CITY OF
PANAMA CITY BEACH
UTILITIES DEPARTMENT
ENGINEERING DIVISION

APRIL 2020

STANDARDS FOR
CITY OF P.C.B.
UTILITY SYSTEM
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**UTILITY STANDARDS FOR THE CITY OF PANAMA CITY BEACH**

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**CITY OF P.C.B.**

**UTILITIES**

**STANDARD DETAILS**

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**CITY OF P.C.B.**

**UTILITY STANDARDS**

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SUBSTANTIAL EFFORT HAS BEEN MADE TO ENSURE THE INFORMATION IN THESE STANDARDS IS ACCURATE HOWEVER, CITY OF PANAMA CITY BEACH UTILITIES DEPT. CANNOT ACCEPT RESPONSIBILITY FOR ANY ERRORS OR OVERSIGHT IN THE USE OF THE MATERIAL OR IN THE PREPARATION OF THE ENGINEERING PLANS. THIS PUBLICATION IS INTENDED FOR USE BY PROFESSIONAL PERSONNEL COMPETENT TO EVALUATE THE SIGNIFICANCE AND LIMITATIONS OF ITS CONTENTS AND ABLE TO ACCEPT RESPONSIBILITY FOR THE APPLICATION OF THE MATERIAL IT CONTAINS.

THE DESIGNER MUST RECOGNIZE THAT NO HANDBOOK OR CODE CAN BE A SUBSTITUTE FOR EXPERIENCED ENGINEERING JUDGEMENT.

USERS OF THESE STANDARDS ARE ENCOURAGED TO OFFER COMMENTS TO CITY OF PANAMA CITY BEACH UTILITIES DEPARTMENT ON THE CONTENTS OF THIS PUBLICATION AND SUGGESTIONS FOR CHANGES IN THE FUTURE EDITIONS.

PRODUCTS TO BE CONSIDERED "APPROVED EQUAL" SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL IN WRITING PRIOR TO USE.

THESE STANDARDS ARE UNDER CONSTANT REVIEW AND ARE SUBJECT TO CHANGES APPROVED BY THE UTILITIES DIRECTOR OF THE CITY OF PANAMA CITY BEACH.
NOTES:

1.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

2.) FOR VALVE COLLAR PADS THAT FALL ON SLOPES GREATER THAN 1:6, SEE DETAIL W-20 FOR PAD.
NOTES:

1.) PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.

2.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

3.) ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.

4.) VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPs.

5.) ALL EXPOSED EDGES OF CONCRETE PAD SHALL BE CHAMFERED 1/2".

*NOTE: 24" SQ. PAD TO BE CONSTRUCTED INSIDE RESIDENTIAL AREAS.
DOUBLE METER BOX (18” x 24” MIN.)

2" BALL VALVE W/ PADLOCK WING NUT B11-777W

2" NPT GATE VALVE W/ 4" HAND WHEEL (SEE DETAIL M-33)

2" 90° BEND

2" CAP

6" BEDDING ROCK (#67 GRANITE)

2" 90° BEND

TAPPED CAP

NOTE:

ALL 2" PIPE AND FITTINGS SHALL BE SCHEDULE 40 BRASS WITH THREADED (NPT) JOINTS.
NOTE:

PROVIDE SINGLE SERVICE ONLY IF RECLAIMED WATER METER IS PROVIDED.
NOTES:
1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3.) EACH SERVICE SHALL TERMINATE AT A CURB STOP WHICH SHALL BE FASTENED TO
A 1" x 4" x 30" STAKE PAINTED WHITE AND MARKED WITH THE NUMBER
OF THE LOT TO BE SERVED.
4.) CURB STOP SHALL BE A FORD BALL METER VALVE B43-342WG, B43-444WG OR CITY APPROVED EQUAL.
5.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN AND WILL
NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.
6.) METER BOXES & YOKE ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR
AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.
7.) CORPORATION STOP SHALL BE FORD CORP. STOP P1000-4 OR CITY APPROVED EQUAL.
8.) ALL SERVICE TAPS SHALL BE NO CLOSER THAN 36" APART AND NOT WITHIN
24" FROM BACK OF PIPE BELL OR SPIGOT INSERTION LINE.
9.) TAPPING SADDLE: MODEL FL202 FORD METER BOX CO.
NOTES:
1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3.) EACH SERVICE SHALL TERMINATE AT A CURB STOP WHICH SHALL BE FASTENED TO A 1"x4"x30" STAKE PAINTED WHITE AND MARKED WITH THE NUMBER OF THE LOT TO BE SERVED.
4.) CURB STOP SHALL BE A FORD BALL METER VALVE B43-344WG OR CITY APPROVED EQUAL.
5.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN 3'-0" INTERVALS OR WITHIN 2'-0" FROM BELL OR SPIGOT ENDS.
6.) METER BOXES & YOKE ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS. AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.
7.) CORPORATION STOP SHALL BE FORD CORP. STOP F1000-4 OR CITY APPROVED EQUAL.

BY CITY | BY OWNER

25# BRONZE GATE VALVE
WITH RISING STEM
(SAME SIZE AS METER)

TO BACK FLOW PREVENTER

METER TO BE CENTERED
UNDER METER BOX DOOR

WATER MAIN

CORPORATION STOP
AND FITTING
(NORMALLY OPEN)

AWWA TYPE
CC THREADS

SADDLE

CTS 200 P.S.I.
SDR9-ASTM D-2737
SERVICE TUBING
NOTES:

1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.

2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.

3.) EACH SERVICE SHALL TERMINATE AT A BALL VALVE WHICH SHALL BE FASTENED TO A 1" x 4" x 30" STAKE PAINTED WHITE.

4.) CURB STOP SHALL BE A 2" FORD BALL METER VALVE B11-777W OR CITY APPROVED EQUAL.

5.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN 36" APART AND NOT WITHIN 24" FROM BACK OF PIPE BELL OR SPIGOT INSERTION LINE AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.

6.) TAPPING SADDLE: MODEL FL202 FORD METER BOX CO.

7.) 1-1/2" METERS WILL REQUIRE A 2" TAP & GATE VALVE, THEN REDUCED.

TYPICAL CITY SERVICE
NOTES:

1.) ALL D.I. PIPE, VALVES, ETC. INSIDE VAULT SHALL BE PAINTED WITH 2 (TWO) COATS OF BLUE ENAMEL PAINT.

2.) DETAIL TO ONLY BE USED IF BACK FLOW IS IN A REMOTE LOCATION.

3.) ALL 12" HINGED VIEWING PORTS CENTERED OVER METER HEAD.

VPL VALVE VAULT COVERS SHALL BE ALUMINUM WITH 316 S.S. HARDWARE. VAULT COVER ASSEMBLIES WEIGHING IN EXCESS OF 100 LBS. SHALL BE FABRICATED.
CONCRETE VALVE VAULT
BY CONTRACTOR

FLANGED GATE
VALVE W/HANDWHEEL
BY CONTRACTOR

12" MIN. (TYP.)

SEE SHEET W18

METER W/STRAINER
BY CITY

12" X 12" HINGED VIEWING PORT
CENTERED OVER METER HEAD

TOUCH READ SENSOR

VALVE VAULT COVERS SHALL BE ALUMINUM WITH 316 S.S.
 HARDWARE, VAULT COVER ASSEMBLIES WEIGHING IN EXCESS
 OF 100 LBS. SHALL BE FABRIC

MJ LONG SLEEVE
W/RESTRAINED JOINT
(TYPICAL)

ADJUSTABLE PIPE
SUPPORT STAND

18 X 18 BLOCK OUT FOR
DRAINAGE FILL W/GRAVEL

NOTE:
ALL D.I. PIPE, VALVES,
 ETC. SHALL BE PAINTED
WITH 2 (TWO) COATS OF
BLUE ENAMEL PAINT.
CONCRETE SLAB

NOTE:

1. METER WILL BE PROVIDED BY THE CITY, AND INSTALLED BY CONTRACTOR.

2. ALL ABOVE GROUND PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON.

3. ALL ITEMS ABOVE GRADE SHALL HAVE TWO COATS OF APPROVED EPOXY BLUE ENAMEL PAINT.

4. ALL VALVES SHALL HAVE HANDWHEELS.

5. VALVE(S) SHALL BE CHAINED AND PADLOCKED IN OPENED POSITION.

6. BACK FLOW DEVICE SHALL BE RPZ OR DC TYPE AS APPROVED BY CITY.

7. REDUCER AS REQUIRED IF METER SIZE DIFFERS FROM PIPE SIZE.

PLAN VIEW

SECTION

4" CONCRETE SLAB WITH No. 6 x 6, W10 x W10

12"

FINISHED GRADE

RESTRAINED JOINT

THRUST COLLAR IN ACCORDANCE WITH STANDARD DRAWING AND PLANS APPROVED BY THE CITY (TYP.)

1/2" PRE-FORMED JOINT MATERIAL BETWEEN PIPE AND CONCRETE SLAB (TYP.)

18"

90° MJ BEND

90° FLANGED BEND

DUCTILE IRON PIPE

BACK FLOW PREVENTER

FLANGED REDUCER

METER W/STRAINER BY CITY

NOT REQUIRED IF TAPPING VALVE IS WITHIN 25'

SEE SHEET W18

12"

RESTRAINED JOINT

90° MJ BEND

FROM MAIN

FROM MAIN

TO SERVICE

TO SERVICE

FROM MAIN
CONCRETE SLAB

NOTE:
1. METER WILL BE PROVIDED BY THE CITY, AND INSTALLED BY CONTRACTOR.
2. ALL ABOVE GROUND PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON.
3. ALL ITEMS ABOVE GRADE SHALL HAVE TWO COATS OF APPROVED EPOXY BLUE ENAMEL PAINT.
4. ALL VALVES SHALL HAVE HANDWHEELS.
5. VALVE(S) SHALL BE CHAINED AND PADLOCKED IN OPENED POSITION.
6. BACK FLOW DEVICE SHALL BE RPZ OR DA TYPE AS APPROVED BY CITY.
7. REDUCER AS REQUIRED IF METER SIZE DIFFERS FROM PIPE SIZE.

PLAN VIEW

SECTION

DUCTILE IRON PIPE

REstrained Joint

MJ TEE

DUCTILE IRON PIPE

1/2" PRE FORMED JOINT MATERIAL BETWEEN PIPE AND CONCRETE SLAB (TYP.)
4" CONCRETE SLAB WITH No. 6 x 6, W10 x W10

FINISHED GRADE

TO SERVICE

THRUST COLLAR IN ACCORDANCE WITH STANDARD DRAWING AND PLANS APPROVED BY THE CITY (TYP.)

BYPASS VALVE = 3/8" CHAIN & LOCK (PROVIDED BY CITY)

90° MJ BEND

REstrained JOINT

ADJUSTABLE PIPE SUPPORT STANDS (2 REQUIRED)

MJ TEE

DUCTILE IRON PIPE

BACK FLOW PREVENTER

18" MIN.

18"

18"

12"

12"

90° FLANGED BEND

FLANGED REDUCER

SEE SHEET W18

90° FLANGED BEND

FLANGED REDUCER

BYPASS VALVE TO BE ROTATED THIS DIRECTION

FROM MAIN

FROM MAIN

TO SERVICE
NOTES:
1.) METER WILL BE PROVIDED BY THE CITY, AND INSTALLED BY CONTRACTOR.
2.) ALL ABOVE GROUND PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON.
3.) PROVIDE PROTECTION AGAINST FREEZING FOR ALL ABOVE GROUND PIPE.
4.) ALL ITEMS ABOVE GRADE SHALL HAVE ONE COAT OF APPROVED EPOXY RED ENAMEL PAINT.
5.) ALL ABOVE GROUND VALVES SHALL HAVE HANDWHEELS.
6.) BACK FLOW DEVICE SHALL BE AS APPROVED BY CITY.

1/2" PRE-FORMED JOINT MATERIAL BETWEEN PIPE AND CONCRETE SLAB.

4" CONCRETE SLAB W/ No. 6 x 6, W10 x W10 OVER 6" COMPACTED LIME ROCK BASE.

FINISHED GRADE

THROST COLLAR IN ACCORDANCE WITH STANDARD DRAWING AND PLANS APPROVED BY THE CITY (TYP.)

ADJUSTABLE PIPE SUPPORT STANDS (2 REQUIRED)

DUCTILE IRON PIPE

BYPASS VALVE - 3/8" CHAIN & LOCK (PROVIDED BY CITY)
NOTES:
1.) METER WILL BE PROVIDED AND INSTALLED BY THE CITY.
2.) ALL ABOVE GROUND PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON.
3.) PROVIDE PROTECTION AGAINST FREEZING FOR ALL ABOVE GROUND PIPE.
4.) ALL ITEMS ABOVE GRADE SHALL HAVE ONE COAT OF APPROVED EPOXY RED ENAMEL PAINT.
5.) ALL ABOVE GROUND VALVES SHALL HAVE HANDBEAWS.
6.) BACK FLOW DEVICE SHALL BE RPZ TYPE AS APPROVED BY THE CITY.
NOTES:

1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3.) EACH SERVICE SHALL TERMINATE AT A CURB STOP WHICH SHALL BE FASTENED TO A 1" x 4" x 30" STAKE PAINTED WHITE AND MARKED WITH THE NUMBER OF THE LOT TO BE SERVED.
4.) CURB STOP SHALL BE A FORD BALL METER VALVE B43–342W, B43–344W OR CITY APPROVED EQUAL.
5.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.
6.) METER BOXES & YOKE ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.

SECTION
NOTES:

1.) ABOVE DETAIL IS BASED ON 2" COMBINATION AIR/VACUUM RELEASE VALVE.

2.) CHANGE PIPE AND FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND TYPES. VALVE SIZES TO BE DETERMINED BY THE ENGINEER AND APPROVED BY THE COUNTY PRIOR TO INSTALLATION.

3.) THE MINIMUM DIMENSION FROM ELBOW INVERT TO FINISHED GRADE SHALL BE 4.0 FEET.
BACK FLOW PREVENTER
IN ACCORDANCE WITH
PLANS APPROVED BY
THE CITY.

GATE VALVE
UNION
(2 REQUIRED)
90° BEND
(2 REQUIRED)

BRASS
THREADED
NIPPLE (TYP.)

TEST COCK (TYP.)

BRASS
SCH 40

FINAL GRADE

FROM
METER

TO
SERVICE

18" WIDE x 6"
CONCRETE COLLAR
WITH #4 BAR ALL
AROUND (2 REQ'D.)

ADJUSTABLE PIPE
SUPPORT STANDS
(2 REQUIRED)

NOTES:

1.) ALL PIPE AND FITTINGS 2" AND SMALLER SHALL
BE THREADED SCHEDULE 40 GALVANIZED STEEL OR
BRASS.

2.) PROVIDE PROTECTION AGAINST FREEZING, INSULATE
OR "HOT BOX".

3.) TWO PIPE SUPPORTS REQUIRED.
NOTES:

1.) ALL PIPE AND FITTINGS 2" AND SMALLER SHALL BE THREADED SCHEDULE 40 BRASS OR PVC.

2.) PROVIDE PROTECTION AGAINST FREEZING, INSULATION OR "HOTBOX".
NOTES:

1.) FIRE HYDRANT SHALL BE SUPPLIED WITH A WEEP HOLE.

2.) THE SHEAR PAD MAY BE RECESSED UP TO 6 INCHES BELOW FINISHED GRADE.

3.) CLEARANCE BETWEEN BOTTOM OF BOLTS AND TOP OF SHEAR PAD SHALL BE A 4" MINIMUM.

4.) HYDRANT SHALL BE AVK MODEL 2780 NOSTALGIC, AMERICAN DARLING B-84-B, CLOW MEDALLION OR US FIRE HYDRANT, MODEL SENTINEL 250 WITH SS VALVE ROD.

5.) A WEATHER SHIELD SHALL BE PROVIDED TO PROTECT OPERATING STEM OR NUT.

6.) THE HYDRANT’S UPPER AND LOWER STEM, BREAK COUPLING, INTERNAL PINS AND CLIPS, AND ALL EXTERNAL BOLTING SHALL BE MANUFACTURED OF 304 OR 316 STAINLESS STEEL.
NOTE:

THIS DETAIL FOR USE ONLY WHEN THE WATER MAIN IS LOCATED TOO CLOSE TO THE RIGHT-OF-WAY LINE TO USE DETAIL ON SHEET 16A.
POST HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH A 30" BURY. HYDRANTS SHALL BE FURNISHED WITH A 2" FIPI HORIZONTAL INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN LEFT. BRONZE OPERATING MECHANISM AND ALUMINUM PLUNGER DESIGN, AND BE SERVICABLE FROM ABOVE GRADE WITH NO DIGGING. THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NST. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE. MAINGAURD NO. 77 AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO, OR CITY APPROVED EQUAL.

POST HYDRANT - FACE NOZZLE TOWARD STREET

3'x3'x6" THICK CONCRETE PAD

2" FIPI HORIZONTAL INLET

4" PVC PIPE

4' BLIND FLANGE w/ MEGA LUG AND 2" FNPT AT BOTTOM OF BLIND FLANGE.

2" BRASS NIPPLE

1-1/2 CU FT THRUST BLOCK, WRAP BASE OF POST HYDRANT IN 4 MIL PLASTIC BEFORE POURING CONCRETE.

DATE: APR 2019

W-16C
PLAN VIEW

NOTE: INSERT BACK FLOW PREVENTION DEVICE WHEN REQUIRED BY THE CITY.

SECTION

NOTE: ALL ABOVE GROUND PIPE JOINTS SHALL BE FLANGED.

* PIPE SUPPORTS:
  1 REQ'D UNDER CENTER FOR 6'',
  2 REQ'D FOR 8'' AND LARGER
### METER & STRAINER LAYING LENGTH

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**METER LAYING LENGTH INCLUDES STRAINER.**

### METER FLOW OPERATING RANGE (GPM)

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FREEZE-PROOF YARD HYDRANT

3/4" HOSE CONNECTION (WOODFORD MODEL Y1 OR EQUAL)

1" STAND PIPE

27"

FINISHED GRADE

3/4" ROUND DRAIN ROCK 1'-6" SQUARE 2'-6" HIGH

INLET PORT

1" SERVICE 1" UNION

12"

12" LONG, 1" BRASS NIPPLE & 90° ELBOW

12"

6"x8"x12" CONCRETE BLOCK SUPPORT

COPPER DRAIN TUBE

DATE: MAR 2012
TOP OF BANK

2,500 P.S.I. CONCRETE MIN.

8" THICK CONCRETE
PAD TYPICAL VALVE BOX

1/2" HOLE IN CONC.
NEXT TO VALVE BOX

SHAPE PER W-1, R-1, S-7

PLAN

FINISH GRADE

8" 1'-8"

SECTION A - A

1" ABOVE FINISH GRADE

SLOPE PER PLAN

TOP OF BANK

SECTION B-B

CITY OF P.C.B
UTILITIES
STANDARD
DETAILS

WATER GATE VALVE &
BOX DETAIL
(ON SLOPES >1:6)

DATE: FEB 2020

W-20
NOTES:

1. WATER QUALITY SAMPLING STATION TO BE KORALEAN OR APPROVED EQUAL.

2. KEYS TO LOCKS SHALL BE DELIVERED TO THE CITY WATER QUALITY DEPARTMENT UPON ACCEPTANCE.

TYPICAL INSTALLATION

NOTES:

1. WATER QUALITY SAMPLING STATION TO BE KORALEAN OR APPROVED EQUAL.

2. KEYS TO LOCKS SHALL BE DELIVERED TO THE CITY WATER QUALITY DEPARTMENT UPON ACCEPTANCE.
NOTES:

1.) MANHOLE SHOWN IS FOR SEWER SIZE 8" THRU 18", MANHOLE DIAMETER FOR SEwers GREATER THAN 18" SHALL BE AS APPROVED BY CITY.

2.) DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFUENT SEWER IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE. SEE MANHOLE CONNECTION DETAILS.

3.) APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE.

4.) MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SHALL BE SEALED W/ NON-SHRINK MORTAR.

5.) MANHOLE COVERS IN SWALES OR DITCHES SHALL BE EXTENDED TO TOP OF BANK ELEVATION.
NOTES:

1.) MANHOLE SHOWN IS FOR SEWER SIZE 8" THRU 18", MANHOLE DIAMETER FOR SEWERS GREATER THAN 18" SHALL BE AS APPROVED BY CITY.

2.) DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFUENT SEWER IS >24" OR MORE ABOVE THE INVERT OF THE MANHOLE, SEE MANHOLE CONNECTION DETAILS.

3.) APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE.

4.) MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SHALL BE SEALED WITH NON-SHRINK MORTAR.

5.) MANHOLE COVERS IN SWALES OR DITCHES SHALL BE EXTENDED TO TOP OF BANK ELEVATION.
STANDARD PRECAST MANHOLE PIPE CONNECTION

SPECIAL DETAIL FOR 21" DIAMETER PIPE AND LARGER

NOTES:

1.) AN OUTSIDE DROP CONNECTION SHALL BE REQUIRED FOR ALL INFLUENT WHICH HAVE AN INVERT 2' OR MORE ABOVE THE MANHOLE INVERT. (PRIVATE SYSTEMS ONLY)

2.) DROP PIPE AND FITTINGS SHALL BE OF EQUAL SIZE AND MATERIAL AS THE INFLUENT SEWER.
NOTES:

1.) LOCATE SINGLE LATERAL AS NEAR TO CENTER OF LOT AS POSSIBLE.

2.) INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.

3.) DOUBLE SERVICE LATERALS ONLY PERMITTED ON TAPS TO EXISTING GRAVITY MAINS WERE EXISTING ROAD PAVEMENT MUST BE CUT.

4.) ALL PIPE FITTINGS SHALL BE PVC ASTM 3034 SDR35, GREEN IN COLOR.
CLEANOUT DETAIL
NOT TO SCALE

MATCH FINISHED GRADE
THREADED END PLUG
ADJUSTABLE VALVE BOX COVER
PVC (SEE PLANS)
45° BEND
THREAD END PLUG OR CONTINUATION
SEE PLANS FOR SIZE PIPE
CONCRETE
45° WYE

CONCRETE
8" TYP.

8" TYP.

NOTE: SEE SEWER SIZE IN PLANS
NOTES:

1.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

2.) FOR VALVE COLLAR PADS THAT FALL ON SLOPES GREATER THAN 1:6, SEE DETAIL W-20 FOR PAD.
NOTES:

1.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

2.) VALVES 20" & LARGER SHALL HAVE BEVEL-GEAR OPERATORS UNLESS DEPTH IS ADEQUATE TO MAINTAIN 24" COVER ON VALVE NUT.

*NOTE: 24" SQ. PAD TO BE CONSTRUCTED INSIDE RESIDENTIAL AREAS.
SECTION A-A

LIMITS OF SITE TO BE DEDICATE TO CITY
(750 S.F. MIN. FOR 6’ MAX. DIA. WETWELL)
(900 S.F. MIN. FOR 8’ DIA. WETWELL)
(1300 S.F. MIN. FOR 10’ DIA. WETWELL)

LIMITS OF UTILITY EASEMENT
(DURING CONSTRUCTION)

4” GRAVEL OVER
GEOTEXTILE FABRIC
US FABRIC 160NW
OR EQUAL

6’ CHAIN LINK
FENCE PER DETAIL

BURIED POWER
TRANSFORMER
SET OUTSIDE OF
FENCE LINE; SHOW LOCATION

SECTION A-A

7’ (MIN.)

5’ (MIN.)

WET WELL

1” WATER LINE
WITH FREEZE
PROOF YARD
HYDRANT

REDUCED PRESSURE
BACK FLOW PREVENTER
(ABOVE GROUND PIPING
SHALL BE INSULATED,
BRASS OR PVC)

ASPHALT OR CONCRETE DRIVE
CENTERED AND EXTENDED
TO EDGE OF WET WELL

MANHOLE WITHIN
FIFTY FEET OF
WET WELL

ENGINEER SHALL PROVIDE A SCALED (1” = 10’ MIN.) SITE SPECIFIC DETAIL

IF LIFT STATION SITE IS NOT CONTIGUOUS TO PUBLIC R/W, A 20’ MINIMUM
WIDTH EASEMENT APPROVED BY CITY MUST BE PROVIDED TO R/W.
STAINLESS STEEL MESH WITH 1/4"-OPENING AND COMPANION FLANGE

4" D.I. FLANGE VENT PIPE SEE PLAN VIEW ABOVE FOR LOCATION

ALUMINUM ACCESS HATCH W/LOCKSET AND RECESSED HANDLE

FLOAT BAR W/ FLOATS TO BE HUNG SEPARATELY

POWER CABLE

2" DIA. SCH. 40 STAINLESS STEEL PIPE

MIN. 3/8" HEAVY DUTY STAINLESS STEEL LIFTING CHAIN

SHOWN ROTATED FOR CLARITY

24 VOLT FLOAT LIQUID LEVEL CONTROLS

SEE NOTE 4 DETAIL S-12

ELEV. Z

MIN. 12" GROUT

ELEV. S

#6-12" O.C.E.W.

MIN. 3/4" DIA. X 11" STAINLESS STEEL ANCHOR BOLTS TO EXTEND 7" INTO BASE.

COAT INSIDE BASE EL (SEE NOTE)

HIGH LEVEL ALARM ELEV. X

LAG PUMP ON ELEV. W

LEAD PUMP ON ELEV. V

REDUCER AS REQUIRED

BOTH PUMPS OFF ELEV. U

LOW LEVEL ALARM ELEV. T

3" P.V.C. FLOOR DRAIN W/"P" TRAP FITTED W/ SURESEAL PLUS BY RECTORSEAL (REC97046) TRAP SEAL OR EQUAL. SLOPE OUTLET PIPE 1/2" PER FOOT

12" MIN. NO. 57 GRANITE STONE IN GEOTEXTILE FABRIC (US FABRICS 160NW OR EQUAL) EXTENDING 1" MIN. BEYOND BASE SLAB PERIMETER

NOTES:

1. LIFT STATION WET WELL RIM SHALL BE SET AT THE HIGHER OF THE FOLLOWING:

A. 12" ABOVE ADJACENT ROADWAY CROWN OR BACK OF CURB (WHICHEVER IS HIGHER).

B. 8" ABOVE PROPOSED FINISHED GRADE.
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<tr>
<th>PUMPING STATIONS</th>
<th>DIMENSIONS</th>
<th>ELEV. AT CONST.</th>
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* PER PUMP MANUFACTURERS REQUIREMENT

**GENERAL NOTES:**

1.) ALL EXPOSED METAL SHALL BE PAINTED WITH 2 COATS OF INDUSTRIAL EXTERIOR ENAMEL, GLIDDEN HUNTER GREEN, (HEX#355E3B) OR CITY APPROVED EQUAL.
2.) WET WELL AND VALVE VAULT SHALL BE COATED WITH COAL TAR INSIDE AND OUT EXCEPT TOP SURFACE OF COVERS. (TWO COATS, 9 MILS EACH.)
3.) BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.
4.) THE WETWELL SHALL BE INSTALLED PLUMB AND WATER TIGHT WITH A MAXIMUM DEVIATION OF 3/16 INCH PER FOOT OF HEIGHT. THE BOTTOM SECTION SHALL BE VERIFIED WITH A SURVEY LEVEL FOR ELEVATION AND PLUMBNESS. DATA MUST BE SUBMITTED TO CITY FOR APPROVAL PRIOR TO SETTING ANY ADDITIONAL RISERS.
5.) VALVE VAULT SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE SPINDLES WITH MINIMUM CLEARANCES AS SHOWN FOR 6" DIAMETER PIPE AND SMALLER.
6.) CLEARANCES SHALL INCREASE AS REQUIRED FOR LARGER PIPE SIZES.
7.) VALVE VAULT SHALL HAVE SEALED FLOOR AND DRAIN.
8.) ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE OR NON-SHRINK GROUT.
9.) THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN WET WELL.
10.) WET WELL AND VALVE VAULT COVERS SHALL BE ALUMINUM WITH 316 S.S. HARDWARE AND LOCK BRACKET SIZE AS REQUIRED BY PUMP MANUFACTURER AND APPROVED BY THE CITY.
11.) FLEXIBLE COUPLING SHALL BE SLEEVE TYPE.
12.) ALL NUTS, BOLTS, WASHERS, ETC. IN WET WELL AND VALVE BOX TO BE 316L STAINLESS STEEL.
13.) APPLY TWO COATS OF CERAMIC EPOXY ON THE ENTIRE INSIDE OF EACH BASE ELBOW IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS INCLUDING COATING THICKNESS, SURFACE PREPARATION SHALL ALSO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ACCEPTABLE COATINGS ARE BELZONA CERAMIC CARBIDE NO. 1811 OR ENGINEER APPROVED EQUAL.
CONTRACTOR WILL FURNISH A TYPICAL RTU CABINET THAT WILL HAVE AT LEAST THE FOLLOWING FEATURES:

- FACEPLATE MATERIALS TO BE APPROVED BY THE CITY AND COMPLY WITH ALL CITY CODES.
- RTU CABINET TO BE墊APROVED BY THE CITY AND COMPLY WITH ALL CITY CODES.
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THE CONTRACTOR WILL:

- PROVIDE AND INSTALL ALL ELECTRICAL HARDWARE REQUIRED FOR THE INSTALLATION.
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THE CITY WILL PROVIDE:

- A CLEAR DEMARCATION LINE TO DEFINE THE INSTALLATION AREA AND TO IDENTIFY THE INSTALLATION LOCATION.
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THE CITY OF

PANAMA CITY BEACH

ELECTRICAL DETAILS
NOTES:

1.) MANHOLE SHOWN IS FOR SEWER SIZE 8” THRU 18”, MANHOLE DIAMETER FOR SEWERS GREATER THAN 18” SHALL BE AS APPROVED BY CITY.

2.) DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFLUENT SEWER IS 24” OR MORE ABOVE THE INVERT OF THE MANHOLE. SEE MANHOLE CONNECTION DETAILS.

3.) APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE.

4.) MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SHALL BE SEALED W/ NON-SHRINK MORTAR.
NOTES:
1. MANHOLE SHOWN IS FOR SEWER SIZE 8" THRU 18". MANHOLE
   DIAMETER FOR SEWERS GREATER THAN 18" SHALL BE AS APPROVED
   BY CITY.
2. DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF
   INFLUENT
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   SEE MANHOLE CONNECTION DETAILS.
3. APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN
   ALTERNATIVE.
4. MANHOLE LIFT HOLES AND GRADE ADJUSTMENT RINGS SHALL BE
   SEALED W/ NON-SHRINK MORTAR.

THE INTRAFLOW INTERNAL DROP SYSTEM SHALL BE A ROTATIONAL
MOLDED; SECTIONAL ENCLOSURE MADE OF POLYETHYLENE (PE). THE
INSIDE DROP ASSEMBLY SHALL CONTAIN, AND DIRECT SEWAGE FLOW
FROM THE UPPER PORTION OF THE MANHOLE TO THE INVERT
CHANNEL. THE SECTIONS SHALL BE OF LOW PROFILE DESIGN WITH
MOLDED FASTENING LUGS CONFORMING TO THE INSIDE MANHOLE WALL.
THE INTERMEDIATE SECTIONS SHALL BE SUPPLIED IN THREE AND FOUR
FOOT SECTIONS. THE TOP SECTION SHALL HAVE A 9" ADJUSTMENT
JOINT AT THE BOTTOM AND REMOVABLE INSPECTION HOOD AT THE
TOP. THE INSIDE OF THE TOP SECTION SHALL HAVE AN OPENING FOR
4" THROUGH 12" PIPE ENTRY. THE OUTSIDE OF THE TOP SECTION
SHALL HAVE A NOMINAL 13" INSPECTION / CLEANOUT OPENING. THE
BOTTOM SECTION SHALL BE ELONGATED AT THE TOP WITH A
TRANSITION TO A 10" ROUND PIPE AT THE BOTTOM. A 90' 10" PVC
SWEEP SHALL ATTACH TO THE BOTTOM TRANSITION SECTION. SECTIONS
SHALL BE SECURED TO THE MANHOLE WALL THROUGH THE FASTENING
LUGS USING TYPE 302 OR 304 STAINLESS STEEL ANCHOR BOLT
ASSEMBLIES.
ALUMINUM ACCESS HATCH W/ LOCKSET AND RECESSED HANDLE (36" x 48") (H2O TRAFFIC RATED)

PROVIDE AND INSTALL NEW MAGMETER MANUFACTURED BY ENDRESS AND HAUER (MODEL 53)

VALVE BOX

ASPHALT

COMPACTED BASE

VALVE BOX

6" #67 GRANITE BEDDING ROCK

ADJUSTABLE PIPE SUPPORT STANDS

SLOPE GROUT TO DRAIN

2" SCH. 80 FLOOR DRAIN WITH 4" DIA. BRONZE GRATE

SECTION "A-A"

* AREAS W/ HIGH WATER TABLE SHALL HAVE SUMP PUMP IN LIEU OF DRAIN
NOTES:
1. CONFLICT MANHOLE WILL BE ALLOWED WHERE DESIGN PROBLEMS AND ECONOMICS PROVE THEM TO BE THE ONLY Viable SOLUTION AS APPROVED BY THE ENGINEER AND OWNERS.
2. CONFLICT MANHOLES WILL NOT BE ALLOWED FOR WATER MAINS CROSSING GRAVITY WASTEWATER SYSTEMS.
3. WHEN NECESSARY FOR EXISTING UTILITY MAINS, THE CARRIER PIPE SHALL BE SPLIT SLEEVED STEEL CASING. (SEE DETAIL)

CONFLICT MANHOLE
N.T.S.

CITY OF P.C.B
UTILITIES
STANDARD
DETAILS

CONFLICT MANHOLE
DETAIL

DATE: MAR 2012

S-18
NOTES:

1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.

2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.

3.) TAPPING SADDLE: SHALL BE MODEL FC202 FORD METER BOX CO., INC. WITH EPOXY GATED BODY (NSF 61) AND 304 SS BAND AND HARDWARE. ALL OUTLETS SHALL BE IRON PIPE THREAD.

4.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN .36" APART AND NOT WITHIN 24" FROM BACK OF PIPE BELL OR SPIGOT INSERTION LINE.

5.) TAPS SHALL NOT BE SET IN DRAINAGE SWALES, EASEMENTS, OR SIDEWALKS.

TYPICAL CITY SERVICE

CHECK VALVE MATCO NORCA MODEL 200WOG IPS 521T08
2" IPS 200 P.S.I. SDR9 - ASTM D-2737 SERVICE TUBING WITH GREEN STRIPE
2" IRON BODY GATE VALVE W/ A WHEEL HANDLE WITH VALVE BOX (SEE DETAIL M-33)

FORCE MAIN

FORD COUPLING C14-77 (TYP.)

2" BRASS NIPPLE (TYP.)

SERVICE LINE

R/W LINE

R/W

BY CITY

5' MAX.

BY OWNER

SHUT-OFF VALVE REQ'D WHEN DISTANCE FROM TAP > 70' (COMMERCIAL ONLY)
PRESSURE GAUGE ASSEMBLY

PRESS. GAUGE 0-60 PSI (WIKA TYPE 233.30 OR EQUAL)

1/2" DIAPHRAGM GLYCERIN FILLED (ASHCROFT MODEL 100 OR EQUAL)

1/2" NPT NIPPLE (316L SS) (TYP.)

1/2" BALL VALVE (NIBCO T-585 OR EQUAL)

3/4" X 1/2" RED. BUSHING (316L SS)

TAPPING SADDLE FORD METER BOX MODEL FC 202 OR APPROVED EQUAL
3" DIA. BRONZE DISC ANCHORED IN CONCRETE PAD STAMP AS REQUIRED

SIZE OF VALVE

TYPE OF VALVE/BRANCH, INLINE, METER

TYPE OF SERVICE

DIRECTION AND NUMBER OF TURNS TO OPEN

2,500 P.S.I. CONCRETE MIN.

#3 REBAR (6 TOTAL)

VALVE BOX AND COVER (TYP.)

16"  1/2" HOLE IN CONC. NEXT TO VALVE BOX

16"  1/2" HOLE IN CONC. NEXT TO VALVE BOX

COVER SHALL BE MARKED "RECLAIMED WATER"

END OF 12 GA. WIRE

-1/2" HOLE IN CONC. NEXT TO VALVE BOX

-36"x36"x6" THICK CONC. PAD

-1#3 BAR EACH WAY (6 TOTAL)

SEE NOTE 2

RESILIENT SEAT M.J. GATE VALVE

CONNECT TRACER WIRE FOR SERVICE TO MAIN PIPE TRACER WIRE

12 GA. TRACER WIRE TO BE STRIPPED, WRAPPED AND TAPE TO VALVE BOX W/ PIPE WRAP TAPE (UPC APPROVED) COMPLETELY COVERING WIRE

ADJUSTABLE CAST IRON VALVE BOX

12 GA. TRACER WIRE

RECLAIMED WATER MAIN

NOTES:

1.) PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.

2.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 1 FOOT DEPTH BELOW FINISHED GRADE.

3.) ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.

4.) VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.

5.) ALL EXPOSED EDGES OF CONCRETE PAD SHALL BE CHAMFERED 1/2".

6.) FOR VALVE COLLAR PADS THAT FALL ON SLOPES GREATER THAN 1:6, SEE DETAIL W-20 FOR PAD.
NOTES:

1.) PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.

2.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

3.) ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.

4.) VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.

5.) ALL EXPOSED EDGES OF CONCRETE PAD SHALL BE CHAMFERED 1/2".
NOTE:

ALL 2" PIPE AND FITTINGS SHALL BE SCHEDULE 40 BRASS WITH THREADED (NPT) JOINTS.
NOTES:

1.) PVC extensions shall not be used on valve box installation.

2.) The actuating nut for deeper valves shall be extended to come up to 4 foot depth below finished grade.
NOTES:
1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3.) EACH SERVICE SHALL TERMINATE AT A CURB STOP WHICH SHALL BE FASTENED TO A 1" X 4" X 30" STAKE PAINTED PURPLE AND MARKED WITH THE NUMBER OF THE LOT TO BE SERVED.
4.) CURB STOP SHALL BE A FORD BALL METER VALVE B43-342W-G OR CITY APPROVED EQUAL.
5.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVALS OR WITHIN 2'-0" FROM BELL SPIGOT ENDS.
6.) METER BOXES & YOKE ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.

TYPICAL CITY SERVICE WITH REUSE (PER. LOT)

- REUSE METER BOX SHALL BE LABELED "REUSE WATER" AND BE PURPLE IN COLOR
- BY CITY / BY OWNER
- 25# BRONZE GATE VALVE WITH RISING STEM (SAME SIZE AS METER)
- REUSE METER TO BE CENTERED UNDER METER BOX DOOR AND BE PURPLE IN COLOR
NOTES:

1.) ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.

2.) NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.

3.) EACH SERVICE SHALL TERMINATE AT A BALL VALVE WHICH SHALL BE FASTENED TO A 1” x 4” x 30” STAKE PAINTED WHITE.

4.) CURB STOP SHALL BE A 2” FORD BALL METER VALVE B14-777W OR CITY APPROVED EQUAL.

5.) ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.

TYPICAL CITY SERVICE
NOTES:

1. REDUCE MAIN TO 4" PVC (C-900) FOR PERMANENT CUL-DE-SAC CONNECTIONS ONLY. FITTINGS AS REQUIRED.

2. 5'-0" MIN. SEPARATION BETWEEN POTABLE WATER, RECLAIMED WATER AND WASTE WATER SHALL BE MAINTAINED.

3. ABOVE GROUND PIPING TO BE PAINTED PURPLE WITH NON-POTABLE MARKINGS.

4. WHERE POSSIBLE LOCATE ON NORTHERLY AND WESTERLY SIDE OF ROAD AND ON THE OPPOSITE SIDE OF ROAD FROM THE WATER LINE.

5. GATE VALVE REQUIRED IF CUL-DE-SAC EXCEEDS 500' IN LENGTH.
PLAN VIEW

36"x 36"x 4" CONC. PAD
WITH 4-#3 BARS @ 5"
C-C EA. WAY (8-TOTAL)
(SEE R-1)

REUSE VALVE
BOX

6x6x10 W.W.F.

2" SCH. 80 PVC
(THREADED)
OR COPPER

2" THR'D. 90° ELBOW
(SCH. 80 PVC) OR
COPPER

CONC. THRUST
BLOCK (TYP.)

NOTE:
1. ALL EXPOSED EDGES OF CONCRETE
   SHALL HAVE 1/2" CHAMFER.
2. ALL EXPOSED PIPES AND FITTINGS
   TO BE PURPLE

VANDAL RESISTANT
ALUMINUM OR
FIBERGLASS
ENCLOSURE CABINET
WITH 24"X30"H
ACCESS DOOR AND
HASP FOR PADLOCK

3/4" BALL
VALVE BRONZE

1/2" AIR RELEASE
VALVE

ANCHOR EXTENSION
TO OPERATING NUT
WITH SET SCREW

C.I. VALVE BOX
W/EXTENSION

VALVE OPERATOR
EXTENSION WITH
CENTERING COLLAR

VARIES

VARIES

3'-0" MIN.

2'-6"

2'-6" CABINET

2'-8" CONC. PAD

1'-0"

1'-6"

2'-6" CABINET

3'-0" CONC. PAD

CABINET

2'-2"

1'-2"

2'-2"

2'-2"

3'-2"

1'-10"

1/2" E-J

3/4" DIA. x 6" STAINLESS STEEL
ANCHOR BOLT (2 REQ'D)

RECLAIMED WATER MAIN

2" TAPPING
SADDLE

2" GATE VALVE

2" SCH. 80 PVC
(THREADED)
OR COPPER

2" SCH. 80 PVC
(THREAD)
NOTES:

1.) ABOVE GROUND PIPING TO BE PAINTED PURPLE WITH NON-POTABLE MARKINGS.

2.) DEVICES MUST BE INSTALLED LEVEL.

3.) ALL JOINTS SHALL BE FLANGED UNLESS OTHERWISE NOTED.

4.) BACK FLOW PREVENTER ONLY IF REQUIRED TO PREVENT CONTAMINATION BY ATTACHED CHEMICAL/FERTILIZER INJECTION METHODS.

5.) ALL EXPOSED CONCRETE EDGES SHALL HAVE 1/2" CHAMFER.

PLAN VIEW

SECTION

CONCRETE SLAB

OUTSIDE SCREW & YOKE GATE VALVES (RESILIENT SEAT)

TO SERVICE

FROM MAIN

METER W/STRAINER

SEE SHEET W18

5x DIA.

NOT REQUIRED IF TAPPING VALVE IS WITHIN 25'

90' FLANGED BEND

4" CONCRETE SLAB WITH No. 6 x 6, W10 x W10

1/2" PRE FORMED JOINT MATERIAL BETWEEN PIPE AND CONCRETE SLAB (TYP.)

ADJUSTABLE PIPE SUPPORT STAND (2 REQ'D)

90' MJ BEND

REstrained Joint

12"

FINISHED GRADE

COVER

3" REstrained Joint

TO SERVICE

12"

THRUST COLLAR IN ACCORDANCE WITH STANDARD DRAWING AND PLANS APPROVED BY THE CITY (TYP.)

24036monosurv.cdb
NOTES:

1. WHEREVER POSSIBLE AIR RELEASE VALVES SHALL BE PLACED ABOVE GROUND IN STAINLESS STEEL CABINET.

2. ALL PIPE STUBS, NIPPLES AND HARDWARE TO BE 304 STAINLESS STEEL.

3. TO PREVENT DAMAGE TO VALVE FROM TIPPED MANHOLE COVERS IN SHALLOW BOXES IT MAY BE NECESSARY TO OFFSET VALVE FROM CENTERLINE.

4. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS OF MAIN AS DIRECTED BY THE ENGINEER.

5. ALL PIPE APPURTEINANCES AND SIZING IN ACCORDANCE WITH SPECIFIC DEVICE APPLICATION.

6. WHERE AIR RELEASE VALVE IS 12' OR FURTHER FROM CURB OR SHOULDER OF ROADWAY SERIES H1R3O30 ACCESS DOOR OR APPROVED EQUAL MAY BE USED.
3" REUSE WATER METE...
PIPE BEDDING (SEE NOTE 6 & 7)

1. PIPE BEDDING SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.

2. TRENCH BACKFILL COMMON FILL COMPACTED TO 95% DENSITY AS PER AASHTO T-180.

3. USE TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CITY.

4. 15" MIN. FOR PIPE DIAMETER LESS THAN 24", AND LARGER.

5. PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.

6. GRAVITY SEWERS SHALL UTILIZE TYPE A BEDDING, IF REQUIRED BY THE CITY.

7. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL CONFORM DEPTH OF BELLING ROCK BELOW THE PIPE. TRENCH DEPTH IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.

SELECT COMMON FILL

BELLING ROCK

COMMON FILL

12" (TYP.)

SEE NOTE 4

PIPE BEDDING

(SEE NOTE 1)

TRENCH BACKFILL

(SEE NOTE 2)

UNDISTURBED EARTH

SELECT COMMON FILL

TRENCH BACKFILL

(SEE NOTE 2)

12" LIFTS MAXIMUM

UNIMPROVED AREA (SEE NOTE B)

BEDDING AND TRENCHING DETAIL FOR OTHER CROWN TRENCH IN W/ SIZE OF PIPE

TRENCH WIDTH VARIES

FINISHED GRADE
NOTES:

1.) PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.

2.) TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.

3.) PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE CITY.

4.) (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.

5.) ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.

6.) FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN FDOT, BAY COUNTY & CITY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.
NOTES:

1.) (*) 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIA. 24" AND OVER.

2.) "D" REFERS TO THE DIAMETER OF THE PIPE.

3.) USE OF CONCRETE ARCH HALF ENCASEMENT OR FULL ENCASEMENT TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CITY.

* SEE NOTE 1 (TYPICAL)
NOTES:

1.) THrust block bearing areas shall be poured against undisturbed material. Where trench wall has been disturbed, excavate all loose material and extend to undisturbed material.

2.) Extend thrust block full length of fittings. Joints shall not be covered by thrust blocks. Fittings shall be protected by polyethylene film (6 mil) prior to placing concrete thrust block.

3.) Rough blocking forms shall be used along sides of thrust blocks, as required.

4.) Thrust blocks shall be used in combination, as required, to suite the specific fitting arrangement.

5.) Alternate designed restraining systems shall be provided were standard thrust blocking is not suitable and/or soil resistance bearing is less than 1,500 PSF.

6.) All wood blocking shall be pressure treated with preservative.

7.) For thrust block areas see restrained pipe table sheet. (Sheet M-5)
### SCHEDULE FOR THRUST BLOCK AREAS

<table>
<thead>
<tr>
<th>PIPE SIZE (INCHES)</th>
<th>90 BEND (SQ FT)</th>
<th>45 BEND (SQ FT)</th>
<th>22-1/2 BEND (SQ FT)</th>
<th>11-1/4 BEND (SQ FT)</th>
<th>TEE &amp; PLUG (SQ FT)</th>
<th>CROSS (SQ FT)</th>
<th>WYE (SQ FT)</th>
<th>DESIGN PRESS (PSI)</th>
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**NOTE:**
THRUST BLOCK AREAS TO BE COMPUTED ON BASIS OF LBS. PER SQ. FT. SOIL RESTRAINT BEARING.

* TO BE COMPLETED BY ENGINEER.

### NOTES:

1.) FITTINGS SHALL BE RESTRIENCED JOINTS UNLESS OTHERWISE INDICATED.

2.) INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN SHOWN IN THE TABLE.

3.) IN LINE VALVES AND THROUGH RUN OF TEES OUTSIDE LIMITS OF RESTRIENDED JOINTS FROM OTHER FITTINGS NEED NOT BE OF RESTRIENDED JOINTS FROM OTHER FITTINGS RESTRIENDED UNLESS OTHERWISE INDICATED.

4.) LENGTHS SHOWN IN THE TABLE HAVE BEEN CALCULATED IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" AS PUBLISHED BY DIPRA, WITH THE FOLLOWING ASSUMPTIONS: WORKING PRESSURE: ____________ P.S.I.* SOIL DESIGNATION: ____________ * LAYING CONDITIONS: _______ *

5.) FOR PIPE ENCASED IN POLYETHYLENE, USE VALUES GIVEN IN PARENTHESES OR INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5. * TO BE COMPLETED BY THE ENGINEER.
NOTES:

1.) ADDITIONAL REINFORCEMENT SHALL BE AS SPECIFIED BY THE ENGINEER.

2.) MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 2500 PSI.

3.) ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.

4.) NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.

5.) DESIGN PRESSURE: ______ P.S.I.*

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>DIMENSIONS</th>
<th>TIE RODS REQ'D</th>
</tr>
</thead>
<tbody>
<tr>
<td>(INCHES)</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

NOTE:
THrust block areas to be computed on basis of lbs. per sq. ft. soil restraint bearing. (1,500 min)

SEE NOTE 5 ______ * TO BE COMPLETED BY ENGINEER
NOTES:

1.) PVC PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (12 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE.

2.) LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION.

3.) USE DUCT TAPE AS NECESSARY TO HOLD WIRE ON THE TOP OF THE PIPE.

4.) ALL SPLICES SHALL BE MADE USING A WATER-TIGHT SEALING METHOD APPROVED BY THE CITY.
GENERAL NOTES:

1.) REPLACEMENT BASE OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE, BUT NOT LESS THAN 8" THICK.

2.) BASE MATERIAL SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.

3.) ASPHALT CONC. PAVEMENT JOINTS SHALL BE MECHANICALLY SAWS.

4.) SURFACE TREATED PAVEMENT JOINTS SHALL BE LAPPED AND FEATHERED.

5.) SURFACE PATCH MATERIAL SHALL BE FDOT SP-12.5 AND MATCH EXISTING ASPHALT THICKNESS, BUT NOT LESS THAN 1-1/2" THICK. FOR SMALL PATCHES SP-9.5 MAY BE USED WITH PRIOR WRITTEN APPROVAL BY THE CITY.
NOTE:

PVC extensions shall not be used on valve box installation.
FM = FORCE MAIN
WM = WATER MAIN
SM = SEWER MAIN
GP = GULF POWER
PH = PHONE
GA = GAS
CA = CABLE

NOTE: ALL UTILITIES TO HAVE
36" MINIMUM COVER &
48" MAXIMUM COVER.
NOTES:

2" GATE VALVE & CHECK VALVE AT EACH HOUSE
1 1/2" HOUSE CONNECTION (TYPICAL)
NOTE:

THIS DETAIL DOES NOT APPLY FOR F.D.O.T. RIGHT-OF-WAYS.

SECTION A-A

CITY OF P.C.B
UTILITIES
STANDARD DETAILS

DATE: MAR 2012

STOP SIGN LOCATION DETAIL

M-11
1.) All sidewalks shall be 4" thick.
2.) For walks 8' and narrower, space transverse contraction joints at interval equal to width of walk or as noted.
3.) Contraction joints to be 1" deep scored, saw-cut, or formed with insert at contractors option unless noted otherwise. Scored joints to use an approved tool. Inserts to be Greenstreak ZipCap #855 or equal. Scored joints to be edged with 1/8" radius.
4.) Expansion joint required where shown. Expansion joint to consist of 1/2" fiberboard and Greenstreak Cap Seal #624 or equal.
5.) A layer of 15# felt is required between walk and adjacent concrete curb.

SIDEWALK CROSS SECTION

NOTE:

- 1/2" Expansion Joint
- 30' Max. Spacing Between Expansion Joints
- Back of Curb
- 6" x 6" WI.4 x WI.4 W.W.F 2% Min.
- Match pavement or finished grade (typ.)
- 12" sub-grade compacted to 95% modified proctor unless specified otherwise
NOTES:

1) WHEN CONSTRUCTION IS WITHIN FOOT JURISDICTION, ADDITIONAL REQUIREMENTS OF THE UTILITY ACCOMMODATION GUIDE MAY BE MET.

2) WHERE PRACTICAL, CASING SHALL EXTEND 10' BEYOND EDGE OF PAVEMENT IN ANY CASE. THE CITY MAY REQUIRE LONGER CASING FOR DEEPER BORES.

3) CASING PIPE JOINTS SHALL BE MADE BY USING A FULL CIRCUMFERENCE COMPLETE PENETRATION GROOVE WELD.

SECTION A-A

CARREER / WALL THICKNESS:

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<td>0.28&quot;</td>
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<td>0.32&quot;</td>
<td>0.34&quot;</td>
<td>0.36&quot;</td>
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<td>0.48&quot;</td>
<td>0.50&quot;</td>
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</tr>
</tbody>
</table>

SEE PLAN FOR PIPE MATERIAL

STEEL CASING PIPE

REINFORCED JOINT THRU CASING

MOLDED PREMANUFACTURED SADDLE (QUANTITY & SPACING PER MANUFACTURE RECOMMENDATIONS)

ENDS OF CASING TO BE SEATED WITH NON-SHRINK GROUT

VENT HOLES (1 HOLE 10' VENT HOLES)
NOTES:

1.) RESTRAINED JOINT PIPE & FITTINGS MAY BE USED IN LIEU OF TIE-RODS & BLOCKS, J.C.M., M.J.R., "STAR GRIP", "ALL GRIP" OR APPROVED EQUAL. SUBMIT DETAILS TO THE CITY OF PANAMA CITY BEACH PUBLIC WORKS DEPARTMENT FOR APPROVAL.

2.) SEE SHEET M-4 FOR THRUST BLOCK DETAILS.

3.) ENGINEER TO DETERMINE REQUIRED LENGTH OF RESTRAINT EACH SIDE OF BEND.
# REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR P.V.C. PIPE

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>HORIZ. BENDS</th>
<th>*TEES</th>
<th>REDUCERS</th>
<th>PLUGS</th>
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<tbody>
<tr>
<td>36</td>
<td>106 44 21</td>
<td>X36</td>
<td>X30 16 3</td>
<td>X30 78</td>
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<td>30</td>
<td>93 39 19</td>
<td>X30 132</td>
<td>X24 68 3</td>
<td>X24 78</td>
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<td>24</td>
<td>79 33 16</td>
<td>X24 99</td>
<td>X20 53 3</td>
<td>X20 78</td>
</tr>
<tr>
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</tr>
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<td>X10 38 3</td>
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<tr>
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<td>18 8 4</td>
<td>X4  1</td>
<td>X2 10 3</td>
<td>X2  78</td>
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**NOTES:**

1.) RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.

2.) RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5' BENDS.

3.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.

4.) PIPE ADJACENT TO IN-LINE VALVES 10" AND SMALLER SHALL BE RESTRAINED FOR 20' ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION. ALL PIPE ADJACENT TO IN-LINE VALVES 12" AND LARGER SHALL BE RESTRAINED FOR A DISTANCE 1/4 OF REQ'D PLUG (DEAD END) LENGTH ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION.

5.) PIPE SIZES ARE GIVEN IN INCHES.

6.) PIPE LENGTHS ARE GIVEN IN FEET.

7.) LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 150 PSI.

8.) RESTRAINED LENGTHS FOR TEES REPRESENTS LENGTH ON BRANCH. RESTRAINED LENGTHS FOR REDUCERS REPRESENTS LENGTH ON LARGE END OF REDUCER.

9.) RESTRAINED LENGTHS ARE TO BE USED FOR POTABLE WATER.

10.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY. SAFETY FACTOR OF 1.5:1 TO BE CALCULATED WITH A "SM" SOIL TYPE AND TRENCH TYPE "3".

---

**CITY OF P.C.B UTILITIES STANDARD DETAILS**

**RESTRAINED LENGTHS FOR P.V.C. POTABLE & REUSE WATER**

**DATE: MAR 2012**

**M-15**
<table>
<thead>
<tr>
<th>MAIN PIPE SIZE</th>
<th>HORIZ. BENDS</th>
<th>*TEES</th>
<th>REDUCERS</th>
<th>PLUGS</th>
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**NOTES:**

1.) RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.

2.) RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5' BENDS.

3.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.

4.) PIPE ADJACENT TO IN-LINE VALVES 10" AND SMALLER SHALL BE RESTRAINED FOR 20' ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION. ALL PIPE ADJACENT TO IN-LINE VALVES 12" AND LARGER SHALL BE RESTRAINED FOR A DISTANCE 1/4 OF REQ'D PLUG (DEAD END) LENGTH ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION.

5.) PIPE SIZES ARE GIVEN IN INCHES.

6.) PIPE LENGTHS ARE GIVEN IN FEET.

7.) LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 150 PSI.

8.) RESTRAINED LENGTHS FOR TEES REPRESENTS LENGTH ON BRANCH. RESTRAINED LENGTHS FOR REDUCERS REPRESENTS LENGTH ON LARGE END OF REDUCER.

9.) RESTRAINED LENGTHS ARE TO BE USED FOR POTABLE WATER.

10.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY. SAFETY FACTOR OF 1.5:1 TO BE CALCULATED WITH A "SM" SOIL TYPE AND TRENCH TYPE "S".

---

*MAIN TO BE RESTRAINED 20' ON EACH SIDE OF BRANCH*
### Required Length of Restrained Joint Pipe for P.V.C. Pipe

<table>
<thead>
<tr>
<th>Main Pipe Size</th>
<th>HORIZ. BENDS</th>
<th>TEES</th>
<th>REDUCERS</th>
<th>PLUGS</th>
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<tbody>
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<td>22.5°</td>
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<td>X10</td>
</tr>
<tr>
<td>8</td>
<td>22</td>
<td>9</td>
<td>5</td>
<td>X8</td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>7</td>
<td>4</td>
<td>X6</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>5</td>
<td>3</td>
<td>X4</td>
</tr>
</tbody>
</table>

**Notes:**

1. Restrained to next full joint beyond given length.
2. Restrained 11.25' bends 50% of length for 22.5' bends.
3. All valves and fittings shall be restrained to the connecting sections of pipe.
4. Pipe adjacent to in-line valves 10" and smaller shall be restrained for 20' on each side, including the valve-to-PIPE connection. All pipe adjacent to in-line valves 12" and larger shall be restrained for a distance 1/4 of req'd plug (dead end) length on each side, including the valve-to-PIPE connection.
5. Pipe sizes are given in inches.
6. Pipe lengths are given in feet.
7. Lengths shown are for a test pressure of 100 PSI.
8. Restrained lengths for tees represents length on branch. Restrained lengths for reducers represents length on large end of reducer.
9. Restrained lengths are to be used for sewer and reclaim water.
10. The restrained lengths shown in these tables are based on the use of lightly compacted clean sand with at least a 95% coarse particle content. Actual soil conditions must be determined by the engineer of record and the restrained lengths modified accordingly. Safety factor of 1.5:1 to be calculated with a "SM" soil type and trench type "3."
1.) ALL POLYETHYLENE PIPING SHALL MEET CITY OF PANAMA CITY BEACH STANDARDS AND SPECIFICATIONS.

2.) SDR 9, CLASS 250, PE4710 RESIN HPDE FOR 1" SERVICE TUBING. SDR-11, CLASS 200, PE4710 RESIN HPDE FOR 2" DIAMETER AND LARGER POTABLE WATER & RECLAIMED WATER. SDR-11, CLASS 160, PE4710 RESIN HPDE FOR 2" DIAMETER AND LARGER SANITARY FORCE MAINS COLOR CODED BLUE FOR POTABLE WATER COLOR CODED PURPLE FOR RECLAIMED WATER COLOR CODED GREEN FOR SANITARY FORCE MAIN.

3.) THE COLOR CODING SHALL MEETING REQUIREMENTS IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320 (21)(B) 3 F.A.C. AND SHALL BE CO-EXTRUDED DURING PIPE MANUFACTURING.

4.) ALL HPDE PIPE 2" DIAMETER AND LARGER MUST BE IPS, NO CTS IS ALLOWED. ALL 1" SERVICE TUBING SHALL BE CTS.

5.) ALL DIRECTIONAL BORES SHALL BE A MINIMUM OF 36 INCHES UNDER ALL ROADWAYS AND START AND TERMINATE A MINIMUM OF 6 FEET OFF THE EDGE OF PAVEMENT.

6.) CONTRACTOR SHALL PROVIDE A DETAILED "AS-BUILT" PROFILE OF ALL DIRECTIONAL BORE AND JACK AND BORE LOCATION OF ACTUAL PIPE ELEVATIONS AT 10 FOOT INTERVALS ON AS-BUILT PLAN SHEETS.
1.) ALL PIPE MUST BE C900/C905.

2.) THE COLOR CODING SHALL MEETING REQUIREMENTS IN ACCORDANCE WITH SUBPARAGRAPH 82-555.320 (21)(B) 3 F.A.C. AND SHALL BE CO-EXTRUDED DURING PIPE MANUFACTURING.

3.) PIPE ROLLERS SHALL BE PROVIDED AS REQUIRED BY SPECIFICATIONS TO SUPPORT PIPE AND PROTECT PIPE FROM SCRATCHES AND GOUGES.

4.) ALL DIRECTIONAL BORES SHALL BE A MINIMUM OF 36 INCHES UNDER ALL ROADWAYS AND START AND TERMINATE A MINIMUM OF 6 FEET OFF THE EDGE OF PAVEMENT.

5.) CONTRACTOR SHALL PROVIDE A DETAILED "AS-BUILT" PROFILE OF ALL DIRECTIONAL BORE AND JACK AND BORE LOCATION OF ACTUAL PIPE ELEVATIONS AT 10 FOOT INTERVALS ON AS-BUILT PLAN SHEETS.

<table>
<thead>
<tr>
<th>PIPE DIAMETER &quot;D&quot; IN INCHES</th>
<th>MIN. RADIUS &quot;R&quot; FUSIBLE PVC PIPE FOR DR-18</th>
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<tbody>
<tr>
<td>2</td>
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<td>20</td>
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</table>
NOTE:

ALL POLYETHYLENE PIPING SHALL MEET CITY OF PANAMA CITY BEACH STANDARDS AND SPECIFICATIONS:

SDR-9, CLASS 200 FOR POTABLE WATER & RECLAIMED WATER
SDR-11, CLASS 160 FOR SANITARY FORCE MAINS
COLOR CODED BLUE FOR POTABLE WATER
COLOR CODED PURPLE FOR RECLAIMED WATER
COLOR CODED GREEN FOR SANITARY FORCE MAIN
1.) NO TAPPING CUTS SHALL BE MADE BEFORE: A 60 MINUTE TEST AT 100 P.S.I. FOR FORC EmmANS, OR 150 P.S.I. FOR POTABLE WATERMAINS AND RECLAIM WATERMAINS IS PERFORMED.

2.) ALL TAPS MUST BE PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS LARGER) FROM A JOINT OR FITTING.

3.) CONTRACTOR TO SUPPLY A DRY HOLE, PROPERLY CONFIGURED, FOR TAPPING CREW TO WORK AND A BACK-HOE TO LOWER MACHINE INTO HOLE. TAPPING ASSEMBLY MUST BE BOLTED ON & PRESSURE TESTED BY THE CONTRACTOR & WITNESSED BY THE CITY PRIOR TO TAP.
NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

2.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE 24" DIAMETER AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX FOR PIPE 42" DIAMETER AND LARGER.

4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

SEEDING OR SODDING WIDTH "W"

3" - 4" CROWN

SEEDING OR SODDING WIDTH "W"

FOR PIPE SIZES 6" THRU 40"
"W" = 2'-4"+PIPE O.D.+ "D"

FOR PIPE SIZES OVER 40"
"W" = 4'-4"+PIPE O.D.+ "D"

THESE WIDTHS ARE FOR PAYMENT PURPOSES ONLY.
SAFETY REQUIREMENTS MAY DictATE INCREASED WIDTHS.

UNDISTURBED STABLE MATERIAL

CITY OF P.C.B
UTILITIES
STANDARD
DETAILS
TRENCH DETAIL
UNIMPROVED SURFACE
TYPE A-1 PIPE BEDDING

M-22

DATE: MAR 2012
NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

2.) 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER’S SPECIFICATIONS.

5.) WEARING SURFACE TO BE SAME TYPE & THICKNESS (1-1/2" MIN.) AS EXISTING PAVEMENT.

6.) SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.

7.) BASE SHALL BE 8" MINIMUM THICKNESS LIMEROCK OR CRUSHED CONCRETE BASE, OR APPROVED EQUAL.

8.) BACKFILL AASHTO M-145 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6 INCHES. EACH LAYER SHALL BE THOROUGHLY TAMPERED AND/OR ROLLED TO 95% AASHTO T-180 DENSITY.

9.) TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.

10.) NOTES 5.) THRU 9.) ARE MINIMUM REQUIREMENTS. REFER TO F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS FOR ADDITIONAL REQUIREMENTS.
NOTES:
1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.
3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.
4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
5.) THICKNESS TO MATCH EXISTING OR BE 4" MINIMUM, WHICHEVER IS GREATER.
6.) THICKNESS TO MATCH EXISTING OR BE 6" MINIMUM, WHICHEVER IS GREATER.
7.) IF ANY PART OF REQUIRED SAWCUT REMOVAL COMES WITHIN 3 FT. OF EXISTING JOINT ON EITHER SIDE OF TRENCH, REMOVE AND REPLACE TO EXISTING JOINT.
8.) SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.

#5 @ 15" ACROSS TRENCH WIDTH UP TO 4' (COMMERCIAL DRIVE)
#5 @ 12" ACROSS TRENCH WIDTH 4' TO 6' (COMMERCIAL DRIVE)
#5 @ 9" ACROSS TRENCH WIDTH 6' TO 8' (COMMERCIAL DRIVE)
NOTE: USE WELDED WIRE FABRIC FOR RESIDENTIAL DRIVEWAYS
PAVEMENT REPLACEMENT WIDTH "W"

EXISTING CONCRETE SLAB
6' 6"
COMMON FILL
SELECTED COMMON FILL (SEE NOTE 1)

SEEDING OR SODDING WIDTH "W"
FOR PIPE SIZES 6" THRU 22"
"W" = 3'-8"+PIPE O.D. +"D"
FOR PIPE SIZES 24" THRU 40"
"W" = 4'-0"+PIPE O.D. +"D"

THESE WIDTHS ARE FOR PAYMENT PURPOSES ONLY. SAFETY REQUIREMENTS MAY DICTATE INCREASED WIDTHS.

UNDISTURBED STABLE MATERIAL

CITY OF P.C.B
UTILITIES
STANDARD DETAILS
TRENCH DETAIL CONC.
PAVEMENT SURFACE
TYPE A-1 PIPE BEDDING

DATE: NOV 2016
M-24
NOTES:

1.) 10” MAX. FOR PIPE DIAMETER LESS THAN 24”; 12” MAX. FOR PIPE DIAMETER 24” AND LESS THAN 42”; 24” MAX. FOR PIPE DIAMETER 42” AND OVER.

2.) 4” MAX. FOR PIPE 16” DIAMETER AND LESS; 6” MAX. FOR PIPE DIAMETER 18” TO 36” AND 9” MAX. FOR PIPE DIAMETER 42” AND OVER.

3.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER’S SPECIFICATIONS.
NOTES:

1.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

2.) 4" MAX. FOR PIPE 16" DIAMETER AND LESS; 6" MAX. FOR PIPE DIAMETER 18" TO 36" AND 9" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

CITY OF P.C.B
UTILITIES
STANDARD DETAILS

TRENCH DETAIL
TYPE A-3 PIPE BEDDING

DATE: NOV 2016

M-26
POST OPTIONS:
WOOD 2 - 1/2" MIN. DIAMETER WOOD
2" x 4" OAK 1 - 1/2" x 1 - 1/2"
STEEL 1.33 LBS/FT. MIN.

FILTER FABRIC (IN CONFORMANCE
WITH FDOT SEC. 985)

6' MAX.

ELEVATION

SECTION

VERTICAL

ORIGINAL POST POSITIONS

PRINCIPAL POST POSITION
(CANTED 20° TOWARD FLOW)

FILTER FABRIC

SILT FLOW

NOTE:
DO NOT DEPLOY SILT FENCES IN A MANNER THAT WILL ACT AS A DAM ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE USED AT UPLAND LOCATIONS AND AS TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
MINIMUM TECHNICAL STANDARDS CHECKLIST FOR UTILITY AS-BUILTS

CITY OF PANAMA CITY BEACH
DATED MAY, 2012

SURVEYORS AND MAPPERS MUST MEET THE FOLLOWING MINIMUM STANDARDS OF ACCURACY, COMPLETENESS, AND QUALITY FOR THE CITY OF PANAMA CITY BEACH TO ACCEPT AS-BUILTS:

1. MUST IDENTIFY THE RESPONSIBLE SURVEYOR AND MAPPER.

2. SHALL STATE THE TYPE OF SURVEY IT DEPICTS AND THE PURPOSE OF THE SURVEY.

3. MUST BEAR THE NAME, CERTIFICATE OF AUTHORIZATION NUMBER, AND STREET AND MAILING ADDRESS OF THE BUSINESS ENTITY ISSUING THE AS-BUILT SURVEY, ALONG WITH THE NAME AND LICENSE NUMBER OF THE SURVEYOR IN RESPONSIBLE CHARGE.

4. MUST REFLECT A SURVEY DATE, WHICH IS THE DATE OF ACQUISITION. WHEN THE GRAPHICS OF THE AS-BUILT SURVEY ARE REVISED, BUT THE SURVEY DATE STAYS THE SAME. THE AS-BUILT SURVEY MUST LIST DATES FOR ALL REVISIONS.

5. MUST BE SIGNED AND SEALED BY THE SURVEYOR IN RESPONSIBLE CHARGE.

6. A DESIGNATED “NORTH ARROW” AND EITHER A STATED SCALE OR GRAPHIC SCALE SHALL BE SHOWN.

7. APPROPRIATE LINE TYPES, LINE WEIGHTS, AND LINE WIDTHS SHALL BE USED ON THE AS-BUILT DRAWING TO DIFFERENTIATE EXISTING FROM PROPOSED AND WATER FROM SEWER, RECLAIM, AND STORM. ALL PHYSICAL ITEMS (I.E. PIPES, VALVES, ETC.), SURVEYED BOUNDARIES, AND EASEMENTS SHOULD BE CLEARLY MARKED, AND DIMENSIONED, AND IDENTIFIED BY SIZE AND MATERIAL.

8. ALL UTILITIES IN THE PUBLIC RIGHT OF WAY AND WITHIN EASEMENTS OR TO THE END OF THE PUBLICLY OWNED PORTION OF THE UTILITY (I.E. METER AND BACKFLOW PREVENTER, CLEANOUT, ETC.) SHALL BE SHOWN WITH ASSOCIATED SIZES LABELED. THIS INCLUDES, BUT IS NOT LIMITED TO, STUB-OUTS/LATERALS, METERS, BFPs, WATER MAINS, FORCE MAINS, GRAVITY SEWER MAINS, MANHOLES, STORM WATER PIPING AND ASSOCIATED STRUCTURES, VALVES, FIRE HYDRANTS, LIFT STATIONS, ETC. ALL PIPE LINE WORK MUST BE CONNECTED WITHIN THE SITE AS WELL AS THE CONNECTION TO EXISTING UTILITIES ADJACENT TO THE SITE (IT IS THE SURVEYOR’S RESPONSIBILITY TO COORDINATE WITH ALL CONTRACTORS FOR LOCATIONS AND SIZING). ALL UTILITY CONNECTIONS TO THE BUILDINGS MUST BE SHOWN.

9. ALL PROPOSED UTILITY INGRESS/EGRESS EASEMENTS MUST BE SHOWN ON THE DRAWING AND MUST HAVE THE ASSOCIATED LEGAL DESCRIPTION WRITTEN.

10. EDGE OF PAVEMENT, ROADS (ASPHALT SHADED), CURBS, DRIVEWAY CONNECTIONS, BUILDINGS, PARKING LOTS, RIGHT-OF-WAY, AND STREET NAMES MUST BE SHOWN IN ALL APPLICATIONS. ALL ITEMS MENTIONED ABOVE MUST BE FIELD LOCATED.

11. IF A LIFT STATION IS TO BE DEDICATED TO THE CITY THE PLAN MUST SHOW A DETAIL SCALED AT 1"=10' SHOWING ALL IMPROVEMENTS INCLUDING: WATER AND SEWER SERVICES, MANHOLES, INVERTS, RIMS, BFPs, YARD HYDRANTS, CONTROL PANELS, FENCING, PARCEL BOUNDARY, LEGAL DESCRIPTION OF PARCEL BOUNDARY, WET WELL, VALVE BOX, FORCE MAIN, FLOW METER (IF APPLICABLE), DRIVEWAY, GATE.

12. PROPERTY BOUNDARY MUST BE CLEARLY LABELED AND DIMENSIONED.

13. INVERTS, GRATES, TOPS, RIMS MUST BE SHOWN FOR ALL STORM WATER DRAINAGE STRUCTURES. INVERTS (PIPES AND CLEANOUTS) AND RIMS MUST BE SHOWN FOR ALL GRAVITY SEWER MANHOLES. SLOPES MUST BE SHOWN ON EACH RUN OF PIPE FOR REVIEW AND APPROVAL.

14. “AS-BUILT” PROFILE OF ALL DIRECTIONAL BORES AND JACK-AND-BORES INDICATING GRADE AND PIPE ELEVATIONS AT 10’ INTERVALS SHALL BE PROVIDED ON AS-BUILT PLAN SHEETS BASED ON BORE LOGS DEVELOPED BY BORING CONTRACTOR DURING INSTALLATION. PROFILES SHALL USE HORIZONTAL STATIONING WHICH TIES TO STATIONING ON PLANS. PROFILES SHALL ALSO SHOW EXISTING SURFACE ELEVATIONS AS WELL AS ANY PROPOSED SURFACE ELEVATIONS ON THE PROFILE. SURFACE PROFILES MUST SHOW ANY PAVEMENT, SIDEWALKS, DIGS, SWALES ETC. NOTE THAT PROFILES LOCATING PIPE SOLELY BY “DEPTH BELOW EXISTING GROUND” WILL NOT BE ACCEPTED.

15. COASTAL SETBACK LINE OR COASTAL CONSTRUCTION CONTROL LINE SHOULD BE DESIGNATED.

16. ELEVATIONS AND LOCATION OF ANY FLOOD ZONES ALONG THE FLOOD HAZARD BOUNDARIES SHALL BE DELINEATED.

17. NEARBY WETLANDS AND OTHER ENVIRONMENTALLY SIGNIFICANT RESOURCES CLEARLY LABELED.

18. STORM WATER MANAGEMENT SYSTEM FEATURES INCLUDING DIMENSIONS OF: WET AND DRY SWALES, WET AND DRY PONDS, CONVEYANCE SYSTEMS, EASEMENTS, ALONG WITH ALL ASSOCIATED MEFS, STRUCTURES AND INVERTS, OUTFALL STRUCTURES AND INVERTS, SKIMMERS, DISCHARGE STRUCTURES AND INVERTS AND SLOT ELEVATIONS, TOP OF BANK, SLOPE OF BANK AND BOTTOM OF ALL PONDS, SWALES, CLOSED AND OPEN CONVEYANCES. FOR FEMA LOMR SUBMISSIONS ALSO PROVIDE: FINISHED FLOOR ELEVATIONS, SPOT ELEVATIONS AND/OR CONTOURS SHOWING LOWEST LOT ELEVATIONS.

19. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVE THE AS-BUILT PRIOR TO SUBMISSION TO THE CITY FOR FINAL APPROVAL. WRITTEN APPROVAL BY THE ENGINEER OF RECORD SHALL BE NOTED ON A TRANSMITTAL WITH A STATEMENT OF NO EXCEPTIONS TO MINIMUM STANDARDS PROVIDED HEREIN.

STORM WATER REQUIREMENTS FOR THE AS-BUILT SURVEYS ONLY APPLY TO PARCELS WITHIN CITY LIMITS. PLEASE SUBMIT THREE (3) HARD COPIES AND ONE (1) DIGITAL (AUTOCAD FORMAT & PDF) FOR REVIEW AND APPROVAL.

CITY OF P.C.B
UTILITIES
STANDARD
DETAILS

MINIMUM TECHNICAL
STANDARDS FOR
AS-BUILTS

DATE: MAY 2012

M-29
RERAINT DEVICE FOR IPS CLASS 200 PVC FITTINGS

<table>
<thead>
<tr>
<th>PIPE SIZE (INCHES)</th>
<th>PIPE O.D. (INCHES)</th>
<th>A</th>
<th>B</th>
<th>SIDE BOLTS NUMBER AND SIZE</th>
<th>CONNECTING RODS NUMBER AND SIZE</th>
<th>APPROX. WT. LBS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>2.38</td>
<td>1-1/8&quot;</td>
<td>6-3/8&quot;</td>
<td>(2) 5/8&quot;x11&quot;</td>
<td>(2) 5/8&quot;x3-1/2&quot;</td>
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<td>2-1/2&quot;</td>
<td>2.88</td>
<td>1-1/8&quot;</td>
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<td>3&quot;</td>
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<td>(2) 5/8&quot;x11&quot;</td>
<td>(2) 5/8&quot;x3-1/2&quot;</td>
<td>10.5</td>
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BASED ON UNI-FLANGE BLOCK BUSTER SERIES 1360 PIPE RESTRAINT. ALTERNATE, EQUIVALENT RESTRAINTS MUST BE APPROVED BY THE CITY IN WRITING BEFORE USE.

INSTALLATION INSTRUCTIONS

1. INSTALL PIPE INTO FITTING. INSTALL SERIES 1300 SPLIT CLAMPING RING ON THE SPIGOT END OF THE PIPE. (USE CONNECTING ROD AS A GUIDE TO POSITION SERRATED RESTRAINER.) TIGHTEN CLAMPING BOLTS EVENLY TO THE RECOMMENDED TORQUE.

2. INSTALL SPLIT BACK-UP RING BEHIND GASKET RACE OF FITTING. MAKE SURE THE BEVEL FACES THE GASKET RACE. THE TWO HALVES INTERLOCK AT THE BOLT HOLES.

3. INSERT RODS THROUGH SERIES 1300 AND BACK-UP RING. PLACE WASHERS AGAINST RESTRAINER AND BACK-UP RING EARS. SNUG RETAINING NUTS AGAINST WASHERS. DO NOT OVERTIGHTEN RETAINING NUTS. (HAND TIGHT, THEN ONE FULL TURN.)
<table>
<thead>
<tr>
<th>NOMINAL DIAMETER</th>
<th>PVC (200 x O.D.)</th>
<th>C900/C905 (250 x O.D.)</th>
<th>FPVC</th>
<th>HDPE</th>
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</thead>
<tbody>
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<td>2</td>
<td>9</td>
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<td>80</td>
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</tbody>
</table>

1.) ALL POLYETHYLENE PIPING SHALL MEET CITY OF PANAMA CITY BEACH STANDARDS AND SPECIFICATIONS

2.) SDR 9, CLASS 250, PE4710 RESIN HDPE FOR 1" SERVICE TUBING. SDR-11, CLASS 200, PE4710 RESIN HDPE FOR 2" DIAMETER AND LARGER POTABLE WATER & RECLAIMED WATER. SDR-11, CLASS 160, PE4710 RESIN HDPE FOR 2" DIAMETER AND LARGER SANITARY FORCE MAINS COLOR CODED BLUE FOR POTABLE WATER COLOR CODED PURPLE FOR RECLAIMED WATER COLOR CODED GREEN FOR SANITARY FORCE MAIN.

3.) THE COLOR CODING SHALL MEETING REQUIREMENTS IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320 (21)(B) 3 F.A.C. AND SHALL BE CO-EXTRUDED DURING PIPE MANUFACTURING.

4.) ALL HDPE PIPE 2" DIAMETER AND LARGER MUST BE IPS, NO CTS IS ALLOWED. ALL 1" SERVICE TUBING SHALL BE CTS.

5.) ALL PVC PIPE MUST BE C900/C905.
CITY OF P.C.B
UTILITIES
STANDARD
DETAILS

2"-3" DUCTILE IRON GATE VALVE DETAIL (WATER, SEWER & RECLAIM)

DATE: JUL 2016

M-33

NOTES:

1.) PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.

2.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

3.) ALL WATER, SEWER & RECLAIM MAINS 2" & BELOW SHALL HAVE HAND WHEEL INSTEAD OF THE OPERATING NUT.

4.) PRECAST "DONUT" VALVE COLLARS ARE NOT ACCEPTABLE UNLESS WRITTEN AUTHORIZATION IS PROVIDED BY THE CITY.
1.) ABOVE DETAIL IS BASED ON 2" COMBINATION
AIR/VACUUM RELEASE VALVE. CHANGE PIPE AND
FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND
TYPES. VALVE SIZES TO BE DETERMINED BY THE
ENGINEER AND APPROVED BY THE CITY.
<table>
<thead>
<tr>
<th>OTHER PIPE</th>
<th>HORIZONTAL SEPARATION</th>
<th>CROSSINGS (SEE NTCE 1)</th>
<th>JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER</td>
<td>WATER MAIN</td>
<td>WATER MAIN</td>
<td>ALTERNATE 3' MIN.</td>
</tr>
<tr>
<td></td>
<td>3' MIN.</td>
<td>12&quot; MIN. EXCEPT FOR STORM SEWER, THEN 6&quot; IS THE MIN. AND 12&quot; IS PREFERRED</td>
<td>WATER MAIN</td>
</tr>
<tr>
<td>VACUUM SANITARY SEWER</td>
<td>WATER MAIN</td>
<td>WATER MAIN</td>
<td>ALTERNATE 3' MIN.</td>
</tr>
<tr>
<td></td>
<td>10' PREFERRED 3' MIN.</td>
<td>12&quot; PREFERRED 6' MIN.</td>
<td>WATER MAIN</td>
</tr>
<tr>
<td>GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN</td>
<td>WATER MAIN</td>
<td>WATER MAIN</td>
<td>ALTERNATE 6' MIN.</td>
</tr>
<tr>
<td></td>
<td>10' PREFERRED 6' MIN. (SEE NTCE 2)</td>
<td>12&quot; MIN. EXCEPT FOR GRAVITY SEWER, THEN 6&quot; IS THE MIN. AND 12&quot; IS PREFERRED</td>
<td>WATER MAIN</td>
</tr>
</tbody>
</table>

ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM

10' MIN.

(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MIN. SEPARATION IS 12'.
(2) 3' FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAYED AT LEAST 6" ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(3) IF REQUIRED SEPARATION CANNOT BE PROVIDED SEE DETAIL M-35B FOR REQ'D ADDITIONAL PROTECTION.
TO BE USED ONLY WHEN STANDARD SEPARATION (DETAIL M35A) CANNOT BE PROVIDED. USE OF PROVISIONS OF THIS DETAIL TO BE APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

CROSSING - PLAN

USE ANY OF THE FOLLOWING:

1) GRAVITY SEWER ONLY - USE PRESSURE RATED PIPE PER AWWA STDs.
2) ALL MAIN TYPES - USE WELDED OR FUSED JOINTS FOR EITHER WATER OR OTHER MAIN
3) ALL MAIN TYPES - USE WATERTIGHT CASING PIPE OR CONCRETE ENCASEMENET PER DETAIL BELOW

PARALLEL - PLAN

LESS THAN 6’ OR 3’ W/ 6” VERTICAL SEPARATION WHEN WATER MAIN IS HIGHER THAN SEWER MAIN

CROSSING - SECTION

GENERAL NOTES:
A.) WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THREE FEET HORIZONTALLY FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND IS BEING LAID LESS THAN THE REQUIRED MINIMUM VERTICAL DISTANCE FROM THE OTHER PIPELINE;
   i. USE OF PIPE, OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (I.E., HAVING AN IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE) OR CONCRETE ENCASEMENET AT LEAST FOUR INCHES THICK FOR THE WATER MAIN; AND
   ii. USE OF PIPE, OR CASING PIPE, HAVING HIGH IMPACT STRENGTH (I.E., HAVING AN IMPACT STRENGTH AT LEAST EQUAL TO THAT OF 0.25-INCH-THICK DUCTILE IRON PIPE) OR CONCRETE ENCASEMENET AT LEAST FOUR INCHES THICK FOR THE OTHER PIPELINE IF IT IS NEW AND IS CONVEYING WASTEWATER OR RECLAIMED WATER.
B.) THE USE OF ANY ASPECT OF THIS DETAIL MUST BE APPROVED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE CITY OF PANAMA CITY BEACH PUBLIC WORKS.

CITY OF P.C.B.
UTILITIES
STANDARD
DETAILS
SPECIAL CASE
MAIN CROSSING/
SEPARATION DETAIL

DATE: MAR 2018
M-35B
FENCE DETAIL

DOUBLE SWING GATE DETAIL

NOTES:

1.) TRUSS BARS ARE REQUIRED FOR EACH GATE SECTION AND THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.

2.) SEE SHEET S-14 FOR PLAN AND CROSS SECTION VIEWS.

3.) FABRIC, POST, RODS & ACCESSORIES SHALL BE GALVANIZED WITH BLACK VINYL COATING.
LOT SIZE MINUS 6"

6'-0"± (TYPICAL)

LINE POST
φ2-3/8"

CORNER POST
φ2-7/8"

GATE POST
φ2-7/8"

12'-0"
DOUBLE GATE

3 HINGES PER POST

NOTE:
SEE SHEET S-13 FOR FRONT AND SIDE VIEWS.

PLAN VIEW
NOTES:

1. ALL FITTINGS PROVIDED FOR 4" O.D. SCHEDULE 40 POSTS OTHER SIZES ARE AVAILABLE UPON REQUEST.

2. FOR GATES THAT REQUIRE TWO PIECE FABRICATION, A 5" ALUMINUM CHANNEL WILL BE SUBSTITUTED FOR THE 2"X 5" ALUM. TUBE, AND A VERTICAL SPlice WILL BE ADDED.

3. GATE ELEVATION IS VIEWED FROM THE OUTSIDE OF THE SECURE AREA LOOKING IN.
NOTES:

1. ALL HDD INSTALLATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE FLORIDA D.O.T. UTILITY ACCOMMODATIONS MANUAL.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF AFFECTED AGENCIES AND COORDINATION WITH ALL UTILITIES PRIOR TO CONSTRUCTION.

3. ALL CONSTRUCTION MATERIALS, INCLUDING DRILLING FLUID, SHALL BE REMOVED FROM THE SITE PRIOR TO RESTORATION OF DISTURBED AREAS.

4. ALL RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE R/W OWNER.

5. EXCAVATIONS SHALL BE RESTORED IN ACCORDANCE WITH THE REQUIREMENTS OF THE R/W OWNER.

6. ANY DEVIATION FROM THE PROPOSED BORE PLAN (ENTRY ANGLE, DEPTH, ETC.) MUST BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

7. A) UP TO 12" DIAMETER PIPE, GREATER OF:
   a) 10 X PIPE DIAMETER
   b) 6’ MINIMUM
   B) FOR PIPE OVER 12” DIAMETER, DETERMINED BY ANALYSIS.
   C) BORE PATH SHALL NOT EXCEED DESIGN BY MORE THAN 5% OF DEPTH OVER 100 FT LENGTH.
**PIPE COVERAGE TABLE**

<table>
<thead>
<tr>
<th>PIPE DIAMETER</th>
<th>REQUIRED COVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP TO 12&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>ABOVE 12&quot; UP TO 24&quot;</td>
<td>42&quot;</td>
</tr>
<tr>
<td>30&quot; AND ABOVE</td>
<td>48&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. COVER SHALL BE MEASURED WHEN FINISH GRADES ARE ESTABLISHED.

2. COVER TOLERANCES ARE +6", -3", PROVIDED THE AVERAGE COVER MEETS TABLE REQUIREMENTS.