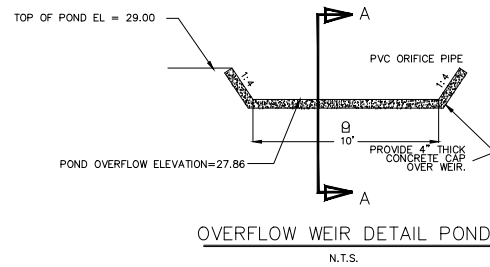
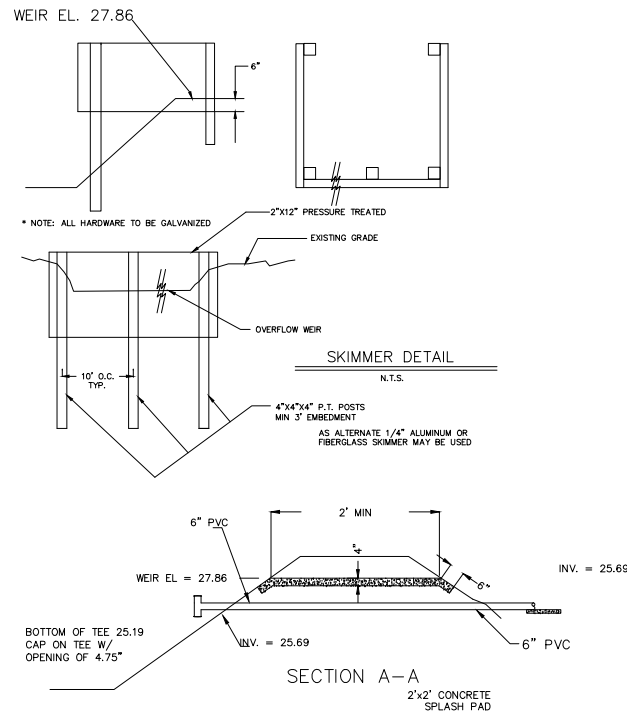
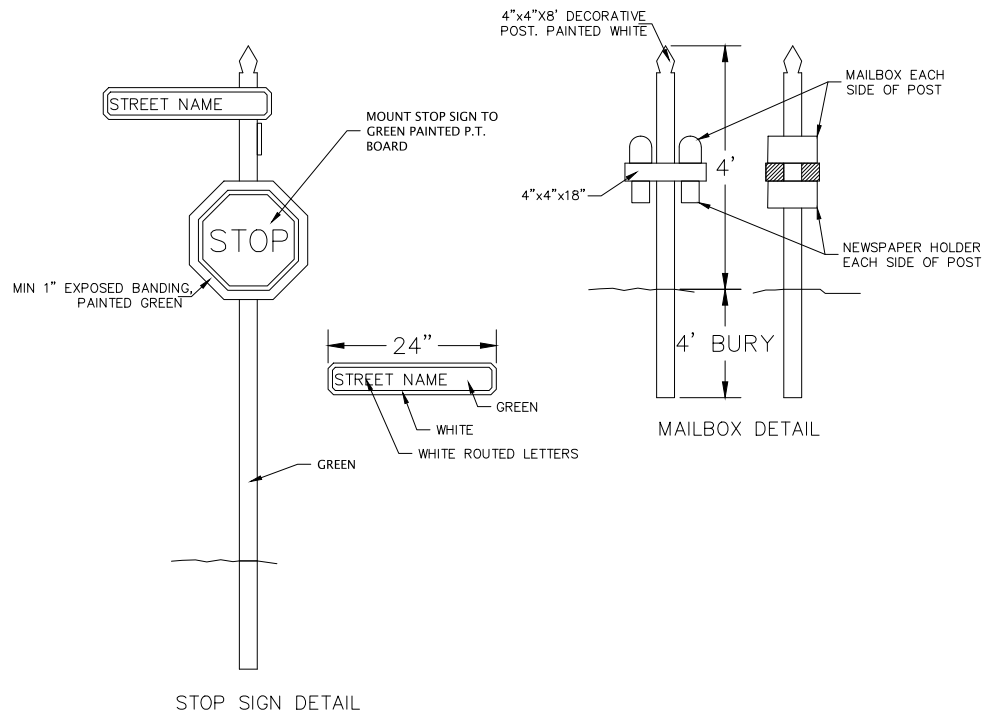
WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
DETAILS

NO.	DATE	REVISION	BY
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1	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	KAB	DATE	06/30/23	SCALE	N/A
DRAWN BY	SCB	PROJECT	2221-1		

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SIGNED BY: SCB, P.E. #10551

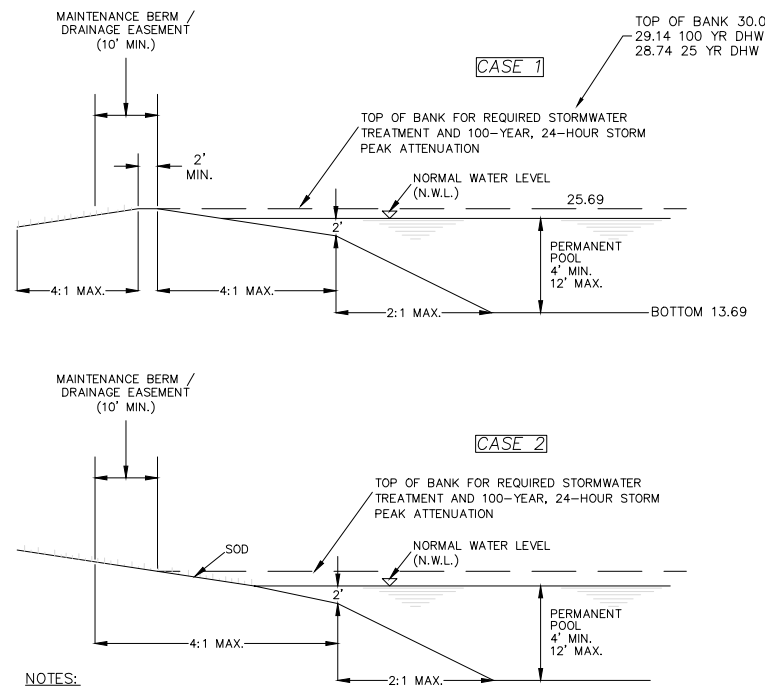
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**STORM DRAINAGE DESIGN AND CONSTRUCTION NOTES**

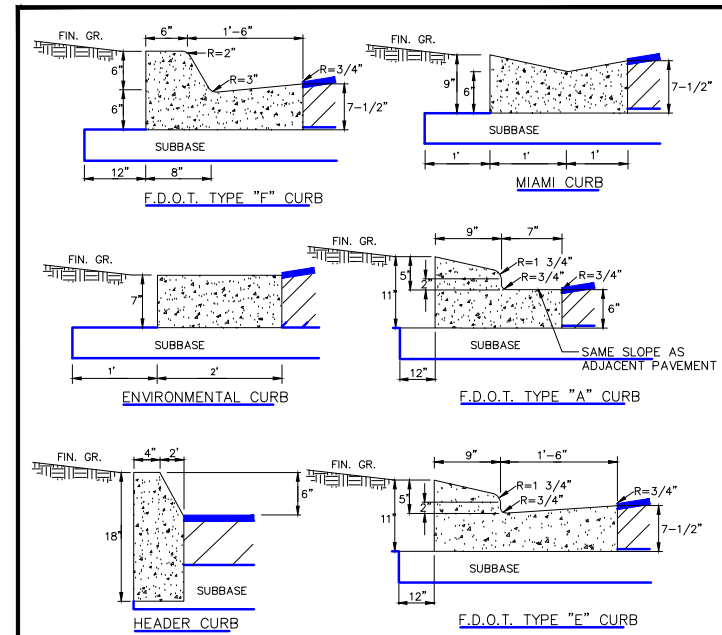
- ALL MATERIALS AND INSTALLATION METHODS USED FOR LAND DEVELOPMENT CODE REQUIRED IMPROVEMENTS FOR SUBDIVISIONS AND SITE PLANS SHALL BE IN CONFORMANCE WITH THE COUNTY, FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), AND THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS (LATEST EDITION).
- ALL STORM SEWERS AND CULVERTS MATERIALS SHALL BE:
    - SMOOTH INNER WALL HIGH DENSITY POLYETHYLENE (HDPE) IN ACCORDANCE WITH AASHTO M-294, AASHTO MP7, ASTM D3350 AND ASTM D2412 FOR SIZES UP TO 42" IN DIAMETER OR
    - PVC IN ACCORDANCE WITH THE PROVISION NOTED IN THE "SEWER DETAILS" OF THESE SPECIFICATIONS.
  - ALL STORM SEWER PIPE JOINTS LOCATED IN ROADWAY RIGHTS-OF-WAY AND ROADWAY EASEMENTS SHALL BE ENTIRELY WRAPPED WITH FILTER FABRIC WITH A MINIMUM WIDTH OF 24" AND A MINIMUM OF 24" OVERLAP SECURED WITH PLASTIC OR STAINLESS BANDS. GASKETS ARE NOT PERMITTED AS AN EQUIVALENT SUBSTITUTE FOR MEETING THIS REQUIREMENT. THIS PRACTICE IS ENCOURAGED ON PRIVATE SITES. ADDITIONALLY, ALL JOINTS SHALL BE RUBBER GASKETED FOR BOTH ROUND AND ELLIPTICAL PIPE.
  - DEPTH OF COVER MEASURED TO THE TOP OF PIPE (NOT INCLUDING THE BELL JOINT) SHALL BE A MINIMUM OF 1 FOOT. DEVIATION FROM THIS REQUIREMENT MAY BE ALLOWED BY INCREASING THE PIPE'S STRUCTURAL CAPACITY. THIS DEVIATION MUST BE SPECIFIED ON THE PLANS APPROVED FOR CONSTRUCTION AND SUBSEQUENTLY REFLECTED ON THE SHOP DRAWINGS AND AS-BUILT PLANS.
  - STORM INLETS, MANHOLES, AND CATCH BASINS SHALL BE EITHER POURED IN PLACE OR PRECAST REINFORCED CONCRETE. STRUCTURES SHALL BE REQUIRED AT EACH CHANGE OF PIPE SIZE OR CHANGE IN PIPE DIRECTION. ALL STRUCTURES SHALL BE IN COMPLIANCE WITH ASTM C-478 AND SHALL HAVE 8" THICK WALLS. 6" THICK WALLS MAY BE PERMITTED PROVIDING THAT THE PLANS SPECIFY INCREASED REINFORCEMENT IN ACCORDANCE WITH FDOT STANDARD INDEX NO. 201 IN ADDITION, THIS REQUIREMENT MUST BE REFLECTED ON BOTH THE SHOP DRAWING AND AS-BUILT PLANS.
  - RETENTION AREA WATER DEPTHS SHALL BE FOUR FEET(4') MINIMUM TO TWELVE FEET(12') MAXIMUM, MEASURED FROM THE N.W.L. (NORMAL WATER LEVEL).
  - SOIL EROSION CONTROL MEASURES, SATISFACTORY TO THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND THE COUNTY, SHALL BE EMPLOYED DURING CONSTRUCTION.
  - IN GENERAL, ALL RETENTION / DETENTION SITES MUST BE CONSTRUCTED ON ALL PROJECTS PRIOR TO ANY ROAD, PARKING LOT, OR BUILDING CONSTRUCTION COMMENCING OR AS CURRENT PERMIT CONDITIONS DICTATE. SEWER AND WATER MAINS MAY BE INSTALLED PRIOR TO RETENTION/DETENTION SITE CONSTRUCTION IF DEWATERING IS NOT REQUIRED.
  - THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY AND ALL DEWATERING PERMITS THAT MAY BE REQUIRED.
  - WHEN CULVERTS ARE INSTALLED TO MAINTAIN THE FLOW OF EXISTING DRAINAGE WAYS WHERE NEWLY PROPOSED ROADS WOULD OTHERWISE SEVER THE DRAINAGE WAY, THEN CULVERTS CROSSING RIGHTS-OF-WAY SHALL EXTEND FROM RIGHT-OF-WAY LINE TO RIGHT-OF-WAY LINE UNDER THE ROADWAY. CULVERTS SHALL BE DESIGNED TO ACCOMMODATE THE FLOW FROM THE 100 YEAR - 24 HOUR STORM EVENT WITHOUT FLOODING ADJACENT PROPERTY OR SURCHARGING THE SAID ROADWAY.
  - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW AND MAINTAIN A COPY OF THE SJRWMD PERMIT AND THE NPDES PERMIT AT THE CONSTRUCTION SITE, AND ABIDE BY ALL CONDITIONS OF THE PERMIT.

STANDARD CONSTRUCTION DETAIL  
STORM DRAINAGE DESIGN  
AND CONSTRUCTION NOTES



- NOTES:
- SOD IS TO BE PLACED TO N.W.L.
  - A PLANTED LITTORAL ZONE IS NOT PERMISSIBLE FOR SLOPES EXCEEDING 6:1.
  - AS AN OPTION TO A LITTORAL ZONE, THE DESIGNER CAN EITHER:
    - PROVIDE AN ADDITIONAL 50% OF THE PERMANENT POOL VOLUME, AS REQUIRED, OR
    - PROVIDE PRETREATMENT OF THE STORMWATER PRIOR TO ENTERING THE WET DETENTION POND.
  - CASE 1 BERM SHALL REQUIRE THE INSTALLATION OF IMPERVIOUS SOILS OR OTHER METHODS TO PREVENT TRANSMISSION OF WATER.

STANDARD CONSTRUCTION DETAIL  
WET RETENTION POND

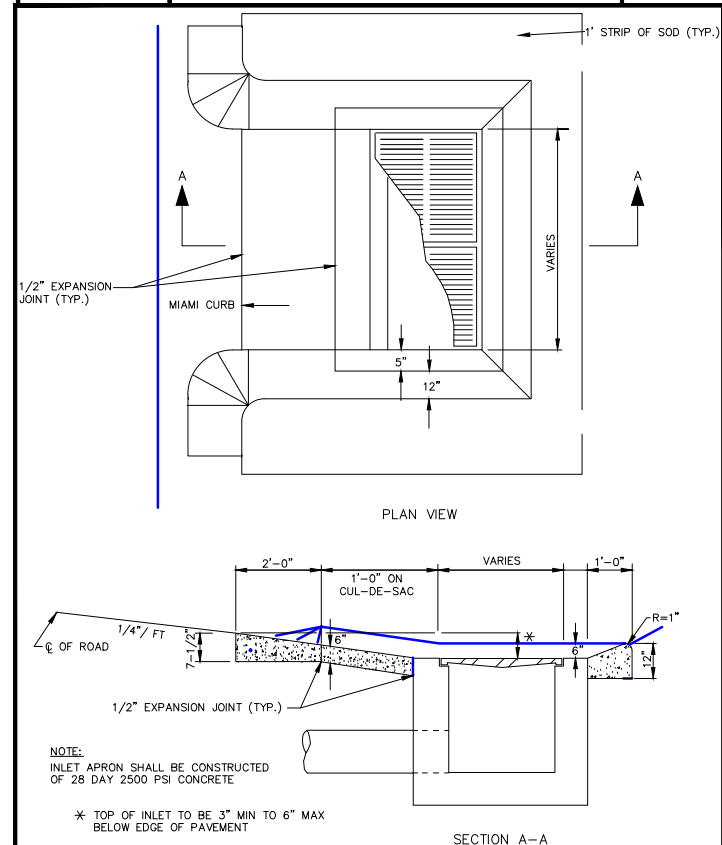


- NOTES:
- ALL CURBS TO BE CONSTRUCTED OF 28 DAY, 2500 P.S.I. CONCRETE
  - 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED EVERY 500', CONSTRUCTION JOINT REQUIRED EVERY 10' MAXIMUM (4' MINIMUM).
  - 1/2" PRE-MOLDED EXPANSION JOINT REQUIRED AT EACH SIDE OF ALL STORM INLET STRUCTURES AND AT ALL RADIUS POINTS.
  - 6" SUBBASE TO BE COMPACTED AND TESTED TO 98% DENSITY WITH MINIMUM L.B.R. 40 BASED ON AASHTO T-180 MODIFIED PROCTOR TEST. EXPANSION JOINT MATERIAL MUST COVER THE ENTIRE CROSS SECTION OF CURB.
  - ALL EXPOSED CORNERS TO BE ROUNDED AT 3/4" MIN. RADIUS.
  - ALL CURB ENDS THAT DO NOT TIE INTO OTHER FACILITIES SHALL TRANSITION DOWN TO PAVEMENT GRADE IN 24 INCHES.



STANDARD CONSTRUCTION DETAIL  
STANDARD CURB CONSTRUCTION  
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STANDARD CONSTRUCTION DETAIL  
STORM INLET APRON  
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ALANN ENGINEERING GROUP, INC.  
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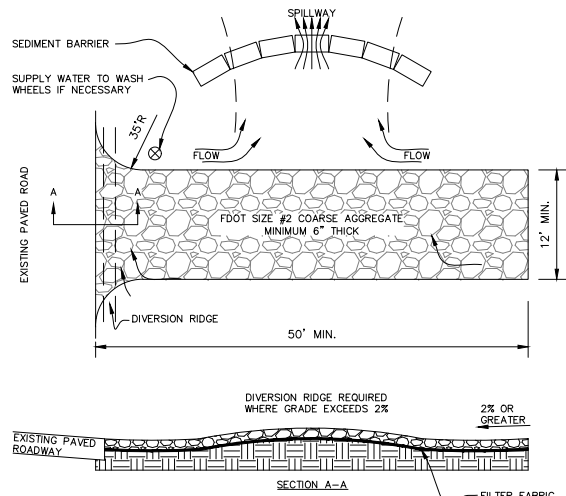
WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
DETAILS

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2	08/24/23				KAB
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FILE	DATE	SCALE	DESIGNER	DRAWN BY
2221-1	06/30/23	N/A	KAB	SCB
PROJECT				
2221-1				

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SIGNED & SCALED FILE J08583

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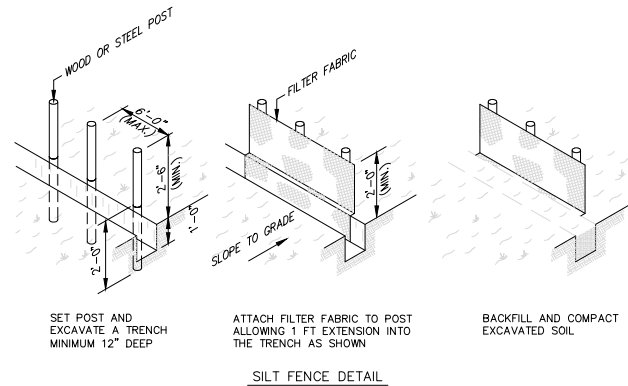
- NOTES:**
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
  2. WHEN PASSIVE MEANS FAIL TO PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING ONTO PUBLIC RIGHTS-OF-WAY.
  3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
  4. ALL MATERIALS SPILLED, DROPPED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY (INCLUDING T.G.C.E. AGGREGATE AND CONSTRUCTION MUD) SHALL BE REMOVED DAILY, OR MORE FREQUENTLY, IF SO DIRECTED.
  5. A SOIL TRACKING PREVENTION DEVICE IS AN ACCEPTABLE ALTERNATIVE TO THIS DETAIL. REFERENCE FDOT INDEX 106 FOR DETAILS.

STANDARD CONSTRUCTION DETAIL  
TEMPORARY GRAVEL  
CONSTRUCTION ENTRANCE

ROADWAY CONSTRUCTION NOTES

1. ALL RIGHT OF WAY OTHER THAN ROADWAY AREAS SHALL BE SEEDED AND MULCHED OR SOODED. ALL SLOPES GREATER THAN 6% SHALL BE SOODED. THE CITY RESERVES THE RIGHT TO REQUIRE SOODING IN SPECIAL AREAS WHERE EROSION IS A CONCERN.
  2. THE FOLLOWING WILL BE THE STANDARD PROTECTION FOR DITCHES UNLESS DRAINAGE CALCULATIONS INDICATE OTHERWISE
- | SWALE PROFILE GRADES | PROTECTION REQUIRED  |
|----------------------|----------------------|
| 0.2%-1.0%            | SEEDING AND MULCHING |
| 1.0%-4.0%            | SOODING              |
| 4.0% AND GREATER     | DITCH PAVING         |
3. ALL FRANCHISE UTILITY CROSSINGS, INCLUDING BUT NOT LIMITED TO FPL, BELLSOUTH AND CABLE SHALL BE INSTALLED PRIOR TO INSTALLATION AND COMPACTION OF THE ROAD SUB BASE. ANY CROSSINGS AFTER INSTALLATION OF THE SUB BASE SHALL BE BY DIRECTIONAL BORE.
  4. THE LIMITS OF THE STABILIZED SUB BASE SHALL EXTEND TO A DEPTH OF SIX INCHES (6") BELOW THE BOTTOM OF THE BASE AND OUTWARD TO TWELVE INCHES (12") BEYOND THE CURB.
  5. THE STABILIZING MATERIAL, IF REQUIRED, SHOULD BE A HIGH BEARING VALUE SOIL, SAND-CLAY, LIMEROCK, RECYCLED CONCRETE, SHELL, OR OTHER MATERIAL AS APPROVED BY A LICENSED SOILS ENGINEER.
  6. THE SUB BASE SHALL BE STABILIZED NOT LESS THAN FORTY (40) POUNDS LIMEROCK BEARING RATIO (LBR) TO A 6" MINIMUM DEPTH. A COMPACTION OF NO LESS THAN NINETY-EIGHT (98%) PERCENT DENSITY BASED ON AASHTO T-180 SHALL BE REQUIRED.
  7. TESTS FOR SUB BASE BEARING CAPACITY AND COMPACTION SHALL BE DONE AT A MINIMUM OF EVERY 300 FEET AND SHALL BE STAGGERED TO THE LEFT, RIGHT, AND AT CENTER LINE OF THE ROADWAY.
  8. BASES FOR ALL STREETS SHALL HAVE A MINIMUM SIX INCH (6") DEPTH. PRIMING AND SANDING SHALL BE REQUIRED AS SOON AS BEARING CAPACITY AND COMPACTION HAS BEEN ACHIEVED.
  9. MAXIMUM DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST RECYCLED CONCRETE OR LIMEROCK BASES SHALL BE COMPACTION TO (98%)
  10. TESTING OF THE IN-PLACE BASE SHALL BE DONE AT INTERVALS EQUIVALENT TO SUB BASE TESTING AND SHALL CONSIST OF, AS A MINIMUM, MOISTURE CONTENT AND COMPACTION TESTING.
  11. PORTLAND CEMENT CONCRETE, LIMEROCK, RECYCLED CONCRETE, OR FULL DEPTH ASPHALT PAVEMENT MAY BE USED. ALL BASE AND ROADWAY DESIGNS SHALL BE SUBJECT TO THE APPROVAL OF THE COUNTY.

STANDARD CONSTRUCTION DETAIL  
ROADWAY CONSTRUCTION NOTES



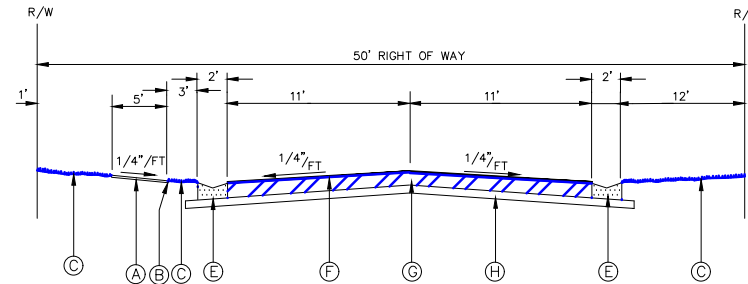
- NOTES:**
1. MATERIALS, CONSTRUCTION METHODS AND MAINTENANCE SHALL BE IN ACCORDANCE WITH THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL (LATEST EDITION).
  2. CONTRACTOR SHALL PROVIDE SILT FENCES OR HAVE BEST MANAGEMENT PRACTICES IMPLEMENTED AS REQUIRED AT ALL STORMWATER DISCHARGE POINTS FOR EROSION CONTROL AND SEDIMENT CONTROL DURING CONSTRUCTION.
  3. CONTRACTOR SHALL ROUGH GRADE STORMWATER SWALES AND RETENTION AREAS PRIOR TO CONSTRUCTION OF SITE IMPROVEMENTS.
  4. CONTRACTOR SHALL MEET ALL PERMIT CONDITIONS AS ESTABLISHED BY THE CITY OF PORT ORANGE AND ALL OTHER APPLICABLE AGENCIES, INCLUDING BUT NOT LIMITED TO COUNTY, FDOT, AND THE SJRWMD.
  5. CONTRACTOR WILL BE ALLOWED TO USE A SMALL PIECE OF EQUIPMENT UP 6' WIDTH AND 1.5 TON WEIGHT, TO CLEAR A NARROW PATH TO INSTALL THE SILT FENCE.

STANDARD CONSTRUCTION DETAIL  
SILT FENCE TURBIDITY BARRIER

ROADWAY CONSTRUCTION NOTES  
CONTINUED

12. RECYCLED CONCRETE MAY BE USED AS A BASE MATERIAL PROVIDED THE MATERIAL IS A MINIMUM OF 60% CARBONATE OF CALCIUM AND MAGNESIUM. THE MATERIAL SHALL BE LIMITED TO A MAXIMUM OF 3% OF WATER SENSITIVE CLAY MATERIAL, LIQUID LIMIT SHALL NOT EXCEED 35 AND BE NON-PLASTIC, AND THE PLASTICITY INDEX SHALL NOT EXCEED 10. THE MATERIAL SHALL NOT CONTAIN ORGANIC MATERIAL, CHERTY OR OTHER EXTREMELY HARD PIECES, LUMPS, BALLS, OR POCKETS OF SAND SIZE MATERIAL OF A QUANTITY AS TO BE DETRIMENTAL TO THE PROPER BONDING, FINISHING, OR STRENGTH OF THE RECYCLED CONCRETE BASE. FOR BASE APPLICATIONS, AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 1" SIEVE AND FOR SUB BASE APPLICATIONS, AT LEAST 97% (BY WEIGHT) OF THE MATERIAL SHALL PASS A 1-1/2" SIEVE. FOR BOTH APPLICATIONS, THE MATERIAL SHALL BE GRADED UNIFORMLY DOWN TO DUST AND THE MINIMUM LBR VALUES ARE TO BE NOT LESS THAN 130. COARSE AGGREGATE USED IN THE RECYCLED CONCRETE SHALL HAVE A MAXIMUM LOSS OF 45% PER LOS ANGELES ABRASION TEST. ALL MATERIALS SHALL BE WELL GRADED IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN SECTION 204 OF THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
13. LIMEROCK FOR BASE OR SUB BASE APPLICATIONS SHALL BE ALLOWED ON ROADWAYS ONLY WHERE THE LOWEST ELEVATION OF THE ROADWAY SUB BASE IS A MINIMUM OF 6" ABOVE THE SEASONAL HIGH GROUNDWATER TABLE AS CERTIFIED BY A FLORIDA LICENSED PROFESSIONAL SOILS ENGINEER
14. DESIGN MIXES SHALL BE SUBMITTED TO THE DESIGNATED SITE INSPECTOR FOR THEIR APPROVAL NO LESS THAN THREE(3) WORKING DAYS PRIOR TO ANY ROADWAY CONSTRUCTION. SUBMITTALS SHALL INCLUDE, BUT NOT BE LIMITED TO, INFORMATION TO EVALUATE THE MATERIALS PROPOSE FOR INSTALLATION AS SUB BASE, BASE, AND PAVEMENT FOR ALL ROADWAY AND PARKING AREA SURFACES AS WELL AS SIMILAR INFORMATION FOR ALL OTHER CONCRETE SIDEWALKS, CURBING AND COMPARABLE STRUCTURES AND APPLICATIONS.
15. A MINIMUM OF 75% OF THE WEARING COURSE HOT MIX AGGREGATES SHALL BE VIRGIN MATERIAL. RECYCLED ASPHALT (RAP) IN WEARING COURSE MIXES MAY BE USED TO FULFILL THE FINAL 25%.
16. PRIOR TO PLACEMENT, FLORIDA STATE CERTIFIED BATCH PLANTS MUST CERTIFY THAT THE ASPHALT DELIVERED TO THE SITE IS IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
17. EXTRACTION AND GRADATION TESTS ON ASPHALT MIXES SHALL BE PROVIDED TO THE COUNTY'S DESIGNATED SITE INSPECTOR FOR EVERY 2500 SQUARE YARDS OF ASPHALT, OR PART THEREOF, TO ENSURE THAT DESIGN MIXES MEET THE STANDARD SPECIFICATIONS.
18. FIELD TESTING OF THE ASPHALT PAVEMENT SHALL BE DONE AT INTERVALS EQUIVALENT TO SUBGRADE TESTING AND SHALL CONSIST OF, AS A MINIMUM, A COMPACTION TEST, ASPHALT PAVEMENT SHALL BE COMPACTION TO 98% DENSITY PER FM 1-1238 (METHOD B), NUCLEAR DENSITY TEST, "BACKSCATTER METHOD".
19. THE ROADWAY CROWN SHALL HAVE A STANDARD ONE QUARTER INCH (1/4") PER FOOT SLOPE.

STANDARD CONSTRUCTION DETAIL  
ROADWAY CONSTRUCTION NOTES



- (A) 5'-0" WIDE CONCRETE SIDEWALK  
4" THICK, 3000 P.S.I.  
6" THICK AT DRIVEWAY
- (B) 6" ABOVE CENTERLINE ROAD GRADE
- (C) SOD OR SEED AND MULCH PER F.D.O.T. STANDARD SPECIFICATION SECTION 570. 1' SOD STRIP REQUIRED ADJACENT TO CURB AND AROUND DRAINAGE STRUCTURES.
- (E) CONCRETE MIAMI CURB, 3000 P.S.I.
- (F) ASPHALT PAVEMENT:  
1-1/2" ASPHALT BITUMINOUS CONCRETE SP-9.5 OR SP-12.5;  
MINIMUM MARSHALL FIELD STABILITY 1500.
- (G) BASE:  
6" CRUSHED CONCRETE (LBR 100) COMPACTION TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST.
- (H) SUB BASE:  
6" SUB BASE COMPACTION TO 98% DENSITY BASED ON AASHTO T-180 MODIFIED PROCTOR TEST WITH MINIMUM LBR 40.

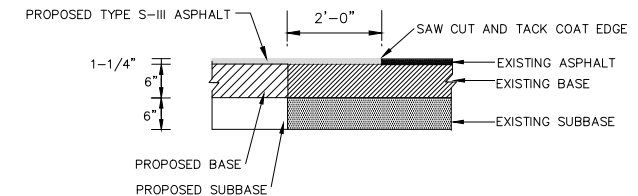
NOTE:  
A REPRESENTATIVE OF A CERTIFIED SOIL LABORATORY SHALL BE PRESENT DURING ALL CONSTRUCTION PHASES TO PERFORM ROADWAY COMPACTION AND DENSITY TESTING

STANDARD CONSTRUCTION DETAIL  
50' R/W/ ROAD SECTION

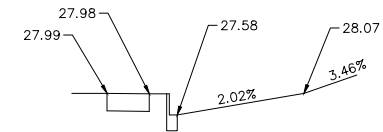
ROADWAY CONSTRUCTION NOTES  
CONTINUED

20. ALL ROADWAYS WITH CURB AND GUTTER SECTIONS SHALL HAVE, AS A STANDARD, A MINIMUM LONGITUDINAL SLOPE OF 0.30%. THE ROADWAY CENTERLINE SHALL BE CLEARLY MARKED ON THE DESIGN PLANS. AT A MINIMUM, DESIGN ROADWAY CENTERLINE ELEVATIONS SHALL BE NOTED AT ALL GRADE CHANGES AND AT 100' INTERVALS ALONG THE ROADWAY PROFILE ON BOTH THE DESIGN PLANS AND AS-BUILT DRAWINGS.
21. THE FINISHED PAVEMENT EDGE SHALL BE WITHIN ONE QUARTER INCH (1/4") ABOVE THE ADJACENT CONCRETE CURB.
22. CONCRETE CURBS SHALL BE PROVIDED ON BOTH SIDES OF ALL STREETS AND CONSTRUCTED WITH 3000 PSI CONCRETE AT 28 DAYS.
23. CONCRETE CURBS, SIDEWALKS, PAVEMENT AND SIMILAR CONCRETE AREAS SHALL BE SAW CUT WITHIN 4 TO 18 HOURS OF PLACEMENT. SAW CUTS SHALL BE 1/4" IN WIDTH TO A DEPTH OF 1/4 OF THE TOTAL DEPTH OF CONCRETE OR 1-1/2", WHICHEVER IS LESS. SAW CUTS SHALL BE LOCATED AT INTERVALS OF TEN FEET (10') WITH EXPANSION JOINTS AT STREET INTERSECTIONS, RADIUS POINTS, STRUCTURES, AND ALONG CURVES AT SIXTY FEET (60') INTERVALS. ALL EXPANSION JOINT MATERIAL IS REQUIRED TO BE INSTALLED THROUGH THE ENTIRE DEPTH OF THE CONCRETE CURB. FOR LINEAL SECTIONS OF CURBS, EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF FIVE-HUNDRED FEET (500') AND SHALL BE 1/2" IN WIDTH.
24. AN "X" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF WATER DISTRIBUTION SYSTEM VALVES.
25. AN "▲" SHALL BE CUT INTO THE CURB TO MARK THE LOCATION OF ALL VALVES OTHER THAN WATER DISTRIBUTION VALVES.
26. A "V" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL SEWER SERVICES.
27. A "J" SHALL BE CUT IN THE CURB TO MARK THE LOCATION OF ALL RECLAIMED WATER SERVICES.
28. A "▲" SHALL BE CUT INTO THE CURB TO MARK THE LOCATION OF ALL WATER SERVICES.
29. THREE (3) CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED FOR EVERY (1 IN 14 DAYS AND 1 IN 28 DAYS) FOR EVERY SEVENTY-FIVE (75) CUBIC YARDS OF CONCRETE OR LESS PLACED. TEST RESULTS SHALL THEN BE PROVIDED TO THE DESIGNATED SITE INSPECTOR AS THEY BECOME AVAILABLE.
30. A CONCRETE SLUMP TEST SHALL BE REQUIRED WITHIN THE FIRST 30 CUBIC YARDS OF CONCRETE. THEREAFTER, THE SLUMP TESTS SHALL BE REQUIRED FOR EVERY THIRTY (30) CUBIC YARDS OF CONCRETE, OR FRACTION THEREOF, WITH COPIES OF THE RESULTS PROVIDED TO THE DESIGNATED SITE INSPECTOR. THE SLUMP TEST SHALL MEET THE REQUIRED MIX DESIGN ON EACH LOAD DELIVERED.

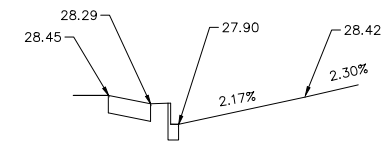
STANDARD CONSTRUCTION DETAIL  
ROADWAY CONSTRUCTION NOTES



STANDARD CONSTRUCTION DETAIL  
PAVEMENT BUTT JOINT



SECTION B-B  
WEST DRIVEWAY  
N.T.S.



SECTION A-A  
EAST DRIVEWAY  
N.T.S.

ROADWAY CONSTRUCTION NOTES  
CONTINUED

31. THE DEVELOPER SHALL PROVIDE ALL REQUIRED PAVEMENT MARKINGS ON ALL ROADWAYS PER CITY, COUNTY AND STATE REQUIREMENTS. CENTERLINE STRIPES SHALL BE PROVIDED ON EXTENSIONS OF CITY COLLECTOR OR ARTERIAL ROADS, COUNTY ROADS AND STATE HIGHWAYS ONLY.
32. AN FDOT APPROVED STOP SIGN AND A 24"-WIDE WHITE THERMOPLASTIC STOP BAR ARE REQUIRED AT ALL ROADWAY INTERSECTIONS.
33. ALL TRAFFIC CONTROL DEVICES PLACED AT INTERSECTIONS, PRIVATE STREETS, PUBLIC STREETS, COUNTY ROADS, AND STATE HIGHWAYS SHALL BE INSTALLED ACCORDING TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION). THE MAINTENANCE-OF-TRAFFIC (MOT) INSTALLATION AND SUBSEQUENT OPERATION SHALL BE OVERSEEN BY A CONTRACTOR CERTIFIED BY THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION, OR EQUIVALENT CERTIFICATION RECOGNIZED BY FDOT.
34. CONSTRUCTION METHODS AND DESIGN FOR CONCRETE PAVEMENT SHALL CONFORM TO FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
35. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION OF PUBLIC IMPROVEMENTS (WATER MAIN, SANITARY SEWER MAIN, RECLAIMED WATER MAIN, STORM WATER PIPES AND INLETS AND ALSO CONSTRUCTION OF ROADWAYS) SHALL BE CERTIFIED WITH THE FLORIDA STATE DEPARTMENT OF PROFESSIONAL REGULATIONS (DPR) FOR THE TYPE OF WORK THAT THEY PERFORM.
36. ALL CONTRACTORS THAT ARE PERFORMING THE CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL BE LICENSED BY THE STATE OF FLORIDA AND REGISTERED WITH FLAGLER COUNTY. THE LICENSE AND REGISTRATION SHALL PERTAIN DIRECTLY TO THE TYPE OF WORK BEING PERFORMED.
37. ALL ELECTRIC, TELEPHONE, TELEVISION LINES AND SIMILAR UTILITIES ARE REQUIRED TO BE INSTALLED UNDERGROUND AT THE EXPENSE OF THE OWNER, DEVELOPER, AND BUILDER.
38. UTILITY DEPTH:
  - HIGH VOLTAGE UTILITIES SUCH AS POWER (FEEDER, SERVICES AND DROPS) SHALL BE BURIED A MINIMUM OF 30 INCHES IN DEPTH.
  - LOW VOLTAGE UTILITIES SUCH AS PHONE AND CABLE TV SHALL BE BURIED A MINIMUM OF 12 INCHES IN DEPTH FOR FEEDER AND SERVICES. SERVICE DROPS SHALL BE BURIED A MINIMUM OF 6 INCHES IN DEPTH.
  - HIGH VOLTAGE UTILITIES INSTALLED PARALLEL TO PRESSURE MAINS SHALL MAINTAIN A MINIMUM 5 FOOT SEPARATION.
  - IN NO INSTANCE SHALL THE DEPTH OF COVER BE LESS THAN 30" FROM FINISHED GRADE TO THE TOP OF PIPE FOR POTABLE WATER MAINS, SANITARY SEWER MAINS, AND RECLAIMED WATER MAINS. HOWEVER, IN THE EVENT THAT THIS CONDITION CANNOT BE MET DUE TO UNANTICIPATED CONFLICTS DURING THE CONSTRUCTION PROCESS, DUCTILE IRON PRESSURE CLASS 30 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY PUBLIC UTILITIES DEPARTMENT.
38. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF UNDERGROUND AND OVERHEAD PUBLIC UTILITIES AND STORMWATER INFRASTRUCTURE IN ORDER TO EVALUATE POTENTIAL CONFLICTS.

STANDARD CONSTRUCTION DETAIL  
ROADWAY CONSTRUCTION NOTES

ALANN ENGINEERING  
GROUP, INC.  
CONSULTING ENGINEERS  
CERTIFICATE NO. EB5479  
880 AIRPORT ROAD, SUITE 113  
ORMOND BEACH, FL 32174  
TEL: (386) 673-7640  
FAX: (386) 673-3927



WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
DETAILS

NO.	DATE	BY	REVISION
2.	08/24/23	KAB	PER COUNTY COMMENTS
1.	07/21/23	KAB	PER COUNTY COMMENTS

DESIGNER	FILE	DATE	SCALE
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NOT VALID UNLESS SIGNED AND SEALED  
SHOWN ON BACK OF THESE

SHEET  
C27

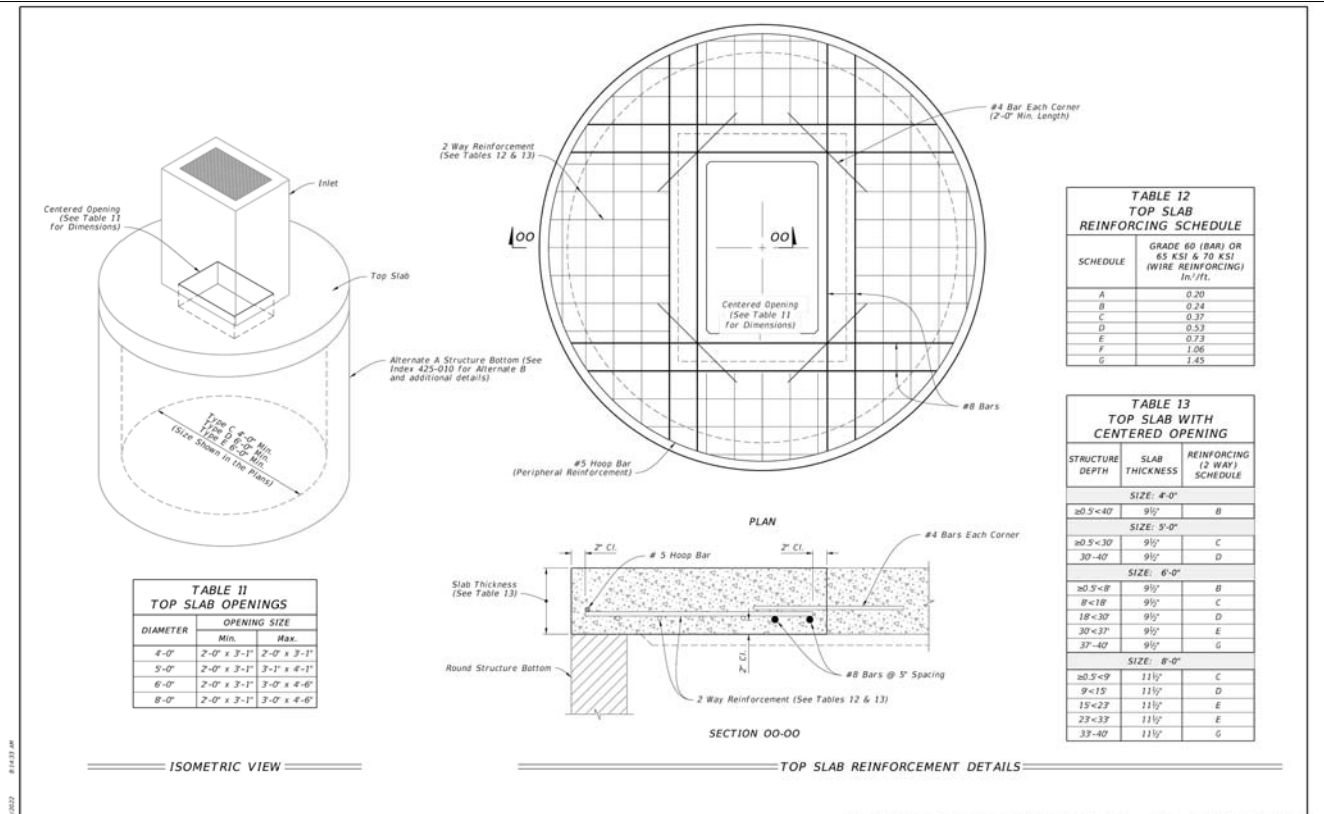




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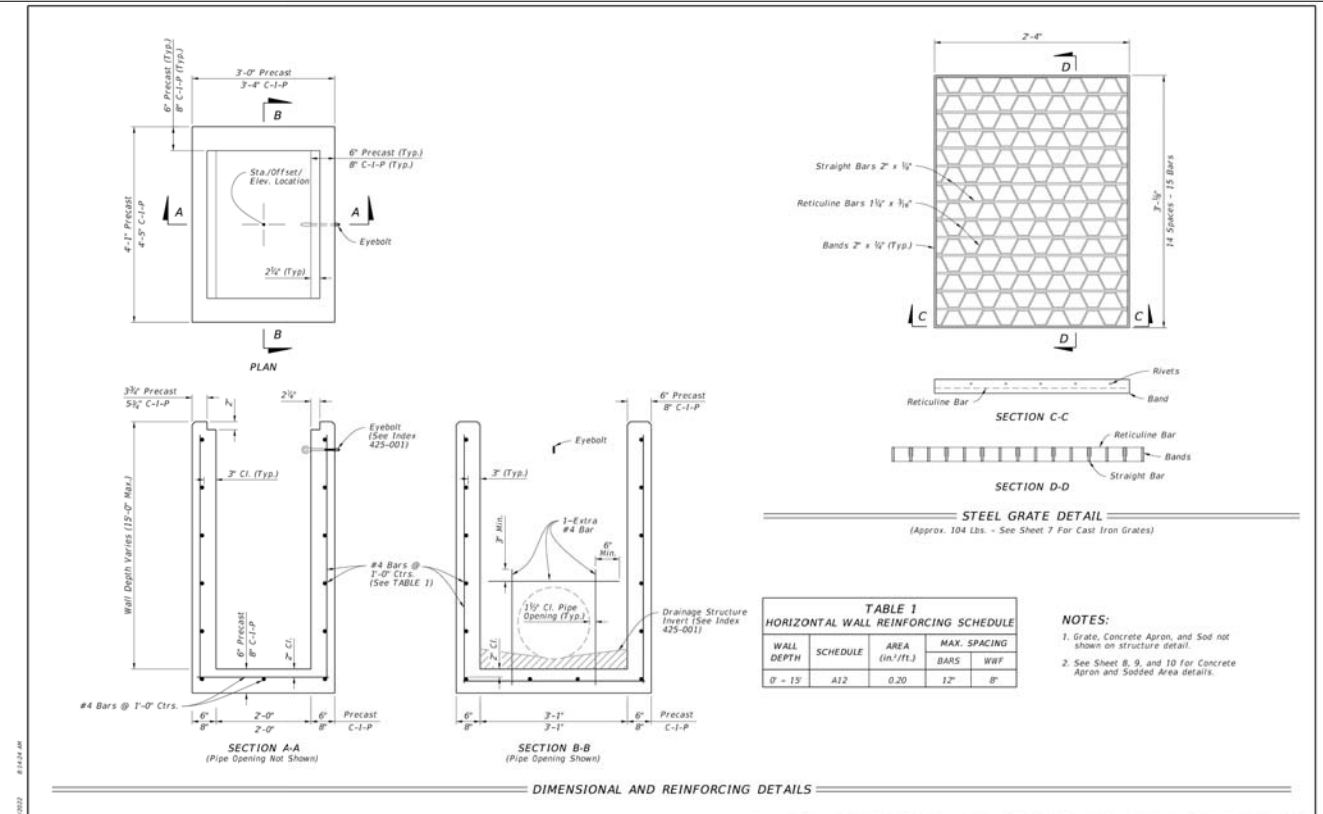
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DRAWN BY	SCB	PROJECT	2221-1	SCALE	N/A

NOT VALID UNLESS SIGNED AND SEALED  
SIGNED BY: SCB, P.E. #10851



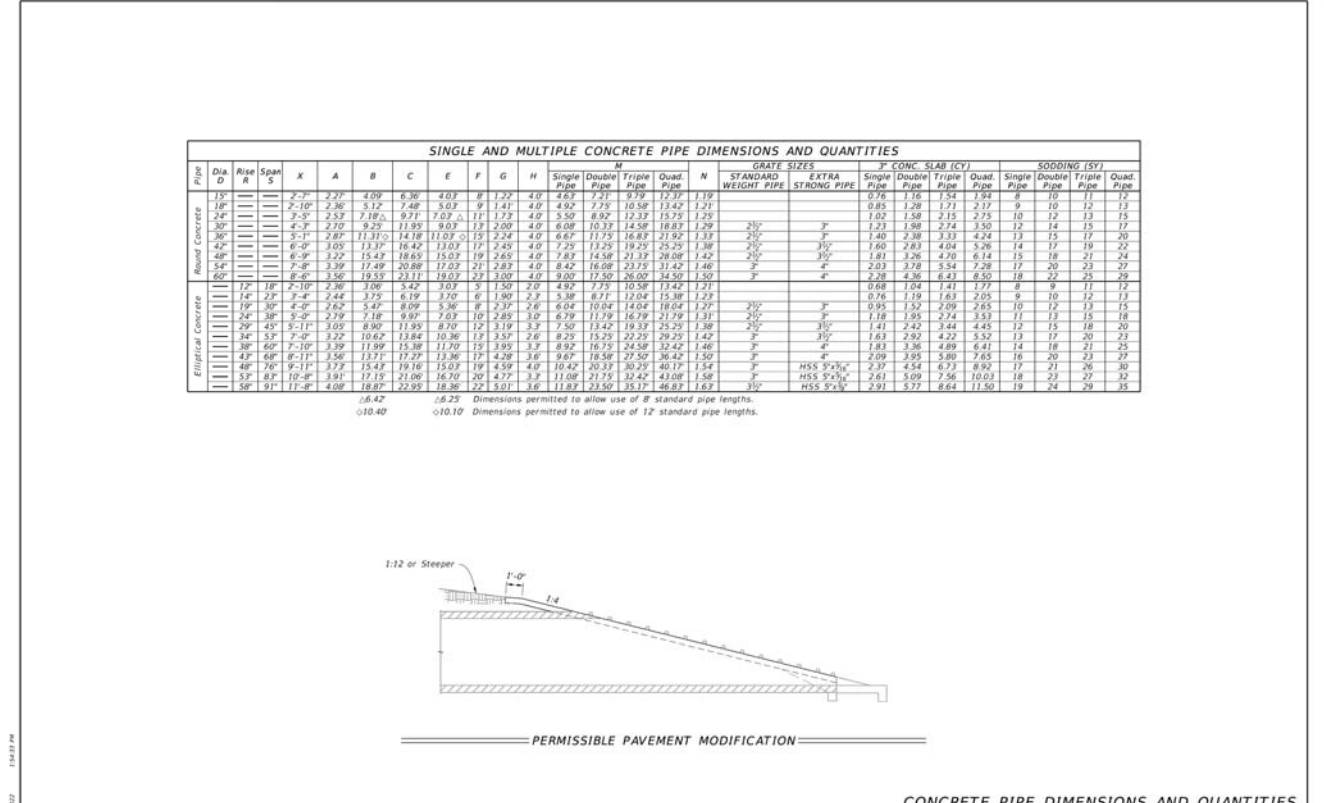
ALTERNATE A STRUCTURE BOTTOM - TOP SLAB DETAILS

INDEX SHEET 425-052 14 of 14



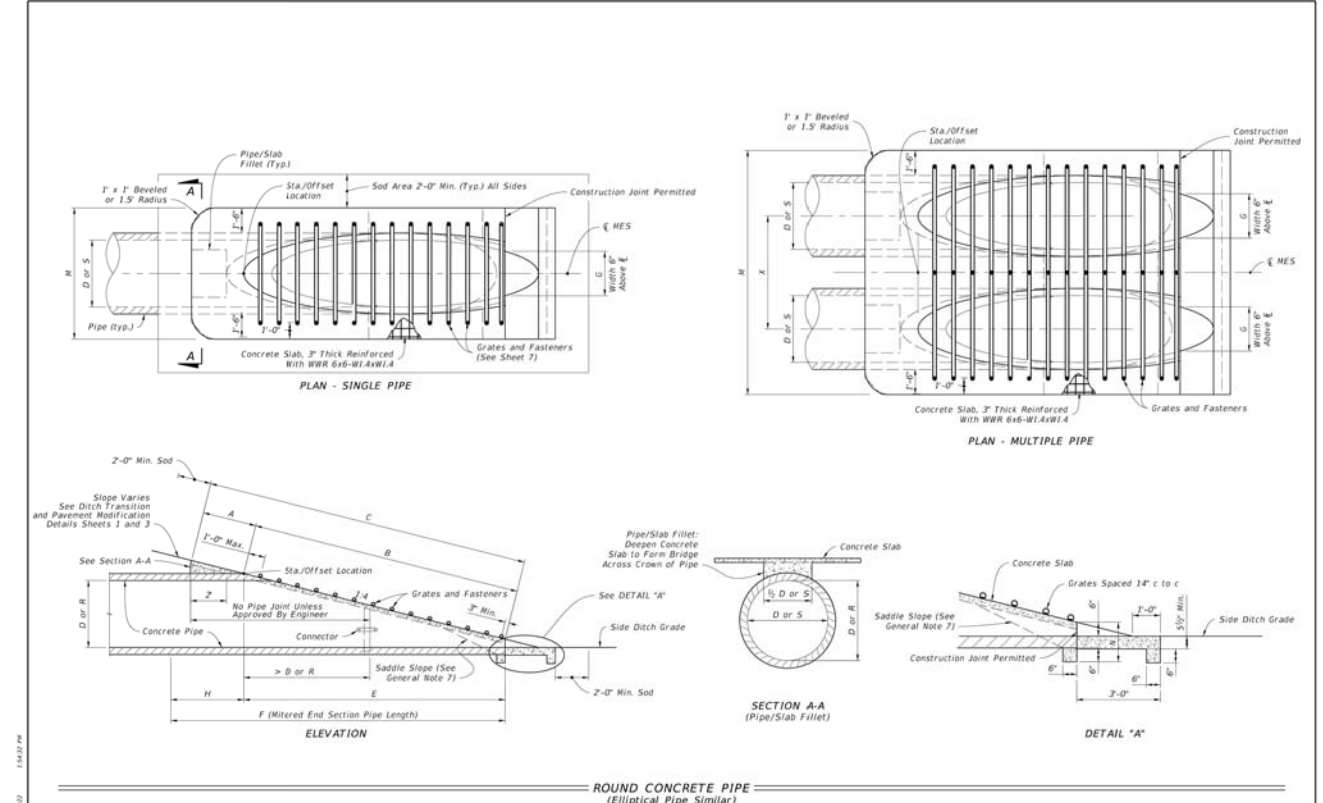
TYPE C - DIMENSIONAL, REINFORCING, AND STEEL GRATE DETAILS

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SIDE DRAIN MITERED END SECTION

INDEX SHEET 430-022 3 of 7



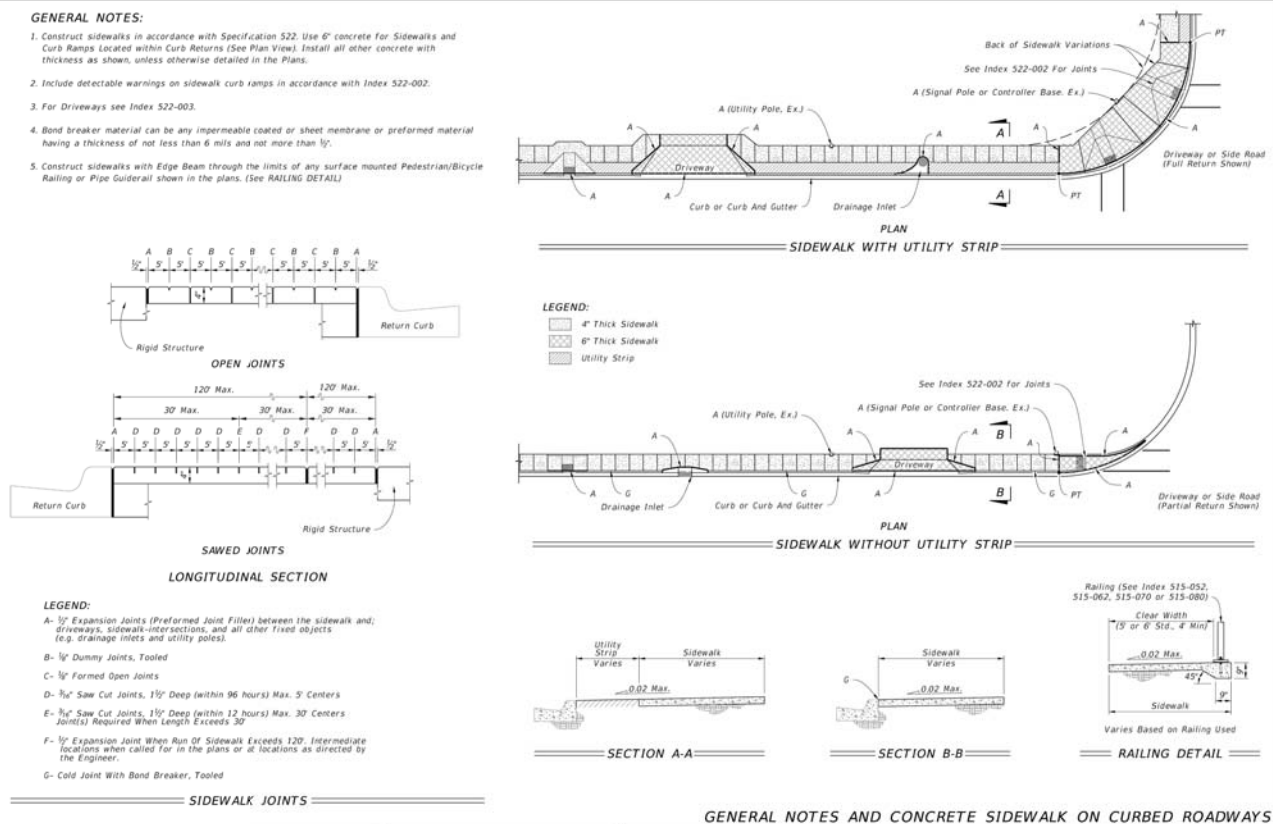
SIDE DRAIN MITERED END SECTION

INDEX SHEET 430-022 2 of 7

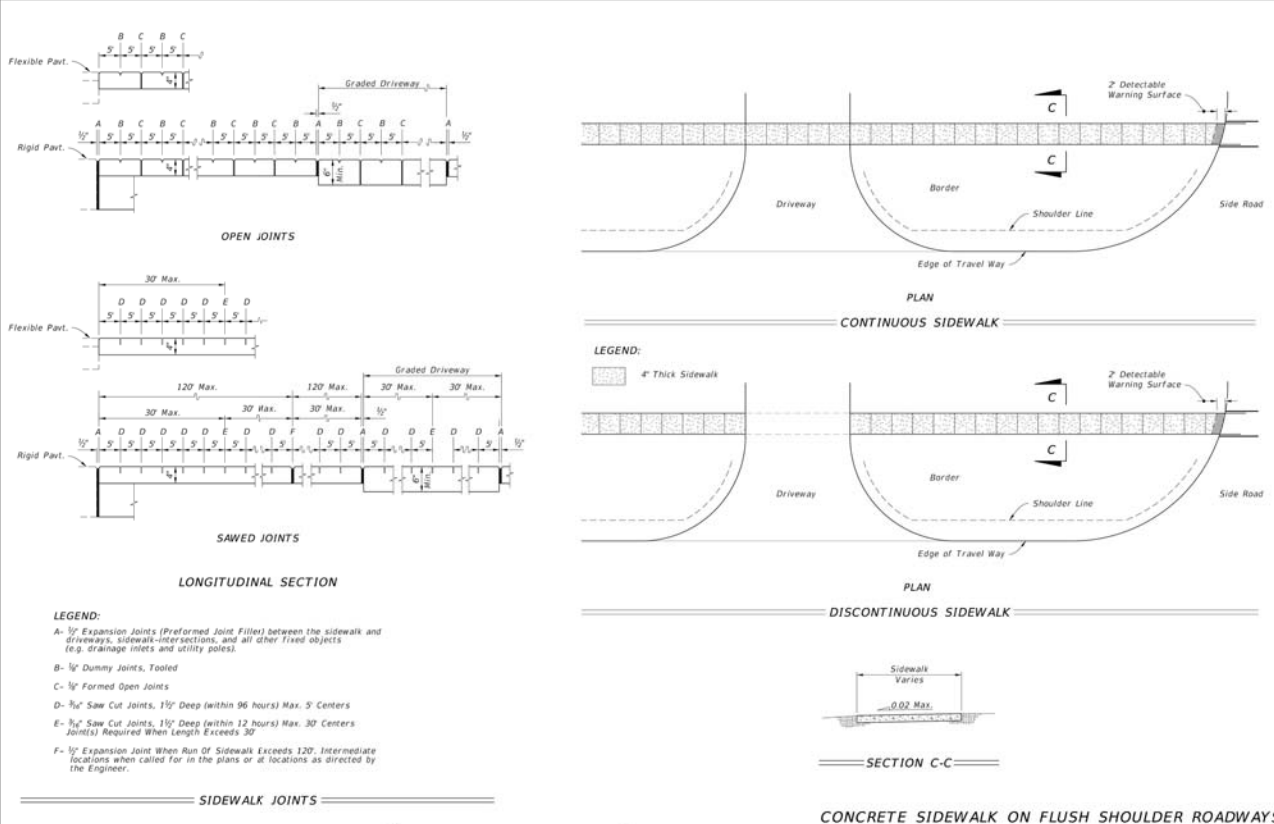
NO.	DATE	REVISION	BY
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1	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	DATE	SCALE
KAB	06/30/23	N/A

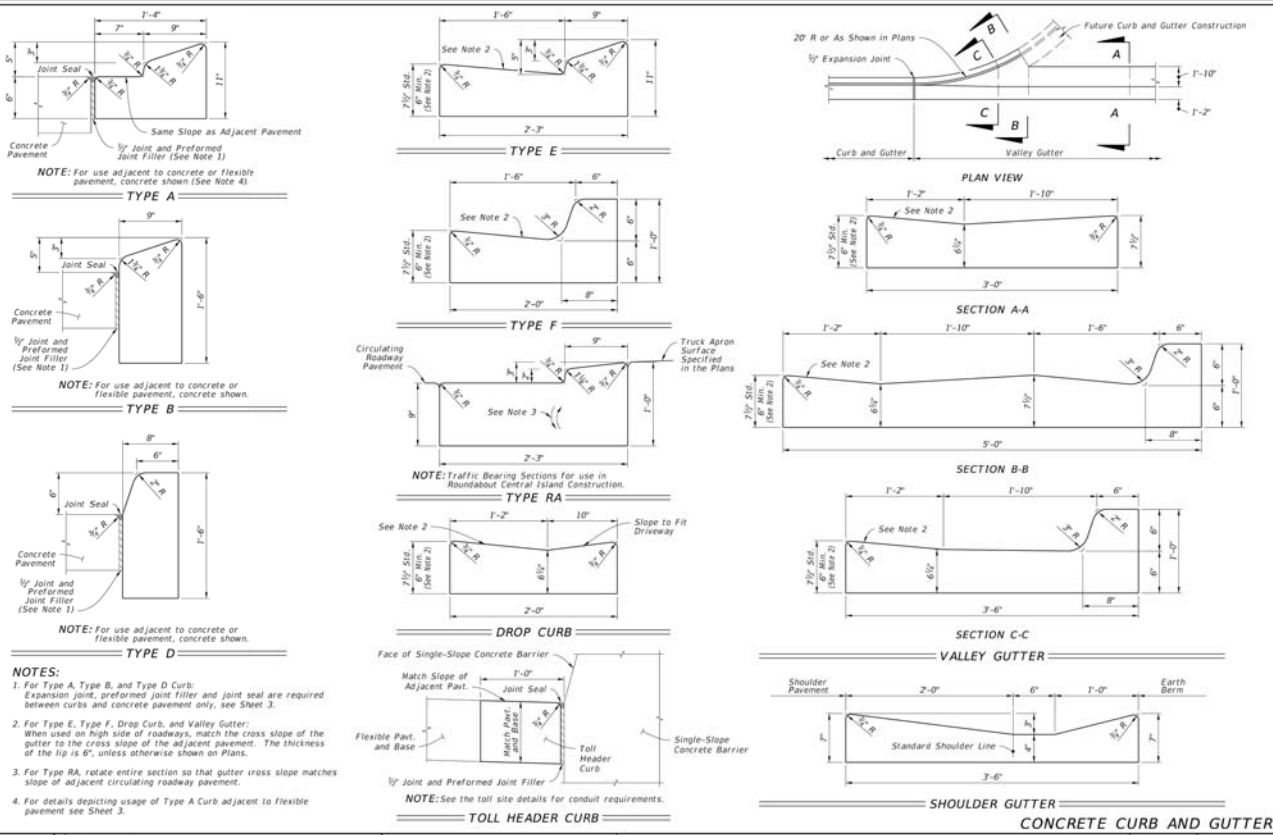
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2221-1	2221-1



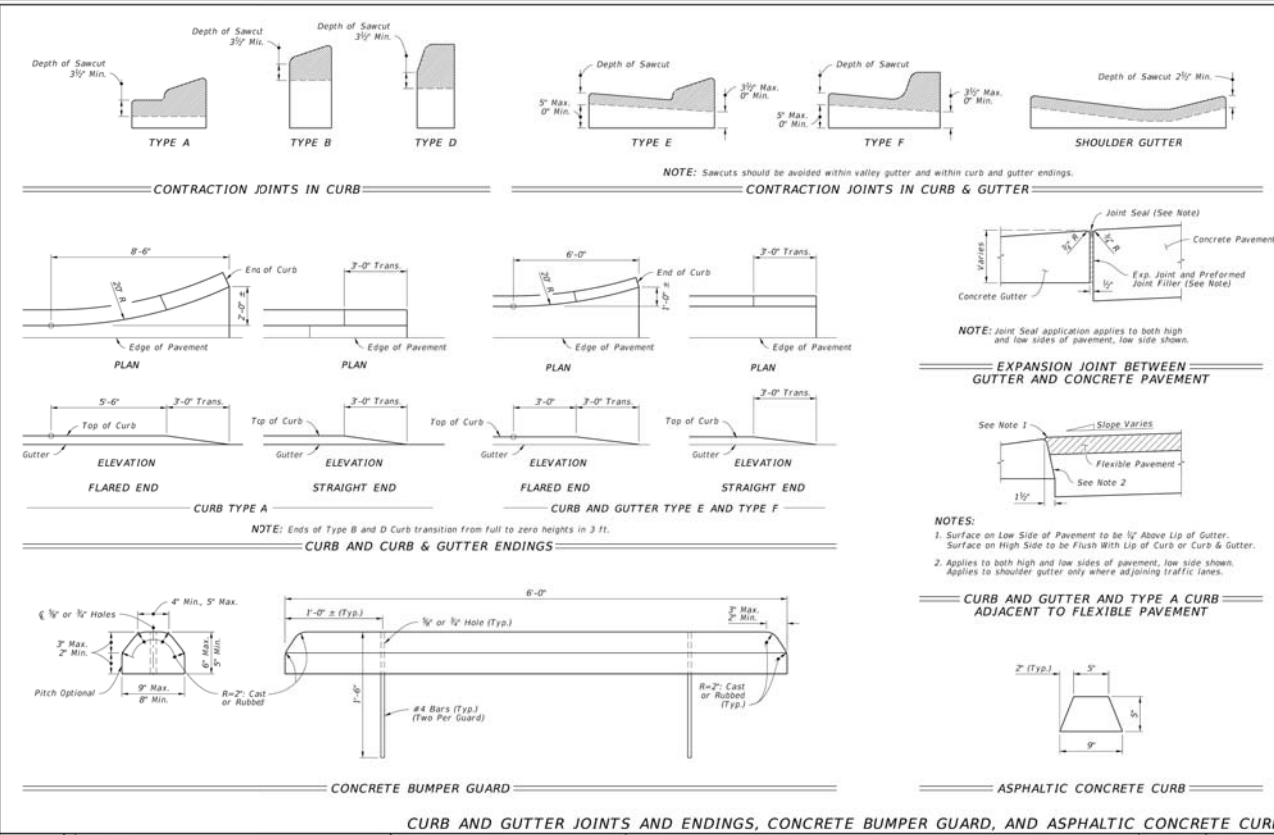
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11/01/18		522-001	1 of 2



LAST REVISION	DESCRIPTION:	INDEX	SHEET
11/01/18		522-001	2 of 2

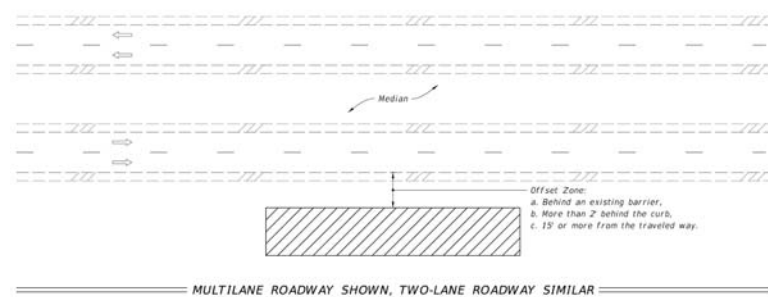


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11/01/21		520-001	2 of 3



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11/01/21		520-001	3 of 3

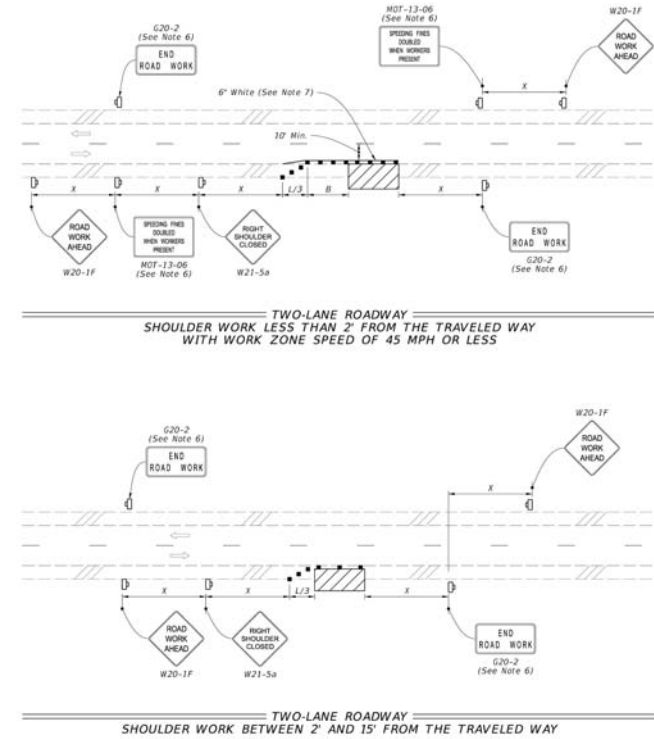




- NOTES:**
- This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work beyond the shoulder.
  - Use Index 102-602 when the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the Offset Zone in any one hour period.
  - Use Index 102-660 when Work Area encroaches a Sidewalk.
- SYMBOLS:**
- Work Area
  - Lane Identification and Direction of Traffic

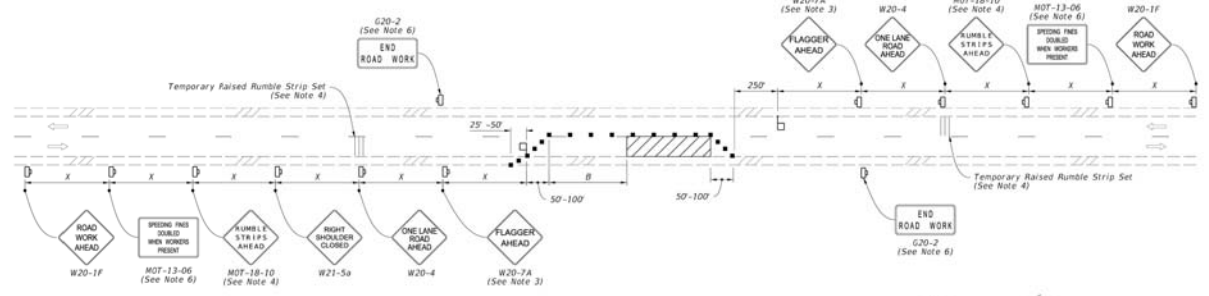
LAST REVISION 11/01/20	DESCRIPTION	FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE ROADWAY, WORK BEYOND THE SHOULDER	INDEX 102-601	SHEET 1 of 1
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- NOTE:**
- This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
  - L = Taper Length  
X = Work Zone Sign Spacing  
B = Buffer Length  
See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
  - Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
  - When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
  - For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
  - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
  - Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
  - Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
  - When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).

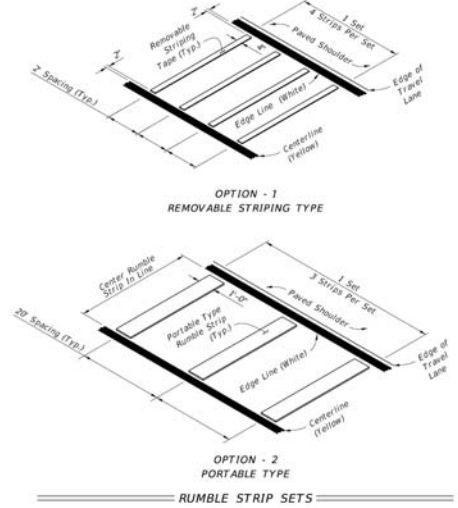


- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Lane Identification and Direction of Traffic

LAST REVISION 11/01/21	DESCRIPTION	FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2
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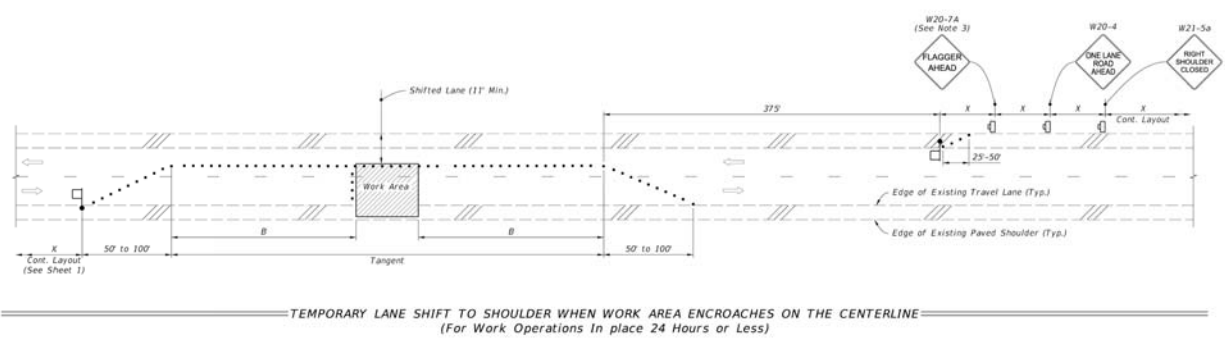
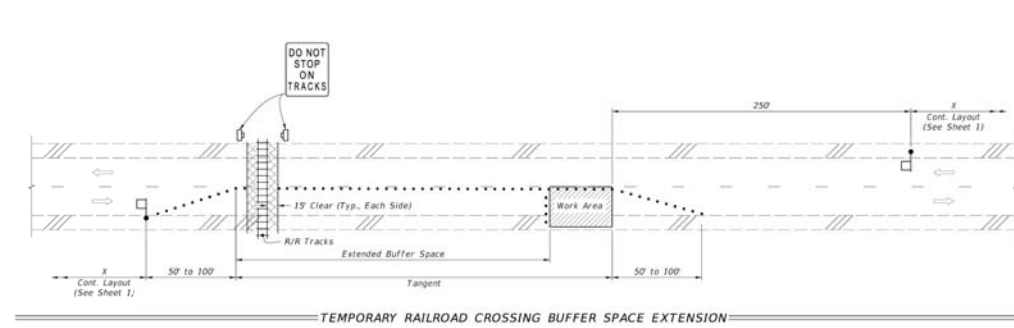


- NOTES:**
- This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
  - L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Spacing  
See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
  - Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
  - Use temporary raised rumble strips when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
  - Additional one-way control may be provided by the following means:  
a. Flag-carrying vehicle  
b. Official vehicle  
c. Pilot vehicles  
d. Traffic signals
  - When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
  - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work operation will be in place for 24 hours or less.
  - Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
  - Railroad Crossings:  
a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.  
b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.



- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Flagger
  - Lane Identification and Direction of Traffic

LAST REVISION 11/01/21	DESCRIPTION	FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2
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- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Flagger
  - Lane Identification and Direction of Traffic

LAST REVISION 11/01/21	DESCRIPTION	FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 2 of 2
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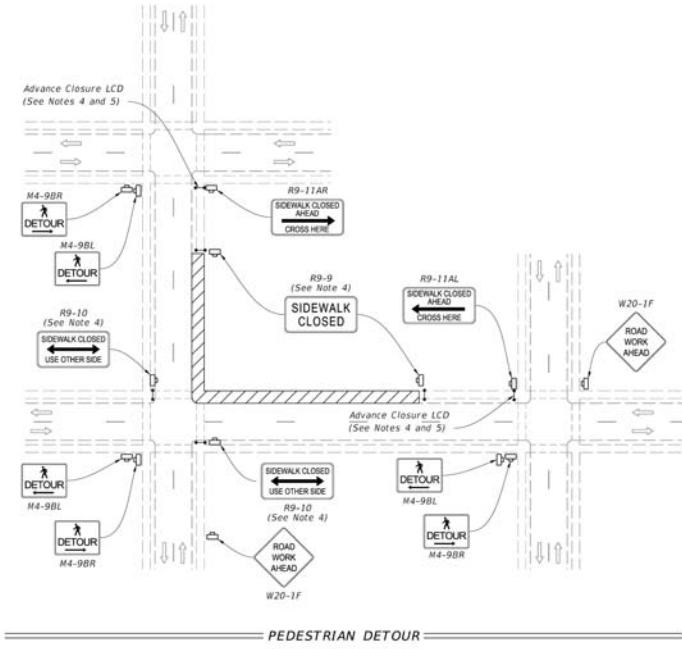
**SPECIAL CONDITIONS**

NO.	DATE	REVISION	BY
2.	08/24/23	PER COUNTY COMMENTS	KAB
1.	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	DATE	SCALE
KAB	06/30/23	N/A
DRAWN BY	PROJECT	
SCB	2221-1	

- NOTES:**
1. Cover or deactivate pedestrian traffic signal display(s) controlling closed crosswalks.
  2. Place pedestrian LCDs across the full width of the closed sidewalk.
  3. For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.
  4. "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
  5. Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).

- SYMBOLS:**
- Work Area
  - Work Zone Sign
  - Pedestrian Longitudinal Channelizing Device (LCD)
  - Lane Identification and Direction of Traffic



LAST REVISION 11/01/20	DESCRIPTION:	FY 2023-24 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 1 of 2
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ALANN ENGINEERING GROUP, INC.  
CONSULTING ENGINEERS  
CERTIFICATE No. EB5479  
880 AIRPORT ROAD, SUITE 113  
ORMOND BEACH, FL 32174  
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WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
FDOT DETAILS

NO.	DATE	REVISION	BY
2	08/24/23	PER COUNTY COMMENTS	KAB
1	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER KAB	FILE 2221-1	DATE 06/30/23
DRAWN BY SCB	PROJECT 2221-1	SCALE N/A

NOT VALID UNLESS SIGNED AND SEALED  
IN ACCORDANCE WITH F.S. 318.06

SHEET  
C33

GENERAL NOTES  
RECLAIMED WATER SYSTEM CONSTRUCTION

- THE CITY'S PUBLIC UTILITIES DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
- DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW RECLAIMED WATER MAIN BEING LAID.
- ALL RECLAIMED WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
- 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.
- 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 ENGINEERING DEPARTMENT.
- 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.
- RECLAIMED WATER SERVICES (SINGLE 1") SHALL BE POLYETHYLENE TUBING (PURPLE IN COLOR); POLYBUTYLENE SHALL NOT BE ALLOWED.
- ALL RECLAIMED 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.
- RECLAIMED WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 1000 FEET.
- AT ALL RECLAIMED WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
- APPROVED RECLAIMED WATER VALVE TYPES ARE THE FOLLOWING:
  - STANDARD GATE VALVES LESS THAN 48" DIAMETER RESILIENT SEAT GATE VALVES (AWWA C-509 OR C-515).
  - TAPPING VALVES AND MECHANICAL TAPPING SLEEVE SHALL BE STAINLESS STEEL. (AWWA C - 509)
  - EPOXY COATED. (AWWA C - 550)

GENERAL NOTES  
RECLAIMED WATER SYSTEM CONSTRUCTION

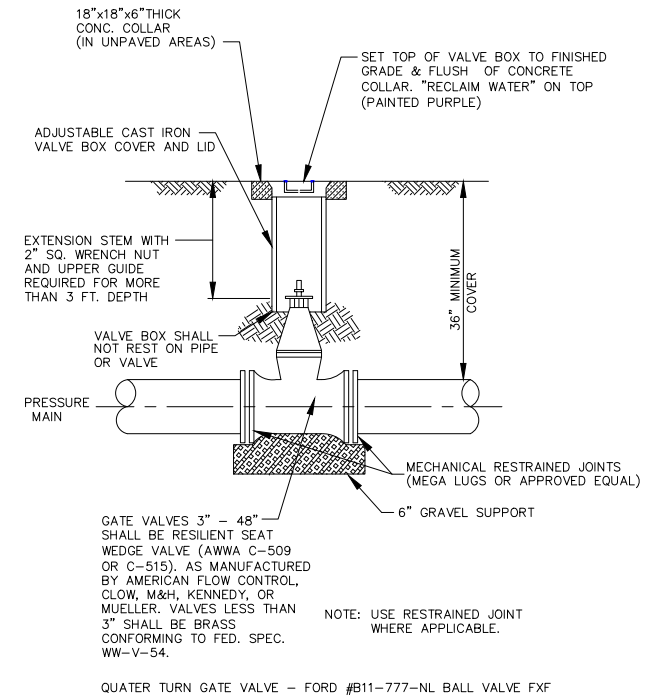
- ALL RECLAIMED WATER VALVE BOXES SHALL BE ADJUSTED TO FINISH GRADE AND THE LIDS PAINTED PURPLE TO MAKE THEM PLAINLY VISIBLE.
- RECLAIMED WATER VALVES SHALL BE COMPLETELY OPENED BY THE CONTRACTOR UPON FINAL ACCEPTANCE OF NEW RECLAIMED WATER SYSTEMS IN THE PRESENCE OF UTILITY DEPARTMENT PERSONNEL.
- HYDRANTS SHALL BE LOCATED AS REQUIRED TO OPTIMIZE FLUSHING
  - ALL HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO MAINTENANCE PERSONNEL. THE MAIN NOZZLE CONNECTION SHOULD ALWAYS FACE THE STREET AND BE 18"-24" ABOVE GRADE.
  - ALL PROPOSED RECLAIMED WATER MAINS SHALL BE FLUSHED AND CLEANED WITH A POLY PIG IN ACCORDANCE WITH LATEST AWWA STANDARDS.
- AS STANDARD PRACTICE, RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB ON OPPOSITE SIDE OF ROADWAY FROM WATER MAIN OR AS APPROVED BY THE CITY.
- ALL RECLAIMED WATER MAINS 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 OR CONCRETE ENCASEMENT MAY BE USED AS APPROVED BY THE CITY.
- RECLAIMED WATER MAINS SHALL BE AWWA C-900 CL 150, HDPE SDR-11, OR D.I.P. CLASS 350 STANDARD CEMENT LINED.
- UPON CONSTRUCTION COMPLETION PRIOR TO ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY FLUSHED, PIGGED, PRESSURE TESTED, AND SUBMIT FOR FDEP CLEARANCE BEFORE FINAL PAVING.
- MEGALUG OR EQUIVALENT, 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.
- SEE STANDARD DETAILS M-1A & M-1B FOR AS-BUILT DRAWING REQUIREMENTS

GENERAL NOTES  
RECLAIMED WATER SYSTEM CONSTRUCTION

- RECLAIMED 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 (IF APPLICABLE) IN THE PRESENCE OF THE CITY'S INSPECTOR AND CERTIFIED BY THE ENGINEER.
- ALL RECLAIMED WATER SERVICES SHALL BE MARKED WITH A "↓" SAWCUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
- ALL RECLAIMED WATER VALVES AND BLOW-OFFS SHALL BE MARKED WITH AN "X" SAWCUT 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.
- 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.
- TRACING WIRE SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY PIPE LOCATION MATERIALS DETAIL.
- NO GALVANIZED PIPE, FITTINGS, ETC. ARE ACCEPTED.
- ALL METER BOXES SHALL BE INSTALLED AT THE RIGHT OF WAY LINE ONLY, REGARDLESS OF SIZE.
- SEE CHART BELOW FOR WATER MAIN SIZE AND MATERIALS.

M A T E R I A L S		
DIAMETER	MATERIAL	STANDARD
2" - 4"	PVC 1120 / SDR 21	ASTM D 2241
> 4" - 12"	PVC DR-18	AWWA C 900-07
> 4" - 12" DEDICATED FIRE LINE	PVC DR-14	AWWA C 900-07
14" - 36" (16" - 34" DR - 18) (30" - 36" DR - 21)	PVC 1120	AWWA C 905
ALL SIZES	HDPE DIPS DR 11	ASTM F 714

NOTE: PVC PIPE COLOR SHALL BE PURPLE, BLUE WITH PURPLE LOCATOR TAPE FOR RAW WATER MAIN.



STANDARD CONSTRUCTION DETAIL  
GENERAL NOTES RECLAIMED  
WATER SYSTEM CONSTRUCTION

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STANDARD CONSTRUCTION DETAIL  
GENERAL NOTES RECLAIMED  
WATER SYSTEM CONSTRUCTION

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STANDARD CONSTRUCTION DETAIL  
GENERAL NOTES RECLAIMED  
WATER SYSTEM CONSTRUCTION

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RW-1C

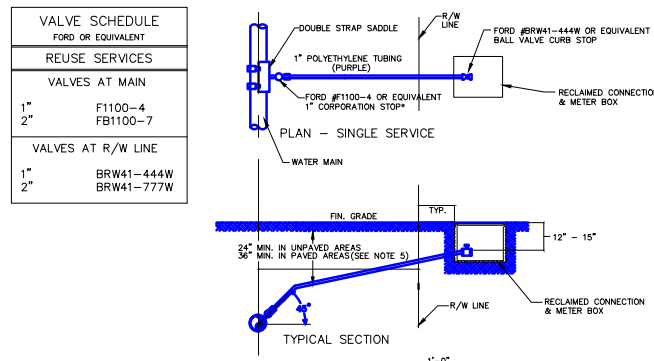
MAY 2020



STANDARD CONSTRUCTION DETAIL  
GATE VALVE AND VALVE BOX  
NTS.

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MAY 2020



- NOTES:
- CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.
  - HDPE SHALL BE 200 PSI, NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOTRACED (OR APPROVED EQUAL)
  - ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2"-0" STAGGERED INTERVAL OR WITHIN 2"-0" OF BELL OR SPIGOT ENDS.
  - IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE-TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
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

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.

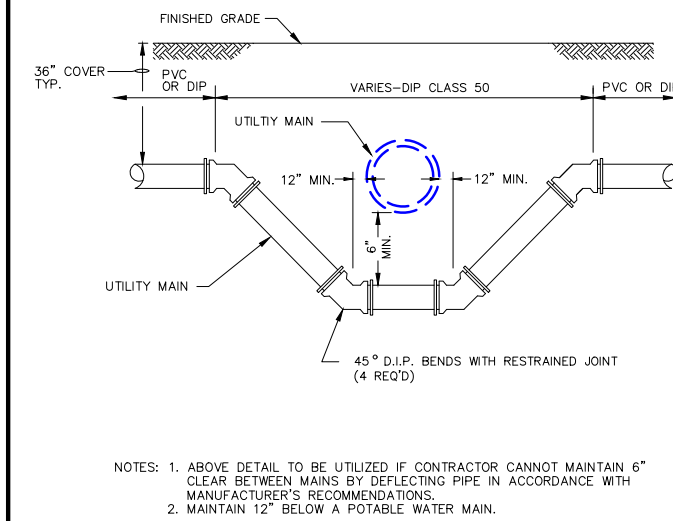
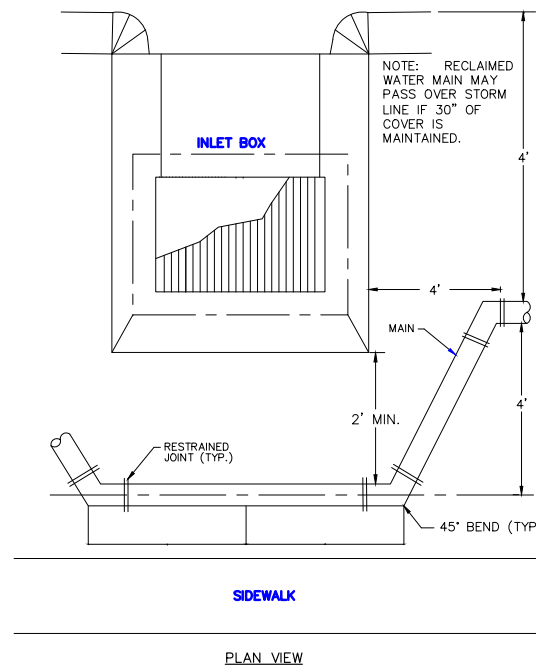
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	1/4 BEND	1/8 BEND	1/16 BEND	1/32 BEND	TEE OR DEAD END
PIPE SIZE (IN.) :					
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 (22)	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)

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.



- NOTES:
- ABOVE DETAIL TO BE UTILIZED IF CONTRACTOR CANNOT MAINTAIN 6" CLEAR BETWEEN MAINS BY DEFLECTING PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - MAINTAIN 12" BELOW A POTABLE WATER MAIN.



STANDARD CONSTRUCTION DETAIL  
RECLAIMED WATER LATERAL SERVICE  
1" OR 2" SERVICES  
NTS.

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STANDARD CONSTRUCTION DETAIL  
PVC AND D.I.P. RESTRAINED JOINT TABLE

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STANDARD CONSTRUCTION DETAIL  
RECLAIMED WATER MAIN INSTALLATION  
BETWEEN DRAINAGE INLET AND SIDEWALK  
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STANDARD CONSTRUCTION DETAIL  
PIPE CROSSING  
NTS.

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MAY 2020

ALLAN ENGINEERING GROUP, INC.  
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FAX: (386) 673-3927

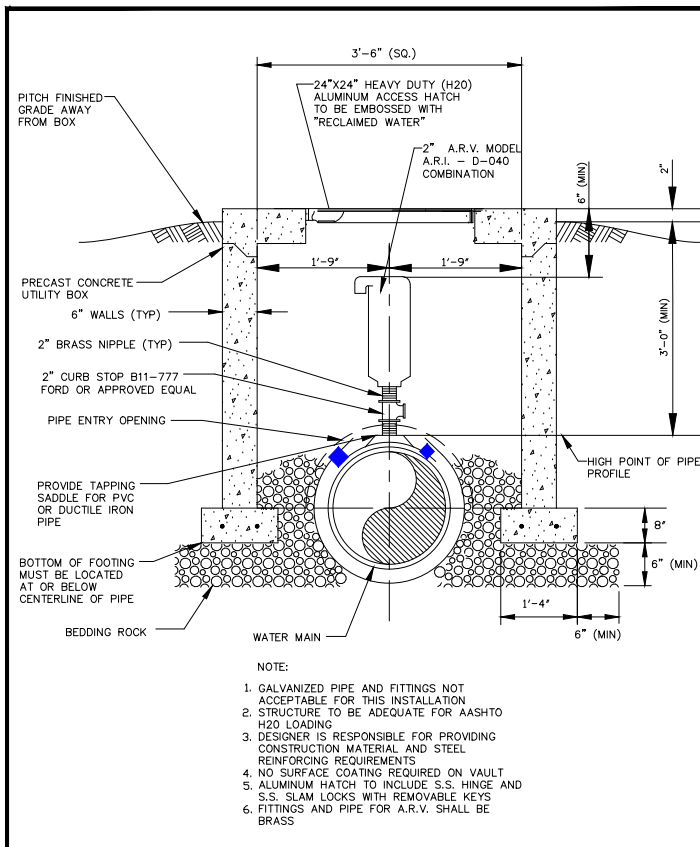
WOODSIDE AT ORMOND STATION  
FLAGLER COUNTY, FL  
RECLAIMED WATER DETAILS

NO.	DATE	REVISION	BY
2	08/24/23	PER COUNTY COMMENTS	KAB
1	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	FILE	DATE	SCALE
KAB	2221-1	06/30/23	N/A

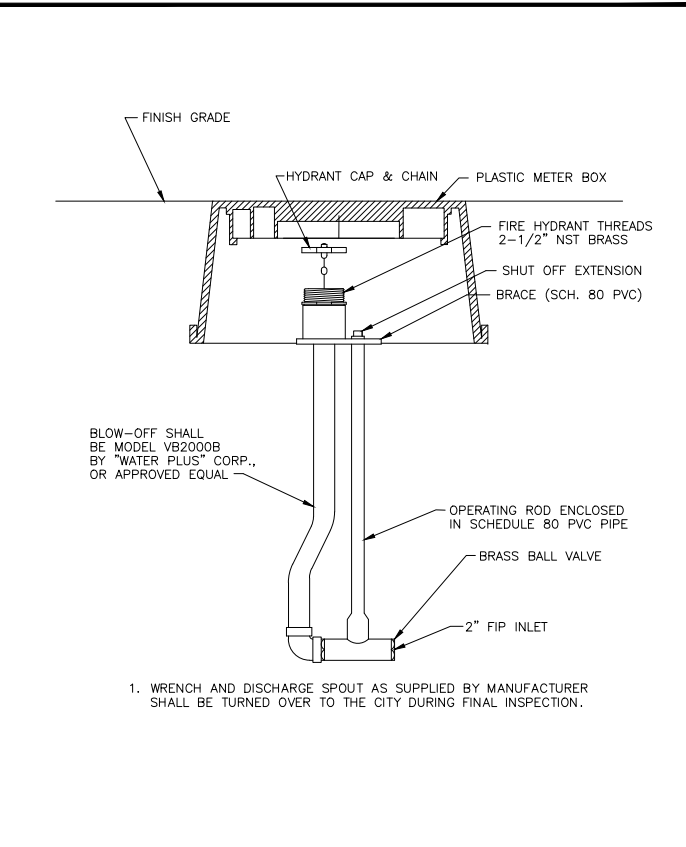
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SUBJECT TO ALL RULES & FEES

SHEET  
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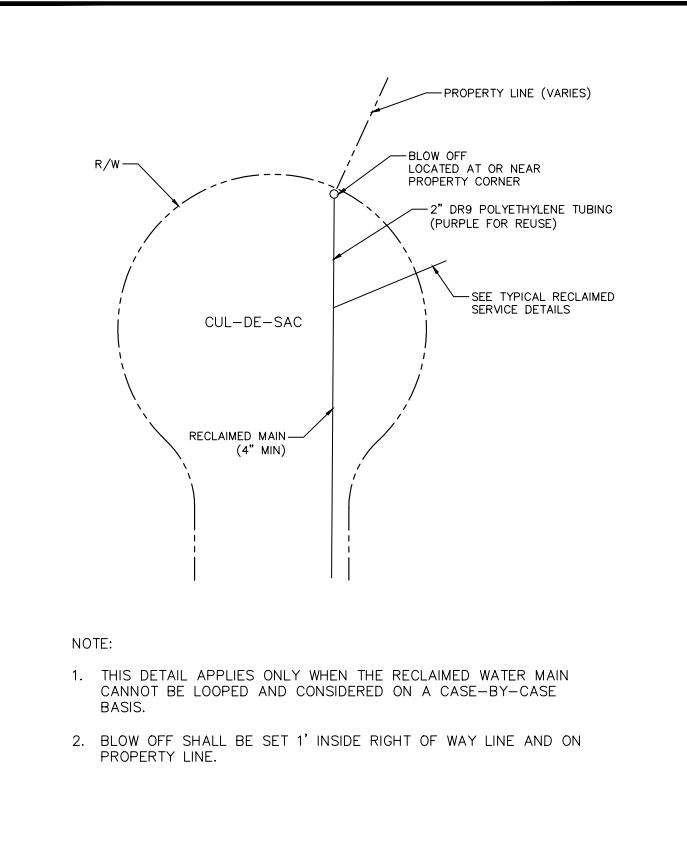
STANDARD CONSTRUCTION DETAIL  
AUTOMATIC AIR RELEASE VALVE  
(RECLAIMED WATER MAIN)

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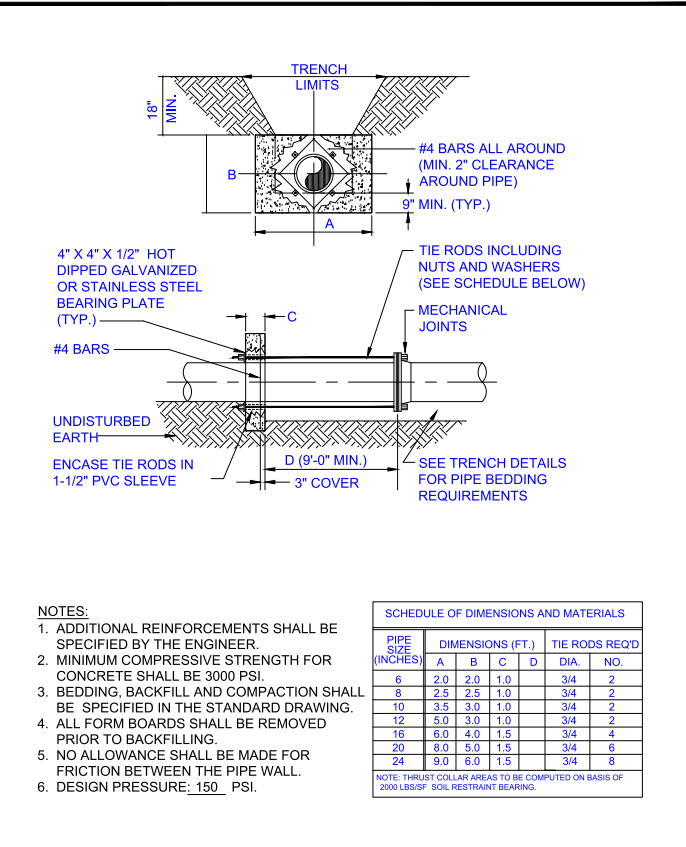
STANDARD CONSTRUCTION DETAIL  
BLOW-OFF ASSEMBLY

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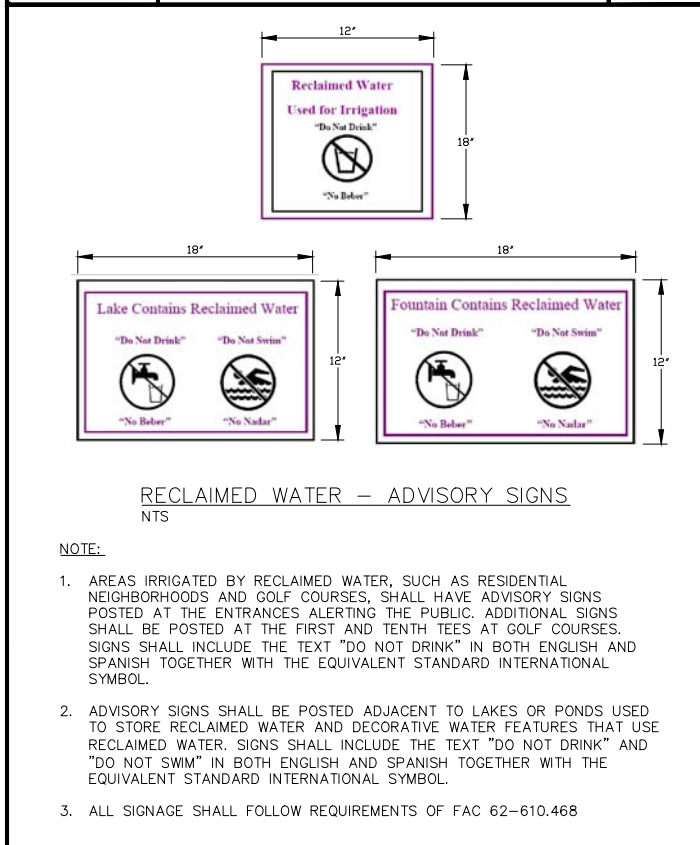
STANDARD CONSTRUCTION DETAIL  
TYPICAL CUL-DE-SAC  
RECLAIMED WATER PIPING

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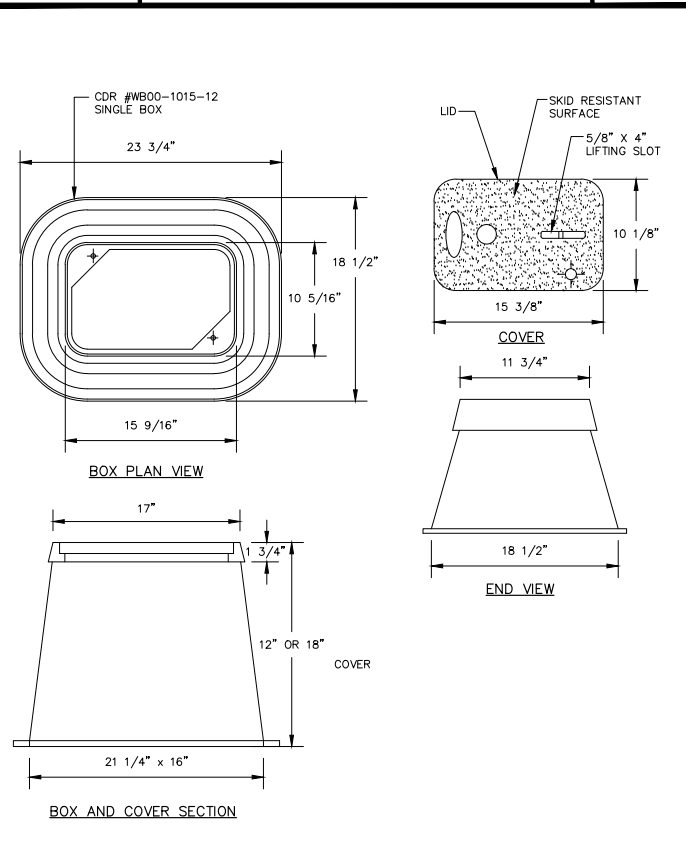
STANDARD CONSTRUCTION DETAIL  
WATER MAIN THRUST COLLAR

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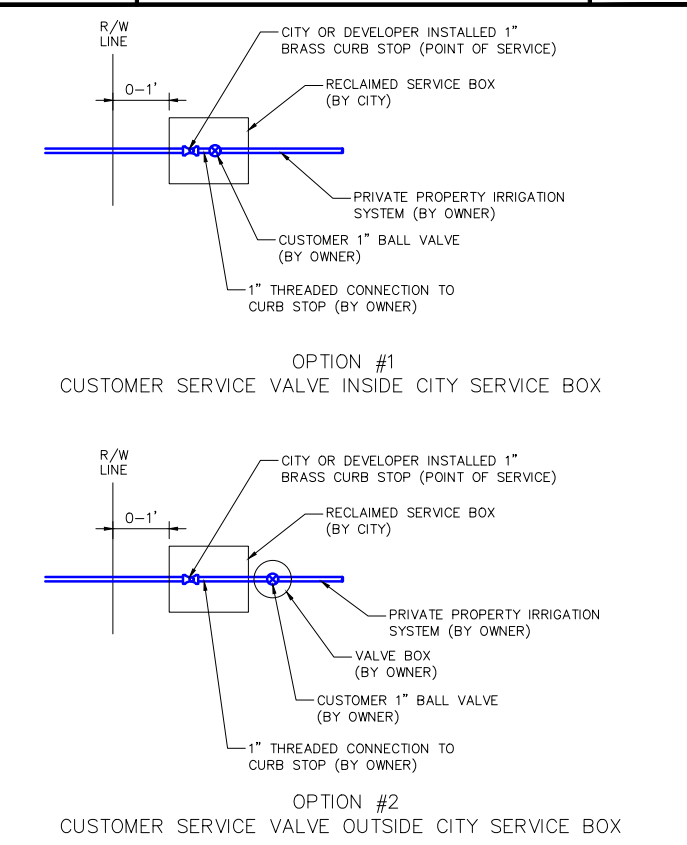
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STANDARD CONSTRUCTION DETAIL  
RECLAIMED WATER SERVICE:  
SINGLE SERVICE  
C.D.R. METER BOX

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STANDARD CONSTRUCTION DETAIL  
RECLAIMED WATER LATERAL SERVICE  
CUSTOMER CONNECTION DETAIL

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NO.	DATE	REVISION	BY
2	08/24/23	PER COUNTY COMMENTS	KAB
1	07/21/23	PER COUNTY COMMENTS	KAB

DESIGNER	DRAWN BY	PROJECT	SCALE	DATE
KAB	SCB	2221-1	N/A	06/30/23

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SUBJECT TO BACK FILE JURISDICTION