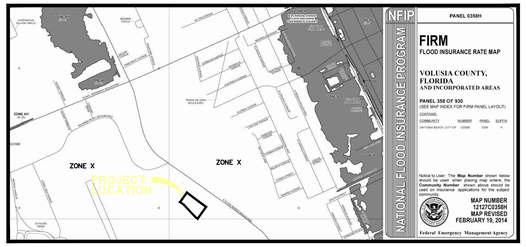
EMBRY-RIDDLE AERONAUTICAL UNIVERSITY EAGLE FITNESS COMPLEX

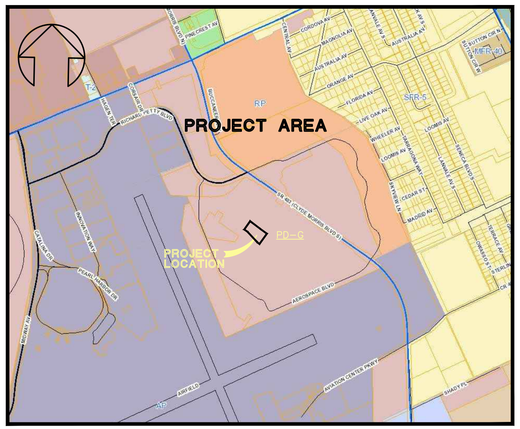
SITE PLAN
DAYTONA BEACH, FLORIDA
DEV 2020-062

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY



FLOOD MAP

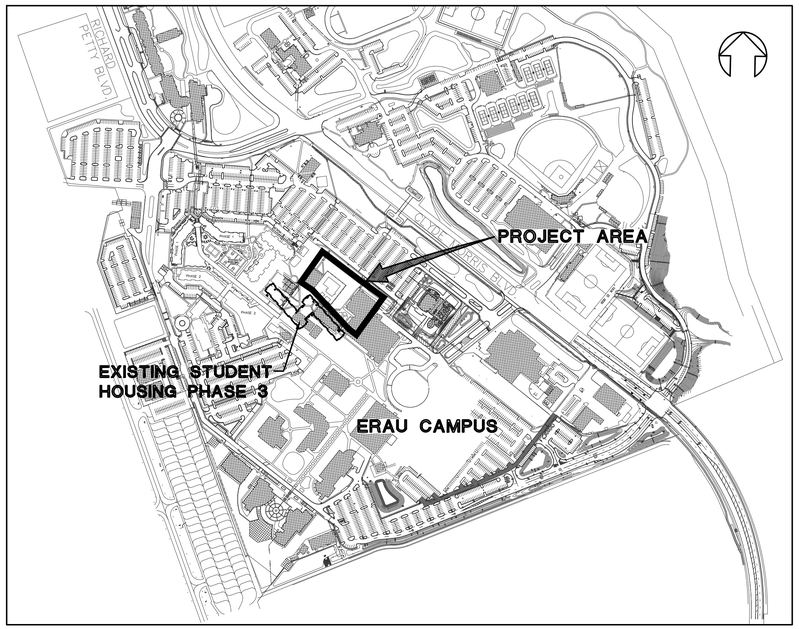
FLOOD INS. RATE MAP (F.I.R.M.) = ZONE X
MAP #12127C0358 H
DATE: FEBRUARY 19, 2014



ZONING MAP

SOILS MAP

VOLUSIA COUNTY, FLORIDA (FL127)		
MAP UNIT SYMBOL	MAP UNIT NAME	PERCENT OF AOI
54	QUARTZIPSAMMENTS, GENTLY SLOPING	76%
29	IMMOKALEE SAND	24%



VICINITY MAP

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	BOUNDRY & TOPOGRAPHIC SURVEY
3	DEMOLITION / EROSION CONTROL PLAN
4	SITE PLAN
5	CIVIL SITE PLAN
6	UTILITY SITE PLAN
7	IRRIGATION PLAN
8	IRRIGATION DETAILS
9-12	PAVING & DRAINAGE DETAILS
13-14	WATER DISTRIBUTION SYSTEM DETAILS
15-16	SANITARY COLLECTION SYSTEM DETAILS
17	REUSE DETAILS

NOTES:
1. NO CONSTRUCTION ON THE PROPOSED PORTIONS OF THIS PROJECT MAY COMMENCE UNTIL A MANDATORY PRE-CONSTRUCTION MEETING IS HELD WITH THE CITY, AS STATED IN THE APPROVED DEVELOPMENT ORDER FROM THE CITY OF DAYTONA BEACH. ANY CESSATION OF CONTINUOUS ON-GOING CONSTRUCTION ON THIS PROJECT OF 90 DAYS OR MORE SHALL TRIGGER A REQUIREMENT FOR ANOTHER PRE-CONSTRUCTION MEETING BE HELD WITH THE CITY PRIOR TO CONTINUATION OF THE CONTINUING CONSTRUCTION.
2. PRIOR TO OR UPON BUILDING COMPLETION THE BUILDING WILL BE IN COMPLIANCE WITH NFPA 1:11.10.1 (6TH EDITION FL FIRE PREVENTION CODE OF FUTURE ADOPTED EDITION) AND FLORIDA STATUTE 633.202 (PARAGRAPH 18), AS APPLICABLE, IN REGARD TO F.D. TWO-WAY RADIO COMMUNICATION ENHANCEMENT SYSTEMS. THE POSSIBLE NEED FOR SUCH A SYSTEM WILL BE DETERMINED BY VOLUSIA COUNTY RADIO SERVICES BASED UPON TESTING PERFORMED BY AN AUTHORIZED COMMUNICATIONS CONTRACTOR UTILIZING RADIO SIGNAL STRENGTH GRID TESTING OF THE PROPERTY IN ACCORDANCE WITH NFPA 72 (2013 OR FUTURE ADOPTED EDITION) AND NFPA 1221 (2016 OR FUTURE ADOPTED EDITION). THE REQUIRED RADIO SIGNAL STRENGTH GRID TESTING IS REQUIRED TO BE COMPLETED PRIOR TO BUILDING C.O.
3. SHOULD A TWO-WAY RADIO COMMUNICATION ENHANCEMENT SYSTEM BE DETERMINED TO BE REQUIRED BASED UPON RADIO SIGNAL STRENGTH TESTING, IT IS REQUIRED TO BE INSTALLED PRIOR TO BUILDING C.O. SHOULD THE BUILDING RECEIVE A C.O. PRIOR TO THE TESTING AND/OR REQUIRED INSTALLATION OF SUCH A SYSTEM, IT IS CLEARLY UNDERSTOOD BY ALL PARTIES THE THIS REQUIREMENT MAY BE RETROACTIVELY APPLIED AT A FUTURE DATE BY THE DAYTONA BEACH FIRE DEPARTMENT AND/OR VOLUSIA COUNTY RADIO SERVICES, AND AT THE BUILDING OWNER'S EXPENSE.

PARKER MYNCHENBERG & ASSOCIATES, INC.
PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
1729 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
(386) 677-6891 FAX (386) 677-2114 E-MAIL: info@parkermynchenberg.com
CERTIFICATE OF AUTHORIZATION NUMBER: 00003910

GENERAL NOTES

1. EXISTING ZONING: PD-G
2. BOUNDARY AND TOPOGRAPHY BASED ON SURVEY PREPARED BY SLIGER & ASSOCIATES, DATED: 6-20-2019.
3. UNDERGROUND UTILITY LOCATIONS AS FIELD MARKED BY THE FOLLOWING COMPANIES OR THEIR REPRESENTATIVES:

FLORIDA POWER & LIGHT COMPANY PORT ORANGE, FL. 32129	3000 SPRUCE CREEK ROAD (386) 322-3425
AT&T DAYTONA BEACH, FL. 32117	900 N. NOVA ROAD (386) 257-7950
SPECTRUM DAYTONA BEACH, FL. 32114	1475 S. NOVA ROAD (386) 760-9941
TECO PEOPLES GAS HOLLY HILL, FL. 32117	1722 RIDGEWOOD AVE (386) 527-8377
CITY OF DAYTONA BEACH DAYTONA BEACH, FL. 32114	950 BELLEVUE ROAD (386) 671-8635

4. LOCATIONS OF EXISTING UTILITIES ARE SHOWN BASED ON AVAILABLE DATA.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES AND TO DETERMINE IF OTHER UTILITIES WILL BE ENCOUNTERED DURING THE COURSE OF THE WORK AND TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION (I.E. SHEETING, DE-WATERING, ETC.). CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.
   CONTRACTOR TO COORDINATE DEMOLITION AND CONSTRUCTION WITH ALL PUBLIC AND PRIVATE UTILITY COMPANIES TO AVOID CONFLICTS AND/OR INTERRUPTIONS OF SERVICE.
6. CONTRACTOR TO PROVIDE AS BUILT DRAWINGS OF ALL IMPROVEMENTS ON 24" X 36" MYLAR, SIGNED AND SEALED BY A FLORIDA REGISTERED LAND SURVEYOR.
7. THERMOPLASTIC STRIPING AND TRAFFIC CONTROL SIGNAGE TO MEET FDOT AND CITY OF DAYTONA BEACH SPECIFICATIONS.
8. TRAFFIC CONTROL SIGNS TO BE IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATIONS . ALL STOP SIGNS, SPEED LIMIT AND STREET SIGNS REQUIRED TO BE PROVIDED BY DEVELOPER TO CITY OF DAYTONA BEACH SPECIFICATIONS.
9. ALL TRAFFIC CONTROL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES USING 3M BRAND "SCOTCHLIGHT" SHEETING (ENGINEER GRADE) ON MINIMUM 0.080 GAUGE 5052-H38 ALUMINUM BLANKS. ALL STOP SIGNS SHALL BE HIGH INTENSITY 30" OCTAGON INSTALLED ON 12', 3 LBS/FT. "U" CHANNEL POSTS (RAIL STEEL ONLY) OR 3" x 12', ROUND ALUMINUM POSTS. "U" CHANNEL POSTS MAY BE USED FOR ALL SIGNS SMALLER THAN 36" x 48". ALL WARNING SIGNS SHALL BE 30" x 30".
10. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND/OR LICENSES TO COMMENCE CONSTRUCTION.
11. ALL CONCRETE SHALL DEVELOP A 28-DAY COMPRESSIVE STRENGTH OF 3,500 PSI UNLESS OTHERWISE NOTED.
12. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE, AT ALL TIMES, ONE COPY OF PLANS, SPECIFICATIONS, AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
13. CONTRACTOR IS RESPONSIBLE FOR CHECKING ACTUAL SITE CONDITIONS BEFORE STARTING CONSTRUCTION.
14. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE COMMENCING WORK.
15. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN TO BE MADE WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
16. CONTRACTOR WILL FOLLOW ALL OF THE CITY'S REQUIRED WASTE MANAGEMENT PRACTICES, ALL CONSTRUCTION, RENOVATION AND DEMOLITION SITES ARE TO BE KEPT CLEAN AND FREE OF REFUSE, DEBRIS AND LITTER DURING THE CONSTRUCTION, RENOVATION OR DEMOLITION PROCESS. A CERTIFICATE OF OCCUPANCY FOR A NEWLY CONSTRUCTED OR RENOVATED BUILDING SHALL NOT BE ISSUED UNTIL ALL REFUSE AND LITTER CAUSED BY THE CONSTRUCTION OR REMODELING IS REMOVED FROM THE SITE AS PER THE CITY'S CODE OF ORDINANCES CHAPTER 28 SECTION 78-5 AND 78-8.

PROJECT DESCRIPTION:

CONSTRUCTION OF ERAU EAGLE FITNESS COMPLEX WITH NEW 31,412 SF (2) STORY BUILDING, POOL AND POOL DECK. IMPROVEMENTS INCLUDE: DRAINAGE, UTILITY, SIDEWALK, LANDSCAPE, SITE LIGHTING, HARDSCAPE AND IRRIGATION IMPROVEMENTS.

LAND USE TABULATION:

TOTAL PROJECT AREA = (302,292 SF.) 6.94 AC.

EXISTING IMPERVIOUS AREA:

EXSITING BUILDINGS =	59,965 S.F.
EXISTING SIDEWALK / CONCRETE =	54,092 S.F.
EXISTING POOL AND DECK =	17,070 S.F.
TOTAL EXISTING IMPERVIOUS =	131,127 S.F.
EXSITING BUILDINGS REMOVED =	16,040 S.F.
EXISTING SIDEWALK / CONCRETE REMOVED =	6,845 S.F.
POOL AND DECK REMOVED =	17,070 S.F.
REMAINING IMPERVIOUS =	91,172 S.F.

PROPOSED IMPERVIOUS AREA:

PROPOSED BUILDINGS =	20,668 S.F.
PROPOSED POOL & DECK =	24,670 S.F.
PROPOSED SYNTHETIC TURF =	7,485 S.F.
PROPOSED SIDEWALK / CONC. =	10,630 S.F.
TOTAL PROPOSED IMPERVIOUS AREA =	63,453 S.F.
TOTAL IMPERVIOUS AREA =	154,625 S.F. = 51.15%
LANDSCAPE AREA =	147,667 S.F. = 48.85%
ADDITIONAL IMPERVIOUS AREA =	23,498 S.F.

SITE INFORMATION

PROJECT NAME:
EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH, FLORIDA

PROJECT ADDRESS:
598 AEROSPACE BOULEVARD
DAYTONA BEACH, FL 32117

TAX PARCEL NUMBER:
5239-48-00-0010

OWNER:

EMBRY RIDDLE AERONAUTICAL UNIVERSITY
600 SOUTH CLYDE MORRIS BLVD.
DAYTONA BEACH, FLORIDA 32114
(386) 226-6206 FAX (386) 323-5056
ERAU PROJECT CONTACT: CHRIS HARDESTY, DIRECTOR, UNIVERSITY PLANNING & CONSTRUCTION MANAGEMENT
(386) 226-6512 FAX (386) 226-6522
Chris.Hardesty@erau.edu (EMAIL)

ENGINEER

CERTIFICATE OF AUTHORIZATION NUMBER: 00003910
PARKER MYNCHENBERG & ASSOCIATES, INC.
PARKER MYNCHENBERG P.E. #32645
PARKER MYNCHENBERG L.A. #1553
1729 RIDGEWOOD AVENUE
HOLLY HILL, FLORIDA 32117
(386) 677-6891 FAX (386) 677-2114
EMAILS: info@parkermynchenberg.com
sbuswell@parkermynchenberg.com

ARCHITECT

HOUSEMAN ARCHITECTURE, LLC
MICHAEL M. HOUSEMAN, AIA, LEED AP
931 SOUTH SEMORAN BLVD., #204B
WINTER PARK, FLORIDA 32792
OFFICE: (321) 972-8446
CELL: (407) 342-0638
www.housemanarchitecture.com

MASTER PLANNER/LANDSCAPE ACHITECT

BASHAM & LUCAS DESIGN GROUP, INC.
MATT RELYEA, PLA
7645 GATE PARKWAY, SUITE 101
JACKSONVILLE, FLORIDA 32256
(904) 731-2323

SURVEYOR

SLIGLER & ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS
3921 NOVA ROAD
PORT ORANGE, FLORIDA 32127
(386) 761-5385
www.sligerassociates.com

BUILDING INFO:

PROPOSED EAGLE FITNESS COMPLEX (2 STORY BUILDING):
1ST FLOOR = 19,308 S.F.
2ND FLOOR = 12,104 S.F.
TOTAL AREA = 31,412 S.F.

PROPOSED POOL PAVILION = 1,360 S.F.

EXISTING BUILDING COVERAGE = 43,925 S.F.
PROPOSED BUILDING COVERAGE = 20,668S.F.

TOTAL BUILDING COVERAGE = 63,233 S.F.
63,233 SF / 302,292 S.F. = 20.92% COVERAGE

BUILDING HEIGHT = 43'

PARKING CALCULATION

PARKING REQUIRED:(CAMPUS WIDE)
0.45 PARKING SPACES PER STUDENT (FULL TIME EQUIVALENT)
5,900 STUDENTS X 0.45 = 2,655 SPACES

PARKING PROVIDED (CAMPUS)

STANDARD PARKING	= 3,370 SPACES
HANDICAPPED	= 104 SPACES
TOTAL EXISTING CAMPUS PARKING	= 3,474 SPACES

BIKE PARKING PROPOSED = 15 SPACES

NO.	DATE	DESCRIPTION	BY
3	08-13-20	BID SET	MRB
2	08-06-20	REVISED	MRB
1	07-24-20	REVISED	MRB

REVISIONS

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EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

COVER SHEET

DEV 2020-062
CITY APPROVAL STAMP

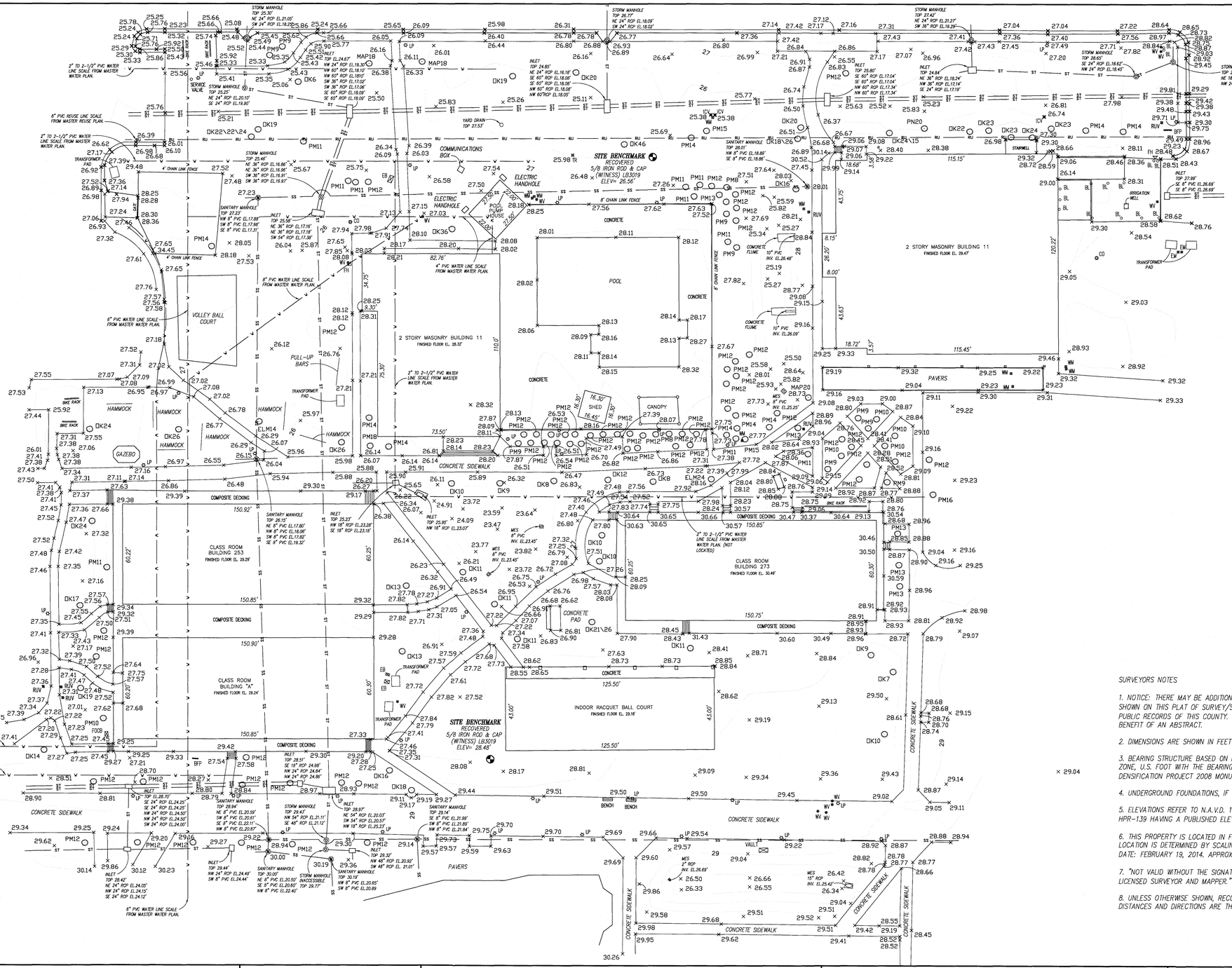
1
SHEET NO.

Drawn By: MRB

Date: 03/20/2020

SCALE: NONE

JOB#: 20-17



SURVEYORS NOTES

1. NOTICE: THERE MAY BE ADDITIONAL RESTRICTIONS AND/OR OTHER MATTERS THAT ARE NOT SHOWN ON THIS PLAT OF SURVEY/SKETCH OF DESCRIPTION THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY. THIS SURVEY/SKETCH OF DESCRIPTION PREPARED WITHOUT BENEFIT OF AN ABSTRACT.
2. DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.
3. BEARING STRUCTURE BASED ON NAD–83 FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, U.S. FOOT WITH THE BEARING BETWEEN DAYTONA BEACH GEODETIC AND BENCHMARK DENSIFICATION PROJECT 2008 MONUMENTS RMR–34 AND RMR–35 BEING S35°07'58"E.
4. UNDERGROUND FOUNDATIONS, IF ANY, NOT LOCATED.
5. ELEVATIONS REFER TO N.A.V.D. 1988 PER CITY OF DAYTONA BEACH BENCHMARK MONUMENT HPR–139 HAVING A PUBLISHED ELEVATION OF 25.00'.
6. THIS PROPERTY IS LOCATED IN FLOOD INSURANCE RATE MAP (F.I.R.M.) ZONE X. THIS LOCATION IS DETERMINED BY SCALING FROM F.I.R.M. MAP NO. 12127C0358 H. MAP EFFECTIVE DATE: FEBRUARY 19, 2014. APPROXIMATE SCALE: 1"=500'.
7. "NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER."
8. UNLESS OTHERWISE SHOWN, RECORD DISTANCES AND DIRECTIONS AND FIELD MEASURED DISTANCES AND DIRECTIONS ARE THE SAME.

LEGEND

● IRON ROD WITH CAP	⊗ GV GAS VALVE	⊠ FOCB FIBER OPTIC CABLE BOX	Ⓢ SSMH SANITARY SEWER MANHOLE		
○ IRON ROD	⊗ RUV REUSE VALE	⊠ FOCV FIBER OPTIC CABLE VAULT	Ⓓ SDMH STORM DRAIN MANHOLE		
◉ IRON PIPE WITH CAP	⊗ SSV SANITARY SEWER VALVE	ELP ELECTRIC PANEL	Ⓖ GTMH GREASE TRAP MANHOLE		
◎ IRON PIPE	⊗ HHE HAND HOLE (ELECTRIC)	FOCM FIBER OPTIC CABLE MARKER	Ⓔ EMH ELECTRIC MANHOLE		
⊠ FD "X"/CUT IN CONCRETE	⊠ WM WATER METER	TPM TELEPHONE CABLE MARKER	Ⓤ UMH UTILITY MANHOLE		
□ CONCRETE MONUMENT	⊠ GM GAS METER	SIGN	Ⓒ CO CLEAN OUT		
■ DENOTES PC / PT	⊠ TB TELEPHONE BOX	☼ LP LIGHT POLE	Ⓕ FOC FIBER OPTIC CABLE MANHOLE		
⚠ PERMANENT CONTROL POINT	⊠ MB MAIL BOX	☼ YL YARD LIGHT	⋈ RBO REUSE BLOWOFF ASSEMBLY		
⊕ SITE BENCHMARK	⊠ TV CABLE TELEVISION BOX	UTILITY POLE	▲ WETLANDS LOCATION		
⊥ FH FIRE HYDRANT	⊠ TSB TRAFFIC SIGNAL BOX	GA GUY ANCHOR	CONCRETE EXISTING CONCRETE		
⊗ WV WATER VALVE	⊠ EB ELECTRIC SERVICE BOX	UTILITY VALVE	0.00 EXISTING ELEVATION		

W/ WITH	ILLEG. ILLEGIBLE	GLM GAS LINE MARKER	DIP DUCTILE IRON PIE	LP LIGHT POLE	–FO– BURRIED FIBER OPTIC CABLE
IRC IRON ROD & CAP	MB MAP BOOK	D CENTRAL ANGLE	PP POWER POLE	–P– POWER POLE	–T– BURRIED TELEPHONE CABLE
IR IRON ROD (NO CAP)	PG PAGE	R RADIUS	PVC POLYVINYL CHLORIDE	GA GUY ANCHOR	–W– BURRIED WATER LINE
IPC IRON PIPE & CAP	ORB OFFICIAL RECORDS BOOK	L ARC LENGTH	CONC CONCRETE	TSB TRAFFIC SIGNAL BOX	–E– BURRIED ELECTRIC LINE
IP IRON PIPE (NO CAP)	(P) PLATTED DIMENSION	CB CHORD BEARING	RES RESIDENCE	R/W RIGHT OF WAY	–G– BURRIED GAS LINE
CM CONCRETE MONUMENT	(D) DEED DIMENSION	CH CHORD DISTANCE	CO CLEANOUT	DW DRIVEWAY	–TV– BURRIED TELEVISION LINE
N&D NAIL & DISK	(M) MEASURED DIMENSION	SAN SANITARY	ES ELECTRIC SERVICE	TOB TOP OF BANK	–FM– BURRIED FORCEMAIN
FND FOUND	(C) CALCULATED DIMENSION	MH MANHOLE	CV CHECK VALVE	TOE TOE OF SLOPE	–OH– AERIAL UTILITY LINE
M/W MONITORING WELL	(R) RADIAL	MES MITERED END SECTION	IV IRRIGATION VALVE	CLS CENTERLINE OF SWALE	–ST– STORM WATER LINE
ID IDENTIFICATION	(NR) NON RADIAL	HDPE HIGH DENSITY POLYETHLENE PIPE	WV WATER VALVE	A/C AIR CONDITIONER	FP&L CO FLORIDA POWER & LIGHT COMPANY
(TYP) TYPICAL	STA STATION	RCP REINFORCED CONCRETE PIPE	RUM REUSE METER	FNC FENCE	NGVD NATIONAL GEODETIC VERTICAL DATUM
SEC SECTION	EL ELEVATION	CMP CORRUGATED METAL PIPE	WM WATER METER	EOW EDGE OF WATER	NAVD NORTH AMERICAN VERTICAL DATUM
TWP TOWNSHIP	INV INVERT	CPP CORRUGATED PLASTIC PIPE	FH FIRE HYDRANT	U.E. UTILITY EASEMENT	FDOT FLORIDA DEPARTMENT OF TRANSPORTATION
RGE RANGE	℄ CENTERLINE	VCP VITREOUS CLAY PIPE	TC TOP COVER	A.E. ACCESS EASEMENT	TR TELEPHONE RISER

ABBREVIATIONS

UTILITY STATEMENT:

THE INACCESSIBLE UNDERGROUND UTILITIES SHOWN ON THIS SURVEY HAVE BEEN LOCATED FROM ABOVE GROUND FIELD UTILITY LOCATIONS AND/OR EXISTING AS–BUILTS DRAWINGS PROVIDED BY THE CLIENT. SLIGER AND ASSOCIATES, INC. (S&A) MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN–SERVICE OR ABANDONED. LIKEWISE S&A DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. ONLY THAT S&A HAS LOCATED THE UTILITIES AS ACCURATELY AS POSSIBLE FROM SAID FIELD LOCATIONS AND/OR AS–BUILTS PROVIDED BY OTHERS. S&A HAS NOT PHYSICALLY LOCATED THE ACTUAL INACCESSIBLE UNDERGROUND UTILITIES, EXCEPT AS SPECIFICALLY NOTED AND DEPICTED ON THIS DRAWING.

ADDITIONAL ABBREVIATIONS–TREE LEGEND

CP	CAMPHOR TREE	SB	SUGARBERRY TREE
MP	MAPLE TREE	CD	CEDAR TREE
SYC	SYCAMORE TREE	EM	ELM TREE
OK	OAK TREE	CIT	CITRUS TREE
SG	SWEET GUM TREE	PN	PINE TREE
HK	HICKORY TREE	PM	PALM TREE
CB	CHINABERRY TREE	HY	HOLLY

TREE SYMBOL: OK24\8 — TREE SIZE (INCHES) DIAMETER AT BREAST HEIGHT; MULTIPLE TRUNKS

FOR: EMBRY RIDDLE AERONAUTICAL UNIVERSITY

SCALE: 1"=30' FIELD BOOK: 1410 PAGE(S): 58–65 SHEET 1 OF 1

TYPE OF SURVEY	SURVEY DATE	JOB NUMBER	PARTY CHIEF	DRAWN BY	CHECKED BY
SPECIFIC PURPOSE :	–	–	–	–	–
BOUNDARY SURVEY :	–	–	–	–	–
TOPOGRAPHIC SURVEY :	6–20–19	19–0843	SS	TJ	JZ
FOUNDATION LOCATION :	–	–	–	–	–
FINAL IMPROVEMENTS :	–	–	–	–	–
RECERTIFICATION :	–	–	–	–	–

SLIGER & ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS
3921 NOVA ROAD
PORT ORANGE, FL. 32127
(386) 761–5385
LICENSED BUSINESS CERTIFICATION NUMBER 3019
www.sligerassociates.com

PLAT PREPARED FOR THE FOLLOWING: (ONLY THE LAST DATE IS CERTIFIED ON SEALED COPY)

THIS PLAT OF SURVEY IS CERTIFIED TO AND PREPARED FOR THE SOLE AND EXCLUSIVE BENEFIT OF THE ENTITIES AND\OR INDIVIDUALS LISTED BELOW, ON THE MOST CURRENT DATE, AND SHALL NOT BE RELIED UPON BY ANY OTHER ENTITY OR INDIVIDUAL WHOMSOEVER.

TYPE OF SURVEY	CERTIFIED TO	SURVEY DATE	JOB NUMBER
TOPOGRAPHIC	EMBRY RIDDLE AERONAUTICAL UNIVERSITY	6–20–2019	19–0843

NOT CERTIFIED TO ANY ENTITIES AND/OR INDIVIDUALS OTHER THAN THOSE LISTED ABOVE.

EMBRY RIDDLE AERONAUTICAL UNIVERSITY
DAYTONA BEACH, FLORIDA

FOR: ERAU CHAPEL & RESIDENCE HALL

JOB NO. 19–0843

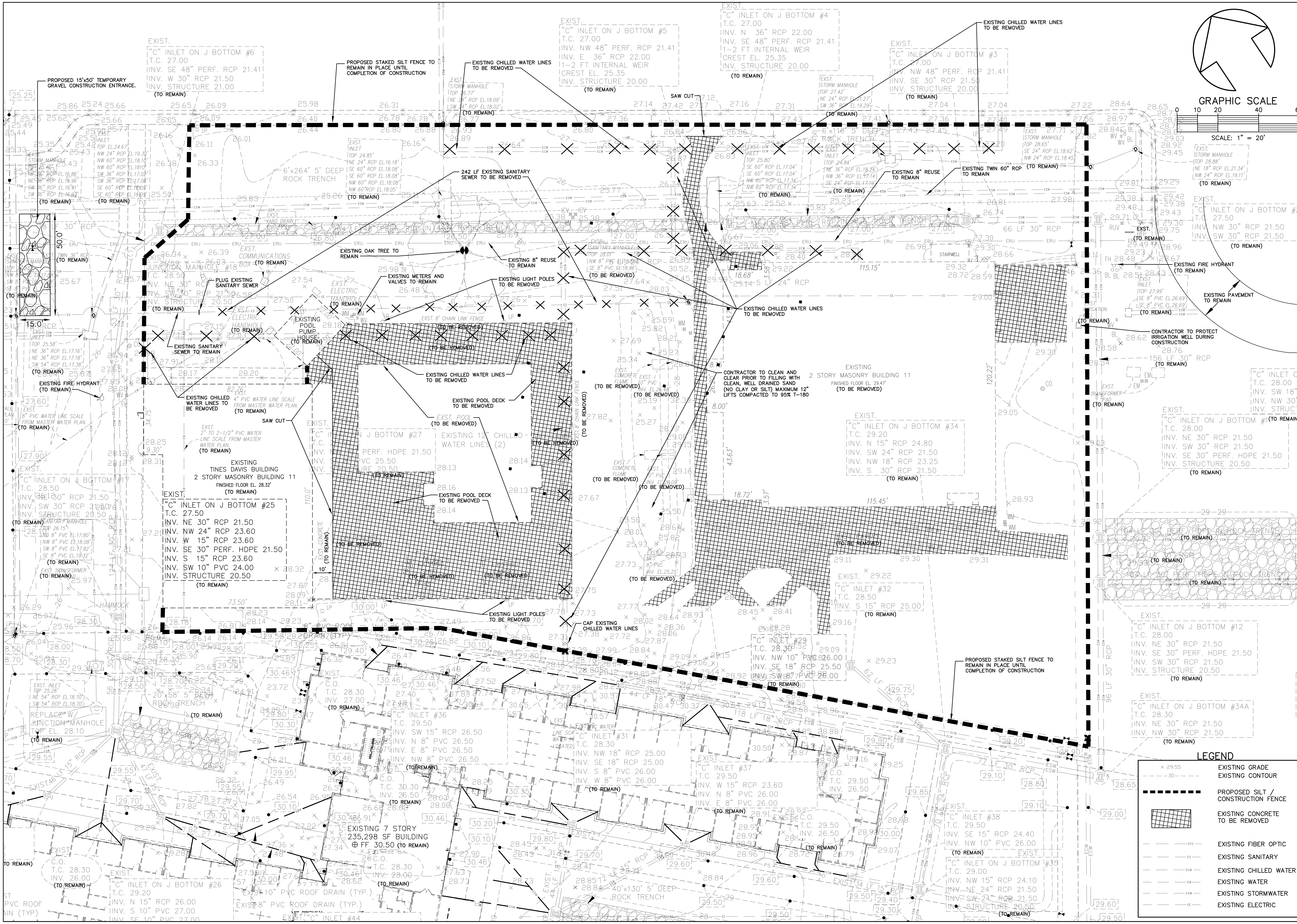
TOPOGRAPHIC SURVEY

SHEET 1 OF 1

I HEREBY CERTIFY THAT THIS PLAT MEETS THE MINIMUM TECHNICAL STANDARDS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J–17.05, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

J.E. ZAPERT, P.L.S. NO. 4046
JEFF W. BARNES, P.S.M. NO. 5576
C.O. VAN KLEECK JR., P.S.M. NO. 6149
MICHAEL S. MURPHY, P.S.M. NO. 6208

STATE OF FLORIDA
LAND SURVEYOR



NO.	DATE	DESCRIPTION	BY
3	08-13-20	BID SET	MRB
2	08-06-20	REVISED	MRB
1	07-24-20	REVISED	MRB

REVISIONS

PARKER MYNCHENBERG & ASSOCIATES, INC.

PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
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CERTIFICATE OF AUTHORIZATION NUMBER 00003910

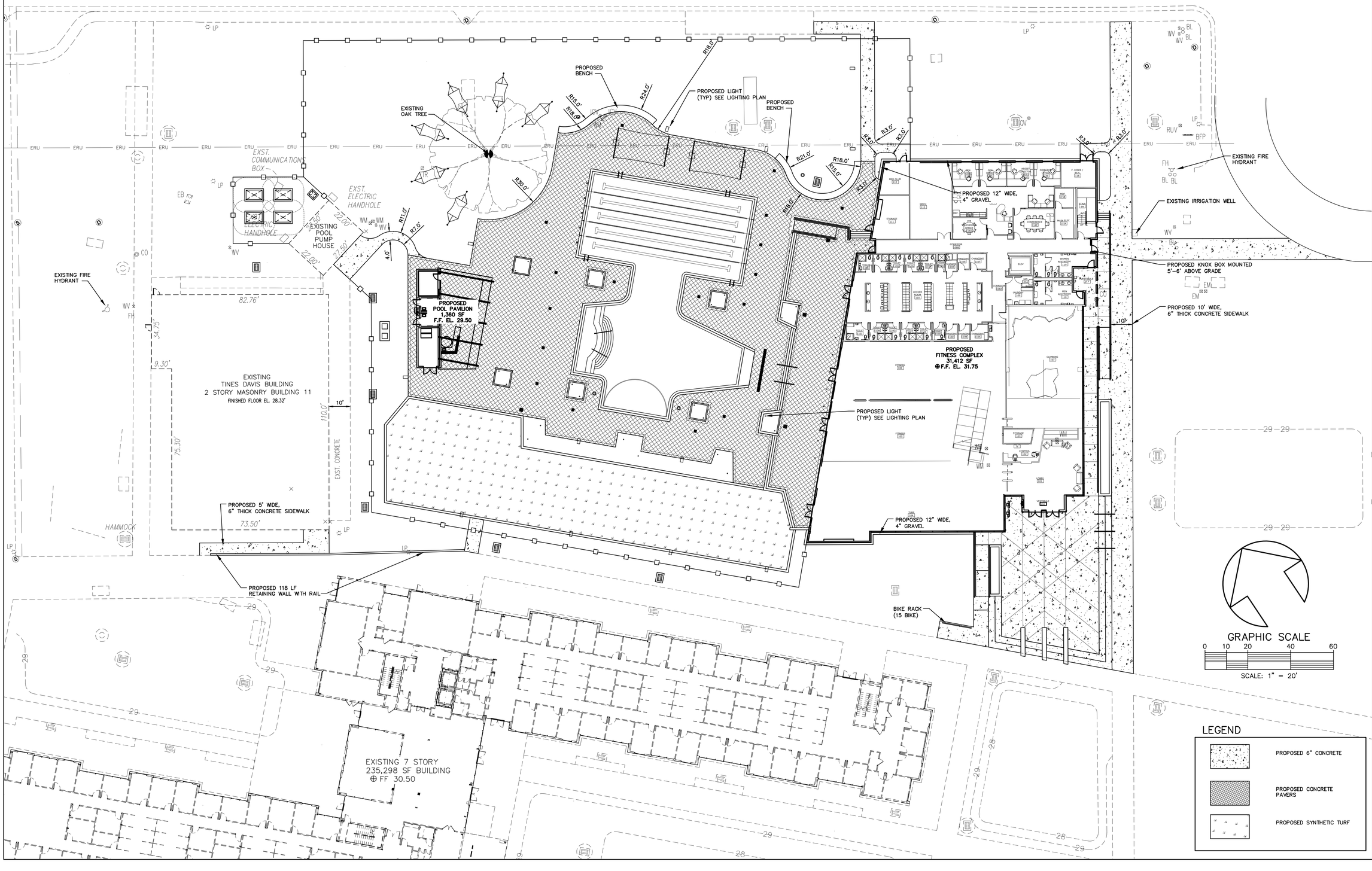
EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

DEMOLITION / EROSION CONTROL PLAN

DEV 2020-062
CITY APPROVAL STAMP

3
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: 1"=20'
JOB#: 20-17



GRAPHIC SCALE

0 10 20 40 60

SCALE: 1" = 20'

LEGEND

- PROPOSED 6" CONCRETE
- PROPOSED CONCRETE PAVERS
- PROPOSED SYNTHETIC TURF

NO.	DATE	DESCRIPTION	BY
		REVISIONS	
1	07-24-20	REVISED	MRB
2	08-06-20	REVISED	MRB
3	08-13-20	BID SET	MRB

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EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

SITE PLAN

DEV 2020-062
CITY APPROVAL STAMP

4
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: 1"=20'
JOB#: 20-17

GRAPHIC SCALE
0 10 20 40 60
SCALE: 1" = 20'

NO.	DATE	DESCRIPTION	BY
3	08-13-20	BID SET	MRB
2	08-06-20	REVISED	MRB
1	07-24-20	REVISED	MRB

REVISIONS

PARKER MYNCHENBERG & ASSOCIATES, INC.
PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
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CERTIFICATE OF AUTHORIZATION NUMBER 00003910

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

CIVIL SITE PLAN

DEV 2020-062
CITY APPROVAL STAMP

SHEET NO. 5

Drawn By: MRB
Date: 03/20/2020
SCALE: 1"=20'
JOB#: 20-17

LEGEND

× 29.55 / 29.00	EXISTING GRADES
30.46	PROPOSED GRADE
30	EXISTING CONTOUR
30	PROPOSED CONTOUR
	IRRIGATION SLEEVE

NOTES:
1. PRIOR TO OR UPON BUILDING COMPLETION THE BUILDING WILL BE IN COMPLIANCE WITH NFPA 1:11.10.1 (6TH EDITION FL FIRE PREVENTION CODE OF FUTURE ADOPTED EDITION) AND FLORIDA STATUTE 633.202 (PARAGRAPH 18), AS APPLICABLE, IN REGARD TO F.D. TWO-WAY RADIO COMMUNICATION ENHANCEMENT SYSTEMS. THE POSSIBLE NEED FOR SUCH A SYSTEM WILL BE DETERMINED BY VOLUSIA COUNTY RADIO SERVICES BASED UPON TESTING PERFORMED BY AN AUTHORIZED COMMUNICATIONS CONTRACTOR UTILIZING RADIO SIGNAL STRENGTH GRID TESTING OF THE PROPERTY IN ACCORDANCE WITH NFPA 72 (2013 OR FUTURE ADOPTED EDITION) AND NFPA 1221 (2016 OR FUTURE ADOPTED EDITION). THE REQUIRED RADIO SIGNAL STRENGTH GRID TESTING IS REQUIRED TO BE COMPLETED PRIOR TO BUILDING C.O.
2. SHOULD A TWO-WAY RADIO COMMUNICATION ENHANCEMENT SYSTEM BE DETERMINED TO BE REQUIRED BASED UPON RADIO SIGNAL STRENGTH TESTING, IT IS REQUIRED TO BE INSTALLED PRIOR TO BUILDING C.O. SHOULD THE BUILDING RECEIVE A C.O. PRIOR TO THE TESTING AND/OR REQUIRED INSTALLATION OF SUCH A SYSTEM, IT IS CLEARLY UNDERSTOOD BY ALL PARTIES THE THIS REQUIREMENT MAY BE RETROACTIVELY APPLIED AT A FUTURE DATE BY THE DAYTONA BEACH FIRE DEPARTMENT AND/OR VOLUSIA COUNTY RADIO SERVICES, AND AT THE BUILDING OWNER'S EXPENSE.
3. CONTRACTOR SHALL COORDINATE FINAL LOCATION OF CHILLED WATER LINE TERMINATION POINTS WITH FINAL LOCATION OF POOL EQUIPMENT.

GRAPHIC SCALE
0 10 20 40 60
SCALE: 1" = 20'

NO.	DATE	DESCRIPTION	BY
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EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

UTILITY PLAN

DEV 2020-062
CITY APPROVAL STAMP

6
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: 1"=20'
JOB#: 20-17

LEGEND

EXISTING FIBER OPTIC — EFO	EXISTING WATER — EW
PROPOSED FIBER OPTIC — PFO	PROPOSED WATER — PW
EXISTING SANITARY — ES	EXISTING STORMWATER — ESW
PROPOSED SANITARY — PS	PROPOSED STORMWATER — PSW
EXISTING CHILLED WATER — ECW	EXISTING ELECTRIC — EE
PROPOSED CHILLED WATER — PCW	PROPOSED ELECTRIC — PE

NOTE:
CONTRACTOR TO TIE PROPOSED IRRIGATION INTO
EXISTING TWO-WIRE CENTRAL CONTROLLER LOCATED
NEAR JIM HENDERSON ADMINISTRATION AND WELCOME

P-4 2" 49
P-3 2" 39
P-2 2" 39
P-1 2" 50
2-1/2" PVC IRRIGATION LOOP DR-21 (POTABLE)
R-1 2" 50
R-2 2" 50
R-3 2" 50
R-4 2" 50
R-5 2" 50
P-6 2" 50
P-7 2" 50
EXST. COMMUNICATIONS BOX
EXST. ELECTRIC HANDHOLE
EXISTING POOL PUMP HOUSE
2-1/2" VALVES (2)
SITE BENCHMARK RECOVERED 5/8 IRON ROD & CAP (WITNESS) 3019 6.66'
PROPOSED POOL PAVILION 1,360 SF F.F. EL. 29.50
POTABLE IRRIGATION WATER SERVICE (LANDSCAPING WITHIN 100' OF POOL)
2" METER
2" REDUCED PRESSURE BACKFLOW PREVENTER
2"x2-1/2"x2-1/2" TEE
EXISTING 8" PURPLE PVC REUSE (DR-18)
EXISTING TINES DAVIS BUILDING
2 STORY MASONRY BUILDING 11
FINISHED FLOOR EL. 28.32'
EXISTING 7 STORY
235,298 SF BUILDING
⊕ FF 30.50
2-1/2" PVC IRRIGATION LOOP DR-21 (POTABLE)
6" SLEEVE
PROPOSED TINESS COMPLEX 31,412 SF ⊕F.F. EL. 31.75
EXISTING IRRIGATION WELL (TO REMAIN)
EXISTING 8" PURPLE PVC REUSE (DR-18)
EXISTING 8" PURPLE PVC REUSE (DR-18)
EXST. CONCRETE
HAMMOCK
82.76'
34.75'
9.30'
75.30'
110'
73.50'
22.00'
21.50'
22.00'

GRAPHIC SCALE
0 10 20 40 60
SCALE: 1" = 20'

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IRRIGATION PLAN

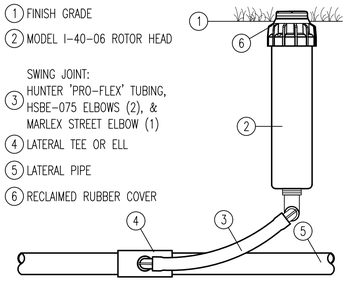
DEV 2020-062
CITY APPROVAL STAMP

SHEET NO. 7
Drawn By: MRB
Date: 03/20/2020
SCALE: 1"=20'
JOB#: 20-17

Z:\ERAU\ERAU - Eagle Fitness Complex 20-17\DRAWINGS\2017-SP(9).dwg, 8/12/2020 4:00:00 PM, DWG To PDF.pc3

1. FINISH GRADE
2. MODEL I-40-06 ROTOR HEAD

SWING JOINT:
3. HUNTER 'PRO-FLEX' TUBING, HSBE-075 ELBOWS (2), & MARLEX STREET ELBOW (1)
4. LATERAL TEE OR ELL
5. LATERAL PIPE
6. RECLAIMED RUBBER COVER

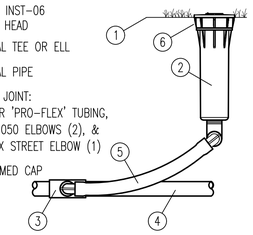


I-40-06 ROTOR HEAD

Hunter® IRRIGATION DETAIL

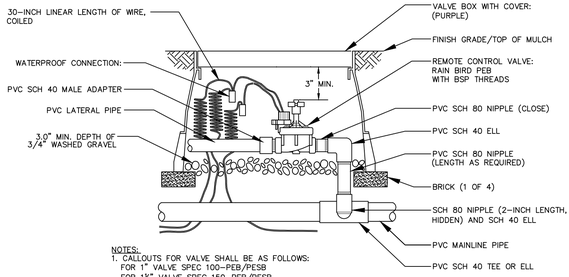
1. FINISH GRADE
2. MODEL INST-06 SPRAY HEAD
3. LATERAL TEE OR ELL
4. LATERAL PIPE

SWING JOINT:
5. HUNTER 'PRO-FLEX' TUBING, HSBE-050 ELBOWS (2), & MARLEX STREET ELBOW (1)
6. RECLAIMED CAP



INST-06 POP-UP

Hunter® IRRIGATION DETAIL



NOTES:
1. CALLOUTS FOR VALVE SHALL BE AS FOLLOWS:
   FOR 1" VALVE SPEC 100-PEB/PESB
   FOR 1½" VALVE SPEC 150-PEB/PESB
   FOR 2" VALVE SPEC 200-PEB/PESB
2. PESB SERIES INCORPORATES SELF-CLEANING SCRUBBER & STAINLESS STEEL SCREEN.

IRRITROL VALVE: 700 SERIES - ULTRAFLOW (700-2)

IRRIGATION LEGEND

- HUNTER INST-06 - 6" POP-UP SPRAY HEAD, INSTALLED AS SHOWN, SEE NOZZLE CHART
- HUNTER PCP-25 (BUBBLER)
- HUNTER I-40-06 ROTOR HEAD, FULLY ADJUSTABLE
- ELECTRIC CONTROL VALVE INSTALLED IN VB-STD VALVE BOX.
- DENOTES PROPOSED VALVE (SIZE AS SHOWN)
- DENOTES PROPOSED IRRIGATION MAIN, PURPLE SCH. 40 (SIZE AS SHOWN)
- DENOTES PROPOSED IRRIGATION LATERAL PURPLE SCH. 40 (SIZE AS SHOWN)
- P.V.C. SLEEVE SIZE AS SHOWN
- DENOTES PROPOSED RAIN SENSOR, MINI-CLIK SERIES
- DENOTES CONTROLLER

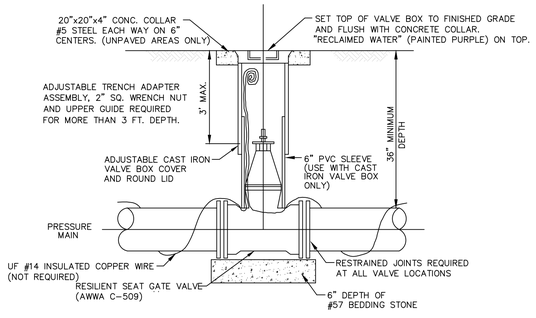
VALVE KEY ID-BOX

ZONE NUMBER	1
SIZE OF VALVE	1-1/2"
GALLONS PER MINUTE	35

SPECIFIC IRRIGATION NOTES

1. IRRIGATION SPRAY HEADS SHALL BE PRESSURE REGULATING.
2. SYSTEM SUPPLY REQUIREMENTS ARE: 150 GPM @ 50 PSI AT WATER SOURCE. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IF DESIGN FLOW RATE AND PRESSURE DOES NOT EXIST.
3. LATERAL PIPES SHALL BE SIZED SUCH THAT THE WATER VELOCITY DOES NOT EXCEED 5 FEET/SECOND. CONTRACTOR SHALL APPLY THE FOLLOWING TABLE:

PIPE SIZE (MIN)	FLOW
1/2"	<6 GPM
3/4"	<10 GPM
1"	<15 GPM
1¼"	<26 GPM
1½"	<36 GPM
2"	<50 GPM
2½""	<80 GPM
3"	<120 GPM
4"	<200 GPM



RECLAIMED WATER

REUSE WATER COVER

NOTES:
1. ROD OR BOLT TEE WHERE APPLICABLE.
2. ACCEPTABLE MANUFACTURERS OF GATE VALVES INCLUDE: AMERICAN DARLING, KENNEDY, M&H, MUELLER, CLOW.
3. FOR CONSTRUCTION PURPOSES, THE PLANS SHALL DIMENSION THE LOCATION OF ALL VALVES AND VALVE BOXES BY STATE PLANE COORDINATES WITH STATION & OFFSETS FROM CL OF R/W.
4. 14" GAUGE COPPER TRACER WIRE SHALL BE LAID THE ENTIRE LENGTH OF THE REUSE PIPE. ALL CONNECTION ENDS SHALL USE LIQUID TAPE AND A DIRECT BURIED SPLICE KIT (LAWSON 95313) OR EQUIVALENT. (NOT REQUIRED)
5. ANY VALVE DEEPER THAN 36" SHALL HAVE AN EXTENSION BOLTED ON THE VALVE. THE OPERATING NUT SHALL BE 12" BELOW FINISHED GRADE.

REUSE WATER VALVE AND VALVE BOX DETAILS

NTS

HUNTER NOZZLE SELECTION CHART

SPEC. NO.	P.S.I.	G.P.M.	RADIUS	PATTERN
A 15-F	30	3.75	15'	FULL
B 15-270	30	2.92	15'	THREE QUARTER
C 15-240	30	2.48	15'	TWO THIRDS
D 15-H	30	1.86	15'	HALF
E 15-T	30	1.3	15'	THIRD
F 15-Q	30	0.97	15'	QUARTER
G 5-LCS	30	0.65	5'X15'	LEFT CORNER STRIP
H 5-RCS	30	0.65	5'X15'	RIGHT CORNER STRIP
J 5-SS	30	1.30	5'X30'	SIDE STRIP
K 12-F	30	2.7	12'	FULL
L 12-270	30	2.0	12'	THREE QUARTER
M 12-240	30	1.74	12'	TWO THIRDS
N 12-H	30	1.3	12'	HALF
O PCB-25	30	0.25	2-1/2'	BUBBLER
P 12-T	30	0.89	12'	THIRD
R 12-Q	30	0.67	12'	QUARTER
S 10-F	30	1.59	10'	FULL
T 10-H	30	0.88	10'	HALF
V 10-Q	30	0.42	10'	QUARTER
W 8-F	30	0.97	8'	FULL
X 8-H	30	0.47	8'	HALF
Y 8-T	30	0.32	8'	THIRD
Z 8-Q	30	0.24	8'	QUARTER

02800 - IRRIGATION

1. HUNTER BRAND I-40 SPRINKLER HEADS ONLY. CONSULT UCP FOR STANDARDS
2. IRRITROL TOTAL CONTROL EXTERIOR TIMERS, ELECTRIC 120 VOLTS. NO PNEUMATIC OR HYDRAULIC TYPES.
3. SCHEDULE 40 PVC PIPES, ALL AREAS INCLUDING MAINS AND BRANCHES. NO POLY-TUBING LONGER THAN 2 FEET IN LENGTH AT HEADS.
4. USE PURPLE PVC PIPE (REUSE WATER).
5. CONSTRUCT PROPOSED IRRIGATION LINES TO EXISTING IRRIGATION SYSTEM.
6. PROVIDE IRRIGATION LINES TO ALL TRAFFIC ISLANDS IN AFFECTED PROJECT.
7. INSTALL ALL IRRIGATION SYSTEMS 12 INCHES BELOW FINISHED GRADE.

GENERAL IRRIGATION NOTES

1. THE CONTRACTOR SHALL REFER TO THE LANDSCAPING PLAN WHEN TRENCHING TO LAY PIPE TO AVOID NEW & EXISTING TREES & LARGE SHRUBS.
2. ALL WIRING FROM THE IRRIGATION CONTROLLER TO THE REMOTE CONTROL VALVES SHALL BE UF-14/1 DIRECT BURIAL CABLE. ALL WIRE SPLICES SHALL BE MADE IN VALVE BOXES USING ONLY RAIN BIRD CONNECTORS & SEALANT.
3. UNLESS OTHERWISE INDICATED, PIPING TO A SINGLE SPRAY HEAD SHALL BE ½" PVC PIPING. UNLESS OTHERWISE INDICATED, PIPING TO A SINGLE ROTOR HEAD SHALL BE ¾" PVC PIPING.
4. ALL MAIN LINE PIPING SHALL BE BURIED TO HAVE A MINIMUM COVER OF 18". ALL LATERAL PIPING DOWNSTREAM OF THE MAIN LINE SHALL BE BURIED TO HAVE A MINIMUM COVER OF 12".
5. THE CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE ARCHITECT ON THE EXACT LOCATION OF THE IRRIGATION CONTROLLERS.
6. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS & DIMENSIONS SHOWN ON PLANS AT THE SITE PRIOR TO COMMENCEMENT OF WORK UNDER THIS CONTRACT.
7. ALL IRRIGATION INSTALLATION SHALL CONFORM TO LOCAL CODES & REGULATIONS.
8. ALL PIPING ON THE PLANS IS DIAGRAMMATICALLY ROUTED FOR CLARITY & SHALL BE ROUTED TO AVOID PLANTS. DESIGN MODIFICATIONS SHALL ONLY BE MADE AS NECESSARY TO MEET FIELD CONDITIONS & ONLY UPON APPROVAL OF THE LANDSCAPE ARCHITECT. PIPING SHOWN RUNNING PARALLEL UNDER SIDEWALKS ADJACENT TO PLANTED AREAS IS FOR DESIGN CONVENIENCE ONLY & SHALL BE INSTALLED WITHIN THE PLANTED AREA.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL ADJUSTMENT OF THE SPRINKLERS ARC & RADIUS TO ASSURE 100 PERCENT COVERAGE.
10. 115 VOLT, SINGLE PHASE ELECTRICAL POWER FOR THE IRRIGATION CONTROLLERS SHALL BE COORDINATED BY THE IRRIGATION CONTRACTOR WITH THE ELECTRICAL ENGINEERING DRAWINGS. IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR THE ELECTRICAL HOOK-UP INCLUDING ELECTRICAL MATERIALS.
11. VALVES LOCATED OUTSIDE OF RIGHT-OF-WAY ARE FOR DESIGN PURPOSES ONLY & SHALL BE LOCATED INSIDE OF RIGHT-OF-WAY.
12. ANY CHANGES TO IRRIGATION ZONE PIPING TO BE APPROVED BY THE CITY LANDSCAPE ARCHITECT PRIOR TO WORK BEING DONE.
13. ALL XERIC IRRIGATION ZONES SHALL HAVE RUN TIMES REDUCED OR ELIMINATED AFTER SUFFICIENT PLANT ESTABLISHMENT. THIS NOTE TO APPEAR INSIDE THE CONTROLLER FOR MAINTENANCE PERSONNEL INFORMATION.

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	90° BEND	45° BEND	22.5° BEND	11.25° 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.

TABLE APPLIES TO DUCTILE IRON PIPE FOR THE FOLLOWING CONDITIONS:

TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 3 FEET (MIN.)
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

VALUES IN PARENTHESIS (X) ARE FOR PIPE ENCASED IN POLYETHYLENE.

* VALUES APPLY TO DUCTILE IRON PIPE AT 50 PSI TEST PRESSURE.

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	90° BEND	45° BEND	22.5° BEND	11.25° 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.

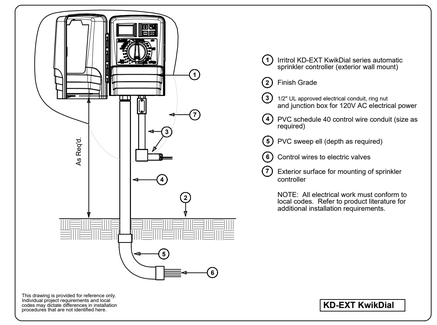
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:

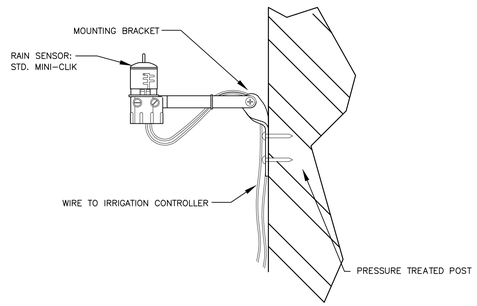
TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 3 FEET (MIN.)
SAFETY FACTOR: 1.5
TRENCH TYPE: 3

PVC & DIP RESTRAINED JOINT TABLE

NOTE: 4" AND 6" REUSE MAINS AND VALVES TO HAVE RESTRAINED JOINTS.



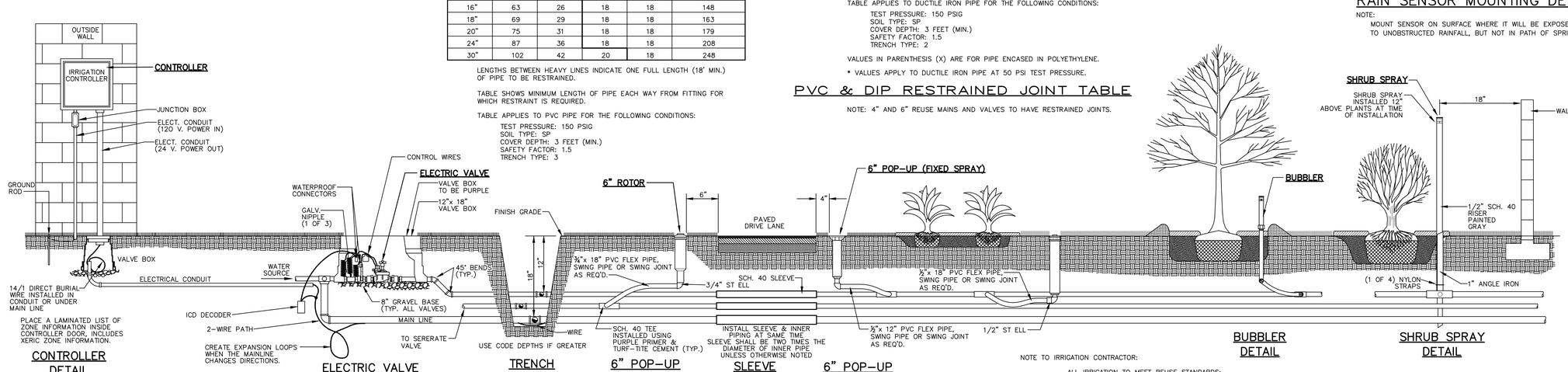
MODEL: TC-48EX-R
OUTDOOR METAL CABINET



MINI-CLIK-STANDARD MODEL

RAIN SENSOR MOUNTING DETAILS

NOTE:
MOUNT SENSOR ON SURFACE WHERE IT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN PATH OF SPRINKLER SPRAY.



CONTROLLER DETAIL

ELECTRIC VALVE DETAIL

TRENCH DETAIL

6" POP-UP ROTOR DETAIL

SLEEVE DETAIL

6" POP-UP SPRAY DETAIL

BUBBLER DETAIL

SHRUB SPRAY DETAIL

TYPICAL IRRIGATION DETAILS

NOTE: REQUIREMENTS VARY; CHECK LOCAL CODES PRIOR TO INSTALLATION.

NOTE TO IRRIGATION CONTRACTOR:

ALL IRRIGATION TO MEET REUSE STANDARDS:

1. PIPE TO BE PURPLE.
2. VALVE BOXES TO BE PURPLE AND MARKED "REUSE".
3. HEADS TO BE REUSE RATED.

Hunter®

NO.	DATE	DESCRIPTION	BY
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IRRIGATION DETAILS

DEV 2020-062
CITY APPROVAL STAMP

8
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: NONE
JOB#: 20-17

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Section 01720
AS-BUILTS/RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This Section sets forth the requirements for preparing as-built/record drawings and documents for verification of construction and archiving.

CONTRACTOR shall secure the services of a Florida licensed surveyor to collect data and prepare as-built/record drawings in accordance with City of Daytona Beach Utilities standards as follows:

1.2 REFERENCE:

A. The preparation work shall be in accordance with this section and supplementary details in the City of Daytona Beach Utilities Department Standard Details, latest edition.

1.3 AS-BUILTS/RECORD DRAWINGS AND DOCUMENTS:

In order to ensure that the project records are maintained to the highest standards and the information can easily be added to the City's electronic records the following information is required on all As-built/Record Drawings.

A. The intent of these details for As-built/Record Drawings are required for all public facilities constructed. Prior to construction completion these as-built/record requirements will be reviewed to be certain the Contractor's surveyor has a clear understanding of what is required for completion of this work.

1. Pavement and curb widths shall be verified and dimensioned for each street at each block (for subdivisions) and as appropriate to confirm paving limits (on site plans).
2. All radii at intersections shall be verified and dimensioned. This information is to be clearly indicated on the as-built/record drawings.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 1 OF 7)

FY: 19/20 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: 07/10 | File Name: AS-BUILT | Page 126

Section 01720
AS-BUILTS/RECORD DOCUMENTS
(CONT'D)

3. Roadway elevation shall be recorded at all grade changes, 100' intervals along roadway, and other intervals as needed along all streets. Street centerline and curb invert elevations shall be recorded as noted. The as-built centerline profile of all streets shall also be shown on the plan and profile so it may be compared to the design profile grade lines. In the event that the as-built centerline longitudinal grade does not meet the City minimum standards, additional longitudinal grades of the adjacent curbing and similar roadway cross-section surveys to verify the correct cross slope, shall be required to verify that the system will function as originally designed.
4. Storm drainage structures shall be located and/or dimensioned from centerlines or lot lines as appropriate. Each structure shall be located by sub-meter GPS with Station & Offset, northerly & easterly, latitude, longitude, and elevation data.
5. Storm drainage pipe invert and inlet elevation shall be recorded and clearly denoted as As-built information. Design elevation shall be crossed out and as-built information written next to it.
6. Storm drainage pipe material, length, size shall be measured and/or verified. This information is to be clearly indicated as being as-built information.
7. All applicable topographic information pertinent to the on-site drainage system, such as ditches, swales, lakes, canals, etc. that are deemed necessary by the City to verify the functional performance of the storm system, shall be noted. Normally, recording elevation every 100 feet at the top of bank to toe of sloe will be required. Measurements shall be taken and recorded in order to accurately tie down these features to the roadway centerlines and to plat lines. Whenever possible, contour lines shall be utilized to graphically describe these topographic features.
8. Retention areas shall have their top of bank and bottom elevations recorded. Actual measurements shall be taken and dimensions recorded of the size of all retention areas. Measurements shall be done from top of bank with side slopes indicated. Separate calculations shall be submitted to indicate required and provided retention volumes.
9. Actual materials used and elevations and dimensions of overflow weir structures and skimmers shall be noted on the as-built.
10. Storm drainage swale centerlines shall be located and elevations of flow line and top of bank shall be recorded every 100 feet. side slopes shall also be indicated.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 2 OF 7)

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(CONT'D)

11. Sanitary sewer manholes shall be verified and dimensioned from street centerlines or lot lines as appropriate. Each structure shall be located by sub-meter GPS with station & offset, northerly & easterly, latitude, longitude, and elevation data. All rim and invert elevation shall be verified and recorded. This information shall be clearly indicated as being as-built information. Design elevations shall be crossed out and as-built information written next to it.
12. For subdivisions, proposed design finish floor elevations shall appear on all subdivision lots on the appropriate plan and profile sheet as well as on the master drainage plan.
13. Sanitary sewer line lengths, sizes, material, slope, etc., shall be verified and recorded, this information is to be clearly indicated as being as-built information.
14. Sewer Laterals shall be verified and recorded at the clean out locations, stationing and offset distances shall be measured from upstream manholes towards downstream manholes. Invert information at clean out shall be provided and be located by sub-meter GPS with station & offset, northerly & easterly, latitude, longitude, and elevation data.
15. Lift station and forcemain shall be verified and dimensioned from street centerlines or lot lines as appropriate. Forcemain depth and location including valves will be provided and tied to permanent above grade features. dimensional and elevation information indicated on the approved plan shall be verified and recorded. This information shall be clearly indicated as being as-built information. Buried potable water lines and electrical service lines shall be clearly dimensioned, located and labeled. Each lift station shall be located by sub-meter GPS with station & offset, northerly & easterly, latitude, longitude and elevation data.
16. Curb cuts or metal tabs, used to mark sewer laterals, water services and water valves, shall bee verified for presence and accuracy of location.
17. Potable and reclaimed water main lines shall be dimensioned off the baseline construction. Water main line material size, length and depth, placed shall be noted. Locations of valves shall also be tied to baseline construction. This information shall be clearly indicated as being as-built information.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 3 OF 7)

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(CONT'D)

18. Potable and reclaimed water valves, tees, bends, all services, and fire hydrants shall be located by tying them to baseline construction (Sta. & Offset). Similarly, force main valves, tees, and bends shall be located in the same manner. Stationing and offset distances shall be measured from upstream manholes to downstream manholes. All services, valves, tees, bends, and hydrants shall be located by sub-meter GPS with station & offset, northerly & easterly, latitude, longitude and elevation data.
19. 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.
20. Any special features such as, concrete flumes, lake banks, walls, fencing, etc. which are a part of the approved construction drawings should also be located and dimensioned.
21. If an approved subdivision plat or site plan shows a conservation easement, the project surveyor should provide the exact location of the specimen tree(s) from the right-of-way or property lines and proposed easement boundaries on the as-built drawing. The as-built location of these trees will help verify the sufficiency of the conservation easement prior to plat recording or certificate of occupancy.
22. When storm water, potable water, reclaimed water, or sanitary sewer improvements are located within an easement, the as-built drawing will 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.
23. As-built drawings are to be prepared, signed and sealed by a Florida licensed surveyor. These as-built drawings shall also be signed and sealed by a Florida licensed engineer of record. Two (2) paper copy sets of as-built record drawings shall be provided, a CD with a digital copy in a compatible AutoCAD format, and PDF format.
24. Elevations shall be referenced to NAVD 1988 Data. As-built survey information shall be referenced to at least two Florida State Plane east coordinates NAD 83.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 4 OF 7)

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2	08-06-20	REVISED
1	07-24-20	REVISED

REVISIONS

MRB | MRB | MRB | BY

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Section 01720
AS-BUILTS/RECORD DOCUMENTS
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25. Benchmark Datum utilizes monumentation from the North American Vertical Datum of 1929 with elevations adjusted to NGVD 1988 data. Any NAVD 1929 monument with the limits of construction is to be protected.

1.4 SUBMITTALS

A. CONTRACTOR shall submit each month to CITY the Project Activity Summary that shows current construction activities and a copy of notices to agencies including the City regarding road closures; plus a record of events that will be needed in the future.

B. CONTRACTOR shall submit to CITY as required the proposed shut-off schedule, capping, temporary service scheduling, record of notices to customers and proposed roadway closings.

C. CONTRACTOR shall submit copies of published notices.

D. CONTRACTOR shall submit Final as-builts for each utility included in the plans. Send the two paper copies and the AutoCAD files for pre-approval. The final submittal shall include two (2) Paper Copies of Record (rolled, not folded), a CD with the AutoCAD files, and a set of PDF files (Mylars are no longer required). When the As-Builts are delivered for clearance of water lines (two paper signed and sealed copies), they will be scheduled for chlorination. CITY will not release the drinking water bacteriological laboratory report to Volusia County Health Department until the As-built information meets CITY requirements. CONTRACTOR will have 60 days from the time that the bacteriological samples are collected to submit any correction that needed to be done to the as-built and CD to CITY. If CONTRACTOR goes past the 60 days re-chlorination will be required and pay for the bacteriological laboratory report will be required. The following are minimum detail samples of how the As-built drawing information will need to be presented.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 5 OF 7)

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E. There are examples of how to display and label valves, fittings, and pipes on the plans. Include a location arrow going to the identified object:

Valve Example:
20" GATE VALVE
STA. 22+23 (LT.55.0')
LAT. = 29°12'53.009
LONG. = 81°04'03.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF NUT ELEV. = 27.50
GROUND ELEV. = 30.50

20" DIP WATER MAIN
STA. 22+00 (RT.55.0')
LAT.= 29°12'50.009"N
LONG.= 81°04'26.355"W
N = 1,774,373.4058
E= 634,602.7566
TOP OF PIPE ELEV. = 27.50
GROUND ELEV. = 30.50

Manhole Example:
Manhole No.25
STA. 22+23 (LT.55.0')
LAT. = 29°12'53.009
LONG. = 81°04'03.355"W
N = 1,774,373.4058
E= 634,602.7566
RIM ELEV. = 27.50
NORTH 15" RCP ELEV. = 8.50
WEST 24" CMP ELEV. =7.50
BOTTOM ELEV. = 9.30

(All Bench Marks used must be shown on the plans) Bench Mark Example:

BM#13
STA. 20+33 (LT. 85.5')
3/4" Iron Rod with Plastic Cap...
N= 1,774,373.4058
E = 634,602.7566
LAT.= 29°04'53.355"W
LONG. = 81°04'53.355"W
ELEV.= 32.55

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 6 OF 7)

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AS-BUILTS/RECORD DOCUMENTS
(CONT'D)

PART 2- EXECUTION

2.1 General

All drawings shall be prepared to True State Plane Coordinates. CONTRACTOR shall provide all materials, equipment, labor needed to prepare and submit accurate As-Built/Record Drawings.

A. It is acceptable to CITY if the surveyor utilizes an after the fact approach to collecting and verifying the location and depth by vertical PVC pipes placed by the CONTRACTOR as markers for this purpose. The surveyor shall verify to the accuracy defined in Florida Statues the As-built conditions and certify the Record Drawings.

B. CITY shall not be considered the best source of information for valve locations that may have been lost during final grading, the surveyor or CONTRACTOR shall excavate and properly mark all valve boxes and each valve shall have a tag or color coded to define water, sewer, or reuse water valves. The use of temporary PVC pipe markers color coded is acceptable so long as cross references are provided on the Record Drawings to prevent the tops from a water valve being placed on a sewer valve.

C. THE CONTRACTOR SHALL PROVIDE THE UTILITIES DEPARTMENT ENGINEERING DIVISION THE FINAL AS BUILT/RECORD DRAWINGS ON CD AND MYLARS. THE AS BUILT RECORD DRAWINGS SHALL BE PREPARED USING AUTOCAD FORMAT 2010 OR LATER. IN MODEL SPACE THE DRAWING SHALL BE IN FL83-EF (NAD83 FLORIDA STATE PLANES, EAST ZONE, US FOOT) STATE PLANE COORDINATES AND SHALL BE ABLE TO BE INSERTED INTO THE CITY'S OVERALL GIS SYSTEM. THE RECORD DRAWINGS SHALL ALSO BE PRINTED, SIGNED AND SEALED AS ALLOWED BY STATE OF FLORIDA REGULATIONS. A DISCLAIMER MAY BE NOTED IN A TRANSMITTAL LETTER PLUS THE SURVEYOR MAY ADD A SPECIAL NOTICE ON EACH SHEET REGARDING THE LOCATION OF THE TRUE ORIGINAL RECORD DRAWINGS OR PLACE LIMITS ON RESPONSIBILITY SHOULD SOME-ONE IN THE FUTURE NEED TO MODIFY THE DRAWINGS.

D. Identify the source markers for the survey used for Record Drawings.

END OF SECTION

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AS-BUILT DRAWING REQUIREMENTS (SHEET 7 OF 7)

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SECTION 15049
TRACER WIRE AND ALARMING TAPE

PART 1 - GENERAL REQUIREMENTS

1.1 SUMMARY

Furnish and install identification tape over the centerline of all buried potable water lines, wastewater force mains, gravity sewer and waste water effluent mains.

1.2 SUBMITTALS

Submit manufacture's descriptive literature, illustrations, specifications and other pertinent data.

PART 2– PRODUCTS

2.1 TRACER WIRE

A. All pipe (HDPE, PVC and DI) 4-inches and greater installed by open cut shall have one (1) 12-gauge minimum copper tracer wire taped to the top of the pipe at intervals no greater than 4-feet. Copper wire shall have a minimum tensile strength/ break load of 452 lbs.

B. All pipe (HDPE, PVC or DI) installed by directional bore shall have two (2) 12-gauge extra high strength (EHS) carbon steel inner core reinforcement directional drilling tracer wires taped to the top of the pipe at intervals no greater than 4-feet. The wire shall have a minimum tensile strength/break load of 1,150 lbs.

C. The tracer wires shall have colored insulation matching the type of service provided in the main and be acceptable for direct burial.

D. The wire shall be tied to all valves, tees and fittings.

E. The tracer wires shall be brought up to the surface through a valve box or a 2-inch PVC pipe under direction of a City's Representative.

F. The wires shall each be continuous throughout the project, with splices made only by methods approved by the City's Project Representative.

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THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

TRACER WIRE & ALARMING TAPE REQUIREMENTS (SHEET 1 OF 3)

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EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
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JOB#: 20-17

G. All splices of the wires shall be made with watertight connections, utilizing direct bury splice kits as manufactured by 3M or approved equal. Bury splice kits shall be installed in accordance with manufacturer's recommendations.

H. Tracer wire manufacturer shall be either Copperhead Industries or Proline Safety Products.

2.2 ALARMING TAPE

A. Identification Tape for Ductile Iron and Steel Pipe: Identification tape shall be metallic and manufactured of polyethylene so as to be highly resistant to alkalis, acids and other destructive agents found in soil, and shall have a minimum thickness of 5 mils with a minimum tensile strength of 22 pounds per inch and maximum adhesive factor of 40 ounces per inch. Tape width shall be 3 inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of tape.

B. Identification Tape for Polyvinyl Chloride Pipe: Identification tape shall be metallic and manufactured of polyethylene with minimum thickness of 4mils. The width shall be 3 inches and shall have background color specified below, imprinted with black letters. Imprint shall be as specified below and shall repeat itself a minimum of once every 2 feet for entire length of tape.

C. Tape background colors and imprints shall be as follows:

Imprint	Background Color
"Caution Caution-Potable Water Line Buried Below"	Blue
"Caution Caution-Wastewater Force Main Buried Below"	Green
"Caution Caution-Reclaimed Water Main Buried Below"	Lavender
"Caution Caution-Raw Water Main Buried Below"	White

D. Identification tape shall be "Underground Detectable Warning Tape" as manufactured by Presco, can be purchased at Ferguson Supply 840 Jimmy Ann Drive, Daytona Beach (386) 274-4516 or approved equivalent.

PART 3-EXECUTION

3.1 INSTALLATION OF ALARMING TAPE

A. Alarming tape shall be installed for all buried pressure mains in accordance with the manufacturer's installation instructions and specified herein.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — TRACER WIRE & ALARMING TAPE REQUIREMENTS (SHEET 2 OF 3)

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B. For potable, raw, reuse water, and force mains, alarming tape shall be installed 18" below final grade.

3.2 INSTALLATION OF TRACER WIRE

A. Contractor shall perform a 12 volt DC electrical continuity test on all wires. No more than one volt of loss per 1000 feet of mainline pipe will be acceptable. A continuity test prior to final acceptance of the pipeline shall be required. Any cuts or breaks in the wire shall be repaired by the contractor at his expense.

B. The tracer wire shall be tested by Contractor and with the City's Representative at the time of pressure testing. If the test fails, the Contractor is responsible for repairing the tracer wire

END OF SECTION

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — TRACER WIRE & ALARMING TAPE REQUIREMENTS (SHEET 3 OF 3)

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STORMWATER CONSTRUCTION NOTES

1. ALL MATERIALS, INSTALLATION AND SEDIMENT AND EROSION CONTROL FOR SUBDIVISIONS AND SITE PLANS SHALL CONFORM TO CITY STANDARDS, FDEP STANDARDS, FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), AND FDOT DESIGN STANDARDS (LATEST EDITION).
2. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S MS4 CONVEYANCE SYSTEM. DEWATERING PERMIT APPLICATIONS CAN BE FOUND AT https://www.codb.us/index.aspx?nid=262. FEES ARE SUBJECT TO ARTICLE 7, SECTION 7.2 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DAYTONA BEACH STORM WATER COORDINATOR AT 125 BASIN STREET, SUITE 100, DAYTONA BEACH, FLORIDA 32114 PRIOR TO ANY USE OF THE CITY'S MS4 CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S MS4 SYSTEM.
3. CONTRACTOR SHALL FOLLOW REQUIRED EROSION AND SEDIMENT CONTROL PRACTICES AND INCLUDE AN EROSION CONTROL PLAN FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO CONSTRUCTION. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE CITY'S EROSION AND SEDIMENT CONTROL NOTES DETAIL.
4. CONTRACTOR SHALL FOLLOW ALL OF THE CITY'S REQUIRED WASTE MANAGEMENT PRACTICES. ALL CONSTRUCTION, RENOVATION, AND DEMOLITION SITES ARE TO BE KEPT CLEAN AND FREE OF REFUSE, DEBRIS, AND LITTER DURING THE CONSTRUCTION, RENOVATION, OR DEMOLITION PROCESS. A CERTIFICATE OF OCCUPANCY FOR A NEWLY CONSTRUCTED OR RENOVATED BUILDING SHALL NOT BE ISSUED UNTIL ALL REFUSE AND LITTER CAUSED BY THE CONSTRUCTION OR REMODELING IS REMOVED FROM THE SITE PER THE DAYTONA BEACH CODE OF ORDINANCES CHAPTER 28 SECTION 78-5 AND 78-8.
5. ALL DEVELOPMENT PLANS SHALL BE CONSISTENT WITH THE DAYTONA BEACH LAND DEVELOPMENT CODE ARTICLE 6 DEVELOPMENT STANDARDS, SECTION 6.15,6.18 AND ARTICLE 7 SUBDIVISION AND INFRASTRUCTURE, SECTION 7.2
6. STORMWATER MAINS SHALL HAVE A MINIMUM DRAINAGE MAINTENANCE EASEMENT AND ACCESS WIDTH OF 20 FEET. THE EASEMENT WIDTH MAY BE INCREASED DEPENDING UPON THE SIZE AND DEPTH OF PIPE.
7. CONCRETE EROSION CONTROL BMP'S MUST BE PROVIDED WHERE SWALES OR CULVERTS INTERCEPT DRAINAGE DITCHES.
8. IN GENERAL, ALL RETENTION/DETENTION SITES MUST BE CONSTRUCTED AND VEGETATED PRIOR TO ANY ROAD, PARKING LOT, OR BUILDING CONSTRUCTION OR AS CURRENT PERMIT CONDITIONS DECTATE. SEWER AND WATER MAINS MAY BE INSTALLED PRIOR TO RETENTION/DETENTION SITE CONSTRUCTION IF DEWATERING IS NOT REQUIRED. BMP'S FOR EROSION AND SEDIMENT CONTROL SHALL BE IMPLEMENTED AS NECESSARY.
9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL DEWATERING PERMITS REQUIRED (SEE NOTE 2).
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW AND MAINTAIN A COPY OF THE SJRWMD, NPDES, AND ALL OTHER JURISDICTIONAL PERMITS AT THE CONSTRUCTION SITE AND ABIDE BY ALL CONDITIONS OF THOSE PERMITS.

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION — STORMWATER CONSTRUCTION NOTES (PAGE 1 OF 4) ST-1

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STORMWATER CONSTRUCTION NOTES (CONT'D)

11. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF TEMPORARY AND PERMANENT PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORMWATER INFRASTRUCTURE IN ORDER TO EVALUATE POTENTIAL CONFLICTS.
12. THE MAXIMUM PERMISSIBLE SLOPE OF ANY NEW SITE GRADING IS 1:3 (VERTICAL:HORIZONTAL). THIS LIMIT APPLIES TO ALL AREAS EXCEPT STORMWATER CONVEYANCE AND TREATMENT SYSTEMS WHICH HAVE A MAXIMUM SIDE SLOPE OF 1:4 (EXCEPT BELOW THE WATER TABLE WHERE STEEPER SLOPES ARE PERMISSIBLE).
13. ALL SWALES AND DITCHES SHALL HAVE A MAXIMUM PERMITTED FRONT (SIDE) SLOPE NOT STEEPER THAN 1:4. THE MAXIMUM PERMITTED BACK (SIDE) SLOPE, SHALL BE 1:3, PROVIDED THAT A 5' WIDE BERM IS INSTALLED. DESIGN CENTERLINE AND TOP-OF-BANK ELEVATIONS SHALL BE NOTED AT INTERVALS OF 100' AND AT SIGNIFICANT GRADE CHANGES.
14. SWALES THAT ARE NORMALLY DRY AND INTENDED FOR CONVEYANCE OF STORMWATER RUNOFF AND ARE NOT INTENDED FOR RETENTION SHALL HAVE A MINIMUM DRAINAGE MAINTENANCE EASEMENT WIDTH MEASURING 15 FEET. SWALED AREAS INTENDED FOR RETENTION SHALL PROVIDE APPROPRIATE EASEMENT AREAS FOR ACCESS AND MAINTENANCE MEASURED UPLAND FROM THE TOP OF BANK. AT A MINIMUM, THE EASEMENT SHALL MEASURE 10 FEET IN WIDTH FROM THE TOP OF THE SWALE.
15. NORMAL ROADSIDE SWALES ARE PERMITTED TO BE CONSTRUCTED TO A MAXIMUM DEPTH OF 18" BELOW THE OUTSIDE EDGE OF PAVEMENT OR CONCRETE CURB.
16. WHEN CULVERTS ARE INSTALLED TO MAINTAIN THE FLOW OF EXISTING DRAINAGE WAYS WHERE NEWLY PROPOSED ROADS WOULD OTHERWISE SEVER THE DRAINAGE RIGHT-OF-WAY, CULVERTS CROSSING RIGHT-OF-WAYS SHALL EXTEND FROM RIGHT-OF-WAY LINE TO RIGHT-OF-WAY LINE UNDER THE ROADWAY. CULVERTS SHALL BE DESIGNED TO ACCOMODATE THE FLOW FROM THE 100 YEAR - 24 HOUR STORM EVENT WITHOUT FLOODING ADJACENT PROPERTY OR SURCHARGING THE SAID ROADWAY.
17. WET POND DEPTHS SHALL BE EIGHT FEET MINIMUM TO FIFTEEN FEET MAXIMUM, MEASURED FROM THE TOP OF BANK.
18. WHEN A WET POND IS INCORPORATED WITHIN A SUBDIVISION AND IS ABUTTED BY LOTS, SUCH ABUTTING LOT LINES SHALL EXTEND INTO THE LAKE PROPORTIONATELY ENCOMPASSING ALL OF THE LAKE AREA.
19. WET POND INFLOW AND OUTLET STRUCTURES SHALL GENERALLY BE CONSTRUCTED WITH REINFORCED CONCRETE AND SHALL BE SUBJECT TO THE APPROVAL OF THE CITY. SKIMMERS FOR WET PONDS SHALL BE CONSTRUCTED SUCH THAT THE BOTTOM EXTENDS 6" BELOW THE NORMAL WATER LEVEL AND 6" ABOVE THE OVERFLOW. FOR DRY PONDS, THE SKIMMER BOTTOM SHALL BE SET 6" BELOW THE LOWEST OVERFLOW ELEVATION AND 6" ABOVE THE HIGHEST POINT OF OVERFLOW. ALL SKIMMERS SHALL BE CONSTRUCTED OF MINIMUM 1/4" THICK ALUMINUM OR FIBERGLASS ADEQUATELY SUPPORTED TO PREVENT DEFLECTION.
20. THE CITY MAY REQUEST THE DEVELOPER SUBMIT A REPORT BY A QUALIFIED HYDROLOGIST OR HYDROGEOLOGIST ON THE IMPACT THE WET POND WILL HAVE ON NEIGHBORING WATER TABLE ELEVATIONS BOTH DURING CONSTRUCTION AND AFTER LAKE COMPLETION. THE CITY MAY REQUIRE GROUNDWATER MONITORING DURING THE LAKE EXCAVATION.
21. ADEQUATE MAINTENANCE BERMS, MINIMUM 10' IN WIDTH, SHALL BE PROVIDED AROUND THE ENTIRE PERIMETER OF ALL WET PONDS AND ASSOCIATED OUTFALLS DISCHARGING INTO AND OUT OF LAKES. APPLICABLE CROSS SECTIONS SHALL BE INCLUDED ON ALL FINAL DEVELOPMENT PLANS.

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION — STORMWATER CONSTRUCTION NOTES (PAGE 2 OF 4) ST-2

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1	07-24-20	REVISED — MRB

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CERTIFICATE OF AUTHORIZATION NUMBER 00003910

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

PAVING AND DRAINAGE DETAILS

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ES BMP 1.01

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

DEFINITION

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSE

TO REDUCE THE AMOUNT OF SEDIMENT TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.

CONDITIONS WHERE PRACTICE APPLIES

WHEREVER TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVES DIRECTLY ONTO A PUBLIC ROAD OR OTHER PAVED AREA.

PLANNING CONSIDERATIONS

CONSTRUCTION ENTRANCES PROVIDE AN AREA WHERE MUD CAN BE REMOVED FROM CONSTRUCTION VEHICLE TIRES BEFORE THE ENTER A PUBLIC ROAD. IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF THE MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLE ENTERS A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF-SITE. CONSTRUCTION ENTRANCES SHOULD BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF MUD PICKED UP BY CONSTRUCTION VEHICLES.

DESIGN CRITERIA

AGGREGATE SIZE

FDOT AGGREGATE NO. 1 (1.5 - 3.5 INCH STONE) SHOULD BE USED.

ENTRANCE DIMENSIONS

AGGREGATE LAYER MUST BE AT LEAST 6 INCHES THICK. IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS AREA. THE LENGTH OF THE ENTRANCE MUST BE AT LEAST 50 FEET. (SEE DETAIL).

WASHING

IF CONDITIONS OF THE SITE ARE SUCH THAT THE MAJORITY OF THE MUD IS NOT REMOVED BY THE VEHICLES TRAVELING OVER THE GRAVEL, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING A PUBLIC ROAD. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO A SETTLING AREA TO REMOVE SEDIMENT. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE. SEE DETAIL.

LOCATION

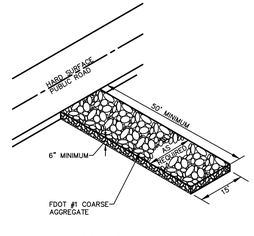
THE ENTRANCE SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.

CONSTRUCTION SPECIFICATIONS

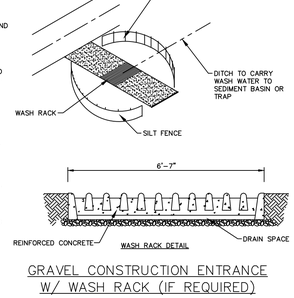
THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. IF WASH RACKS ARE USED, THEY SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. IF WASH RACKS ARE TO MANUFACTURER'S SPECIFICATIONS.

MAINTENANCE

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE, AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.



GRAVEL CONSTRUCTION ENTRANCE
N.T.S.



GRAVEL CONSTRUCTION ENTRANCE W/ WASH RACK (IF REQUIRED)

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

STORMWATER CONSTRUCTION NOTES (CONT'D)

22. DEVELOPMENT PLANS FOR ALL STORMWATER MANAGEMENT SYSTEMS SHALL CONTAIN POP-OFF DATA (OVERFLOW), BOTTOM ELEVATION, NORMAL WATER LEVELS, MEAN ANNUAL SEASONAL HIGH WATER TABLE ELEVATION, TREATMENT VOLUME AND CORRESPONDING ELEVATION, 100 YEAR HIGH WATER LEVELS, AND THE DESIGN TAILWATER ELEVATION (IF APPLICABLE).
23. ALL STORM SEWERS AND CULVERTS LOCATED IN ROADWAY RIGHT-OF-WAYS AND ROADWAY EASEMENTS SHALL BE A MINIMUM OF CLASS III O-RING REINFORCED CONCRETE PIPE. OUTSIDE OF ROADWAY EASEMENTS AND R.O.W., PIPE MAY BE MADE OF ALTERNATE MATERIALS INCLUDING:
    A. 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
    B. PVC IN ACCORDANCE WITH THE PROVISION NOTED IN THE "SEWER DETAILS" OF THESE SPECIFICATIONS.
24. ALL STORM SEWER PIPE JOINTS LOCATED IN ROADWAY RIGHT-OF-WAYS AND ROADWAY EASEMENTS SHALL BE ENTIRELY WRAPPED WITH NON-WOVEN FILTER FABRIC WITH A MINIMUM WIDTH OF 24" AND A MINIMUM OF 24" OVERLAP. 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.
25. DEPTH OF COVER MEASURED TO THE TOP OF PIPE (INCLUDING THE BELL JOINT) SHALL BE A MINIMUM OF 3 FEET OVER RCP. DEVIATION FROM THIS REQUIREMENT MAY BE ALLOWED BY INCREASING THE PIPE'S STRUCTURAL STRENGTH. IF AN ALTERNATE MATERIAL IS APPROVED, DEPTH OF COVER SHALL MEET MANUFACTURER'S RECOMMENDATION.
26. ALL STORM DRAINAGE PIPES LOCATED IN ROADWAY RIGHT-OF-WAYS AND ROADWAY EASEMENTS SHALL BE A MINIMUM OF FIFTEEN INCH (15") INSIDE DIAMETER OR EQUIVALENT. STORM DRAINAGE PIPES SMALLER THAN 15" ARE PERMITTED ON PRIVATE SITE PLANS PROVIDING THAT MAINTENANCE SHALL BE PERFORMED BY THE OWNER.
27. STORMWATER FORCE MAINS WILL USE NO. 12 INSULATED SINGLE STRAND COPPER WIRE SHALL BE ATTACHED TO ALL PIPES AND TERMINATED AT THE VALVES IN ACCORDANCE WITH RECLAIM WATER VALVE AND VALVE BOX DETAIL. TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER SUPERVISION BY CITY REPRESENTATIVE AFTER INSTALLATION.
28. STORM INLETS, MANHOLES, AND CATCH BASINS SHALL BE FDOT COMPLIANT. EITHER POURED IN PLACE OR PRECAST REINFORCED CONCRETE STRUCTURES ARE REQUIRED AT EACH CHANGE OF PIPE SIZE OR CHANGE IN PIPE DIRECTION. ALL STRUCTURES SHALL COMPLY WITH ASTM C-478 AND SHALL HAVE 6" THICK WALLS. THINNER WALLS MAY BE PERMITTED PROVIDING THE DESIGN IS IN ACCORDANCE WITH FDOT STANDARD PLANS. THIS REQUIREMENT MUST BE REFLECTED ON BOTH THE SHOP DRAWING AND AS-BUILT PLANS. STRUCTURES PLACED IN HIGH TRAFFIC AREAS SHALL BE OF TRAFFIC BEARING CONSTRUCTION IN ACCORDANCE WITH FDOT STANDARDS.
29. STORM INLETS SHALL BE SPACED IN SUCH A MANNER AS TO ACCEPT ONE HUNDRED PERCENT OF THE DESIGN STORM RUNOFF WITHOUT IMPEDING THE FLOW OF TRAFFIC. FOR ROADWAY SECTIONS WITH DESIGN SPEEDS OF 45 MPH AND LESS AND WITHOUT FULL WIDTH SHOULDERS, SPREAD RESULTING FROM A RAINFALL INTENSITY OF FOUR INCHES PER HOUR SHALL NOT EXCEED ONE-HALF OF THE TRAVEL LANE ADJACENT TO THE GUTTER. FOR SITE PLANS, INLET SPACING SHALL BE DESIGNED TO ACCEPT ONE HUNDRED PERCENT OF THE RUNOFF FROM A RAINFALL INTENSITY OF FOUR INCHES (4") PER HOUR WITHOUT RESULTING IN PONDING OF WATER AROUND THE INLET.

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION — STORMWATER CONSTRUCTION NOTES (PAGE 3 OF 4) ST-3

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STORMWATER CONSTRUCTION NOTES (CONT'D)

30. FOR CONNECTIONS BETWEEN INLETS WITH PIPING 15" IN DIAMETER AND LARGER, THE MAXIMUM DISTANCES BETWEEN INLETS AND/OR CLEAN-OUT JUNCTION BOXES SHALL BE 300 FEET. CULVERTS SHALL BE SLOPED TO MAINTAIN A MINIMUM SELF-CLEANING VELOCITY OF 2.5 FEET PER SECOND USING A MANNING'S 'n' OF 0.012. SPACING FOR CLEAN-OUTS AND INLETS FOR SMALLER PIPING SHALL BE REDUCED AND EVALUATED ON A CASE BY CASE BASIS.
31. ALL STORMWATER INLETS SHALL MEET FDOT CRITERIA IN THE FDOT DESIGN STANDARD LATEST EDITION.
32. ALL GASKETS SHALL BE LUBRICATED BEFORE BEING INSTALLED.
33. ALL FITTINGS SHALL MEET THE MINIMUM RESTRAINED REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAY SHALL BE RESTRAINED.

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION — STORMWATER CONSTRUCTION NOTES CONT'D (PAGE 4 OF 4) ST-4

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EROSION & SEDIMENT CONTROL NOTES

1. ALL CONSTRUCTION ACTIVITIES SHALL INCORPORATE BEST MANAGEMENT PRACTICES (BMP'S) TO CONTROL EROSION, SEDIMENTATION, AND THE POTENTIAL FOR DOWNSTREAM WATER QUALITY DEGRADATION. DEGRADATION.
2. CONTRACTOR SHALL MINIMIZE DISTURBANCE OF EXISTING VEGETATION, (PARTICULARLY AROUND THE PROJECT PERIMETER) AND ADJACENT EXISTING DRAINAGE PATTERNS TO THE MAXIMUM EXTENT PARCTICAL DURING THE CONSTRUCTION PROCESS.
3. SILT FENCES AND TURBIDITY BARRIERS SHALL BE INSTALLED ON SITE AND APPROVED BY THE CITY PRIOR TO CONSTRUCTION AND SHALL BE INSPECTED WEEKLY BY THE CONTRACTOR AND CORRECTIVE ACTION TAKEN AS NECESSARY.
4. STORMWATER RETENTION, DETENTION, STORAGE AND CONVEYANCE SYSTEMS MUST BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACE WITHIN THE AREA SERVED BY THOSE SYSTEMS. ADEQUATE MEASURES MUST BE TAKEN TO PREVENT SILTATION OF THESE TREATMENT SYSTEMS AND CONTROL STRUCTURES DURING CONSTRUCTION. SILTATION MUST BE REMOVED FROM THE STORMWATER SYSTEM WHEN HALF FULL AND IMMEDIATELY PRIOR TO FINAL GRADING AND GRASSING OF THE PROJECT.
5. DURING ALL CONSTRUCTION OF THE PERMITTED SYSTEM, INCLUDING STABILIZATION AND REVEGETATION OF DISTURBED SURFACES, CONTRACTOR IS RESPONSIBLE FOR THE SELECTION, IMPLEMENTATION, AND OPERATION OF ALL EROSION AND SEDIMENT CONTROL MEASURES REQUIRED TO RETAIN ALL SEDIMENT ONSITE AND PREVENT VIOLATIONS OF THE WATER QUALITY STANDARDS IN ACCORDANCE WITH THE FLORIDA ADMINISTRATIVE CODE AND PROJECT PERMIT REQUIREMENTS.
6. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A PROTECTIVE COVER (VEGETATIVE OR SUITABLE ALTERNATIVE) FOR EROSION AND SEDIMENT CONTROL ON ALL LAND SURFACES EXPOSED OR DISTURBED BY CONSTRUCTION OF THE PERMITTED PROJECT, UNLESS MODIFIED BY ANOTHER CONDITION OF THE PERMIT OR OTHERWISE SPECIFIED ON A DISTRICT APPROVED EROSION AND SEDIMENT CONTROL PLAN. THE PROTECTIVE COVER MUST BE INSTALLED WITHIN FOURTEEN (14) DAYS AFTER FINAL GRADING OF THE AFFECTED LAND SURFACE. A PERMANENT VEGETATIVE COVER MUST BE ESTABLISHED WITHIN 60 DAYS OF IT'S INSTALLATION. THE PERMITTEE'S REQUIREMENT TO MAINTAIN COVER ON OFFSITE AND ONSITE SURFACES SHALL NOT BE COMPLETE UNTIL AFTER THE WATER MANAGEMENT DISTRICT RECEIVES THE PERMITTEE'S STATEMENT OF COMPLIANCE.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE PROJECT LIMITS IN COMPLIANCE WITH ALL JURISDICTIONAL PERMIT AND CITY REQUIREMENTS.
8. ANY TIME THE CONTRACTOR NEEDS TO SUBMIT A NOTICE OF INTENT TO USE A GENERAL PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES, A COPY OF THE PERMIT SHALL ALSO BE SUBMITTED TO THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT.
9. THE CONTRACTOR SHALL AS A MINIMUM PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) GUIDELINES.
10. DEWATERING ACTIVITIES SHALL BE APPROVED BY THE UTILITIES DEPARTMENT BEFORE DISCHARGING INTO THE CITY'S MS4 SYSTEM.

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION — EROSION AND SEDIMENT CONTROL NOTES ST-5

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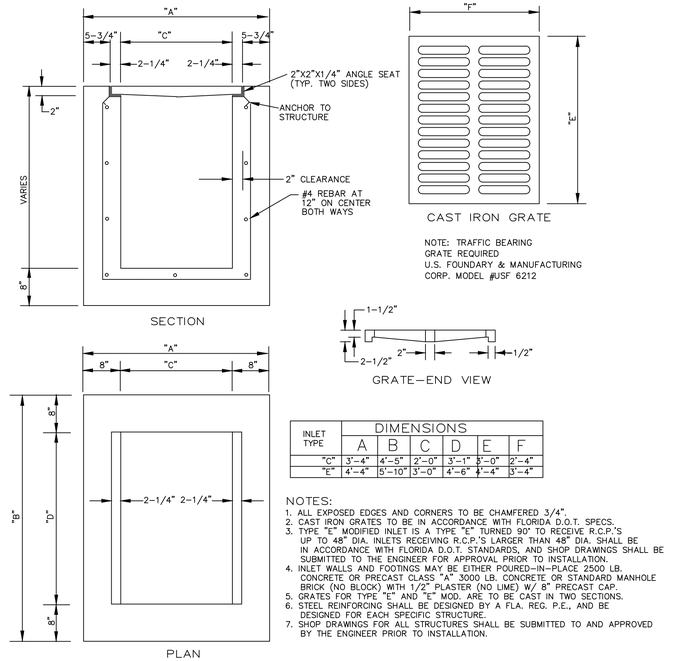
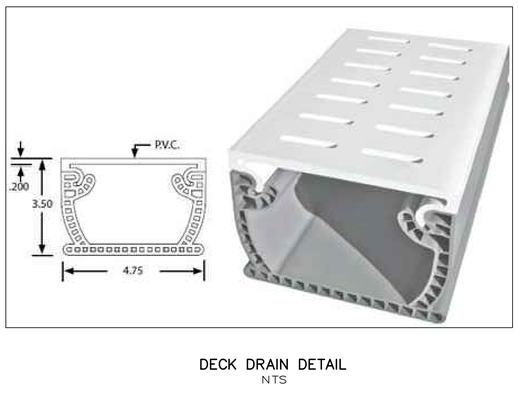


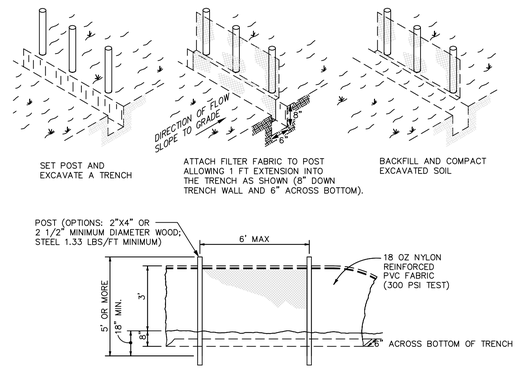
INLET TYPE	DIMENSIONS					
	A	B	C	D	E	F
"C"	3'-4"	4'-5"	2'-0"	3'-1"	3'-0"	2'-4"
"E"	4'-4"	5'-10"	3'-0"	4'-6"	4'-4"	3'-4"

NOTES:
1. ALL EXPOSED EDGES AND CORNERS TO BE CHAMFERED 3/4".
2. CAST IRON GRATES TO BE IN ACCORDANCE WITH FLORIDA D.O.T. SPECS.
3. TYPE "E" MODIFIED INLET IS A TYPE "E" TURNED 90° TO RECEIVE R.C.P.'S UP TO 48" DIA. INLETS RECEIVING R.C.P.'S LARGER THAN 48" DIA. SHALL BE IN ACCORDANCE WITH FLORIDA D.O.T. STANDARDS, AND SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
4. INLET WALLS AND FOOTINGS MAY BE EITHER POURED-IN-PLACE 2500 LB. CONCRETE OR PRECAST CLASS "A" 3000 LB. CONCRETE OR STANDARD MANHOLE BRICK (NO BLOCK) WITH 1/2" PLASTER (NO LIME) W/ 8" PRECAST CAP.
5. GRATES FOR TYPE "E" AND "E" MOD. ARE TO BE CAST IN TWO SECTIONS.
6. STEEL REINFORCING SHALL BE DESIGNED BY A FLA. REG. P.E., AND BE DESIGNED FOR EACH SPECIFIC STRUCTURE.
7. SHOP DRAWINGS FOR ALL STRUCTURES SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

FDOT TYPE 'C' & 'E' INLET
NTS



DECK DRAIN DETAIL
NTS



NTS

NOTES:
1. MATERIALS, CONSTRUCTION METHODS AND MAINTENANCE SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND DESIGN STANDARDS CURRENT EDITION.
2. CONTRACTOR SHALL PROVIDE SILT FENCES, TURBIDITY BARRIERS OR APPROVED BARRIERS AT ALL STORMWATER DISCHARGE POINTS FOR EROSION CONTROL AND SEDIMENT CONTROL DURING CONSTRUCTION. DEPENDING UPON FLOW VELOCITIES AND VOLUME, REDUNDANT (MULITPLE) PARALLEL FENCES MAY BE NEEDED.
3. CONTRACTOR SHALL ROUGH GRADE STORMWATER SWALES AND RETENTION AREAS IN COMPLIANCE WITH BEST MANAGEMENT PRACTICES PRIOR TO CONSTRUCTION OF SITE IMPROVEMENTS.
4. CONTRACTOR SHALL MEET ALL PERMIT CONDITIONS AS ESTABLISHED BY THE CITY OF DAYTONA BEACH AND ALL OTHER APPLICABLE AGENCIES, INCLUDING BUT NOT LIMITED TO COUNTY, FDOT, STATE, FEDERAL, AND THE SJRWMD.

THE CITY OF DAYTONA BEACH
ENGINEERING DIVISION

STAKED SILT FENCE DETAIL ST-13

FY-19/20
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3	08-13-20	BID SET	MRB
2	08-06-20	REVISED	MRB
1	07-24-20	REVISED	MRB

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CERTIFICATE OF AUTHORIZATION NUMBER 00003910

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DAYTONA BEACH * FLORIDA

PAVING AND DRAINAGE DETAILS

DEV 2020-062
CITY APPROVAL STAMP

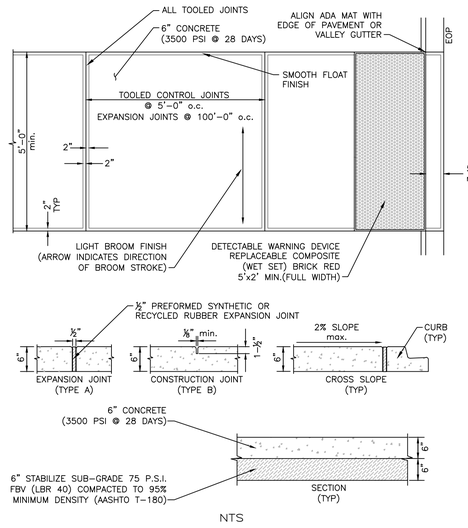
11
SHEET NO.

Drawn By: MRB

Date: 03/20/2020

SCALE: NONE

JOB#: 20-17



NTS

NOTES:

1. SIDEWALKS, BIKE PATHS, RAMPS AND DRIVEWAY APRONS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE WITH A MAXIMUM SLUMP OF 3", A MINIMUM DEVELOPED COMPRESSIVE STRENGTH OF 3500 P.S.I. IN 28 DAYS AND A MINIMUM UNIFORM THICKNESS OF 6".
2. SIDEWALKS AND BIKE PATHS SHALL BE PLACED PARALLEL TO, AND ONE FOOT WITHIN THE RIGHT-OF-WAY LINE EXCEPT THAT THE CITY MAY APPROVE DEVIATIONS TO SAVE SPECIMEN TREES PROVIDED THAT THE SIDEWALK REMAINS WITHIN THE RIGHT-OF-WAY OR AN APPROVED SIDEWALK EASEMENT ABUTTING THE RIGHT OF WAY. SIDEWALKS AND BIKE PATHS SHOULD BE LOCATED A MINIMUM OF 4'-0" FROM THE EDGE OF THE STREET PAVEMENT UNLESS OTHERWISE APPROVED BY THE CITY.
3. ALL CURB CUTS AND HANDICAP RAMPS SHALL BE ADA COMPLIANT AND TO BE CONSTRUCTED IN ACCORDANCE WITH FDOT DESIGN STANDARDS AND FLORIDA BUILDING CODE ACCESSIBILITY, LATEST EDITIONS.
4. THE TOP OF THE CONCRETE SHALL BE AT AN ELEVATION NO LOWER THAN THE CROWN OF THE ADJACENT ROADWAY, AND NO HIGHER THAN 6" ABOVE THE CROWN UNLESS APPROVED BY THE CITY TO MAKE A MORE NATURAL TRANSITION WITH THE ADJACENT LAND.
5. EXPANSION AND ISOLATION JOINTS (TYPE A JOINTS) SHALL BE PROVIDED BETWEEN EXISTING SLABS OR STRUCTURES AND FRESH CONCRETE, TO SEPARATE PEDESTRIAN SECTIONS FROM SECTIONS WHICH WILL ENCOUNTER VEHICLE TRAFFIC, TO SEPARATE FRESH PLACEMENT OF CONCRETE WHICH HAS SET FOR MORE THAN 60 MINUTES, AND NO FARTHER APART THAN ONE HUNDRED FEET (100') IN SIDEWALKS AND THIRTY FEET (30') IN BIKE PATHS.
6. PREFORMED ½" EXPANSION JOINT MATERIAL SHALL BE AS SPECIFIED IN FDOT STANDARDS AND SPECIFICATIONS, LATEST EDITION, AND SHALL BE SYNTHETIC, RECYCLED RUBBER OR OTHER PRE-APPROVED NON-BIODEGRADABLE ELASTOMERIC MATERIAL. WOOD AND DECCA-DRAIN STYLE POOL DRAINS ARE STRICTLY PROHIBITED IN ACCORDANCE WITH CHAPTER 8.1.2 OF THE FDOT SOILS AND FOUNDATIONS HANDBOOK, LATEST EDITION.
7. CONTROL JOINTS (TYPE B JOINTS) SHALL BE TOOLED INTO THE FRESH CONCRETE OR SAW CUT INTO CURED CONCRETE TO A DEPTH EQUAL TO 25% THE SLAB THICKNESS AND SPACED APART A DISTANCE EQUAL TO THE WIDTH OF THE SLAB OR 5' WHICHEVER IS LESS.
8. THE SLAB SURFACE SHALL BE BROOM FINISHED TO BE SLIP RESISTANT, AND SHALL MATCH AS CLOSELY AS POSSIBLE THE FINISH OF EXISTING ADJACENT SLABS AND ALL EDGES SHALL BE TOOLED TO ELIMINATE SHARP CORNERS.
9. THE BEARING SUBSURFACE SHALL HAVE ALL ORGANIC, LOOSE, AND DELETERIOUS MATTER REMOVED, AND THE REMAINING CLEAN SOIL SHALL BE SMOOTH, SOUND, AND SOLID. ANY FILL MATERIAL SHALL BE COMPACTED WITH A VIBRATORY OR IMPACT COMPACTION MACHINE IN MAXIMUM 12" LIFTS OR COMPACTED WITH A HAND TAMPER IN MAXIMUM 4" LIFTS THE CITY SHALL REQUIRE A COMPACTION TEST FOR EACH LIFT IF THE TOTAL FILLED SECTION IS MORE THAN 12" DEEP OR IF THE SUBSURFACE HAS BEEN DISTURBED MORE THAN 12" DEEP. WHERE SUCH TEST IS REQUIRED, THE SIDEWALK BASE SHALL BE COMPACTED AND TESTED TO 95% WITH MINIMUM L.B.R. BASED ON AASHTO T-180 MODIFIED PROCTOR TEST. MOISTURE SHALL BE APPLIED TO DRY FILL MATERIAL TO ACHIEVE DENSITY REQUIREMENTS.
10. ALL CONCRETE WORK IN THE RIGHT-OF-WAY SHALL BE INSPECTED BY THE CITY AFTER THE SUBSOIL IS PREPARED AND THE FORMS ARE SET, BUT BEFORE THE CONCRETE PLACEMENT BEGINS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE FINISHED SLAB FROM ALL DAMAGE AND VANDALISM UNTIL THE CITY ACCEPTS OR APPROVES THE SLAB, AFTER WHICH TIME THE OWNER OF THE ABUTTING LAND SHALL BE RESPONSIBLE FOR THE SLAB IN ACCORDANCE WITH THE CITY CODE. ANY SLAB SECTION DAMAGED OR VANDALIZED PRIOR TO ACCEPTANCE OR APPROVAL SHALL BE CUT OUT BETWEEN JOINTS AND REPLACED AT NO ADDITIONAL COST TO THE OWNER. REPAIRS ARE NOT ACCEPTABLE.
12. ALL FORMS SHALL BE REMOVED PRIOR TO ACCEPTANCE OR APPROVAL AND THE DISTURBED GROUND SHALL BE BACKFILLED, RE-GRADED, AND SODDED SO THAT THE WEAR SURFACE OF THE CONCRETE IS REASONABLY FLUSH WITH THE ADJACENT GRADE.
13. DETECTABLE WARNING DEVICES SHALL EXTEND THE FULL WIDTH OF THE SIDEWALK AND TO A DEPTH OF 2' min.
14. SEE FDOT DESIGN STANDARDS INDEX 304, LATEST EDITION, FOR REFERENCE.

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION	SIDEWALK CONSTRUCTION DETAIL C-1	Drawing Date: 11/2000 Drawn By: PFT Checked By: Scale: NTS Revision Date: 08/2015 File Name: ec-1

THE CITY OF DAYTONA BEACH ENGINEERING DIVISION	SIDEWALK/BIKE TRAIL CONSTRUCTION NOTES C-3	Drawing Date: 09/2003 Drawn By: PFT Checked By: Scale: NTS Revision Date: 12/2013 File Name: ec-3

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2	08-06-20	REVISED	MRB
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PAVING AND DRAINAGE DETAILS

DEV 2020-062
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12
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: NONE
JOB#: 20-17

POTABLE WATER CONSTRUCTION & DESIGN STANDARDS

1. THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO BEGINNING ANY POTABLE WATER SYSTEM CONSTRUCTION.

2. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S MS4 CONVEYANCE SYSTEM. DEWATERING PERMIT APPLICATIONS CAN BE FOUND AT https://www.codb.us/index.aspx?nid=262. FEES ARE SUBJECT TO ARTICLE 7, SECTION 7.2 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DAYTONA BEACH STORM WATER COORDINATOR AT 125 BASIN STREET, SUITE 100, DAYTONA BEACH, FLORIDA 32114 PRIOR TO ANY USE OF THE CITY'S MS4 CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S MS4 SYSTEM.

3. ALL WORK PERFORMED ON POTABLE WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE CONSTRUCTED BY AN UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.

4. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE DEPARTMENT OF HEALTH, AND THAT AS-BUILT DRAWINGS MEETING THE CITY'S REQUIREMENTS ARE PROVIDED TO THE CITY AND ACCEPTED PRIOR TO ANY USE OF THE SYSTEM.

5. THE WATER DISTRIBUTION SYSTEM SHALL BE DESIGNED TO COMPLY WITH THE CITY'S FIRE (WATER) FLOW CODE.

6. EACH WATER SERVICE TERMINATION SHALL BE MARKED WITH 2" X 4" PRESSURE TREATED LUMBER EXTENDING 4' ABOVE GRADE DIRECTLY IN FRONT OF THE METER BOX WITH 2' OF ENDOTRACE POLY-TUBE OR APPROVED EQUAL COILED AND CAPPED WITH AN ELSTER HYDROSERT CAP INSIDE EACH METER BOX.

7. ALL WATER SERVICES SHALL BE MARKED WITH A "/\" SAW CUT INTO THE CURB.

8. ALL WATER VALVES SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB.

9. ALL TAPPING OF MAINS (12" OR SMALLER) SHALL BE PERFORMED BY CITY PERSONNEL. SCHEDULING OF THESE CONNECTIONS REQUIRES A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE AND SHALL BE COORDINATED WITH THE CITY INSPECTOR (TAPS ON MONDAY – THURSDAY ONLY).

10. THE PLANS SHALL INCLUDE RIGHT OF WAY LINES AND STATIONING AND OFFSETS FROM THE CENTER LINE OF CONSTRUCTION.

11. DEWATERING ACTIVITIES SHALL KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW THE WATER MAIN BEING INSTALLED.

12. ALL WATER MAINS SHALL BE INSTALLED ON A FIRM UNYIELDING FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.

13. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 98% IN PAVED AREAS AND 95% IN UNPAVED AREAS IN ACCORDANCE WITH AASHTO T-180 MODIFIED PROCTOR TEST.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 1 OF 4) W-1

FY-20/21	
Drawing Date:	01/08
Drawn By:	KLH
Checked By:	JMP
Scale:	NTS
Revision Date:	03/20
File Name:	Water Notes W-1
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POTABLE WATER CONSTRUCTION & DESIGN STANDARDS (CONT'D)

14. WHERE POTABLE WATER AND SANITARY SEWER MAINS CROSS WITH LESS THAN TWELVE (12) INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER MAIN IS ABOVE THE WATER MAIN, MEDIATION MUST BE REVIEWED AND APPROVED BY FDEP.

15. WATER MAINS SHALL BE CONSTRUCTED A MINIMUM OF 4 FEET BEHIND THE BACK OF CURB OR THE EDGE OF ROADWAY PAVEMENT, WHICHEVER IS GREATER, AS MEASURED FROM OUTSIDE WALL OF THE WATER MAIN.

16. 3 INCH METALIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES TO 24 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY THE MANUFACTURER FOR ALL WATER LINES. BLUE TRACER WIRE SHALL BE ATTACHED TO ALL PIPES. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED WIRE CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND TEST FOR CONTINUITY (SEE CITY SPECIFICATION #15049 TRACER WIRE AND ALARMING TAPE). TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER THE SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION. IF A METER BOX IS NOT WITHIN 200 FEET OF A VALVE AND VALVE BOX AN ADDITIONAL VALVE BOX FOR TRACER WIRE IS REQUIRED.

17. SINGLE RESIDENTIAL WATER SERVICES SHALL BE A MINIMUM 1-INCH ENDOT, ENDOTRACE OR APPROVED EQUAL POLY-TUBE (MEETING THE SPECIFICATIONS OF NSF-14, AND AWWA C901.)

18. ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE AND HAVE A MINIMUM COVER OF 36-INCHES.

19. WATER MAINS LESS THAN 18" MAY USE POLYVINYL CHLORIDE (PVC) C900, OR C905, SHALL MEET AWWA REQUIREMENTS AND HAVE A MINIMUM DIMENSION RATIO (DR-18) PRESSURE CLASS 150. WATER MAINS 18" AND LARGER SHALL BE DUCTILE IRON PIPE (D.I.P.), CLASS 350, CEMENT LINED. ALL NON-DUCTILE IRON PIPE HORIZONTAL DIRECTIONAL DRILL WATER MAINS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING BASED ON SITE CONDITIONS. INSIDE DIAMETER OF NON D.I.P. HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.

20. DIRECTIONAL DRILLS SHALL HAVE FUSED MJ ADAPTERS.

21. ALL POTABLE WATER MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT EBAA.COM. THE RESTRAINED JOINT LENGTHS SHALL BE SHOWN ON PLANS PROVIDED BY EOR.

22. ALL FITTINGS, VALVES, ETC. SHALL BE DUCTILE IRON CEMENT LINED (MJ OR FLANGED) AND SHALL BE RESTRAINED.

23. ALL RESTRAINED PIPE BELL JOINTS SHALL USE BELL RESTRAINTS OR GRIPPER TYPE GASKETS CAN BE USED FOR DUCTILE IRON PIPE JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.

24. WATER VALVES SHALL BE INSTALLED AT ALL STREET INTERSECTIONS AND AT A MAXIMUM SPACING OF 750 FEET. SPACING OF VALVES ON PRIMARY TRANSMISSION MAINS WILL BE DETERMINED BY THE CITY.

25. VALVES SHALL BE INSTALLED ON ALL LEGS OF WATER MAIN TEES EXCEPT ONE.

26. ALL FITTINGS SHALL MEET MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAYS SHALL BE RESTRAINED.

27. METER LENGTHS REQUIRED FOR WATER METERS INSTALLATION ARE AS FOLLOWS: 3/4" TO 2" METER REQUIRES 6', 4" METER REQUIRES 12', 6" AND 8" METER REQUIRES 14', AND A 10" METER REQUIRES 20'.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 2 OF 4) W-2

FY:	20/21
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Checked By:	JMP
Scale:	NTS
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POTABLE WATER CONSTRUCTION & DESIGN STANDARDS (CONT'D)

28. ALL WATER VALVE BOXES SHALL BE ADJUSTED, INCLUDING DEBRIS CAP, AND CONCRETE COLLAR TO FINISHED GRADE. VALVE BOX LIDS SHALL BE PAINTED BLUE TO MAKE THEM CLEARLY VISIBLE.

29. UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS, WATER VALVES SHALL BE COMPLETELY OPENED BY CITY UTILITIES PERSONNEL. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES WITHOUT A CITY REPRESENTATIVE PRESENT.

30. ALL VALVES 2 INCHES AND SMALLER SHALL BE CURB STOPS. VALVES LARGER THAN 2 INCHES SHALL BE GATE VALVES.

31. A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED AT EVERY INTERSECTION. OTHER FIRE HYDRANTS SHALL BE LOCATED TO PRODUCE A MAXIMUM 500 FOOT RADIUS OF COVERAGE. ALL FIRE HYDRANTS SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS FOR FIRE PERSONNEL. THE PRIMARY HYDRANT PORT SHALL FACE THE STREET.

32. THE CONTRACTOR SHALL PIG ALL PIPES 6 INCHES OR LARGER IN DIAMETER. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR AND CITY REPRESENTATIVE.

33. FOR PIPE FLUSHING, PIGGING, TESTING, AND TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 8 A.M.) THE CONTRACTOR SHALL COORDINATE WITH THE CITY REPRESENTATIVE AND WATER PLANT OPERATIONS TO SCHEDULE THE DATE AND TIME FOR THESE ACTIVITIES.

34. THE CITY RESERVES THE RIGHT TO PERFORM THE SAMPLING AND ANALYSIS FOR BACTERIOLOGICAL CLEARANCE OF THE WATER MAIN. ANY RETESTING WILL BE AT THE CONTRACTORS EXPENSE.

35. POTABLE WATER LINES SHALL NOT BE USED OR PLACED INTO SERVICE UNTIL CLEARANCE IS ACCEPTED BY VOLUSIA COUNTY HEALTH DEPARTMENT AND THE CITY OF DAYTONA BEACH.

36. BACKFLOW PREVENTERS (BFP) SHALL BE PLACED ON ALL POTABLE AND FIRE LINES SERVING COMMERCIAL AND RESIDENTIAL PROPERTIES. THE TYPE OF BACKFLOW PREVENTERS REQUIRED ARE AS FOLLOWS:

POTABLE WATER SERVICE; REDUCED PRESSURE ZONE (RPZ)(BFP)
FIRE LINE SERVICING A FIRE SPRINKLER SYSTEM AND/OR PRIVATE FIRE HYDRANT; DOUBLE CHECK VALVE ASSEMBLY
FIRE LINE; DOUBLE CHECK VALVE ASSEMBLY

IN CASES WHERE A WATER LINE SERVES BOTH DOMESTIC AND FIRE SERVICES, A REDUCED PRESSURE ZONE BFP IS REQUIRED.

37. ALL JACK & BORES REQUIRED FOR COMMERCIAL DEVELOPMENT SHALL BE PERFORMED AT THE SOLE COST OF THE OWNER\DEVELOPER.

38. ALL C-900 DR-18 PVC PIPE REQUIREMENTS REFERENCE TO THE C-900 STANDARDS.

39. CHLORINATED WATER MUST BE DECHLORINATED PRIOR TO DISCHARGE INTO ANY JURISDICTIONAL WETLAND OR WATER BODY PER AWWA STANDARD, ANSI/AWWA C655.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 3 OF 4) W-3

FY-20/21	
Drawing Date:	01/08
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Checked By:	JMP
Scale:	NTS
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POTABLE WATER CONSTRUCTION & DESIGN STANDARDS

TESTING REQUIREMENTS:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TRENCH COMPACTION TESTS AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12-INCH VERTICAL INTERVALS TO FINISHED GRADE AT A MAXIMUM HORIZONTAL SPACING OF 300 FEET.

2. ON ALL PROJECTS OTHER THAN THOSE INITIATED BY THE CITY THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE THAT COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. ON ALL CITY PROJECTS THE TESTING WILL BE DONE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REORTS. TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S INSPECTOR.

3. ALL POTABLE WATER MAINS SHALL BE FLUSHED, DISINFECTED, PRESSURE TESTED AND BAC-TERIOLOGICALLY CLEARED FOR SERVICE WHEN APPROPRIATE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIROMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WATER TREATMENT PLANT AT LEAST 3 BUSINESS DAYS PRIOR TO BEGINNING FLUSHING THE MAINS BEFORE PRESSURE TESTING. THE CITY MAY REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 8 AM). THE DATE AND TIME SCHEDULE FOR FLUSHING AND PIGGING MUST BE APPROVED BY THE WATER PLANT OPERATIONS. NO HOSE OR FIRE HYDRANT SHALL BE USED IN THE COLLECTION OF BACTERIOLOGICAL SAMPLES. THE SAMPLING TAP MUST BE DEDICATED, CLEAN, DISINFECTED AND FLUSHED PRIOR TO SAMPLING. SAMPLING TAP SHALL BE SMOOTH, UNTHREADED 1/2 INCH HOSE BIB. DISINFECTION AND SAMPLING SHALL BE SCHEDULED AT THE CITY'S CONVENIENCE.

4. PRESSURE TEST FOR TAPPING SADDLES AND VALVES FOR A MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT MANUFACTURER'S RECOMMENDED TESTING PRESSURE.

5. WATERMAINS SHALL BE PRESSURE TESTED AT 150 PSI FOR 3 HOURS. TESTING SHALL BE IN ACCORDANCE WITH AWWA C-600 AND AWWA C-605 AS APPLICABLE WITH ALLOWABLE LEAKAGE TO BE BASED ON THE TABLE BELOW.

ALLOWABLE LEAKAGE PER 1000 FT. OF PIPELINE * -GPH

AVERAGE PRESSURE TEST	NOMINAL PIPE DIAMETER – INCHES																AVERAGE TEST PRESSURE
(PSI)	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54	60	64	(PSI)
450	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60	9.56	10.19	450
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11	9.01	9.61	400
350	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58	8.43	8.99	350
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02	7.80	8.32	300
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72	7.47	7.97	275
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56	4.27	4.99	5.70	6.41	7.12	7.60	250
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38	4.05	4.73	5.41	6.03	6.76	7.21	225
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19	3.82	4.46	5.09	5.73	6.37	6.80	200
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98	3.58	4.17	4.77	5.36	5.96	6.36	175
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97	5.52	5.88	150
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52	3.02	3.53	4.03	4.53	5.04	5.37	125
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05	4.50	4.80	100

** AT THE PIPELINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE ALLOWABLE LEAKAGE WILL BE THE SUM OF THE COMPUTED LEAKAGE FOR EACH SIZE.*

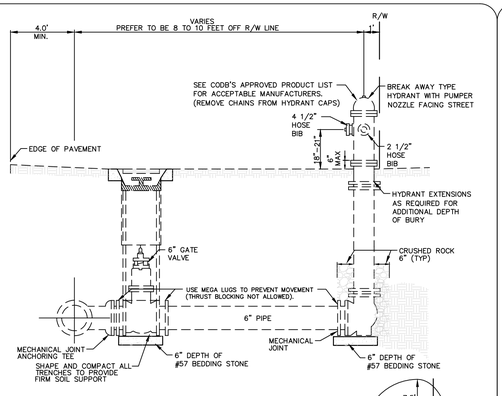
$$L = \frac{SD\sqrt{P}}{133{,}200}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 4 OF 4) W-4

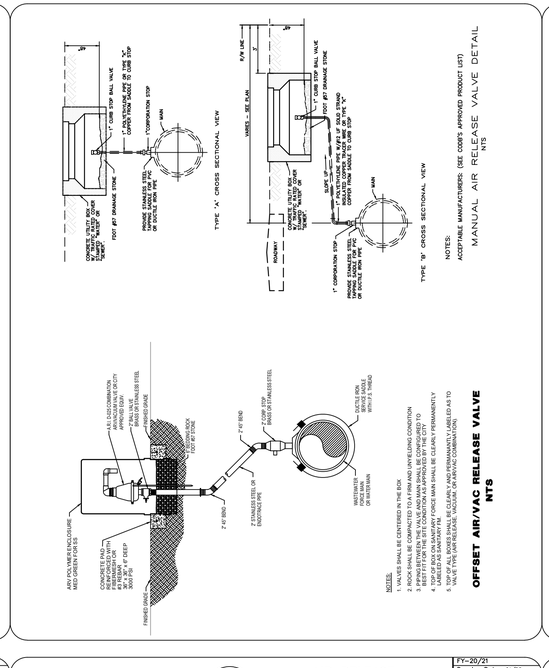
FY-20/21	
Drawing Date:	01/08
Drawn By:	KLH
Checked By:	JMP
Scale:	NTS
Revision Date:	2/2019
File Name:	Auto Vacuum Valve W-22
Page 8	



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

FIRE HYDRANT ASSEMBLY DETAIL W-16

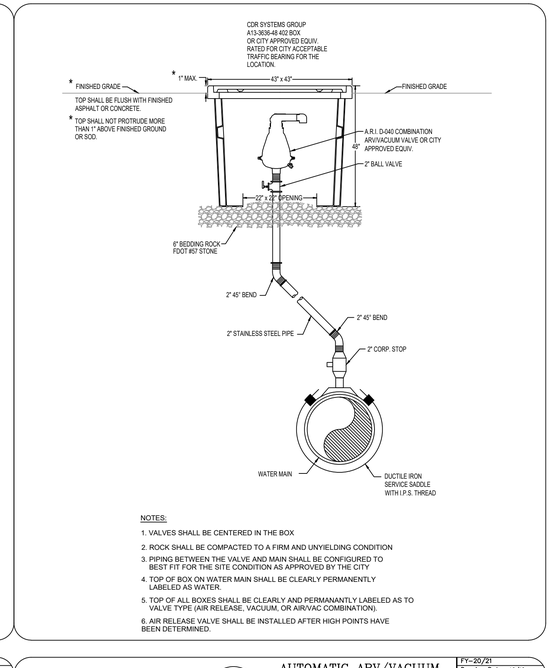
FY-20/21	
Drawing Date:	01/08
Drawn By:	KLH
Checked By:	JMP
Scale:	NTS
Revision Date:	01/19
File Name:	Fire Hydrant Assem W-16
Page 20	



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AIR RELEASE VALVE DETAILS W-21

FY-20/21	
Drawing Date:	01/08
Drawn By:	KLH
Checked By:	JMP
Scale:	NTS
Revision Date:	01/19
File Name:	Manual Air Release Valve W-21
Page 25	



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AUTOMATIC ARV/VACUUM VALVE DETAIL W-22

FY-20/21	
Drawing Date:	12/10
Drawn By:	KLH
Checked By:	JMP
Scale:	NTS
Revision Date:	01/19
File Name:	Auto Vacuum Valve W-22
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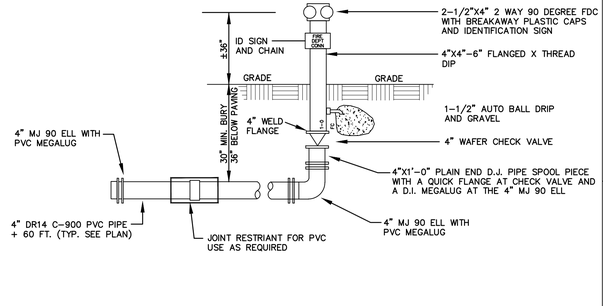


FREE STANDING FIRE DEPARTMENT CONNECTION DETAIL
N.T.S.

NO.	DATE	DESCRIPTION	BY
3	08-13-20	BID SET	MRB
2	08-06-20	REVISED	MRB
1	07-24-20	REVISED	MRB

REVISIONS

PARKER MYNCHENBERG & ASSOCIATES, INC.
PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
1729 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
(386) 677-6891 FAX (386) 677-2114 E-MAIL: info@parkermynchenberg.com
CERTIFICATE OF AUTHORIZATION NUMBER 00003910

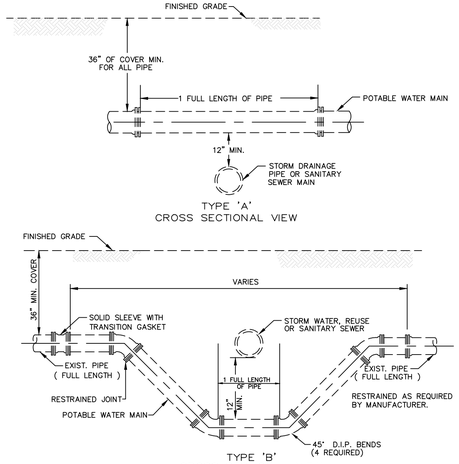
EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

WATER DISTRIBUTION SYSTEM DETAILS

DEV 2020-062
CITY APPROVAL STAMP

13
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: NONE
JOB#: 20-17



NOTES:

1. TYPE "A" CROSSING SHALL BE THE PREFERRED CONFIGURATION. TYPE "B" MAY BE USED ONLY UPON SPECIFIC APPROVAL.
2. ADDITIONAL RESTRAINTS MAY BE REQUIRED FOR VERTICAL BENDS.
3. LOWERING OF EXISTING WATER MAIN & FORCE MAIN BY DEFLECTION METHOD MAY BE ACCEPTABLE IF EXISTING FIELD CONDITIONS PERMIT AND APPROVAL IS RECEIVED FROM CODB.
4. LENGTH OF SECTION BASED ON MINIMUM LENGTH AS DETERMINED BY EBAA RESTRAINED JOINT MANUAL.
5. INSTALL RESTRAINED JOINTS, AS REQUIRED, FROM DEFLECTION POINT IN BOTH DIRECTIONS (20' MIN.).
6. ALL DEFLECTIONS SHALL BE DIP.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

TYPICAL PIPE CROSSING DETAIL
W-7

FY-20/21
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 03/20
File Name: Pipe Crossing W-7
Page 11

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)	3 ft. minimum	12 inches is the minimum, 6 inches is the minimum and 12 inches is preferred	Alternate 9 ft. minimum
Vacuum Sanitary Sewer	10 ft. preferred 3 ft. minimum	12 inches is preferred 6 inches minimum	Alternate 9 ft. minimum
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	10 ft. preferred 6 ft. minimum (3)	12 inches is the minimum, 6 inches is the minimum and 12 inches is preferred	Alternate 9 ft. minimum
On-Site Sewage Treatment & Disposal System	10 ft. minimum	--	--

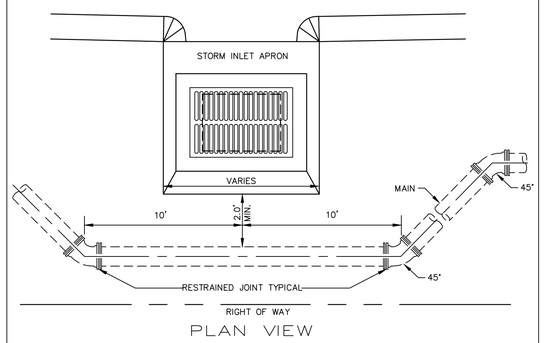
(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.
(2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(3) For parallel installation, reclaimed water mains shall be laid at least 6 inches above the top of the gravity sanitary sewer.
(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer - This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

WATER MAIN SEPARATION CHART
W-8

FY-20/21
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 01/19
File Name: New set Narrow Sheet W-8
Page 12



NTS

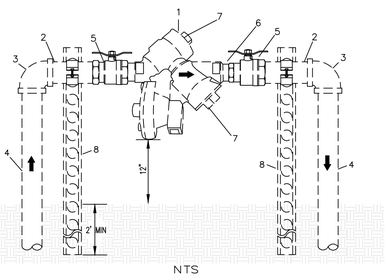
NOTES:

1. MAIN MAY PASS OVER STORM LINE IF 36" OF COVER IS PROVIDED OVER WATER MAIN.
2. PIPE MAY BE DEFLECTED AROUND DRAINAGE INLET IN ACCORDANCE WITH THE RESTRAINED JOINT GUIDELINES OF THE EBAA.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

WATERMAIN INSTALLATION BETWEEN STORM INLET AND R.O.W. DETAIL
W-10

FY-20/21
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 7/19
File Name: Watermain by Storm Inlet W-10
Page 14



NTS

MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	BACKFLOW PREVENTER ASSEMBLY
2	2	NOM. NIPPLES – BRASS
3	2	90° ELBOWS – GALV. OR PVC (SCH 80)
4	2	VARIES RISER – GALV.
5	2	BALL VALVE
6	1	UNION
7	*	TEST PORTS (SEE NOTES)
8	2	SS BRACKETS W/SS CLAMPS

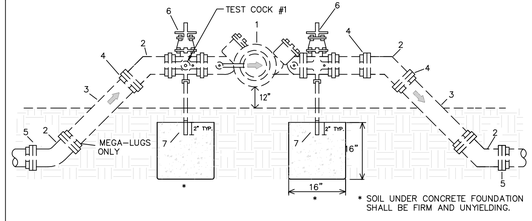
NOTES:

1. ACCEPTABLE MANUFACTURERS: (SEE CODB'S ACCEPTABLE PRODUCT LIST)
2. FIELD ADJUST AND CUT ITEM 4 TO THE PROPER LENGTH.
3. THE RISER & ELBOW TO BE PAINTED 1.36 OSHA RED FOR COMMERCIAL FIRE SERVICE, 1.37 OSHA BLUE FOR COMMERCIAL DOMESTIC SERVICE.
4. TEST PORTS (QUANTITY/LOCATIONS DEPENDING ON MANUFACTURER)
5. PVC PIPE REQUIRES SS BRACKETS W/SS CLAMPS

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

COMMERCIAL REDUCED PRESSURE ZONE BACKFLOW PREVENTER, SINGLE SERVICE 3/4",1",1-1/2" or 2" (PAGE 1 OF 3)
W-23

FY-20/21
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 07/10
File Name: Backflow Preventer Small W-23
Page 27



NTS

MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	VALVE, REDUCED PRESSURE PRINCIPLE
2	4	ELBOW –45°
3	2	D.I.P. RISER PIPE
4	3	ADAPTER FLANGE D.I.P.
5	2	ADAPTER FLANGE D.I.P.
6	2	VALVE, GATE, C.I., F-F
7	SEE NOTES	

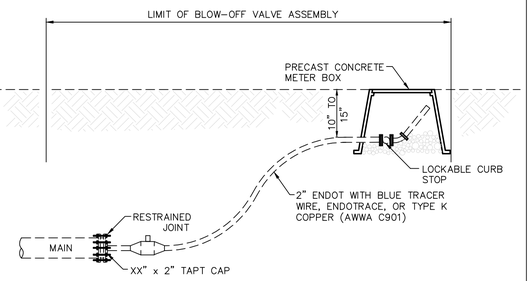
NOTES:

1. ACCEPTABLE MANUFACTURERS: (SEE CODB'S ACCEPTABLE PRODUCT LIST)
2. FIELD ADJUST AND CUT ITEM 3 & ITEM 7 (PIPE SUPPORT) TO THE PROPER LENGTH.
3. THE RISER & ELBOW TO BE PAINTED 1.36 OSHA RED FOR COMMERCIAL FIRE SERVICE, 1.37 OSHA BLUE FOR COMMERCIAL DOMESTIC SERVICE.
4. 2" GALV. IRON PIPE/CONCRETE FOUNDATION (16"x16"x16" MIN.)
5. TEST PORTS (QUANTITY/LOCATIONS DEPENDING ON MANUFACTURER)

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

COMMERCIAL REDUCED PRESSURE ZONE BACKFLOW PREVENTER, SINGLE SERVICE, 6" or 8" (PAGE 3 OF 3)
W-25

FY-20/21
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 01/19
File Name: Backflow Preventer Large W-25
Page 29



NOTE: INSTALL RESTRAINED JOINTS ON MAIN FOR MINIMUM OF 20' IN EACH DIRECTION FROM THE CORPORATION STOP.

1. ALL TEMPORARY BLOW-OFFS INSTALLED FOR SAMPLING PURPOSES MUST BE REMOVED BY CONTRACTOR.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

STANDARD 2" BLOW-OFF VALVE ASSEMBLY DETAIL
W-27

FY-20/21
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
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File Name: 2 Inch Blow Off Valve W-27
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SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	90° BEND	45° BEND	22.5° BEND	11.25° 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.

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:

TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 3 FEET (MIN.)
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

PVC
RESTRAINED JOINT
TABLE

NO.	DATE	DESCRIPTION	BY
3	08-13-20	BID SET	MRB
2	08-06-20	REVISED	MRB
1	07-24-20	REVISED	MRB

REVISIONS

PARKER MYNCHENBERG & ASSOCIATES, INC.
PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
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CERTIFICATE OF AUTHORIZATION NUMBER 00003910

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

WATER DISTRIBUTION SYSTEM DETAILS

DEV 2020-062
CITY APPROVAL STAMP

14
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: NONE
JOB#: 20-17

Z:\EBAU\EBAU - Eagle Fitness Complex\20-17\DRAWINGS\2017-DETAILS.dwg, 8/12/2020 4:03:24 PM, DWG To PDF.pc3

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS

1. THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY SANITARY SEWER CONSTRUCTION.
2. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING ACTIVITIES, OR IN ACTIVITIES, OR IN ANY CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHERS, ALLOWING CONSTRUCTION OR MAINTENANCE TO BE ONE IN THE DRY, OR ANY ACTIVITY WHICH CHANGES THE IMPERVIOUS AREA OF LAND. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BI-ANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S MS4 CONVEYANCE SYSTEM. DEWATERING PERMIT APPLICATIONS CAN BE FOUND AT https://ww.codb.us/index.aspx?nid=262. FEES ARE SUBJECT TO ARTICLE 7, SECTION 7.2 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO CITY OF DAYTONA BEACH STORM WATER COORDINATOR AT 125 BASIN STREET, SUITE 100, DAYTONA BEACH, FLORIDA 32114 PRIOR TO ANY USE OF MS4. FAILURE TO COMPLY WILL RESULT IN THE IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S MS4 SYSTEM.
3. UPON COMPLETION, THE CONTRACTOR SHALL PROVIDE THE CITY UTILITIES DEPARTMENT WITH A CCTV INSPECTION LOG ON DVD AND A PRINTED REPORT FOR ALL GRAVITY MAINS AND LATERALS CONSTRUCTED. ALL WORK, WITH THE EXCEPTION OF FINAL GRADE ADJUSTMENT TO MANHOLES AND BENCHES SHALL BE COMPLETED PRIOR TO COMMENCING THE CCTV INSPECTION. THE CONTRACTOR SHALL COORDINATE THE CCTV INSPECTION TIME WITH THE CITY UTILITY INSPECTOR PRIOR TO INITIATING THE WORK. FINAL PAVING SHALL NOT COMMENCE UNTIL APPROVAL IS RECEIVED FROM THE CITY UTILITY INSPECTOR.
4. SEWER LATERAL LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT "V" OR BY A METAL TAB SET INTO THE PAVEMENT.
5. THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL FORCE MAINS EQUAL TO OR GREATER THAN 6" IN DIAMETER AND PRIMARY TRANSMISSION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CITY.
6. WITH RESPECT TO TIE-IN CONNECTIONS AND CORING OPERATIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6:00 A.M.) (IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS.
7. ALL WORK ON SANITARY SEWER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE PERFORMED BY AN UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
8. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AS-BUILTS ARE PROVIDED TO THE CITY'S UTILITIES DEPARTMENT PRIOR TO ANY USE OF THE SYSTEM.
9. PLANS SHALL DIMENSION THE LOCATION OF ALL FORCE MAINS, VALVES, MANHOLES & LATERALS FROM THE BASELINE OF CONSTRUCTION AND FROM THE RIGHT-OF-WAY LINE.
10. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORM WATER INFRASTRUCTURE.
11. THE CITY'S AS-BUILT DRAWING REQUIREMENTS ARE ATTACHED TO THE BACK OF THE UTILITIES DEPARTMENT'S STANDARD DETAILS.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (PAGE 1 OF 4) S-1

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SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONT'D)

12. ALL GRAVITY SANITARY SEWER MAINS SHALL BE A MINIMUM OF 8" DIAMETER. COMMERCIAL SERVICE LATERALS SHALL BE GREEN AND A MINIMUM OF 6" IN DIAMETER, OR LARGER. ALL SINGLE FAMILY RESIDENTIAL SERVICE LATERALS SHALL BE 6" SINGLE SERVICES WITH CLEAN OUTS INSTALLED AT PROPERTY LINES.
13. ALL GRAVITY SANITARY SEWER MAINS SHALL BE GREEN PVC SDR-26, ASTM D-3034, OR C-900 DR-18 MINIMUM PRESSURE CLASS 150. IN PLACES WHERE A MINIMUM COVER OF 4 FEET CANNOT BE MAINTAINED OR IN DEPTHS OF 10 FEET OR GREATER C-900 OR C-905 GREEN PVC DR-18, MINIMUM PRESSURE CLASS 150 SHALL BE USED.
14. FOR SINGLE FAMILY HOMES, SINGLE SIX INCH SEWER SERVICE LATERALS SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE. THESE SERVICES SHALL BE EXTENDED 4 FEET ABOVE GROUND AT THE PROPERTY LINE WITH A PVC RISER AND PLUG EASILY VISIBLE FROM THE ROAD. RUBBER SEAL FITTINGS SHALL BE USED ON ALL LINES. NO GLUED JOINTS ARE PERMITTED ON LATERALS.
15. FOR MULTI-FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.
16. FORCE MAINS LESS THAN 18" MAY USE PVC C900 OR C905 DR-18. FORCE MAINS 18" AND LARGER SHALL BE DUCTILE IRON PIPE (D.I.P.), CLASS 350, EPOXY LINED. ALL NON DUCTILE IRON PIPE HORIZONTAL DIRECTIONAL DRILL FORCE MAINS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING DEPENDING ON SITE CONDITIONS. INSIDE DIAMETER OF NON D.I.P. HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. DIRECTIONAL DRILLS SHALL HAVE FUSED MJ ADAPTERS.
17. FORCE MAIN MINIMUM DEPTH OF COVER SHALL BE 48". ALL FORCE MAINS SHALL BE DISTINCTLY MARKED BY GREEN STRIPES OR COLORED GREEN.
18. ALL FITTINGS, VALVES, ECT. SHALL BE DUCTILE IRON (MJ OR FLANGED) AND RESTRAINED. ALL FORCE MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT (EBAA.COM).
19. ALL RESTRAINED PIPE BELL JOINTS SHALL USE BELL RESTRAINTS. GRIPPER TYPE GASKETS CAN BE USED FOR DUCTILE IRON PIPE JOINTS.
20. AS A GENERAL RULE, THE NUMBER OF JOINTS SHALL BE LIMITED WHENEVER POSSIBLE. IN SPECIAL CASES WHERE A POINT REPAIR TO AN 8" TO 12" PVC SEWER MAIN IS REQUIRED, THE PROPER RIGID WRAP AROUND SLEEVE MAY BE ALLOWED BY CITY SPECIAL APPROVAL.
21. ALL IN-LINE SANITARY SEWER FORCE MAIN VALVES SHALL BE PLUG VALVES UNLESS OTHERWISE NOTED. VALVES SHALL BE INSTALLED AT EACH END OF THE FORCE MAIN AND ON STUB OUTS.
22. ALL C-900 PVC PIPE REQUIREMENTS REFERENCE THE C-900 STANDARDS. DR UPGRADES FOR BURST PROTECTION MAY BE REQUIRED WHEN USING THE C-900 STANDARDS.
23. MINIMUM GRAVITY SANITARY SEWER SLOPES ARE AS FOLLOWS: 8" PIPE 0.40%, 10" PIPE 0.28%, 12" PIPE 0.22%, 15" PIPE 0.15%, OR OTHERWISE NOTED BY UTILITIES DEPT.
24. GRAVITY SANITARY SEWER LINES SHALL BE INSTALLED WHENEVER POSSIBLE UNDER PAVED AREAS WITHIN PUBLIC RIGHT-OF-WAYS. UTILITY EASEMENTS SHALL BE PROVIDED WHENEVER PUBLICLY-OWNED SEWER LINES ARE CONSTRUCTED OUTSIDE OF A PUBLIC RIGHT-OF-WAY.
25. GRAVITY SANITARY SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT UNLESS ANOTHER METHOD IS APPROVED BY THE CITY.
26. DURING PIPE INSTALLATION DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING INSTALLED WITHIN THE AREA OF THE TRENCH.
27. ALL PIPES SHALL BE INSTALLED ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES IS NOT ACCEPTABLE. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY.
28. ON ALL EXCAVATION AND BACKFILLING THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING IN ORDER TO PROVIDE A SAFE WORKING ENVIRONMENT.
29. ALL TRENCHES SHALL BE BACKFILLED WITH ACCEPTABLE MATERIAL AND COMPACTED TO THE SPECIFIED MINIMUM COMPACTION (95% IN UNPAVED AREAS AND 98% IN PAVED AREAS) AND THE OPTIMUM DENSITY BASED ON THE AASHTO T-180 MODIFIED PROCTOR TEST.
30. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONT'D) (PAGE 2 OF 4) S-2

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SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONT'D)

31. THE CONTRACTOR SHALL INSTALL A #12-GAUGE MINIMUM COPPER TRACER WIRE TAPED TO THE TOP OF THE PIPE AT INTERVALS NO GREATER THEN 4-FEET. COPPER WIRE SHALL HAVE A MIN. TENSILE STRENGH/BREAK LOAD OF 452 LBS. AND REQUIRES APPROVAL BY THE CITY FOR THE FULL LENGTH OF ALL SEWER FORCE MAINS. THE PIPE LOCATOR TAPE SHALL BE INSTALLED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER. TAPE SHALL BE COLOR CODED GREEN FOR FORCE MAINS. LOCATER WIRE SHALL TERMINATE AT A LOCATION AND IN A MANNER CONVENIENT FOR CITY LOCATER STAFF.
32. TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION.
33. ALL SEWER LINES CONSTRUCTED OUTSIDE OF PUBLIC RIGHT-OF-WAYS WITHIN SIDE YARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF GREEN C-900 PVC. ABSOLUTELY NO USE OF PLASTIC STYRENE FITTINGS SHALL BE ALLOWED.
34. ALL LOCAL COLLECTION SANITARY SEWER MANHOLES SHALL BE PRECAST WITH A MINIMUM INSIDE DIAMETER OF 4 FEET. MANHOLES OVER 6 FEET DEEP SHALL HAVE A MINIMUM 4 FT TALL PRE-CAST BOTTOM SECTION.
35. STANDARD MANHOLES SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 400 FEET.
36. MANHOLE RIMS SHALL BE FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.5 FEET AND MAXIMUM OF 1.0 FOOT ABOVE GRADE IN UNPAVED AREAS.
37. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.
38. INDIVIDUAL SANITARY SERVICES SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES AND MUST BE CONNECTED TO SEWER MAINS BY USE OF WYE CONNECTIONS UNLESS OTHERWISE APPROVED BY THE CITY.
39. SANITARY SEWER DROP MANHOLES SHALL ONLY BE USED UNDER SPECIAL CONDITIONS AS APPROVED BY THE CITY. DROPS LESS THAN 3.0' ARE NOT ALLOWED. INSIDE DROPS ARE NOT ALLOWED.
40. SANITARY SEWER MANHOLES WITH SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM SHALL BE FIBERGLASS OR POLY-ETHYLENE LINED. RETRO-FITTING OF MANHOLES WITH LINERS IS REQUIRED WHEN NEW CONNECTIONS ARE MADE. FIBERGLASS SHALL BE A MINIMUM 1/2" THICK UNLESS APPROVED OTHERWISE BY THE CITY. OTHER LINING METHODS AND MATERIALS MAY BE CONSIDERED ON A CASE BY CASE BASIS. UNDER CIRCUMSTANCES WHERE HYDROGEN SULFIDE IS A SIGNIFICANT CONCERN, MANHOLES UPSTREAM AND/OR DOWNSTREAM OF THE FORCE MAIN TIE-IN MAY BE REQUIRED TO HAVE LININGS INSTALLED.
41. EZ-WRAP PLASTIC, AS MANUFACTURED BY PRESS SEAL GASKET CORPORATION, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WETWELL JOINTS. APPLY ONE LAYER OF 9" WRAP CENTERED ON EACH JOINT. A CITY INSPECTOR SHALL INSPECT ALL JOINT SEALS PRIOR TO BACKFILLING OPERATIONS.
42. CONTRACTOR FOR DEVELOPMENTS WITH THE POTENTIAL TO DISCHARGE INDUSTRIAL OR COMMERCIAL WASTE INTO THE SEWER SYSTEM SHALL CONSTRUCT AND MAINTAIN AT THE OWNER'S EXPENSE A SUITABLE CONTROL MANHOLE OR MANHOLES DOWNSTREAM OF ANY TREATMENT, STORAGE, OR OTHER APPROVED WORKS, PRIOR TO THE CITY'S COLLECTION SYSTEM TO FACILITATE OBSERVATION, MEASUREMENT, AND SAMPLING OF ALL WASTE, INCLUDING ALL DOMESTIC SEWAGE FROM THE ESTABLISHMENT.
43. CONTROL MANHOLE OR MANHOLES SHALL BE CONSTRUCTED AT LOCATIONS EASILY ACCESSIBLE AT ALL TIMES TO CITY PERSONNEL FOR SAMPLING.
44. SANITARY SEWER LIFT STATIONS AND FORCE MAINS SHALL BE APPROVED BY THE CITY. LIFT STATIONS SHALL BE CONSTRUCTED WITH A MINIMUM WET WELL AS SHOWN IN THE LIFT STATION DETAIL.
45. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO PREPARE AND SUBMIT FLOTATION CALCULATIONS TO SIZE THE BASE OF THE WET WELL, AND ANY MANHOLES AS DEEMED NECESSARY BY THE CITY.
46. ALL FITTINGS SHALL MEET THE MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/DIPRA, AND ALL PRESSURE PIPES UNDER ROADWAYS SHALL BE RESTRAINED.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONT'D) (PAGE 3 OF 4) S-3

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SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS

TESTING REQUIREMENTS:

1. THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. TESTS SHALL BE DONE ONE FOOT ABOVE THE PIPE AND AT ONE FOOT VERTICAL INTERVALS UNTIL FINAL GRADE IS REACHED. TESTS SHALL BE COMPLETED A MINIMUM FREQUENCY OF ONE SET OF TESTS EACH 300 FOOT LENGTH OF PIPING AND ONE ADDITIONAL SET OF TESTS AT EVERY MANHOLE. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS. TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S DESIGNATED SITE INSPECTOR. INSPECTOR.
2. ALL TESTING REQUIRED BY THE CITY SHALL BE PAID FOR BY THE CONTRACTOR / DEVELOPER.
3. THE CITY OF DAYTONA BEACH RESERVES THE RIGHT TO REQUIRE THE DEVELOPER TO PERFORM VACUUM TESTING OF ALL SANITARY MANHOLES AND TO AIR TEST SEWER MAINS.
4. ALL PROPOSED SEWER FORCE MAINS SHALL BE FLUSHED, PRESSURE TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIROMENTAL PROTECTION PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR AT LEAST 3 BUSINESS DAYS PRIOR TO BEGINNING A FULL-DIAMETER FLUSH OF THE MAINS FOR PRESSURE TESTING.
5. SANITARY SEWER FORCE MAINS SHALL BE PRESSURE TESTED TO 100 PSI FOR 2 HOURS WITH ALLOWABLE LEAKAGE BASED ON THE TABLE BELOW.

ALLOWABLE LEAKAGE PER 1000 FT. OF PIPELINE * -GPH

AVERAGE TEST PRESSURE (PSI)	NOMINAL PIPE DIAMETER – INCHES																AVERAGE TEST PRESSURE (PSI)
	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54	60	64	
450	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60	9.56	10.19	450
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11	9.01	9.61	400
350	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58	8.43	8.99	350
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02	7.80	8.32	300
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72	7.47	7.97	275
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56	4.27	4.99	5.70	6.41	7.12	7.60	250
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38	4.05	4.73	5.41	6.03	6.76	7.21	225
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19	3.82	4.46	5.09	5.73	6.37	6.80	200
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98	3.58	4.17	4.77	5.36	5.96	6.36	175
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97	5.52	5.88	150
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52	3.02	3.53	4.03	4.53	5.04	5.37	125
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05	4.50	4.80	100

** IF THE PIPELINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE ALLOWABLE LEAKAGE WILL BE THE SUM OF THE COMPUTED LEAKAGE FOR EACH SIZE.*

$$L = \frac{SD\sqrt{P}}{133{,}200}$$

WHERE:
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — SANITARY SEWER TESTING REQUIREMENTS NOTES (PAGE 4 OF 4) S-4

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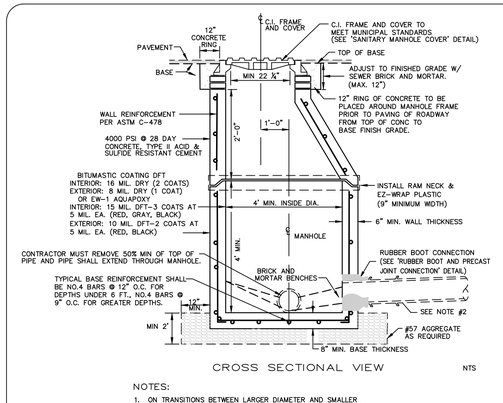

CROSS SECTIONAL VIEW NTS

NOTES:
1. ON TRANSITIONS BETWEEN LARGER DIAMETER AND SMALLER SEWER COLLECTORS, INVERTS OF SEWERS SHALL BE MATCHED.
2. LAST 60' OF F.M. 12" PIPING ENTERING SEWER MANHOLE SHALL BE P.V.C. C-900 PLACED AT A NEGATIVE GRADE. 15" AND ABOVE SHALL BE P.V.C. C-905.
3. NON-PENETRATING PICK-HOLES IN ALL CONCRETE SECTIONS.
4. DFT = DRY FILM THICKNESS
5. 0.1' = DROP ACROSS MANHOLE TYP. (MEASURED DIA. OF CONCRETE RING)
6. MANHOLES 8' DEEP OR GREATER SHALL HAVE A MIN. 4' HIGH WALL BASE.
7. ANY PIPE ENTERING MANHOLE MUST HAVE A RUBBER BOOT CONNECTION.
8. MORTAR TO CONTAIN "HYDRATITE", OR APPROVED EQUAL, TO PREVENT SHRINKAGE.
9. SUB-GRADE BENEATH MANHOLES SHALL BE UNDISTURBED GRANULAR UNSAUTURATED SOIL. No. 57 AGGREGATE STONE SHALL BE USED IN WET CONDITIONS AND/OR WHERE UNSUITABLE MATERIAL IS ENCOUNTERED.
10. CONTRACTOR SHALL PROVIDE THICKER MANHOLE WALLS AND BASES AS REQUIRED TO PREVENT FLOTATION BASED ON HISTORIC HIGH GROUND WATER TABLE ELEVATIONS AS DETERMINED USING ACCEPTED ENGINEERING PRACTICES AND/OR APPROVED BY UTILITIES DEPARTMENT.
11. SHOP DRAWINGS FOR ALL STRUCTURES SHALL BE SUBMITTED TO AND APPROVED BY THE DESIGN ENGINEER PRIOR TO INSTALLATION.
12. NO IRREGULAVITIES OR HONEYCOMB WILL BE ACCEPTED.
13. ENDS OF THE TOP AND BOTTOM SECTIONS OF THE MANHOLE SHALL FIT FLUSH TOGETHER.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — SANITARY SEWER MANHOLE AND GENERAL NOTES S-11

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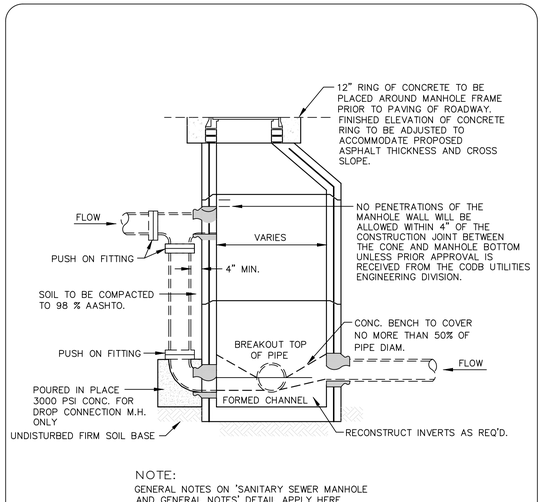

NOTE:
GENERAL NOTES ON 'SANITARY SEWER MANHOLE AND GENERAL NOTES' DETAIL APPLY HERE
1. DROPS OF MORE THAN THREE FEET SHALL REQUIRE AN OUTSIDE DROP
2. NO RISER RINGS SHALL BE USED FOR NEW CONSTRUCTION.
3. ALL CONCRETE INSIDE THE MANHOLE SHALL BE PAINTED.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — OUTSIDE DROP SANITARY MANHOLE DETAIL S-12

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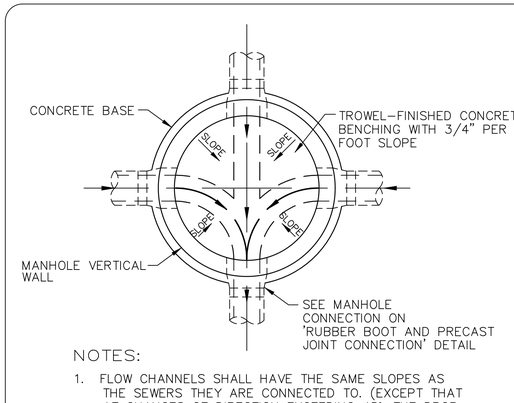


NOTES:
1. FLOW CHANNELS SHALL HAVE THE SAME SLOPES AS THE SEWERS THEY ARE CONNECTED TO. (EXCEPT THAT AT CHANGES OF DIRECTION EXCEEDING 45°, THE DROP SHALL BE 0.1' MINIMUM)
2. NO STANDING WATER WILL BE ALLOWED.
3. FORM BENCH IN MANHOLE FROM MID-LINE OF 8" PIPE TO WALL OF MANHOLE, 3/4" PER FT. OF SLOPE. FOR LARGER PIPE, CONSTRUCT FROM INSIDE CROWN OF PIPE WITH 3/4" PER FT. OF SLOPE TO WALL.
4. ALL CONCRETE INSIDE THE MANHOLE SHALL BE PAINTED.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — SANITARY MANHOLE INVERT DETAIL S-13

FY-19/20 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: 01/19 | File Name: Invert Detail S-13 | Page 75

NO.	DATE	DESCRIPTION
3	08-13-20	BID SET
2	08-06-20	REVISED
1	07-24-20	REVISED
		REVISIONS

BY: MRB, MRB, MRB

PARKER MYNCHENBERG & ASSOCIATES, INC.
PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
1729 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
(386) 677-6891 FAX (386) 677-2114 E-MAIL: info@parkermynchenberg.com
CERTIFICATE OF AUTHORIZATION NUMBER 00003910

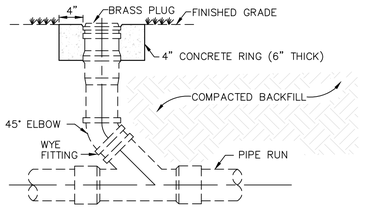
EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

SANITARY COLLECTION SYSTEM DETAILS

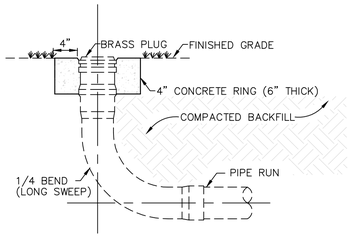
DEV 2020-062
CITY APPROVAL STAMP

15
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: NONE
JOB#: 20-17



IN–LINE CLEANOUT



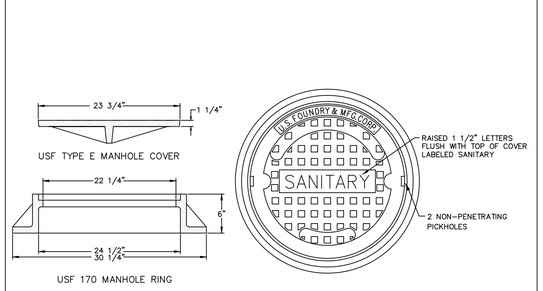
TERMINAL CLEANOUT

NOTE:
CONCRETE COLLAR REQUIRED IN UNPAVED AREAS

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

SANITARY LATERAL CLEANOUT DETAIL
S–10

FY–19/20
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date:
File Name: Sanitary Cleanout S–10
Page 72



NOTES:

1. UNLESS DETAILED PLANS SHOW OTHERWISE, ALL MANHOLE RING AND COVER CASTINGS IN PAVED AREAS ARE TO BE ADJUSTED TO FINAL GRADE, SEALED AND SECURED IN PLACE WITH A CONCRETE COLLAR AFTER THE ROAD BASE IS PLACED AND JUST PRIOR TO PLACEMENT OF ASPHALT WEARING SURFACE.
2. CONCRETE COLLAR AROUND MANHOLE FRAME IS REQUIRED IN PAVED AREAS ONLY.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

SANITARY SEWER COVER DETAIL
S–15

FY–19/20
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date:
File Name: Sanitary Sewer Cover S–15
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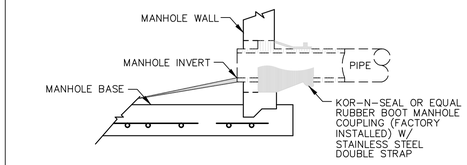
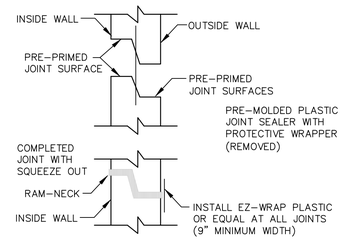


MANHOLE PIPE CONNECTION DETAIL
FOR NEW CONNECTIONS IN EXISTING MANHOLES



PRECAST JOINT CONNECTION

NOTES:

1. ALL NEW CONNECTIONS TO EXISTING SANITARY SEWER MANHOLES SHALL UTILIZE A CORING METHOD AND THE IN–FIELD INSTALLATION OF A RUBBER BOOT INTO THE MANHOLE.
2. BOOTS SHALL BE SNAPPED IN PLACE AND WATER TIGHT.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL
S–14

FY–19/20
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date:
File Name: Rubber Boot and Precast Joint Connection S–14
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NO.	DATE	DESCRIPTION	BY
		REVISIONS	
3	08–13–20	BID SET	MRB
2	08–06–20	REVISED	MRB
1	07–24–20	REVISED	MRB

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EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

SANITARY COLLECTION SYSTEM DETAILS

DEV 2020–062
CITY APPROVAL STAMP

16
SHEET NO.

Drawn By: MRB

Date: 03/20/2020

SCALE: NONE

JOB#: 20–17

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)					
FITTING	90° BEND	45° BEND	22.5° BEND	11.25° 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.

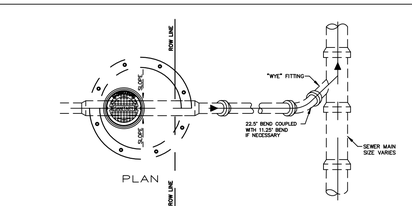
TABLE APPLIES TO DUCTILE IRON PIPE FOR THE FOLLOWING CONDITIONS:

TEST PRESSURE: 150 PSIG
SOIL TYPE: SP
COVER DEPTH: 3 FEET (MIN.)
SAFETY FACTOR: 1.5
TRENCH TYPE: 2

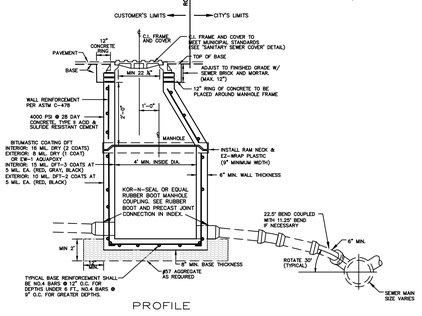
VALUES IN PARENTHESIS (X) ARE FOR PIPE ENCASED IN POLYETHYLENE.

* VALUES APPLY TO DUCTILE IRON PIPE AT 50 PSI TEST PRESSURE.

DIP RESTRAINED JOINT TABLE



PLAN



PROFILE

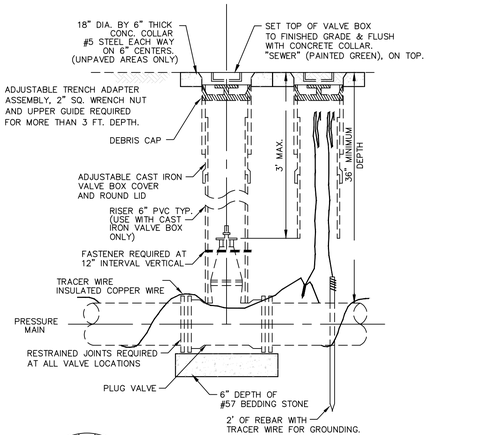
NOTES:

1. MANHOLE IS TO BE TYPE P (ALT A OR B) AND COMPLY WITH FDOT STANDARD PLANS.
2. MANHOLE HEIGHT SHALL BE THREE TIMES THE OD OF THE LATERAL BUT NO LESS THAN 18".
3. WHEN VCP (CLAY) MAIN IS ENCOUNTERED UTILIZE A PVC WYE WITH TWO PVC TO VCP COUPLINGS FOR SERVICE CONNECTION
4. ALL BENCHES AND INVERTS SHALL COMPLY TO OUR STANDARDS IN 'SANITARY SEWER MANHOLE AND GENERAL NOTES'.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

COMMERCIAL SANITARY LATERAL DETAIL
S–9 A

FY–19/20
Drawing Date: 11/10
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date:
File Name: Commercial Lateral S–9 A
Page 70



SEWER
SEWER VALVE COVER

NOTES:

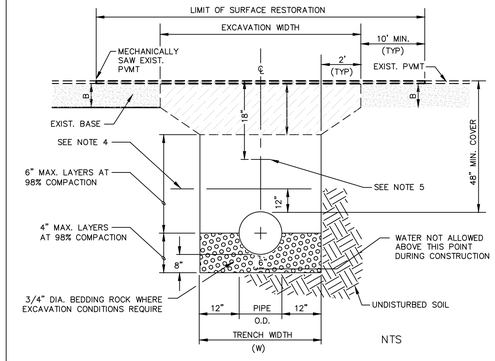
1. SEE CODB'S APPROVED PRODUCT LIST FOR ACCEPTABLE MANUFACTURERS.
2. INSTALL RESTRAINED JOINTS, AS REQUIRED, FROM DEFLECTION POINT IN BOTH DIRECTIONS (20' MIN.)
3. TRACER WIRE SHALL BE A MINIMUM 12 GUAGE WITH A TENSILE STRENGTH/BREAK LOAD OF 452 LBS. SEE TRACER WIRE SPECIFICATION #15049

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

SANITARY VALVE AND VALVE BOX DETAIL
S–16

FY–19/20
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 01/19
File Name: Sanitary Valve & Box S–16
Page 78

NOTE: TO DETERMINE THE MOST CURRENT REQUIREMENTS FOR STABILIZATION MATERIAL, BASE MATERIAL, AND ASPHALT MATERIAL PATCH AND THE REPLACEMENT DIMENSIONS CONTACT CITY ENGINEER IN THE PUBLIC WORKS DEPT AT 386–671–8610.



NTS

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 COMPACTION TEST REPORTS TO CITY INSPECTOR.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. FOR PVC PIPE ONLY – INSTALL METALLIC TAPE AND UF #12 INSULATED SINGLE STRAND COPPER WIRE OVER FULL LENGTH OF PIPE.
6. THE CONTRACTOR SHALL, UNLESS OTHERWISE NOTED, RESTORE ALL STRIPING, PAVEMENT MARKINGS, DELINEATORS, SIGNAGE AND TRAFFIC SIGNAL SYSTEM COMPONENTS DISTURBED DURING CONSTRUCTION ACTIVITIES. COST OF ALL WORK AND MATERIALS WILL BE CONSIDERED INCIDENTAL TO PATCH MATERIAL ITEMS.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT

PAVEMENT CUT AND PATCH DETAIL
S–7

FY–19/20
Drawing Date: 01/08
Drawn By: KLH
Checked By: JMP
Scale: NTS
Revision Date: 8/29/2017
File Name: Pavement Cut and Patch S–7
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RECLAIMED WATER CONSTRUCTION NOTES

1. THE CITY'S UTILITIES DEPARTMENT (671–8815) SHALL BE GIVEN A MINIMUM OF THREE BUSINESS DAYS NOTICE (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
2. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING OR CONSTRUCTION ACTIVITY THAT CHANGES THE IMPERVIOUS AREA OF LAND. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES, ALLOWING CONSTRUCTION OR MAINTENANCE IN A DRY ENVIRONMENT. SITE SPECIFIC DEWATERING PERMITS SHALL REQUIRE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE AN ANNUAL FEE BASED ON A BIANNUAL SCHEDULE OF DEWATERING ACTIVITIES DISCHARGING DIRECTLY INTO THE CITY'S MS4 CONVEYANCE SYSTEM. DEWATERING PERMIT APPLICATIONS CAN BE FOUND AT https://www.codb.us/index.aspx?nid=262.
FEES ARE SUBJECT TO ARTICLE 7, SECTION 7.2 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED WITH THE PERMIT APPLICATION TO THE CITY OF DAYTONA BEACH STORM WATER COORDINATOR AT 125 BASIN STREET, SUITE 100, DAYTONA BEACH, FLORIDA 32114 PRIOR TO ANY USE OF THE CITY'S MS4 CONVEYANCE SYSTEM. FAILURE TO COMPLY WILL RESULT IN IMMEDIATE TERMINATION OF ACCESS TO THE CITY'S MS4 SYSTEM.
3. RECLAIMED WATER SERVICE ENDINGS SHALL BE SECURED BY WIRE TO 2" X 4" PRESSURE TREATED STAKES, APPROXIMATELY 2' ABOVE GRADE OR MAY BE PLACED IN RECLAIMED WATER METER BOXES PROVIDED BY THE CONTRACTOR AT THE TIME OF FINAL SUBDIVISION INSPECTION.
4. FOR PIPE FLUSHING, PIGGING, TESTING, AND TIE–IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 8 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE WITH THE CITY REPRESENTATIVE THE DATE AND TIME, THAT MUST BE APPROVED BY WATER PLANT OPERATIONS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY "AS–BUILT DRAWINGS" TO THE CITY PRIOR TO ANY USE OF THE SYSTEM. **SEE CITY OF DAYTONA BEACH AS–BUILT REQUIREMENTS.**
6. ALL RECLAIMED WATER SERVICES SHALL BE MARKED ALONG THE OUTSIDE EDGE OF CURB WITH A "◇" OR BY METAL TABS SET INTO PAVEMENT. VALVES AND BLOW–OFFS FOR RECLAIMED WATER MAINS SHALL BE MARKED BY A "+" SET INTO THE PAVEMENT AND PAINTED WITH PURPLE ENAMEL.
7. RECLAIMED WATER SERVICES SHALL BE LOCATED AT SIDE LOT LINES ALTERNATING WITH POTABLE WATER SERVICE LOCATIONS. IN INSTANCES WHERE RECLAIMED WATER SERVICES MUST BE OFFSET, THE SERVICES MAY BE OFFSET FROM THE LOT LINE A MAXIMUM DISTANCE OF 2 FEET.
8. ALL RECLAIMED WATER HAND–OPERATED CONNECTIONS AND OUTLETS SHALL BE CONTAINED IN UNDER–GROUND SERVICE VAULTS AND APPROPRIATELY TAGGED OR LABELED TO WARN THE PUBLIC AND EMPLOYEES THAT THE WATER IS NOT INTENDED FOR DRINKING OR SWIMMING. ANY SIGNIFICANT IRRIGATION SITE UTILIZING RECLAIMED WATER, SUCH AS AN ATHLETIC FIELD, GOLF COURSE, PARK OR POND, IS REQUIRED TO POST A 12" x 12" RECLAIMED WATER SIGN WARNING THE PUBLIC AND EMPLOYEES THAT RECLAIMED WATER IS NOT INTENDED FOR DRINKING OR SWIMMING. THIS SIGN SHALL BE PLACED AT THE ENTRANCE TO THE SITE AND THE LOCATION OF THE PRIVATE REUSE SYSTEM. SEE 'RECLAIMED WATER IN USE' DETAIL.
9. VAULTS FOR OUTLETS SHALL BE LOCKED OR REQUIRE A SPECIAL TOOL FOR OPERATION.
10. A 75 FOOT SETBACK DISTANCE SHALL BE PROVIDED FROM PUBLIC ACCESS RECLAIMED WETTED AREAS TO PUBLIC OR PRIVATE POTABLE WATER SUPPLY WELLS.
11. LOW TRAJECTORY NOZZLES ARE REQUIRED WITHIN 100 FEET OF PUBLIC EATING, DRINKING OR BATHING FACILITIES.
12. ALL RECLAIMED WATER MAINS SHALL BE INSTALLED ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
13. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 95% IN UNPAVED AREAS AND 98% IN PAVED AREAS IN ACCORDANCE WITH AASHTO T–180.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — DESIGN AND CONSTRUCTION NOTES PAGE 1 OF 3 RW–1
FY–20/21 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: 02/2019 | File Name: Reclaimed Notes RW–1 | Page 42

RECLAIMED WATER CONSTRUCTION NOTES (CONT'D)

14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TRENCH COMPACTION TESTS AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12 INCHES VERTICAL INTERVALS TO FINISH GRADE AT A MAXIMUM SPACING OF EVERY 300 FEET.
15. 3" METALIZED PIPE LOCATION TAPE SHALL BE INSTALLED 15" TO 24" BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES, AND A SINGLE STRAND INSULATED COPPER TRACER WIRE SHALL BE ATTACHED TO ALL PVC PIPE. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. EACH RUN SHALL TERMINATE AT EVERY VALVE. SEE STANDARD DETAIL "MAIN VALVE BOX" FOR INSTALLATION OF WIRE ON RISER PIPE. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBLY TO ENSURE CONTINUITY AND TEST FOR CONTINUITY (SEE CITY SPECIFICATIONS #15049 TRACER WIRE AND ALARMING TAPE).
16. ALL SINGLE RESIDENTIAL WATER SERVICES SHALL BE 1". SERVICES SHALL BE CTS 3408 HIGH DENSITY POLYETHYLENE TUBING RATED FOR A MINIMUM OF 200 PSI WITH SODR 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL BE PURPLE IN COLOR AND SHALL HAVE THE WORDS "RECLAIMED WATER" PERMANENTLY PRINTED ON THE OUTSIDE. THE TUBING SHALL HAVE U.V. PROTECTION AND SHALL NOT BE AFFECTED BY DIRECT SUNLIGHT. THE TUBING SHALL COMPLY WITH OR EXCEED THE APPLICABLE STANDARDS OF A.S.T.M. D1248, D3350, D2239, D2737, N.S.F.–14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. APPROVED SIZES: 1" AND 2" DIAMETERS.
17. RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF THE CURB ON THE OPPOSITE SIDE OF THE ROAD OF THE POTABLE WATER MAINS, OR AS APPROVED BY THE CITY. RECLAIMED WATER MAINS SHOULD NOT BE INSTALLED UNDER SIDEWALK.
18. ALL RECLAIMED WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVE, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT/PROTECTIVE SLAB MAY BE USED AT THE DISCRETION OF THE UTILITIES DEPARTMENT. ALL DIP SHALL HAVE 2" PURPLE STRIPES PAINTED AT 12 O'COLCK,3 O'CLOCK, 6 O'CLOCK AND 9 O'CLOCK FOR THE FULL LENGTH OF PIPE. NON PAINTED RECLAIMED PIPE OR PIPES SHALL BE PAINTED WITH AN EPOXY PAINT (PANTONE PURPLE) TO CLEARLY MARK THE RECLAIM PIPE OR PIPES.
19. RECLAIMED WATER MAINS SHALL BE PURPLE PVC, DR–18 AWWA CLASS C–900 OR C–905, CL 150, OR DIP PRESSURE CLASS 350, STANDARD CEMENT LINED (PAINTED PANTONE PURPLE) UNLESS APPROVED OTHERWISE BY THE CITY. ALL HORIZONTAL DIRECTIONAL DRILLS SHALL HAVE A MINIMUM WORKING PRESSURE OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING BASED ON SITE CONDITIONS. INSIDE DIAMETER OF HORIZONTAL DIRECTIONAL DRILL PIPE SHALL MATCH THE INSIDE DIAMETER OF CONNECTING PIPES. ALL GASKETS SHALL BE LUBRICATED BEFORE INSTALLATION.
20. DIRECTIONAL DRILLS SHALL HAVE FUSSED MJ ADAPTERS.
21. ALL RECLAIMED WATER MAINS SHALL USE THRUST RESTRAINT AS CALCULATED BY A PROGRAM AVAILABLE AT EBAA.COM, THE RESTRAINED JOINT LENGTHS SHALL BE SHOWN ON PLANS PROVIDED BY EOR.
22. ALL FITTINGS, VALVES, ECT. SHALL BE DUCTILE IRON (MJ OR FLANGED) AND SHALL BE RESTRAINED.
23. BELL RESTRAINTS OR GRIPPER TYPE GASKETS CAN BE USED FOR ALL RESTRAINED PIPE BELL JOINTS. CONCRETE THRUST BLOCKS ARE NOT PERMITTED.
24. VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 750 FEET.
25. VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE AT ALL RECLAIMED WATER MAIN TEES AND CROSSES.
26. ALL VALVES SHALL BE ADJUSTED TO FINISH GRADE AND CAPS SHALL BE PAINTED PURPLE.
27. THE CONTRACTOR IS REQUIRED TO PIG ALL RECLAIMED WATER MAINS EQUAL TO OR GREATER THAN 6" IN DIAMETER AND PRIMARY DISTRIBUTION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR.
28. IN AREAS WHERE RECLAIMED WATER IS AVAILABLE, RECLAIMED WATER WILL BE UTILIZED IN THE PRESSURE TESTING OF NEW NON–POTABLE WATER LINES.
29. RECLAIMED WATER MAINS SHALL NOT BE PLACED IN SERVICE UNTIL A PRESSURE TEST AT 150 PSI FOR 3 HOURS HAS PASSED AND THE RESULTS ARE FORWARDED TO THE CITY.
30. THE CONTRACTOR SHALL PERFORM RECLAIMED WATER TAPS WITH A CITY REPRESENTIVE PRESENT.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — DESIGN AND CONSTRUCTION NOTES PAGE 2 OF 3 RW–2
FY–20/21 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: 03/2020 | File Name: Reclaimed Notes RW–2 | Page 43

RECLAIMED WATER CONSTRUCTION NOTES (CONT'D)

31. WITH RESPECT TO TIE–IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNEC–TIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW.
32. THE PLANS SHALL INCLUDE THE PROPOSED LOCATIONS OF ALL RECLAIMED WATER MAINS MEASURED FROM THE BACK OF CURB (EDGE OF PAVEMENT IF NO CURB EXISTS) AND THE RIGHT_OF_WAY LINE.
33. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORM WATER INFRASTRUCTURE.
34. THE RECLAIMED WATER MAIN SHALL NOT BE PLACED IN SERVICE UNTIL AN APPROVED BACKFLOW PREVENTER HAS BEEN INSTALLED ON THE CUSTOMER'S POTABLE SERVICE LINE.
35. PRESSURE TESTS FOR TAPPING SADDLES AND VALVES SHALL BE A MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT THE MANUFACTURER'S RECOMMENDED TESTING PRESSURE.
36. 3 INCH METALIZED PIPE LOCATION TAPE SHALL BE LOCATED 15 INCHES TO 24 INCHES BELOW FINISHED GRADE OR AS SPECIFIED BY THE MANUFACTURER FOR ALL WATER LINES. BLUE TRACER WIRE SHALL BE ATTACHED TO ALL PIPES. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. SERVICES SHALL BE CONNECTED TO THE MAIN WIRE WITH SILICONE FILLED WIRE CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND TEST FOR CONTINUITY (SEE CITY SPECIFICATION #15049 TRACER WIRE AND ALARMING TAPE). TRACER WIRE SHALL BE TESTED FOR CONTINUITY UNDER THE SUPERVISION OF A CITY REPRESENTATIVE AFTER INSTALLATION. IF A METER BOX IS NOT WITHIN 200 FEET OF A VALVE AND VALVE BOX AN ADDITIONAL VALVE BOX FOR TRACER WIRE IS REQUIRED.
37. ALL FITTINGS SHALL MEET MINIMUM RESTRAINT REQUIREMENTS PER ANSI/AWWA/EBAA, AND ALL PRESSURE PIPES UNDER THE ROADWAYS SHALL BE RESTRAINED.
38. IN AREAS WHERE RECLAIMED WATER IS NOT AVAILABLE, THE CONTRACTOR IS REQUIRED TO USE THE NECESSARY BACKFLOW PREVENTION DEVICES TO TRANSFER POTABLE WATER TO NON–POTABLE WATER LINES TO PERFORM THE REQUIRED PRESSURE TEST.
39. WHERE POTABLE WATER MAINS, RECLAIMED WATER MAINS, FORCE MAINS, SANITARY SEWER MAINS OR STORMWATER MAINS CROSS WITH LESS THAN 12 INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER OR THE RECLAIMED WATER MAIN IS ABOVE THE WATER MAIN, MEDIATION MUST BE REVIEWED AND APPROVED BY FDEP.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — DESIGN AND CONSTRUCTION NOTES PAGE 3 OF 3 RW–3

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)	Water Main; 3 ft. minimum	Water Main; 12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum; Water Main
Vacuum Sanitary Sewer	Water Main; 10 ft. preferred 3 ft. minimum	Water Main; 12 inches is preferred 6 inches minimum	Alternate 3 ft. minimum; Water Main
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	Water Main; 10 ft. preferred 6 ft. minimum (3)	Water Main; 12 inches is the minimum, except for gravity sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum; Water Main
On-Site Sewage Treatment & Disposal System	10 ft. minimum	—	—

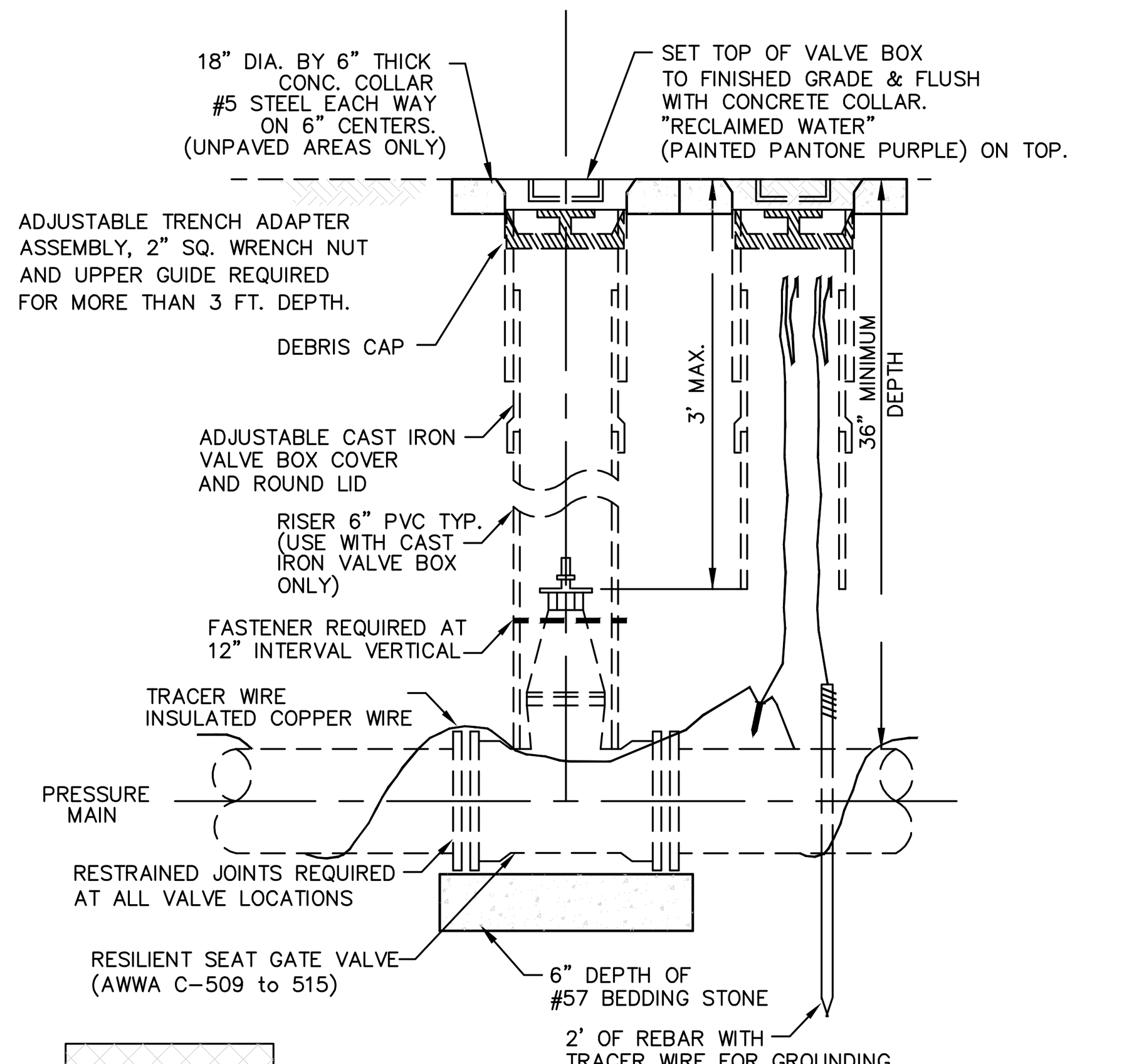
(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.
(2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(3) 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

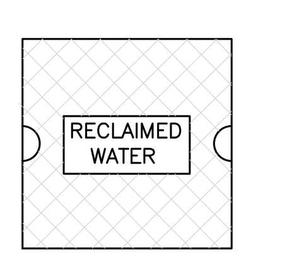
Disclaimer - This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — WATER MAIN SEPARATION CHART RW–4
FY–20/21 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: | File Name: Water Main Separation Chart RW–8 | Page 45

NTS

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — RECLAIMED WATER IN USE SIGN RW–13
FY–20/21 | Drawing Date: 12/10 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: 03/17 | File Name: Reclaimed Sign RW–13 | Page 54

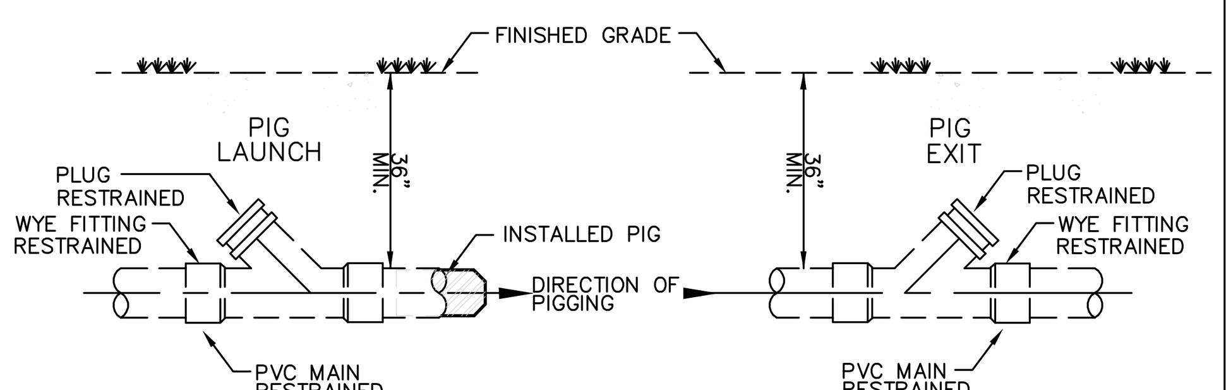




RECLAIMED WATER COVER

NOTES:
1. SEE CODB'S APPROVED PRODUCT LIST FOR ACCEPTABLE MANUFACTURERS.
2. INSTALL RESTRAINED JOINTS, AS REQUIRED, FROM DEFLECTION POINT IN BOTH DIRECTIONS (20' MIN.)
3. IF A RECLAIMED WATER METER BOX IS NOT WITH IN 200 FEETOF A VALVE & VALVE BOX, THEN IT REQUIRES AN ADDITIONAL VALVE BOX FOR TRACER WIRE.
4. TRACER WIRE SHALL BE A MINIMUM 12 GUAGE WITH A TENSILE STRENGTH/BREAK LOAD OF 452 LBS. SEE TRACER WIRE SPECIFICATION #15049

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — VALVE AND VALVE BOX DETAIL RW–9
FY–19/20 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: 01/19 | File Name: Valve and Box RW–9 | Page 50



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — PIG LAUNCH AND RECEIVING DETAIL RW–12
FY–19/20 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: | File Name: Pig Launch RW–12 | Page 53

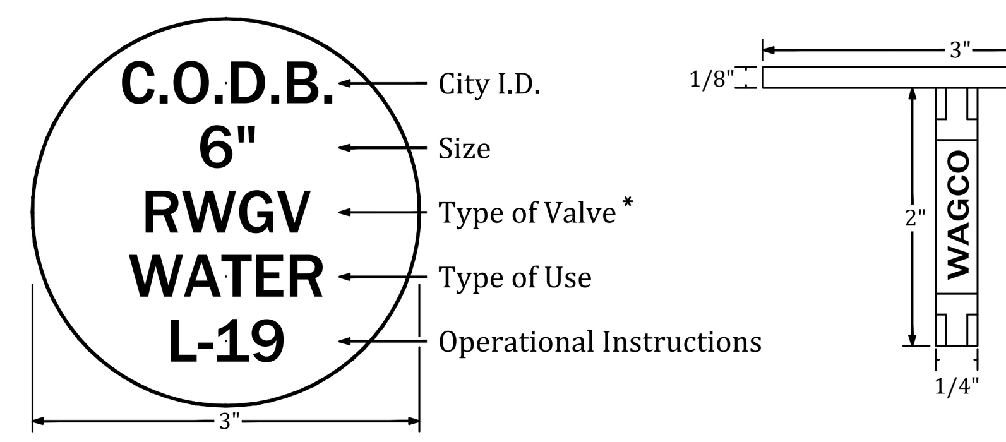
SPECIFICATIONS

ITEM: Brass ID Anti-Theft Marker

MATERIAL: SOLID CAST BRASS/Copper and Zinc Casting

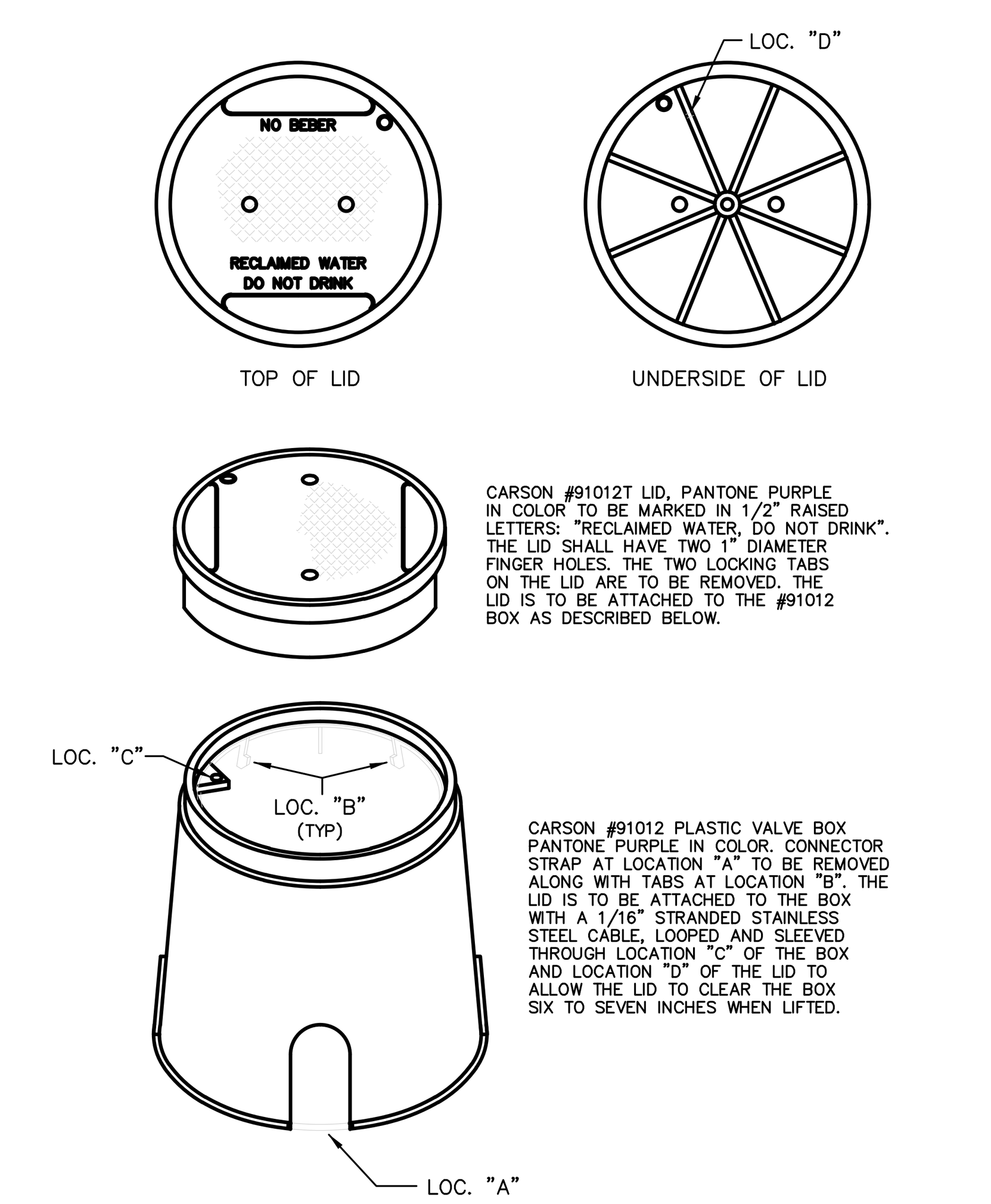
DESCRIPTION: 3" Cast Brass Disc 1/8" Thick with 1/4" Brass "Theft Proof" Anchor pin.

Top surface to be engraved with 1/4" to 3/8" Capital letters.



*PWGV Potable Water Gate Valve
RWGV Reclaimed Water Gate Valve
SSGV Sanitary Sewer Gate Valve
SSPV Sanitary Sewer Plug Valve

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — RECLAIMED WATER VALVE MARKER/TAG DETAIL RW–11
FY–20/21 | Drawing Date: 03/17 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: | File Name: RW Valve Marker RW–11 | Page 52

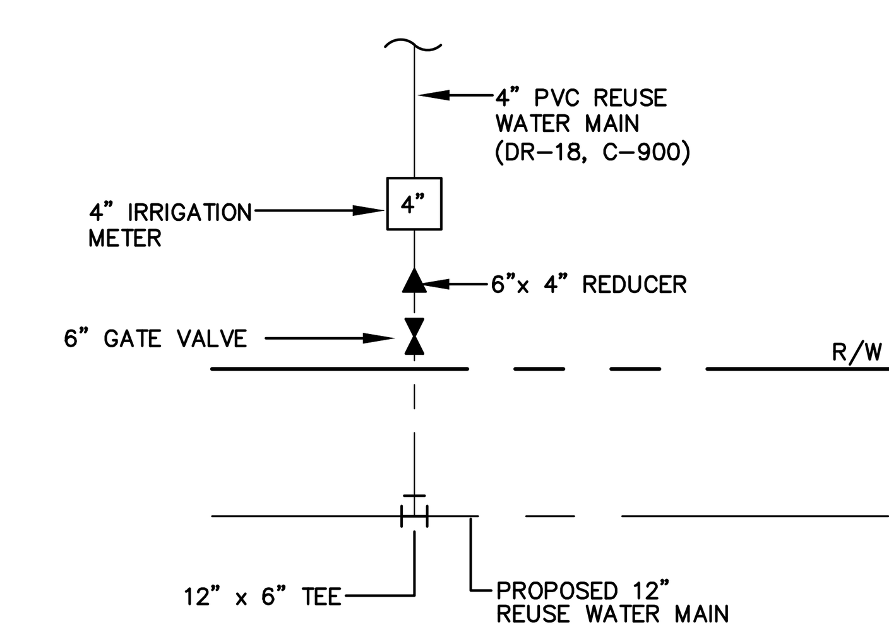


CARSON #91012T LID, PANTONE PURPLE IN COLOR TO BE MARKED IN 1/2" RAISED LETTERS: "RECLAIMED WATER, DO NOT DRINK". THE LID SHALL HAVE TWO 1" DIAMETER FINGER HOLES. THE TWO LOCKING TABS ON THE LID ARE TO BE REMOVED. THE LID IS TO BE ATTACHED TO THE #91012 BOX AS DESCRIBED BELOW.

CARSON #91012 PLASTIC VALVE BOX PANTONE PURPLE IN COLOR. CONNECTOR STRAP AT LOCATION "A" TO BE REMOVED ALONG WITH TABS AT LOCATION "B". THE LID IS TO BE ATTACHED TO THE BOX WITH A 1/16" STRANDED STAINLESS STEEL CABLE, LOOPED AND SLEEVED THROUGH LOCATION "C" OF THE BOX AND LOCATION "D" OF THE LID TO ALLOW THE LID TO CLEAR THE BOX SIX TO SEVEN INCHES WHEN LIFTED.

NOTE: ONLY IF REQUIRED BY CITY

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT — CARSON PLASTIC VALVE BOX DETAIL RW–10
FY–20/21 | Drawing Date: 01/08 | Drawn By: KLH | Checked By: JMP | Scale: NTS | Revision Date: | File Name: Carson Valve Box RW–10 | Page 51



REUSE MAIN WATER CONNECTION DETAIL
NTS

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)					
FITTING	90° BEND	45° BEND	22.5° BEND	11.25° 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.

TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:
- TEST PRESSURE: 150 PSIG
- SOIL TYPE: SP
- COVER DEPTH: 3 FEET (MIN.)
- SAFETY FACTOR: 1.5
- TRENCH TYPE: 2

PVC RESTRAINED JOINT TABLE

NO.	DATE	DESCRIPTION	BY
3	08–13–20	BID SET	MRB
2	08–06–20	REVISED	MRB
1	07–24–20	REVISED	MRB

REVISIONS

PARKER MYNCHENBERG & ASSOCIATES, INC.
PROFESSIONAL ENGINEERS * LANDSCAPE ARCHITECTS
1729 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
(386) 677–6891 FAX (386) 677–2114 E–MAIL: info@parkermynchenberg.com
CERTIFICATE OF AUTHORIZATON NUMBER 00003910

EMBRY–RIDDLE AERONAUTICAL UNIVERSITY
EAGLE FITNESS COMPLEX
DAYTONA BEACH * FLORIDA

REUSE DETAILS

DEV 2020–062
CITY APPROVAL STAMP

17
SHEET NO.

Drawn By: MRB
Date: 03/20/2020
SCALE: NONE
JOB#: 20–17