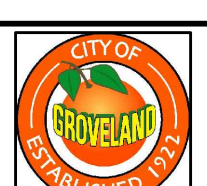

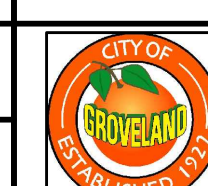
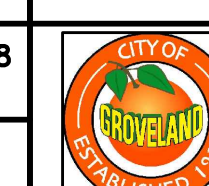


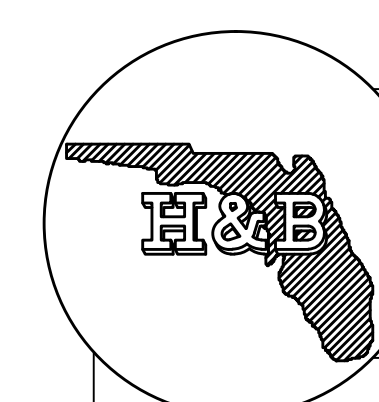
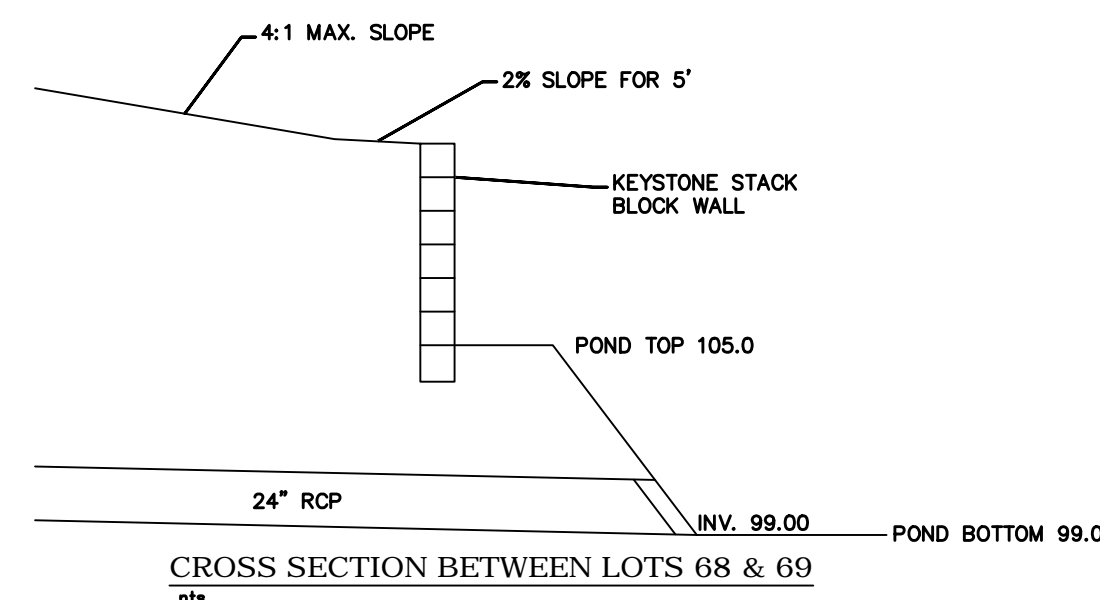
- ALL WATER LINE WORK SHALL BE IN ACCORDANCE WITH FAC 62-555, "PERMITTING AND CONSTRUCTION OF PUBLIC WATER SYSTEMS". ALL PRODUCTS SHALL BE CERTIFIED AS SUITABLE FOR CONTACT WITH DRINKING WATER BY AN ACCREDITED CERTIFICATION ORGANIZATION IN ACCORDANCE WITH ANSI/NSF STANDARD 61, DRINKING WATER SYSTEMS COMPONENTS HEALTH EFFECTS, AND SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS AND/OR THE MANUFACTURERS' RECOMMENDATIONS. PVC PIPING SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C605; DUCTILE IRON PIPING SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C600.
- ALL PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651 AND SHALL NOT BE PLACED INTO SERVICE UNTIL REGULATORY CLEARANCE IS RECEIVED.
- MAINTAIN SEPARATION BETWEEN UTILITIES IN ACCORDANCE WITH RULE 62-555.314 FAC.
- ALL COMMERCIAL WATER SERVICES SHALL HAVE A CITY APPROVED BACKFLOW DEVICE ASSEMBLY AT EACH CONNECTION POINT TO THE CITY WATER DISTRIBUTION SYSTEM. BACKFLOW DEVICES SHALL MEET THE REQUIREMENTS OF FAC 62 555.360 AND AWWA MANUAL M14, "RECOMMENDED PRACTICE FOR BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL".
- IF REPAIRS TO NEW WATER LINES ARE REQUIRED IN ORDER TO PASS A SPECIFIED PRESSURE TEST, THE NUMBER OF ALLOWED JOINT REPAIRS SHALL NOT EXCEED 10% OF THE TOTAL NUMBER OF JOINT CONNECTIONS. NEW LINES THAT FAIL TO PASS THE PRESSURE TEST AFTER THE 10% JOINT REPAIRS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- ALL MAINS AND SERVICE PIPING SHALL BE HYDROSTATICALLY TESTED AT 150 PSI FOR A TWO HOUR PERIOD. NO INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE IS GREATER THAN THAT ALLOWED BY AWWA C605, OR BY AWWA C600, WHICHEVER IS APPLICABLE, OR IF THERE IS ANY VISIBLE LEAK REGARDLESS OF AMOUNT.
- A FIRE HYDRANT METER IS REQUIRED FOR ANY WATER USAGE IN A PROJECT. THE CITY WILL PROVIDE THE HYDRANT METER FOR A NON REFUNDABLE CHARGE OF \$25.00 PLUS A \$1,000.00 REFUNDABLE SECURITY DEPOSIT. BILLING FOR WATER CONSUMPTION SHALL BE ON A MONTHLY BASIS.
- ONLY CITY EMPLOYEES ARE PERMITTED TO OPEN OR CLOSE ANY VALVES OR FIRE HYDRANTS OWNED BY OR CONNECTED TO THE CITY WATER SYSTEM.
- THRUST BLOCKS ARE NOT ALLOWED. CITY APPROVED RESTRAINING DEVICES SHALL BE USED FOR PIPE RESTRAINT.
- VALVES AND FIRE HYDRANTS SHALL BE SPACED NO MORE THAN 500' APART IN COMMERCIAL AND HIGH-DENSITY AREAS, AND 800' APART IN OTHER AREA. ON DISTRIBUTIONS SYSTEMS. FOR TRANSMISSION MAINS VALVES SHALL BE SPACED A MAXIMUM OF 1,200'.
- PROVIDE GATE VALVES AT ALL TEES AND CROSSINGS. A VALVE SHALL BE PROVIDED ON EACH BRANCH OF A CROSS OR TEE.
- WATER MAIN DEPTH SHALL BE A MINIMUM OF 36" BELOW FINAL GRADE.
- DEPTH OF CURB STOPS, IN METER BOXES, SHALL BE 8" BELOW FINISHED GRADES.
- WARNING TAPE SIZE 2" LABELED "WATER LINE BELOW", SHALL BE PLACED 8" TO 12" BELOW FINISHED GRADES ABOVE ALL WATER MAINS, LATERALS AND HEADER TEES. NUMBER TO GAUGE INSULATED COPPER TRACER WIRE SHALL BE ATTACHED TO TOPS OF NON-METALLIC PIPE WITH DUCT TAPE, ON EACH PIPE LENGTH AT ALL BELLS AND AT LEAST FOUR ADDITIONAL EQUALLY SPACED LOCATIONS. THE TRACER WIRE SHALL BE ATTACHED TO ALL LATERALS AND EXTENDED TO THE TOP OF EACH VALVE BOX ON THE INSIDE SO THAT PIPE LOCATOR CAN BE ATTACHED.

- ALL SERVICE LATERALS SHALL BE A UNIFORM DISTANCE BETWEEN CURB AND SIDEWALK, AND SHALL BE LOCATED ON PROPERTY LOT LINE.
- NO SPLICES IN SERVICE PIPING WILL BE ALLOWED BETWEEN THE WATER MAIN AND THE CURB STOP.
- ALL WATER MAINS UNDER PAVEMENT SHALL BE DUCTILE IRON, EXCEPT DIRECTIONAL BORES, WHICH MAY BE SDR-11 HDPE.
- A CONTINUITY TEST SHALL BE SUCCESSFULLY COMPLETED BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE OF NON-METALLIC PIPES BY THE CITY.
- WATER LINES 8" AND GREATER IN DIAMETER SHALL BE CLEANED BY "PIGGING".
- ALL FIELD CHANGES TO THE APPROVED DRAWINGS SHALL BE RECORDED AND ADDED TO THE RECORD DRAWING ("AS-BUILT") PLANS. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL FURNISH RECORD DRAWINGS ON DISK USING AUTOCAD FILES AS WELL AS ON A SET OF REPRODUCIBLE DRAWINGS AND THREE BLUE-LINE COPIES.
- RECORD DRAWINGS SHALL BE PREPARED BY A STATE OF FLORIDA LICENSED SURVEYOR AND SHALL BE REVIEWED, SIGN AND SEALED BY THE ENGINEER OF RECORD.
- BLUE REFLECTIVE PAVEMENT MARKERS SHALL BE PLACED IN THE CENTER OF THE DRIVING LANE ADJACENT TO FIRE HYDRANTS.
- THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CITY WITH 48 HOURS NOTICE BEFORE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
- THE CITY PUBLIC WORKS DIRECTOR MUST APPROVE ANY ITEM OR CHANGE NOT MENTIONED OR COVERED IN THE CITY STANDARD SPECIFICATIONS OR DETAILS.
- ANY PROPOSED TAPS TO EXISTING CITY MAINS SHALL BE SCHEDULED AND COORDINATED WITH THE PUBLIC WORKS DIRECTOR. A MINIMUM 48 HOURS NOTICE MUST BE PROVIDED.

MATERIAL	MANUFACTURER
PIPE	4-INCHES THRU 12-INCHES: PVC - AWWA C900-97, DR 18 DI - AWWA C151-02, PRESSURE CLASS 350 CEMENT MORTAR LINED 14-INCHES AND LARGER: PVC - AWWA C905-97, CAST-IRON-PIPE-EQUIPMENT OUTSIDE DIAMETER, PRESSURE RATING 165 PSI DI - AWWA C151-02, PRESSURE CLASS 150 OR GREATER, CEMENT MORTAR LINED
TUBING	AWWA C901-02, PE 3408, DR 9, PRESSURE CLASS 200 3/4-INCH THRU 1 1/2-INCH NOMINAL SIZE, WITH STAINLESS STEEL INSERTS, ENRON OR ENDOT Endopure
GATE VALVES	2-INCHES AND SMALLER: MUELLER A-2360-8, OR AMERICAN AVK, THREADED ENDS 4-INCHES AND LARGER: MECHANICAL JOINT ENDS, AWWA C509-01, MUELLER A-2360 OR AMERICAN AVK, OR AWWA C515-01, AMERICAN FLOW CONTROL SERIES 2500
BUTTERFLY VALVES	LARGER THAN 12" AWWA C504, RESILIENT SEATED MUELLER LINESAL 111 M.J. KENNEDY BFV, FIG. 30
VALVE BOXES	TYLER 461-S 18" - 24" TYLER 562-S 24" - 36"
CHECK VALVE	CAST IRON, RESILIENT SEAT, AWWA C508 AMERICAN FLOW 505C MUELLER MA-2602-6-01-LW
FIRE HYDRANT	SIZE C502, DRY-BARREL, 5 1/2" MAIN VALVE MUELLER A-423 KENNEDY K-81-A AMERICAN FLOW B-84-B AMERICAN AVK
FITTINGS	4-INCHES AND LARGER: AWWA C153-00 OR C110-03, MECHANICAL JOINT TYPE, CEMENT-MORTAR LINED
RESTRAINING DEVICES	PVC PIPE EBAA IRON MEGA-LUG 2000PV, 1600, 2800 FORD UNIFLANGE 1500, 1300, 1350, 1390 DUCTILE IRON EBAA IRON MEGA-LUG 1100, 1700, 1100SD FORD UNIFLANGE 1400
2" AIR RELEASE VALVE	APCO ARV, MODEL 200,-WATER AND RECLAIMED WATER ONLY VALMATIC, MODEL 45-WATER AND RECLAIMED WATER ONLY CRISPIN, MODEL PL20-WATER AND RECLAIMED WATER ONLY A.R.I. FLOW CONTROL, MODEL D-025, SHORT VERSION-WASTEWATER ONLY

MATERIAL	MANUFACTURER
TAPPING VALVE	MUELLER T-2360 AMERICAN FLOW CONTROL SERIES 2500
TAPPING SLEEVE	AWWA C223-02, TYPE 304 STAINLESS STEEL PER ASTM A240 WITH OUTLET FLANGE PER MSS SP-60; STAINLESS STEEL BOLTING WITH ANTISEIZE COMPOUND. ROMAC SST, FORD FAST, OR JCM 432, MUELLER H-304
SERVICE SADDLES	OUTLET TAPPED WITH I.P. THREAD (F.I.P.T.), DOUBLE STRAP, DUCTILE IRON BODY, MUELLER DR25, JCM 402, OR FORD F202.
CORPORATION STOP	AWWA C800, INLET WITH MALE IRON PIPE THREAD, OUTLET FOR CONNECTION TO COPPER TUBE SIZE O.D. POLYETHYLENE TUBING; MUELLER H-15028 OR FORD F1100-4, 1-INCH SIZE FOR SINGLE SERVICE; MUELLER H-15023 OR FORD FB1100-6, 1 1/2-INCH SIZE FOR DOUBLE SERVICE
CURB STOP (METER VALVE)	FOR SINGLE SERVICE: 1-INCH INLET FOR COPPER TUBE SIZE POLYETHYLENE TUBING BY METER SWIVEL NUT OUTLET FOR EITHER 3/8 X 3/4-INCH OR 3/4-INCH METER; MUELLER B-24258 OR B-24350 OR FORD B43-342W OR KV43-342W U BRANCH FOR DOUBLE SERVICE: 1 1/2-INCH INLET FOR COPPER TUBE SIZE POLYETHYLENE TUBING WITH 3/4-INCH MALE IRON PIPE THREAD OUTLETS; MUELLER H-1536311234712 WITH B-24265 ANGLE METER VALVES HAVING 3/4-INCH FEMALE IRON PIPE INLET AND METER SWIVEL NUT OUTLETS OR FORD UV43-62W
SINGLE METER BOX	BROOKS SERIES #37 CONCRETE BOX, 12" X 20" X 12", SOLID CONCRETE COVER WITH SINGLE TOUCH READ HOLE, RHINO #MB-17 BLACK METER BOX & COVER WITH SINGLE TOUCH READ HOLE
DOUBLE METER BOX	BROOKS MB DUAL CONCRETE BOX, 18" X 20" X 12", SOLID CONCRETE COVER WITH DUAL TOUCH READ HOLES, RHINO #MB-18 BLACK DUAL METER BOX & COVER WITH DUAL TOUCH READ HOLE

CITY OF GROVELAND STANDARD DETAILS: WATER		CITY OF GROVELAND STANDARD DETAILS: WATER		CITY OF GROVELAND STANDARD DETAILS: WATER		CITY OF GROVELAND STANDARD DETAILS: WATER	
	METZGER & WILLARD, INC. Civil • Environmental Engineers • Surveyors 8600 Hidden River Parkway, Suite 200 Tampa, Florida 33637 (813) 977-6005		METZGER & WILLARD, INC. Civil • Environmental Engineers • Surveyors 8600 Hidden River Parkway, Suite 200 Tampa, Florida 33637 (813) 977-6005		METZGER & WILLARD, INC. Civil • Environmental Engineers • Surveyors 8600 Hidden River Parkway, Suite 200 Tampa, Florida 33637 (813) 977-6005		METZGER & WILLARD, INC. Civil • Environmental Engineers • Surveyors 8600 Hidden River Parkway, Suite 200 Tampa, Florida 33637 (813) 977-6005
GENERAL WATER NOTES	DATE: JULY 7, 2008 SCALE: N.T.S. W-1A	GENERAL WATER NOTES	DATE: JULY 7, 2008 SCALE: N.T.S. W-1B	APPROVED MATERIALS AND PRODUCTS	DATE: JULY 7, 2008 SCALE: N.T.S. W-2A	APPROVED MATERIALS AND PRODUCTS	DATE: JULY 7, 2008 SCALE: N.T.S. W-2B



UTILITY DETAILS

H & B CONSULTING ENGINEERS, INC.
Certificate of Authorization # 4829
P.O. Box 520
218 N. Florida Street - Suite 3
Bushnell, Florida 33513
Phone : (352) 793-2113

Lake Minneola Landings
C.R. 561
Groveland, FL 34711

REVISIONS	
10/15	Added Turn Lanes CR 561A
10/15	Listed lot No's. per Lake Co.
4/16	Lake County comments from 4-11-16

Drawn: WSR	Checked: MZB
Date: 06/16	Scale: as shown