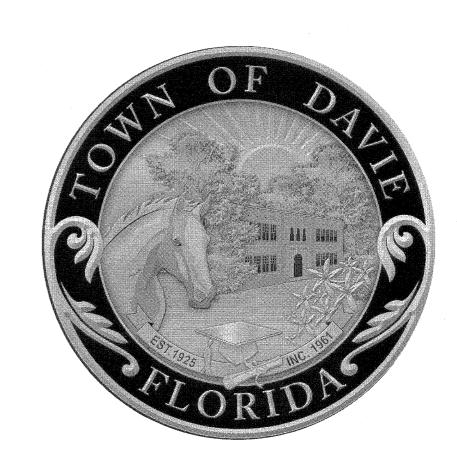
# SW 48TH COURT WATER MAIN UPGRADE

# TOWN OF DAVIE, FLORIDA **APRIL 2016**

PROJECT

LOCATION



# TOWN OFFICIALS

JUDY PAUL MARLON LUIS SUSAN STARKEY **BRYAN CALETKA** CARYL HATTAN RICHARD J. LEMACK **DON BAYLER EVELYN ROIG JOHN RAYSON** WILLIAM ACKERMAN **BRIAN K. O'CONNOR** 

**MAYOR VICE MAYOR TOWN COUNCIL** 

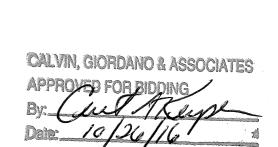
TOWN ADMINISTRATOR **UTILITIES DIRECTOR** TOWN CLERK **TOWN ATTORNEY** DIRECTOR OF FINANCE PROCUREMENT MANAGER

# **BENCHMARK:**

BROWARD COUNTY HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION No. 3082 B.C. DISK AND P.K.NAIL IN SQUARE CUT, BACK OF WALK, 10' WEST OF THE WEST EDGE OF PAVEMENT OF DAVIE ROAD ON PROJECTED CENTERLINE OF S.W. 38TH COURT. SEC.27-50-41 B.M. ELEVATION.=7.879. NAVD 1988. ELEVATIONS SHOWN ON PLANS ARE (NAVD 1988).

## NOTES:

- RESPONSIBILITY FOR THE USE OF THESE PLANS FOR ANY PURPOSE PRIOR TO SECURING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THIS PROJECT WILL FALL SOLELY UPON THE USER.
- 2. AN ELECTRONIC CAD FILE WILL BE PROVIDED FOR SURVEY LAYOUT



# NUMBER 0126324-225-DSG

REVISION REVISION BY NO DATE

SUBMITTED

4/21/16

INITIALS

APPROVED

5/23/16

PERMITTING AGENCIES

TOWN OF DAVIE ENGINEERING DEPARTMENT

DEPARTMENT OF HEALTH

DRAWING INDEX

WATER DISTRIBUTION DETAILS

WATER DISTRIBUTION DETAILS

**COVER SHEET** 

WATER PLAN

SHEET TITLE

GENERAL NOTES AND SPECIFICATIONS

SHEET No.



Calvin, Giordano & Associates, Inc. EXCEPTIONAL SOLUTIONSTM

1800 Eller Drive, Suite 600, Fort Lauderdale, Florida 33316 Phone: 954.921.7781 • Fax: 954.921.8807

Certificate of Authorization 514

**LOCATION MAP** 

PORTION OF TWP. 51S, RGE. 41E

SCALE: NOT TO SCALE

FOR BIDDING PURPOSES ONLY NOT FOR CONSTRUCTION

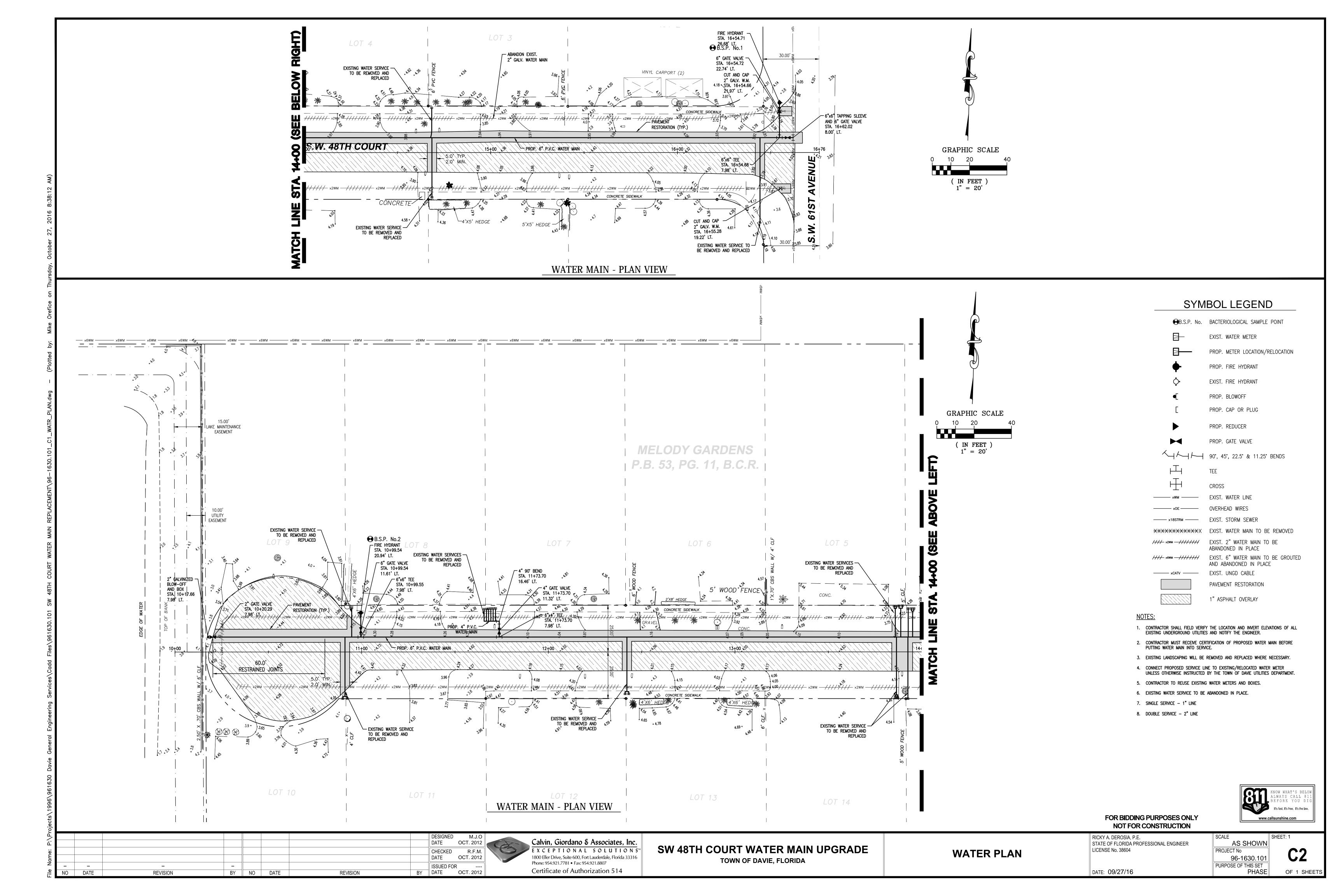
DATE: 09/27/16

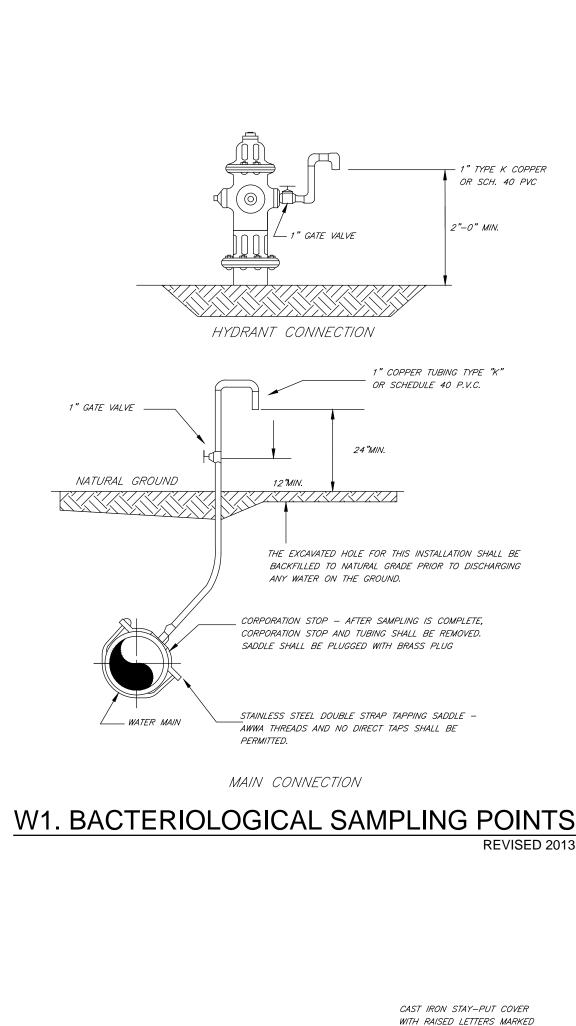


CURRENT REV No.: ---- -

RICKY A. DEROSIA, P.E.
STATE OF FLORIDA PROFESSIONAL ENGINEER

OF 1 SHEETS





24" SQUARE

(NOT REQD. IN PAVEMENT)

ELECTRONIC MARKER BLUE AT FREQUENCY OF 146.7 MHZ SHALL

W6. WATER VALVE BOX DETAIL

BE LOCATED AT EACH WATER VALVE.

CONCRETE COLLAR

**EXTENSION** 

AS REQUIRED

ASPHALT SURFACE OR

CONCRETE PAVEMENT

"WATER", "FIRE", "METER" .

₩ #3 CONT.

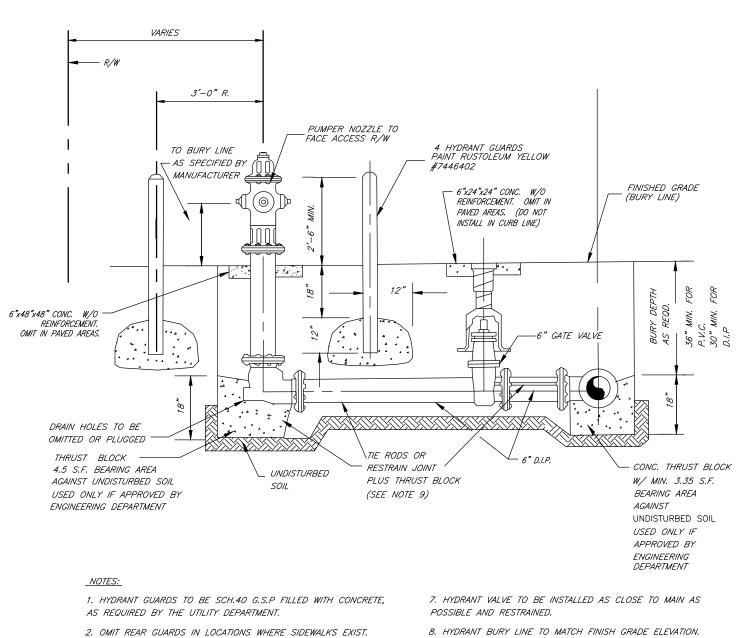
SCREW TYPE VALVE BOX

ADD 3/4" ROCK AROUND

REVISED 2013

USF No. 7500 (O.A.E.)

TYPE 2



ARE USED. 4. HYDRANT SET BACK SHALL CONFORM TO D.O.T. REQUIREMENTS WHERE APPLICABLE. 5. HYDRANT CENTERLINE TO BE LOCATED AT P.C. OF BLOCK

3. TIE RODS MAY BE OMITTED WHEN OTHER APPROVED ANCHORS

CORNER RADIUS OR AT COMMON PROPERTY LINE BETWEEN ADJACENT LOTS. 6. HYDRANT SHALL BE PER TOWN OF DAVIE STANDARDS WITH 3'-6" BURY DEPTH. PUMPER NOZZLE TO FACE STREET. PAINT

YELLOW (RUSTOLEUM #7446402).

8. HYDRANT BURY LINE TO MATCH FINISH GRADE ELEVATION.

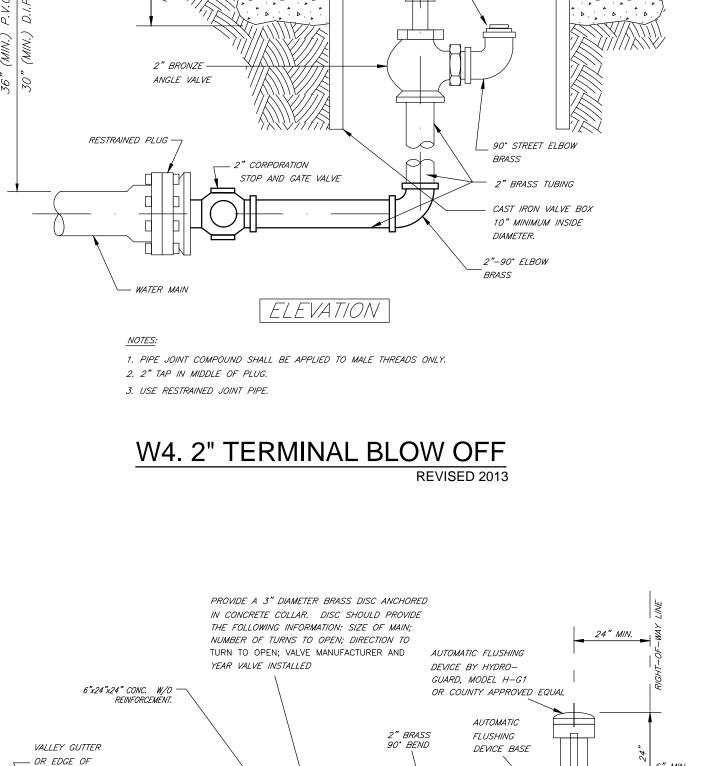
9. TIE RODS SHALL BE 2 EA. 3/4" GALV. AND COATED WITH

10. PROVIDE VISQUEEN LAYER BETWEEN CONCRETE AND 11. NO THRUST BLOCKS UNLESS CONDITIONS RESTRICT USE OF

COAL TAR EPOXY OR APPROVED EQUAL.

12. EXTENSIONS WILL NOT BE ACCEPTED. 13. ADJUST TO GRADE WITH GRADE LOCK TYPE FITTINGS OR PIPE AND FITTINGS.

# W3. FIRE HYDRANT DETAIL



TRAFFIC BEARING IN CITY, COUNTY AND STATE R/W —

LOCKING TYPE OR APPROVED EQUAL.

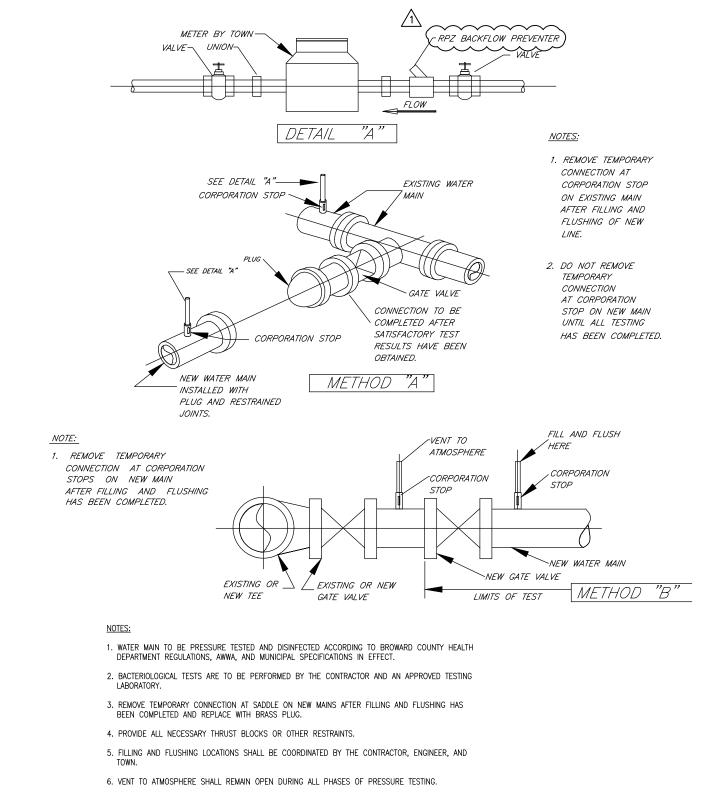
FINISHED GRADE -

U.S. FOUNDRY No.3 (MODEL 7630) VALVE BOX COVER

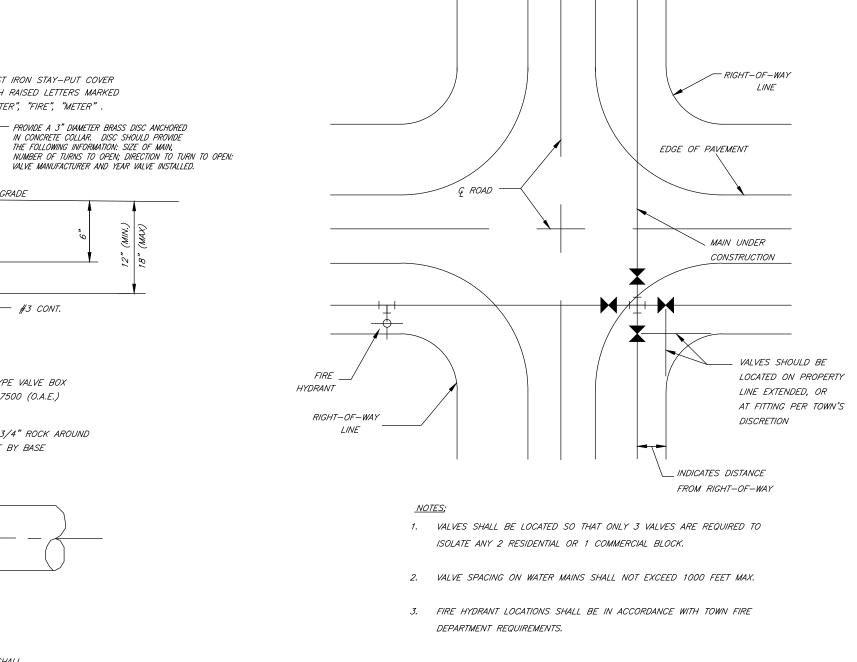
POLYVINYL CHLORIDE

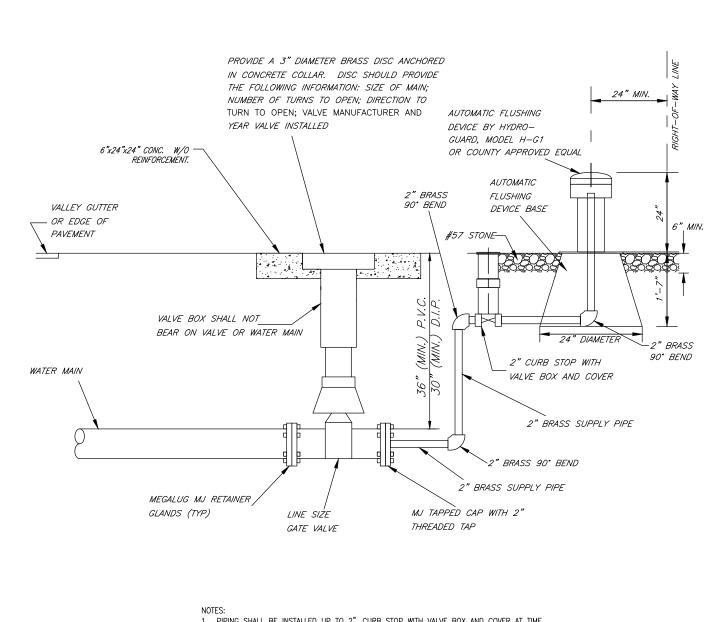
2" THREADED PVC PLUG —

6"x24"x24" CONC. W/O = REINFORCEMENT.



## W5. FILLING AND FLUSHING CONNECTION

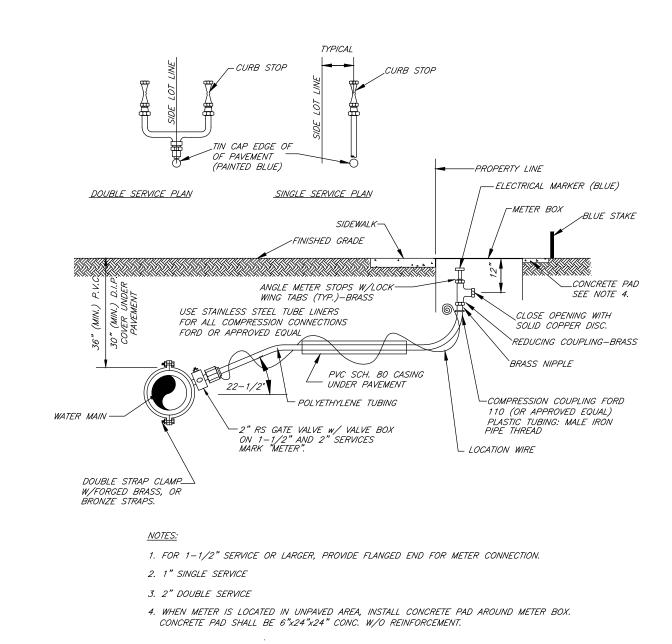




1. PIPING SHALL BE INSTALLED UP TO 2". CURB STOP WITH VALVE BOX AND COVER AT TIME OF MAIN INSTALLATION. 2. AUTOMATIC FLUSHING DEVICE SHALL BE INSTALLED AFTER MAIN LINE HAS BEEN BACTEROLOGICALLY TESTED, BUT PRIOR TO TIE—IN. 3. ALL THREAD HARD PIPING SHALL BE BRASS.

W4. 2" AUTOMATIC WATER MAIN FLUSHING DETAIL REVISED 2013

4. AT TIME OF ACCEPTANCE, WATER DEPARTMENT WILL PROVIDE 2" METER.



W7. TYPICAL WATER SERVICE REVISED 2013

## FOR BIDDING PURPOSES ONLY NOT FOR CONSTRUCTION

It's fast. It's free. It's the law. www.callsunshine.com SHEET: 1

								DESIGNED
								DATE S
								CHECKED
								DATE
$\triangle$	03/08/13	REVISED PER BCHD	M.J.O.					ISSUED FOR
NO	DATE	REVISION	BY	NO	DATE	REVISION	BY	DATE



W8. VALVE AND FIRE HYDRANT LOCATION

Calvin, Giordano & Associates, Inc. EXCEPTIONAL SOLUTIONS 1800 Eller Drive, Suite 600, Fort Lauderdale, Florida 33316 Phone: 954.921.7781 • Fax: 954.921.8807 Certificate of Authorization 514

**SW 48TH COURT WATER MAIN UPGRADE** TOWN OF DAVIE, FLORIDA

WATER DISTRIBUTION DETAILS

RICKY A. DEROSIA, P.E. STATE OF FLORIDA PROFESSIONAL ENGINEER LICENSE No. 38604

PROJECT No 96-1630.101 PURPOSE OF THIS SET PHASE

OF 1 SHEET

90° BEND

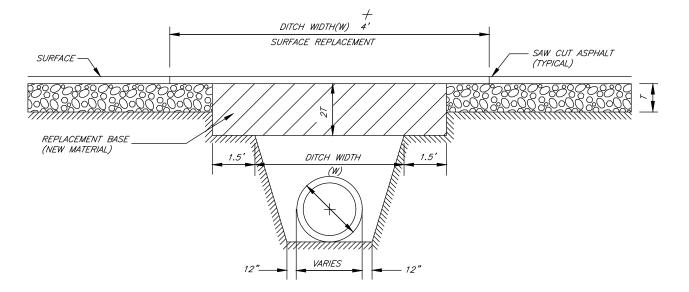
TEE & WYE

RE	RESTRAINED PIPE LENGTH (LINEAR FEET)					
PIPE SIZE	TEE & WYE	90°BEND	45°BEND	22 1/2°BEND	11 1/4°BEND	
6"	27	27	16	9	5	
8"	34	34	20	11	6	
10"	41	41	24	14	7	
12"	48	48	28	16	8	
14"	55	55	32	18	10	
16"	62	62	35	20	11	
18"	69	69	39	22	12	
20"	75	75	42	24	13	
24"	87	87	49	27	14	
30"	104	104	57	31	17	
36"	120	120	65	35	19	
42"	134	134	72	39	21	
48"	147	147	79	42	22	
54"	160	160	85	45	24	

45° & 22 1/2° BEND

NOTE: THE FIGURES IN THIS TABLE ARE BASED ON 150 PSI TEST PRESSURE WITH 2.5 FEET OF COVER AND 2000 POUNDS PER SQUARE FOOT SOIL BEARING AGAINST UNDISTURBED TRENCH. A 20% SAFETY FACTOR HAS BEEN ADDED.

### RESTRAINED JOINT DETAIL

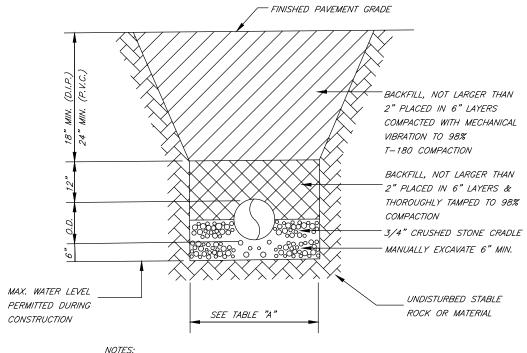


NOTES:

- 1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE (MINIMUM 12", MAXIMUM 18").
- 2. BASE MATERIAL SHALL BE PLACED IN 6" MAXIMUM (LOOSE MEASUREMENT) LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98 OF MAXIMUM DENSITY, PER AASHTO T-180.
- 3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED. 4. SURFACED TREATED PAVEMENT JOINTS SHALL BE LAPPED AND
- 5. SURFACE MATERIAL SHALL BE CONSISTENT WITH EXISTING SURFACE AND A MIN THICKNESS (1-1/4") OR MULTIPLE COURSES IF SO DESIRED. 6. A MINIMUM OF TWO DENSITY TESTS SHALL BE TAKEN FOR EACH SIX (6)

INCH LIFT OF SUBGRADE AND EACH LIFT OF BASE MATERIAL AT EACH

- OPEN-CUT CROSSING. BE CONSTRUCTED IN TWO OR MORE COURSES. PROCTORS FOR MATERIALS USED IN BACKFILLING AND DENSITY TESTS SHALL BE CONDUCTED BY A CERTIFIED LABORATORY SELECTED BY THE TOWN. THE PERCENTAGE OF MAXIMUM DENSITY REQUIRED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FL. DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND OR B.C.E.D. "MINIMUM STANDARDS" IN COUNTY R/W'S AT THE TIME THE PERMIT IS ISSUED. ALL DENSITY TESTS SHALL BE COMPLETED AND ACCEPTED ON EACH LAYER PRIOR TO ADDITIONAL BACKFILLING. A COPY OF ALL COMPLETED AND ACCEPTED DENSITY TESTS SHALL BE FURNISHED TO THE BCED OR TO THE FL.
- DEPARTMENT OF TRANSPORTATION UPON REQUEST. 8. BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100 AND A MINIMUM CARBONATE CONTENT OF 70% (60% FOR LOCAL STREETS)
- 9. IF THE DITCH IS FILLED TEMPORARILY, IT SHALL BE COVERED WITH A 2" ASPHALTIC CONCRETE PATCH TO KEEP THE FILL MATERIAL FROM RAVELING UNTIL PLACED WITH A PERMANENT PATCH.
- 10. TRENCHES DEEPER THAN FIVE FEET (5') MUST COMPLY WITH CURRENT O.S.H.A. SHORING/BRACING REQUIREMENTS.



NOTES:

2. MAXIMUM DEPTH TO BOTTOM OF PRESSURE MAINS SHALL NOT EXCEED SIX (6) FEET UNLESS OTHERWISE APPROVED BY THE TOWN OF DAVIE UTILITY DEPT.

1. MAXIMUM DENSITY DETERMINED BY AASHTO T-99

	TABLE "A"	
IPE SIZE	DEPTH OF BACKFILL AT WHICH TRENCH WIDTH IS TO BE LIMITED	MAX. TRENCH WIDTH
8"	15"	3'-0"
10"	12"	3'-0"
12"	12"	3'-3"
15"	12"	3'-6"
18"	12"	3'-9"

C4. TYPICAL WATER AND

SEWER TRENCH DETAIL

DIMENSIONS SHOWN APPLY TO ALL FOUNDATION

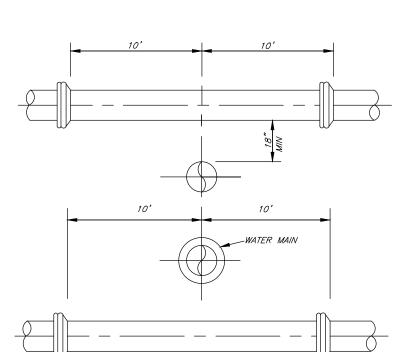
### 30" MIN. COVER / DIP 3/4" TIE RODS (TYPICAL) 36" MIN. COVER FOR P.V.C. — RESTRAINED JOINTS ROTATED WHERE A SUITABLE METHOD SHALL BE POSSIBLE TO MINIMIZE USED TO RESTRAIN ALL BENDS AS SPECIFIED BY THE ENGINEER OF RECORD & APPROVED BY THE OFFICE OF THE TOWN ENGINEER FINISH GRADE — -45° OR 22-1/2" BENDS (M.J.) ACCEPTABLE DEFLECTION CENTER A FULL LENGTH OF PIPE AT THE POINT OF CROSSING STANDARD SHALLOW UTILITY CROSSING — DEFLECTION TYPE

/--- FINISH GRADE

SPECIAL UTILITY CROSSING

- 1. THE DEFLECTION TYPE CROSSING SHALL BE USED WHENEVER POSSIBLE ONLY UNDER SPECIFIC ORDERS BY THE ENGINEER SHALL THE FITTING TYPE CROSSING
- BE ALLOWED. 2. CONSTRUCT STANDARD CROSSING USING 75% OF MANUFACTURER'S MAXIMUM
- 3. COAT TIE RODS WITH A BITUMINOUS COATING (2 COATS MIN.) AFTER INSTALLATION WHEN TIE RODS ARE USED FOR PIPE RESTRAINT. 4. TOWN OF DAVIE ENGINEERING INSPECTOR SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ALL DEFLECTION OPERATIONS.
- 5. NO WATER OR SEWER FORCE MAINS OF ANY SIZE PVC OR DIP PIPE THAT CROSS OTHER UTILITIES AND WILL NOT MAINTAIN A MIN. 18" VERTICAL SEPARATION WILL NOT BE INSTALLED BY WAY OF DEFLECTION OTHER THAN FOUR 45 DEGREE BENDS WITH
- MEGALUGS AND RESTRAINED WITH THREADED RODS AT ALL JOINTS. PIPE RESTRAINTS ARE REQUIRED TO TOP 45 DEGREE BENDS. FIELD INSPECTION BY TOWN'S ENGINEERING INSPECTOR IS REQUIRED PRIOR TO INSTALLATION.
- \* 12" MIN. CLEARANCE REQUIRED FOR WATER AND SEWER MAIN CROSSING. 12" MIN. CLEARANCE REQUIRED FOR OTHER TYPE UTILITIES CROSSING. ENCASEMENT IN CONCRETE IS NOT PERMITTED

# C1. UTILITY CROSSINGS



- 1. A WATER MAIN SHOULD CROSS OVER PIPES WHEREVER POSSIBLE MAINTAINING A 36 INCH COVER FOR PVC 30 INCH COVER FOR D.I.P. AND 12 INCH SEPARATION AS MINIMUMS.
- 2. WHEREVER A WATER MAIN CROSSES UNDER A SEWER MAIN, OR CROSSES OVER WITH LESS THAN 12 INCHES VERTICAL SEPARATION THEN MECHANICALLY RESTRAINED D.I.P SHALL BE USED FOR BOTH PIPES FOR A DISTANCE OF 20 FEET CENTERED ON CROSSING WITH NO JOINTS WITHIN 10 FEET OF THE CROSSING.
- 3. 12 INCH SEPARATION SHOULD BE MAINTAINED BETWEEN ALL PIPES (STORM, SEWER, WATER) WHENEVER POSSIBLE, 6 INCHES IS THE ABSOLUTE MINIMUM SEPARATION WITH MECHANICALLY RESTRAINED D.I.P REQUIRED FOR ANY SEPARATION LESS THAN 12 INCHES.
- 4. MAINTAIN 6 FEET HORIZONTAL SEPARATION BETWEEN WATER AND SEWER
- 5. 3 FOOT HORIZONTAL CLEARANCE SHALL BE PROVIDED BETWEEN UTILITIES AND ANY OBSTRUCTION (CATCH BASINS, CONCRETE POLES, ETC.)
- 6. 5 FOOT HORIZONTAL CLEARANCE SHALL BE PROVIDED BETWEEN UTILITIES AND TREES.

# C3. UTILITY CROSSING GENERAL REQUIREMENTS REVISED 2013

# FOR BIDDING PURPOSES ONLY



SHEET: 1

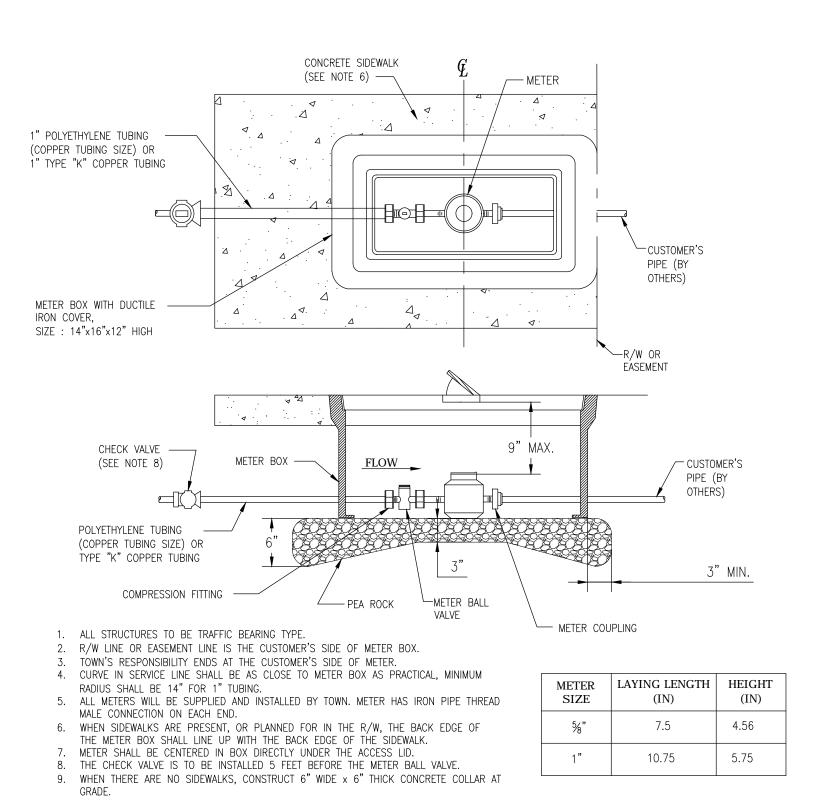
NOT FOR CONSTRUCTION

STATE OF FLORIDA PROFESSIONAL ENGINEER

**AS SHOWN** PROJECT No

OF 1 SHEET

C5. REPLACEMENT OF FLEXIBLE PAVEMENT CUT FOR UTILITY CROSSING OF ROADWAY



WATER METER BOX DETAIL

M.J.O. DATE SEPT. 2012 CHECKED R.F.M. DATE OCT. 2012 ISSUED FOR BIDDING NO DATE BY NO DATE BY DATE MAY 2013 REVISION REVISION

Calvin, Giordano & Associates, Inc. EXCEPTIONAL SOLUTIONST 1800 Eller Drive, Suite 600, Fort Lauderdale, Florida 33316 Phone: 954.921.7781 • Fax: 954.921.8807 Certificate of Authorization 514

**SW 48TH COURT WATER MAIN UPGRADE TOWN OF DAVIE, FLORIDA** 

RICKY A. DEROSIA, P.E.

LICENSE No. 38604

#### A. GENERAL:

ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF DAVIE, BROWARD COUNTY ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT (BCEPGMD), BROWARD COUNTY PUBLIC HEALTH UNIT (BCPHU), CENTRAL BROWARD WATER CONTROL DISTRICT (CBWCD), SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD), AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.

#### B. CONSTRUCTION SAFETY:

ALL CONSTRUCTION SHALL BE DONE IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE STRICTLY OBSERVED.

#### C. SURVEY DATA:

ALL ELEVATIONS ON THE PLANS OR REFERENCED IN THE SPECIFICATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD).

#### II. PRECONSTRUCTION RESPONSIBILITIES:

- A. UPON RECEIPT OF NOTICE OF AWARD, THE CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE TO INCLUDE THE TOWN OF DAVIE UTILITIES DEPARTMENT, THE OWNER, THE ENGINEER AND THE CONTRACTOR AFTER OBTAINING A CONSTRUCTION PERMIT FROM THE ENGINEERING DEPARTMENT.
- B. THE CONTRACTOR SHALL OBTAIN A "SUNSHINE" CERTIFICATION NUMBER AT LEASE 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
- C. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES FOR WHICH THE CONTRACTOR FAILS TO REQUEST LOCATIONS FROM THE TOWN OF DAVIE UTILITIES DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE AS WELL FOR DAMAGE TO ANY EXISTING UTILITIES WHICH ARE PROPERLY LOCATED.
- E. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, WHO WILL IN TURN NOTIFY THE TOWN OF DAVIE UTILITIES DEPARTMENT.

#### III. INSPECTIONS:

THE CONTRACTOR SHALL NOTIFY THE TOWN OF DAVIE ENGINEERING DEPARTMENT AND THE ENGINEER OF RECORD AT LEAST 1 BUSINESS DAY PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE SANITARY SEWER AND WATER SYSTEM.

#### IV. SHOP DRAWINGS:

- A. PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT, SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER OF RECORD AND THE TOWN OF DAVIE FOR SANITARY MANHOLES. FIRE HYDRANTS, VALVES, PIPING, LIFT STATIONS AND OTHER ACCESSORIES. CATALOGUE LITERATURE SHALL BE SUBMITTED FOR WATER AND SEWER PIPES, FITTINGS AND APPURTENANCES.
- INDIVIDUAL SHOP DRAWINGS FOR ALL PRECAST STRUCTURES ARE REQUIRED. CATALOGUE LITERATURE WILL NOT BE ACCEPTED FOR PRECAST STRUCTURES.

#### V. TEMPORARY FACILITIES:

- 1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY TO HIS EMPLOYEES AND SUBCONTRACTORS FOR THEIR USE DURING CONSTRUCTION.
- 2. OBTAIN CONSTRUCTION METER FOR ALL WATER USED ON JOB. ALL WATER USED FOR CLEANING, TESTING, ETC. WILL BE PAID FOR BY THE CONTRACTOR. IF WATER CANNOT BE METERED THEN IT WILL BE CALCULATED.

#### B. TRAFFIC REGULATION:

- MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MUTCD AND BCTED.
- 2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.
- 3. NO TRENCHES OR HOLES NEAR WALKWAYS OR IN ROADWAYS OR OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF THE TOWN OF DAVIE.

#### VI. PROJECT CLOSEOUT:

REVISION

#### A. CLEANING UP:

NO DATE

- 1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN.
- 2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER OR THE TOWN OF DAVIE, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS WORK. EQUIPMENT, EMPLOYEES OR THOSE OF HIS SUBCONTRACTORS TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. TO THIS END, THE CONTRACTOR SHALL DO AS REQUIRED, ALL NECESSARY HIGHWAY OR DRIVEWAY, SIDEWALK AND LANDSCAPING WORK. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.

- 3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER COURSES, GRAVITY SEWER, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.
- WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED AS REQUIRED BY THE CENTRAL BROWARD WATER CONTROL DISTRICT.

#### B. PROJECT RECORD DOCUMENTS:

- 1. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF WORK ITEMS COMPLETED.
- 2. ALL "AS-BUILT" INFORMATION SUBMITTED TO THE ENGINEER SHALL BE SUFFICIENTLY ACCURATE, CLEAR AND LEGIBLE TO SATISFY THE ENGINEER THAT THE INFORMATION PROVIDED A TRUE REPRESENTATION OF THE IMPROVEMENTS CONSTRUCTED.
- 3. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD ONE COMPLETE SET OF "AS-BUILT" CONSTRUCTION DRAWINGS. THESE DRAWINGS SHALL BE MARKED TO SHOW "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONED LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED BY THE CONTRACTOR.
- 4. ALL "AS-BUILT" INFORMATION ON ELEVATIONS OF SANITARY SEWAGE, PAVING AND DRAINAGE SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR.
- 5. AS-BUILT INFORMATION ON THE WATER SYSTEM SHALL INCLUDE, BUT NOT LIMITED TO, LOCATIONS OF ALL VALVES, FITTINGS. FIRE HYDRANTS AND WATER SERVICES AND TOP-OF-PIPE ELEVA-TION ON 100-FOOT INTERVALS AT A MINIMUM.
- THE ENGINEER SHALL SUBMIT TWO (2) SETS OF BLUE-PRINTS OF "AS-BUILT" CONSTRUCTION DRAWINGS. 7. UPON A FINAL INSPECTION BY THE TOWN OF DAVIE,

6. PRIOR TO A FINAL INSPECTION BY THE TOWN OF DAVIE,

THE ENGINEER SHALL SUBMIT TO THE TOWN ONE (1) COMPLETE SET OF REPRODUCIBLE MYLARS AND THREE (3) SETS OF BLUE-PRINTS OF "AS-BUILT" CONSTRUCTION DRAWINGS THAT HAVE BEEN CERTIFIED BY A REGISTERED LAND SURVEYOR AND THE ENGINEER OF RECORD.

#### VII. WATER DISTRIBUTION AND/OR SEWAGE FORCE MAIN SYSTEM:

#### A. GENERAL

1. THE CONTRACTOR SHALL NOTIFY THE TOWN OF DAVIE ENGINEERING DEPARTMENT AND THE ENGINEER OF RECORD NO LATER THAN 24 HOURS PRIOR TO MAKING CONNECTIONS TO EXISTING SYSTEMS. A TOWN OF DAVIE UTILITY DEPARTMENT REPRESENTATIVE AND THE ENGINEER OF RECORD MUST BE PRESENT.

#### 2. SEPARATION OF WATER AND SEWER MAINS:

- A. PARALLEL WATER AND SEWER MAINS SHALL HAVE A MINIMUM 6' HORIZONTAL SEPARATION. WHERE THIS IS NOT POSSIBLE. THE SEWER MAIN SHALL BE IN A SEPARATE TRENCH AND BE AT LEAST 12" BELOW THE WATER MAIN OR BOTH MAINS SHALL BE DUCTILE IRON PER PRESSURE PIPE SPECIFICATIONS.
- B. THE SEWER MAIN SHALL CROSS BELOW ALL WATER MAINS WITH A MINIMUM OF 12" VERTICAL CLEARANCE.
- C. IF A SEWER MAIN MUST CROSS ABOVE A WATER MAIN. REGARDLESS OF VERTICAL CLEARANCE, THE PRECAUTION IN ITEM (B) ABOVE SHALL BE TAKEN.
- 3. NO CONNECTIONS TO THE EXISTING LINES SHALL BE MADE UNTIL PRESSURE TESTS, FOR THE WATER MAINS AND SEWER FORCE MAINS, AND BACTERIOLOGICAL TESTS HAVE BEEN PERFORMED AND THE SYSTEM IS ACCEPTABLE TO THE TOWN OF DAVIE AND THE BROWARD COUNTY PUBLIC HEALTH UNIT.
- 4. CLEANING OF NEWLY INSTALLED PIPING SYSTEMS SHALL BE ACCOMPLISHED USING PIPE PIGGING METHODS. OPEN FLUSHING SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE UTILITIES DEPARTMENT. ALL WATER WILL BE ACCOUNTED FOR.
- 5. ALL EFFORTS SHALL BE MADE SO THAT WATER AND FORCE MAINS CROSS ABOVE DRAINAGE LINES WITH ADEQUATE COVER AND SEPARATION. IF THIS IS NOT POSSIBLE, IT SHALL BE INDICATED ON THE PLANS.
- 6. A THREE (3) FOOT LATERAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER/SEWER LINES AND OBSTRUCTIONS (IE., CATCH BASINS, CONCRETE POLES, ETC.) FIVE (5) FOOT FROM TREES.

#### B. MATERIALS:

REVISION

- a. PVC PIPE WITH A MIN. SIZE OF 6 INCHES SHALL BE ASTM 1120 PRESSURE PIPE WITH IRON O.D. CLASS 150 (DR18), CONFORMING TO ANSI/AWWA C900-15 OR C905-10 LATEST REVISION, AND SHALL HAVE PUSH RUBBER GASKET JOINTS.
- b. ALL WATER MAIN PIPE, INCLUDING FITTINGS SHALL BE COLOR CODED AS REQUIRED BY 62-555.320(21)(b)(3), F.A.C.
- c. CORROSIVE SOIL: DUCTILE IRON PIPE RESISTS CORROSION IN MOST SOILS. THE REMAINING SOILS, CINDERBEDS, POLLUTED RIVERS BOTTOMS ETC. ARE CONSIDERED TO BE POTENTIALLY CORROSIVE. THE PIPE IS TO BE LAID IN CORROSIVE SOILS, ENCASING THE PIPE IN 8 MIL THICK POLYETHYLENE IS REQUIRED BY BCMS. TRENCHES SHALL BE PROTECTED FROM CAVE-IN BY ADEQUATE PROTECTIVE SYSTEM PER OSHA.

b. D.I.P.SHALL BE CLASS 350 WALL THICKNESS (UP TO 12") CLASS 300 (14"-18"), CLASS 250 (20" OR GREATER) WITH INTERIOR CEMENT LINING AND EXTERIOR COAL TAR COATING CONFORMING TO ANSI/AWWA C151/A21.51-09, OR LATEST REVISION. SEWAGE PIPE SHALL POLYETHYLENE LINED CONFORMING TO ANSI/AWWA C105/A21.5-10 OR LATEST REVISION OR APPROVED EQUAL. THE PIPE SHALL WITHSTAND A WORKING PRESSURE OF 350 PSI. THE JOINTS SHALL BE BELL AND SPIGOT PUSH ON TYPE, MECHANICAL JOINT OR FLANGED. FLANGED PIPE SHALL CONFORM WITH THE PHYSICAL AND CHEMICAL REQUIREMENTS AS SET FORTH IN THE HANDBOOK OF DUCTILE IRON PIPE OF THE CAST IRON PIPE RESEARCH ASSOCIATION.

#### 2. FITTINGS:

FITTINGS SHALL BE DUCTILE IRON COMPACT MECHANICAL JOINT AND SHALL BE CLASS 350 THROUGH 24" CONFORMING TO ANSI/ AWWA C153/A21.53-11, OR LATEST REVISION, AND CLASS 250 IN SIZES 24" AND LARGER, CONFORMING TO ANSI/AWWA C110/ A21.10-12, OR LATEST REVISION, COMPLETE WITH GLANDS, GASKETS, BOLTS AND NUTS. ALL FITTINGS SHALL BE CEMENT LINED AND SEAL COATED WITH THE SAME AS PIPE.

- a. VALVES SHALL BE GATE VALVES FOR WATER (4"-12" SIZE) BUTTERFLY VALVES FOR WATER (16" AND UP SIZE), OR PLUG VALVES FOR SEWER (ALL SIZES).
- i. GATE VALVES SHALL BE IRON BODY, FULLY RESILIENT SEAT, BRONZE MOUNTED NON-RISING STEM, DOUBLE DISC, RATED AT 200 PSI AND CONFORMING TO ANSI/AWWA C509-94 OR LATEST REVISION. EXPOSED VALVES SHALL BE OUTSIDE SCREW AND YOKE TYPE. GATE VALVES SHALL BE AMERICAN FLOW CONTROL AFC-2500 OR APPROVED
- ii. BUTTERFLY VALVES AND OPERATORS SHALL CONFORM TO ANSI/AWWA C504-10 OR LATEST REVISION STANDARD FOR RUBBER SEATED BUTTERFLY VALVES. VALVES SHALL BE CLASS 150 A OR B AND SHALL BE MUELLER, PRATT OR APPROVED EQUAL.
- iii. PLUG VALVES SHALL BE SEMI-STEEL BODY, NON-LUBRICATED, ECCENTRIC TYPE, WITH RESILIENT FACED PLUGS, AND CAPABLE OF DRIP-TIGHT SHUT OFF AT THE RATED PRESSURE IF APPLIED AT EITHER PORT. VALVES ARE TO BE EQUIPPED WITH ACTUATING NUTS, CAST IRON HANDWHEELS OR CHAIN OPERATORS, WITH GALVANIZED STEEL CHAINS, AS APPROPRIATE FOR THE INSTALLATION AND TYPE OF OPERATOR. VALVES SHALL BE DEZURIK CORP. SERIES 100, CLOW FUL-FLOW MODEL F5413 OR APPROVED EQUAL.
- AIR RELEASE VALVE BODY AND COVER SHALL BE OF CAST IRON CONSTRUCTION, ASTM A126-B, AND ALL INTERNAL WORKING PARTS SHALL BE OF STAINLESS STEEL ASTM A240, TYPE 303 AND 304 AND SHALL MEET OR EXCEED ANSI/AWWA C512-07 OR LATEST REVISION. THE VENTING ORIFICE SHALL BE 3/8" IN DIAMETER WITH STAINLESS STEEL SEAT. THE INLET OPENING SHALL BE STANDARD 2-INCH NPT SCREWED CONNECTION. THE VALVE SHALL BE FULLY CAPABLE OF OPERATION IN THE SEWAGE FORCE MAIN AND SHALL INCLUDE A BACK-FLUSHING FEATURE FOR PERIODIC CLEANING OF INTERNAL MECHANISM. THE OVERALL HEIGHT OF THE VALVE BODY SHALL NOT EXCEED 13". VALVES SHALL BE MANUFACTURED BY VAL-MATIC CORP. APCO OR APPROVED EQUAL.
- b. A REFLECTIVE PAVEMENT MARKER SHALL BE INSTALLED IN THE CENTER OF THE NEAREST LANE OF ROAD PAVEMENT ADJACENT TO ALL VALVE LOCATIONS OUTSIDE THE ROAD PAVEMENT. WATER MARKERS SHALL BE WHITE, SEWER MARKERS SHALL BE GREEN.

#### 4. FIRE HYDRANTS:

- a. FIRE HYDRANTS SHALL HAVE A MINIMUM 5 1/4" VALVE OPENING AND SHALL OPEN AGAINST THE PRESSURE AND CLOSING WITH THE FLOW. HYDRANTS SHALL BE MUELLER CENTURION, MODEL NUMBER A-423 OR EQUAL. HYDRANTS SHALL MEET OR EXCEED ANSI/AWWA C502-14, C503-14 OR LATEST REVISION, AND SHALL COMPLY WITH FACTORY MUTUAL RESEARCH CORPORATION AND UNDERWRITERS LABORATORIES UL246 STANDARD.
- b. A BLUE REFLECTIVE PAVEMENT MARKER SHALL BE PROVIDED IN THE CENTER OF THE NEAREST LANES OF ROAD PAVEMENT ADJACENT TO ALL FIRE HYDRANT LOCATIONS.

#### 5. DETECTOR TAPE:

DETECTOR TAPE SHALL BE 3" WIDE BLUE TAPE FOR WATER MAIN AND BROWN TAPE FOR FORCE MAIN WITH A METALLIZED FOIL CORE LAMINATED BETWEEN 2 LAYERS OF PLASTIC FILM. THE WORDS"CAUTION WATER LINE BURIED BELOW" OR "CAUTION FORCE MAIN BURIED BELOW" SHALL BE PRINTED AT 30" INTERVALS ALONG THE TAPE. TAPE SHALL BE PLACED 18" BELOW GRADE ABOVE ALL PVC MAINS AND SERVICES OR AS RECOMMENDED BY MANUFACTURER. NON-METALLIC TAPE SHALL BE USED ABOVE DUCTILE IRON PIPE.

#### 6. SERVICE CONNECTIONS:

- a. SERVICE SADDLES SHALL BE DUCTILE IRON EPOXY OR NYLON COATED WITH DOUBLE STAINLESS STEEL STRAPS OR SINGLE WIDE STRAP. SADDLES SHALL CONFORM TO ANSI/AWWA C111/A21.11 AND ASTM A 588 OR LATEST REVISION.
- b. SERVICE LINES SHALL BE POLYETHYLENE (PE) TUBING AS DESCRIBED IN ANSI/AWWA C901-08 OR LATEST REVISION WITH A WORKING PRESSURE OF 200 PSI (SDR 9). PIPE JOINTS SHALL BE OF THE COMPRESSION TYPE TOTALLY CONFINED GRIP SEAL AND COUPLING NUT. POLYETHYLENE SHALL BE EXTRUDED FROM PE 3408 HIGH MOLECULAR WEIGHT MATERIAL AND MUST CONFORM TO ASTM D2737.

- c. CORPORATION STOPS SHALL BE MANUFACTURED OF BRASS ALLOY IN ACCORDANCE WITH ASTM B62 WITH THREADED ENDS AND BE MUELLER, FORD OR APPROVED EQUAL.
- d. METER STOPS SHALL BE THE 90 DEGREE LOCKWING TYPE AND SHALL BE OF BRONZE CONSTRUCTION IN ACCORDANCE WITH ASTM B62. METER STOPS SHALL BE CLOSED BUTTON DESIGN AND RESILIENT "O" RING SEALED AGAINST EXTERNAL LEAKAGE AT THE TOP. STOPS SHALL BE EQUIPPED WITH A METER COUPLING NUT ON THE OUTLET SIDES, AS MANUFAC-TURED BY MUELLER, FORD OR APPROVED EQUAL.
- e. METER AND METER BOXES 2" OR LESS ARE SUPPLIED BY THE TOWN OF DAVIE AT THE OWNER'S EXPENSE.

#### TAPPING SLEEVES:

TAPPING SLEEVES SHALL BE CAST IRON, MECHANICAL JOINT, CLOW MODEL F5207, OR APPROVED EQUAL.

#### 8. VALVE BOXES:

- a. VALVE BOXES FOR WATER MAINS AND SEWER FORCE MAINS SHALL BE U.S. FOUNDRY MODEL 7500, MARKED "WATER" OR "SEWER", OR APPROVED EQUAL.
- b. VALVE BOXES FOR BLOW-OFF ASSEMBLY SHALL BE U.S. FOUNDRY MODEL 7630 (No. 3) OR APPROVED EQUAL.

#### 9. RETAINER GLANDS:

RETAINER GLANDS SHALL CONFORM TO ANSI/AWWA C111/A21.11 OR LATEST REVISION. ALL GLANDS SHALL BE MANUFACTURED FROM DUCTILE IRON AS LISTED BY UNDERWRITERS LABORATORIES FOR 250 PSI MINIMUM WATER PRESSURE RATING. CLOW CORP-ORATION, TYLER, EBAA IRON, OR APPROVED EQUAL.

#### 10. DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY:

THE ASSEMBLY SHALL CONFORM TO ANSI/AWWA C510-07 OR LATEST REVISION AND BE CAPABLE OF WITHSTANDING A WORKING PRESSURE OF AT LEAST 150 PSI WITHOUT DAMAGE TO WORKING PARTS OR IMPAIRMENT OF FUNCTION. IT SHALL CONSIST OF TWO INTERNALLY LOADED, INDEPENDENTLY OPERATING CHECK VALVES, LOCATED BETWEEN TWO TIGHTLY CLOSING RESILIENT-SEATED SHUT OFF VALVES, WITH FOUR PROPERLY PLACED RESILIENT-SEATED TEST COCKS.

#### C. INSTALLATION:

#### GENERAL:

CONNECTION OF ALL NEW SYSTEMS TO EXISTING MAINS SHALL BE DONE USING ONE OF THE THREE FOLLOWING METHODS:

- a. METHOD A PER BROWARD COUNTY PUBLIC HEALTH UNIT STANDARDS, WHICH INVOLVES A REDUCED SIZE TEMPORARY CONNECTION BETWEEN THE EXISTING MAIN AND THE NEW
- b. METHOD B PER BROWARD COUNTY PUBLIC HEALTH UNIT STANDARDS, WHICH INVOLVES A DIRECT CONNECTION BETWEEN THE NEW AND EXISTING MAINS USING TWO GATE VALVES SEPARATED BY A SLEEVE WITH A VENT PIPE.
- c. METHOD C APPROVED BY THE BROWARD COUNTY PUBLIC HEALTH UNIT, WHICH INVOLVES A TAP WITH ONE GATE VALVE REQUIRING DISINFECTION OF THE NEW SYSTEM PRIOR TO CONDUCTING THE PRESSURE TEST.

#### BEDDING:

BEDDING AND INITIAL BACKFILL ( 12 INCHES ABOVE PIPE ) SHALL BE SAND WITH NO ROCK LARGER THAN 1" IN DIAMETER. PEAROCK OR 3/4" WASHED ROCK WILL BE USED IN WATER OR WHERE UNSUITABLE BEDDING EXISTS AT THE DISCRETION OF THE TOWN OF DAVIE. ALL OTHER FILL SHALL NOT HAVE ROCK LARGER THAN 6" IN DIAMETER.

#### PVC PIPE:

- a. PVC PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE UNI- BELL PLASTIC PIPE ASSOCIATION'S GUIDE FOR INSTALLATION OF PVC PRESSURE PIPE FOR MUNICIPAL WATER DISTRIBUTION SYSTEMS.
- b. PVC PIPE SHALL BE INSTALLED WITH A MINIMUM OF 36"
- c. DETECTOR TAPE SHALL BE INSTALLED THE FULL LENGTH OF ALL PVC MAINS APPROXIMATELY 18" BELOW GRADE, COLOR

#### 4. DUCTILE PIPE:

- a. D.I.P. SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/ AWWA C600-05 OR LATEST REVISION.
- b. D.I.P. SHALL BE INSTALLED WITH A MINIMUM OF 30" COVER.
- c. IDENTIFICATION TAPE SHALL BE INSTALLED THE FULL LENGTH OF ALL D.I.P. MAINS APPROXIMATELY 18" ABOVE THE MAIN, COLOR SIDE UP.

- a. ALL VALVES SHALL BE INSTALLED WITH ADJUSTABLE CAST IRON VALVE BOXES WITH THE WORD "WATER" OR "SEWER" CAST IN THE COVER.
- b. MAIN VALVES SHALL BE LOCATED ON AN EXTENSION OF THE RIGHT-OF-WAY LINE UNLESS DIMENSIONED OTHERWISE.
- c. MAIN VALVES SHALL BE INSTALLED AWAY FROM PARKING AREAS. IF THIS IS UNAVOIDABLE, PROPER MEASURES SHALL BE TAKEN TO AVOID THE PARKING OF VEHICLES OVER THE VALVES. HYDRANT VALVES SHALL BE INSTALLED AS CLOSE TO THE MAIN AS POSSIBLE. VALVES LOCATED IN NON-PAVED AREAS OR IN PARKING STALLS REQUIRE A REFLECTIVE PAVEMENT MARKER ON THE CENTER OF THE NEAREST LANE OF ROAD PAVEMENT. WHITE REFLECTORS FOR WATER MAIN VALVES, GREEN REFLECTORS FOR FORCE MAIN VALVES.

d. THE DISTANCE FROM THE TOP OF THE VALVE ACTUATOR NUT TO FINAL GRADE SHALL BE A MINIMUM OF 12 INCHES AND A MAXIMUM OF 18 INCHES.

- a. COVER OVER SERVICE LINES SHALL BE 18" MINIMUM, 24" MAXIMUM BELOW FINISHED GRADE AND 24" UNDER PAVEMENT.
- b. POLYETHYLENE SHALL BE BEDDED IN BACKFILL OF SAND WITH NO ROCK GREATER THAN 1" IN DIAMETER.
- c. METER STOPS SHALL HAVE 8" TO 10" COVER OR AS REQUIRED FOR PROPER METER/BOX INSTALLATION.
- d. WATER SERVICES UNDER PAVEMENT SHALL BE ENCASED IN A SCHEDULE 80 PVC SLEEVE FOR THE FULL LENGTH OF THE PAVEMENT AND FOR 2' BEYOND THE EDGE.
- e. THE END OF EACH SERVICE CONNECTION SHALL BE MARKED WITH A 2"X4" TREATED STAKE, PAINTED BLUE, EXTENDING 18" (MINIMUM) ABOVE GRADE UNLESS INDICATED OTHERWISE.

#### D. TESTING:

- 1. THE PHYSICAL CONNECTION OF THE NEW SYSTEM TO THE EXITING SYSTEM SHALL BE DONE IN ACCORDANCE WITH SECTION C.1. ABOVE WHICH WILL DICTATE THE ORDER OF THE PRESSURE TESTING AND DISINFECTION.
- 2. THE COMPLETE WATER SYSTEM SHALL BE PRESSURE TESTED AND DISINFECTED. THE PRESSURE TEST SHALL BE FOR TWO HOURS AT 150 PSI MINIMUM TEST PRESSURE IN ACCORDANCE WITH ANSI/AWWA C600-05 OR LATEST REVISION. THE PRESSURE TEST SHALL NOT VARY MORE THAN 5 PSI 'DURING THE TEST. LEAK-AGE ALLOWANCES WILL NOT BE MADE FOR FITTINGS OR VALVES.
- 3. ALLOWABLE LEAKAGE SHALL NOT EXCEED THE FORMULA OF:

0.5 L (GALLONS PER HOUR) = SD(P)-----

#### 148,000

- L = ALLOWABLE LEAKAGE IN GALS/HR (NO ALLOWABLE LEAKAGE FOR VALVES)
- S = LENGTH OF PIPE TESTED IN FEET D = NOMINAL DIAMETER OF PIPE
- P = AVERAGE TEST PRESSURE DURING TEST IN LBS/SQ. IN.
- 4. THE PRESSURE TEST SHALL BE WITNESSED BY A REPRESENTATIVE OF THE TOWN OF DAVIE ENGINEERING DEPARTMENT AND THE ENGINEER OF RECORD.
- 5. SAMPLING POINTS SHALL BE PROVIDED AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE BROWARD COUNTY PUBLIC HEALTH UNIT. IF NOT SPECIFIED, SAMPLING POINTS SHALL BE PROVIDED AT INTERVALS OF 1200' MAXIMUM FOR LINES GREATER THAN 1200' IN LENGTH. PROVIDE A MINIMUM OF TWO SAMPLING POINTS FOR ALL OTHER TEST SEGMENTS.
- 6. BEFORE ACCEPTANCE FOR OPERATION, THE WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH ANSI/AWWA C651-05 OR LATEST REVISION WITH APPROVED BACTERIOLOGICAL SAMPLES AND PROPER DOCUMENTATION BY THE COUNTY HEALTH DEPARTMENT. COLLECTION OF SAMPLES IS THE CONTRACTOR'S RESPONSIBILITY AND WILL BE WITNESSED BY A TOWN OF DAVIE REPRESENTATIVE.
- 7. PRIOR TO TESTING PROCEDURE, NEW WATER MAIN WILL BE CANNONED FLUSHED

#### OR "PIGGED" PER OWN OF DAVIE ENGINEERING APPROVAL. XI. PAVING:

## A. GENERAL:

- 1. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF LIMEROCK BASE.
- 2. ALL EXISTING PAVEMENT CUT OR DAMAGED BY CONSTRUCTION SHALL BE PROPERLY RESTORED AT THE CONTRACTOR'S EXPENSE.
- 3. WHERE PROPOSED PAVEMENT IS TO BE CONNECTED TO EXISTING
- PAVEMENT, THE EXISTING EDGE OF PAVEMENT SHALL BE SAW CUT. 4. UPON COMPLETION OF DRAINAGE IMPROVEMENTS AND LIMEROCK BASE CONSTRUCTION (AND BEFORE PLACING ASPHALT PAVEMENT) THE CONTRACTOR SHALL FURNISH THE ENGINEER OF RECORD AND THE TOWN OF DAVIE "AS-BUILT" PLANS FOR THESE IMPROVEMENTS, SHOWING THE LOCATIONS AND THE PERTINENT GRADES OF ALL DRAINAGE INSTALLATIONS AND THE FINISHED ROCK GRADES OF THE ROAD CROWN AND EDGES OF PAVEMENT AT 50 FEET INTERVALS. THESE "AS-BUILTS" SHALL BE APPROVED

BY THE TOWN PRIOR TO PLACING ASPHALT.

## MATERIAL:

- 1. BASE COURSE SHALL BE CRUSHED LIMEROCK MIAMI OOLITE WITH A MINIMUM OF 70% CARBONATES OF CALCIUM AND MAGNESIUM (60% FOR LOCAL STREETS & PARKING AREAS) AND A MINIMUM LIMEROCK BEARING RATIO OF 100. COMPACTED TO A MINIMUM OF 98% MAX. DENSITY PER AASHTO T-180 (MIN. LBR 100)
- 2. REINFORCED CONCRETE SLABS SHALL BE CONSTRUCTED OF CLASS I CONCRETE WITH A MINIMUM STRENGTH OF 3,000 PSI AND SHALL BE REINFORCED WITH A 6"x6" No.6 GAUGE WIRE MESH.

#### C. INSTALLATION:

- SUBGRADE FOR ROADWAY SHALL BE COMPACTED TO A MINIMUM OF 98% OF THE MAXIMUM DENSITY (AASHTO T180-C) WITH A MINIMUM LBR OF 40.
- 2. INSTALLATION OF THE WEARING SURFACE SHALL CONFORM WITH THE REQUIREMENTS OF THE D.O.T. STANDARD SPECIFICATIONS OR THE LATEST REVISION FOR THE APPROVED BROWARD CO. MIX.

#### D. TESTING

- 1. THE FINISHED SURFACE OF THE BASE COURSE AND THAT OF THE WEARING SURFACE SHALL NOT VARY MORE THAN 1/4" FROM THE TEMPLET.ANY IRREGULARITIES EXCEEDING THIS LIMIT SHALL BE CORRECTED. ROCK AS-BUILTS NEED TO BE APPROVED PRIOR TO PAVING.
- DENSITY TESTS SHALL BE TAKEN BY AN INDEPENDENT TESTING LABORATORY, CERTIFIED BY THE STATE OF FLORIDA, WHERE DIRECTED BY THE ENGINEER.
- 3. ALL TESTING COSTS (PAVING) SHALL BE PAID FOR BY THE OWNER EXCEPT THOSE TESTS FAILING TO MEET THE SPECIFIED REQUIREMENTS WHICH ARE TO BE PAID BY THE CONTRACTOR.

#### E. INSPECTIONS:

1. THE CONTRACTOR SHALL NOTIFY THE TOWN OF DAVIE ENGINEERING DEPARTMENT AND THE ENGINEER OF RECORD AT LEAST 2 BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF PAVING AND DRAINAGE SYSTEMS.



FOR BIDDING PURPOSES ONLY NOT FOR CONSTRUCTION

STATE OF FLORIDA PROFESSIONAL ENGINEER

PROJECT No PURPOSE OF THIS SET

**AS SHOWN** 96-1630.101

PHASE OF 1 SHEET

SHEET: 1

DESIGNED CHECKED DATE

BY NO DATE

M.J.O DATE SEPT. 2012 R.F.M. OCT. 2012 ISSUED FOR BIDDING MAY 2013

BY || DATE

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SW 48TH COURT WATER MAIN UPGRADE TOWN OF DAVIE. FLORIDA

LICENSE No. 38604

RICKY A. DEROSIA, P.E.