UTILITY NOTES

GENERAL UTILITY NOTES

1. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES IMMEDIATELY AFTER BID IS AWARDED AND ENSURE THE UTILITY COMPANIES HAVE THE ESSENTIALS REQUIRED FOR COMPLETE SERVICE INSTALLATION. CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER OF ANY TIME FRAMES ESTABLISHED BY UTILITY COMPANIES WHICH WILL NOT MEET OPENING DATE.

2. CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, INVERT ELEVATION, AND CONDITION OF EXISTING UTILITIES WHICH ARE INTENDED TO BE UTILIZED AS A CONNECTION POINT FOR ALL PROPOSED UTILITIES (SEE SHEET C-141), PRIOR TO ANY CONSTRUCTION. CONTRACTOR TO ENSURE EXISTING UTILITIES ARE IN GOOD CONDITION AND FREE FLOWING (IF APPLICABLE). IF ELEVATIONS, SIZE, OR LOCATION DIFFER FROM WHAT IS SHOWN ON SHEET C-141, CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER IMMEDIATELY.

3. WHERE PLANS PROVIDE FOR PROPOSED WORK TO BE CONNECTED TO, OR CROSS OVER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING THE PROPOSED WORK. IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE RESULTS IN A CHANGE IN THE PLAN, THE CONSTRUCTION MANAGER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED WORK WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY. PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT ITEM.

STORM SEWER NOTES

1. ALL STORM SEWER PIPE 12" OR GREATER IN DIAMETER SHALL BE CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) SMOOTH INTERIOR PIPE (UNLESS OTHERWISE NOTED ON PLAN). HDPE PIPE SHALL CONFORM TO ASTM D 3350 AND JOINTS PER ASTM F477. STORM SEWER LESS THAN 12" IN DIAMETER SHALL BE PVC, SDR 35, PER ASTM D 3034 AND JOINTS PER ASTM D 3212 (OR APPROVED EQUAL).

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BACKFILLING AND PIPE INSTALLATION, PIPE MATERIAL AND TAP CONNECTION. COORDINATE ALL WORK WITH DOUG HYMAN OF SOUTH FLORIDA WATER MANAGEMENT DISTRICT @ (407)858-6100 x3812.

3. ALL DRAINAGE STRUCTURES AT PAVEMENT SUMPS SHALL HAVE FINGER DRAINS PER DETAIL SHEET C-503.

4. REFER TO POLYETHYLENE DRAINAGE PIPE NOTES FOR ADDITIONAL INFORMATION.

SANITARY SEWER NOTES

1. SANITARY SEWER LATERAL INVERT AT BUILDING SHALL BE A MINIMUM OF 4.0' BELOW FINISH FLOOR.

2. CLEAN-OUTS TO BE INSTALLED AT ALL PIPE BENDS AND ANGLES, UNLESS A MANHOLE IS INDICATED.

3. THE CONTRACTOR SHALL HIRE A LOCAL PLUMBER LICENSED WITH THE LOCAL SANITARY JURISDICTION TO MAKE ALL CONNECTIONS FROM THE BUILDING TO THE EXISTING SEWER. CONTRACTOR SHALL SECURE A SANITARY SEWER CONNECTION PERMIT PRIOR TO ANY CONSTRUCTION. THE CONTRACTORS PRICE FOR SANITARY SEWER INSTALLATION SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE LOCAL SANITARY JURISDICTION TO PROVIDE A COMPLETE WORKING SERVICE. COORDINATE ALL WORK WITH ROBERT PELHAM OF TOHO WATER AUTHORITY @ (407)944-5000.

4. ALL SANITARY PIPE MATERIAL SHALL BE 6" PVC, SDR 35 CONFORMING TO ASTM D 3034, WITH JOINTS PER ASTM 3212.

WATER NOTES

1. CONSTRUCTION AND MATERIALS PROVIDED BY THE WATER COMPANY:
   - TAP MAIN.
   - FURNISH AND INSTALL CURB STOP & BOX AND WATER METER.
   - COORDINATE ALL WORK WITH THE ROBERT PELHAM OF TOHO WATER AUTHORITY @ (407)944-5000.

2. CONSTRUCTION AND MATERIALS PROVIDED BY THE CONTRACTOR:
   - FURNISH AND INSTALL SERVICE LINE FROM METER TO BUILDING.
   - ALL TRENCHING AND BACKFILLING.

3. CONTRACTOR SHALL PROVIDE 100% IRRIGATION PER CONSTRUCTION/PROJECT MANAGER AND CITY/VILLAGE/TOWNSHIP REQUIREMENTS. COORDINATE SLEEVE LOCATIONS WITH THE CONSTRUCTION/PROJECT MANAGER AND IRRIGATION CONSULTANT PRIOR TO PAVEMENT AND CURB INSTALLATION.

WATER - MISCELLANEOUS:
1. ALL MECHANICAL JOINTS SHALL BE RESTRAINED. THRUST BLOCKS ARE NOT ALLOWED FOR TWA MAINTAINED INFRASTRUCTURES.

2. THE MINIMUM COVER OVER ALL TWA OWNED MAINS SHALL BE DICTATED BY RIGHT-OF-WAY REQUIREMENTS OF APPLICABLE AGENCY(S) AND NO LESS THAN 36" IN IN AN EASEMENT. COVER SHALL BE MEASURED FROM THE TOP OF PIPE TO THE BOTTOM OF THE ROADWAY SUB-GRADE OR BASE COURSE OR FINISHED GRADE IN UNPAVED AREAS.

3. GALVANIZED PIPE IS NOT ALLOWED AND IF ENCOUNTERED SHALL BE REPLACED WITH A TWA APPROVED MATERIAL.

4. MARKING TAPE SHALL BE INSTALLED 12" TO 18" OVER ALL PIPES.

5. ALL PVC PIPE SHALL BE BLUE IN COLOR. DIP SHALL HAVE A CONTINUOUS 2" WIDE, PERMANENT BLUE (ALKYD BASED ENAMEL) ON THE TOP OF THE PIPE.

6. A CONTINUOUS, INSULATED 14 GAUGE COPPER WIRE SHALL BE INSTALLED UNDER THE PIPE AND BE ACCESSIBLE AT EACH VALVE BOX. DIRECTIONAL BORES SHALL USE A SINGLE 8 GAUGE STEEL CORE COPPER CLAD WIRE.

7. ONLY RIGID ADAPTERS SHALL BE PERMITTED.

8. ONE COMPACTION TEST SHALL BE TAKEN FOR EACH 12" LAYER OF FILL FROM THE SPRING-LINE OF THE PIPE TO FINISHED GRADE FOR PIPES IN GREEN AREAS AND FROM THE SPRING-LINE OF THE PIPE TO THE TOP OF ROADWAY SUBGRADE FOR EACH 100 FEET OF PIPE AND FOR EVERY 100 SQUARE FEET OF BACKFILL AROUND STRUCTURES.

9. ALL EXISTING WATER, REUSE AND SANITARY APPURTENANCES ON A PROJECT SITE OR AFFECTED BY THE PROJECT SHALL BE PROTECTED DURING CONSTRUCTION AND SHALL BE BROUGHT TO FINISHED GRADE PER TWA APPROVED METHODS AT THE EXPENSE OF THE DEVELOPER.

10. ALL TREES SHALL BE PLACED WITH A MINIMUM OF 5' HORIZONTAL SEPARATION FROM TOHO MAINTAINED UTILITIES.

11. ALL CONNECTIONS TO EXISTING POTABLE WATER SYSTEMS SHALL UTILIZE A TEMPORARY JUMPER WITH A 2" METER AND REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER.

12. JACK AND BORE CASINGS SHALL UTILIZE PVC PIPE AND DOUBLE NUT BELL RESTRAINTS.

UTILITY NOTES (CONTINUED)

ELECTRICAL NOTES

1. SEE ELECTRICAL DRAWINGS FOR SITE LIGHTING AND LUMINAIRE DESCRIPTION.

2. SEE ELECTRICAL SHEETS FOR ALL DEDICATED EXTERIOR BUILDING AND SIGN LIGHTING SCHEDULES. ELECTRICAL CONTRACTOR SHALL BALANCE LOADS WHERE REQUIRED.

3. ALL PARKING LOT LIGHTING WIRING SHALL BE NO. 10 AWG IN 3/4" PVC DUCT.

4. WHEN INSTALLING VERTICAL SWEEPS FOR UTILITY CONDUITS, CONTRACTOR SHALL USE 4" SCHD. 80 DUCTS.

5. CONSTRUCTION AND MATERIALS PROVIDED BY THE ELECTRIC COMPANY:
   - FURNISH AND INSTALL PAD MOUNTED TRANSFORMER.
   - MAKE APPROPRIATE PRIMARY AND SECONDARY CONNECTIONS AT TRANSFORMER.
   - FURNISH AND INSTALL METER.
   - RUN CONDUIT UP POLE.
   - COORDINATE ALL WORK WITH THOMAS DILLAHUNT OF DUKE ENERGY @ (863)678-4431.

6. CONSTRUCTION AND MATERIALS PROVIDED BY THE CONTRACTOR:
   - FURNISH AND INSTALL 1-4" PVC SCHEDULE 40 DUCTS, INCLUDING ALL TRENCHING AND BACKFILLING FROM TRANSFORMER TO BUILDING.
   - FURNISH AND INSTALL SECONDARY WIRE FROM THE BUILDING TO THE TRANSFORMER.
   - FURNISH AND INSTALL METER BASE AND CT CABINET.
   - INCLUDE ALL FEES REQUIRED BY ELECTRIC COMPANY TO PROVIDE A COMPLETE WORKING SERVICE.

TELEPHONE NOTES

1. CONSTRUCTION AND MATERIALS PROVIDED BY THE TELEPHONE COMPANY:
   - COORDINATE ALL WORK WITH IRENE OF CENTURY LINK @ (855)972-6081.
   - PROVIDE AND INSTALL WIRING TO EXISTING SERVICE MANHOLE.

2. CONSTRUCTION AND MATERIALS PROVIDED BY THE CONTRACTOR:
   - FURNISH AND INSTALL ONE 4" PVC SCH. 40 CONDUIT WITH PULLWIRE FROM THE BUILDING TO EXISTING SERVICE.
   - ALL TRENCHING AND BACKFILLING.
   - INCLUDE ALL FEES REQUIRED BY TELEPHONE COMPANY TO PROVIDE A COMPLETE WORKING SERVICE.

3. CONTRACTOR SHALL COORDINATE THE NUMBER OF LINES REQUIRED WITH THE CONSTRUCTION/ PROJECT MANAGER.

NATURAL GAS NOTES

1. PROPANE TANK WILL BE INSTALLED ON SITE, COORDINATE ALL WORK WITH THE PROVIDER.

CABLE NOTES

1. INSTALL 4" CABLE TVSS CONDUIT PER CITY/VILLAGE, STATE OR NEC CODE, WHICHEVER IS MORE STRINGENT (FOR FUTURE USE). SEE ELECTRICAL SHEETS FOR DETAILS. TERMINATE CABLE CONDUIT AT RIGHT-OF-WAY. PROVIDE END CAP AND NOTE LOCATION ON AS-BUILT DRAWINGS.

POLYETHYLENE DRAINAGE PIPE NOTES

1. HDPE PIPE MATERIALS:

PIPE SIZES: 12 INCHES THROUGH 36 INCHES NOMINAL DIAMETER TYPE "S" SMOOTH INTERIOR PIPE IN CONFORMANCE WITH AASHTO M294. NOTE: CORRUGATIONS SHALL BE ANNULAR CONFIGURATION ONLY.

PIPE JOINTS: THE JOINT SYSTEM TO BE USED WILL BE INTEGRAL BELL AND SPIGOT WITH A GASKET ON THE SPIGOT END OF THE PIPE OVER THE FIRST CORRUGATION FOR DEEPEST PENETRATION INTO THE BELL AND HIGHEST PERFORMANCE. THE BELL SHOULD SPAN OVER TWO FULL CORRUGATIONS AT MINIMUM. THE GASKET MATERIAL TO BE USED SHOULD MEET ASTM F-477 AND BE COVERED WITH A PROTECTIVE WRAP TO PREVENT DAMAGE PRIOR TO INSTALLATION.

RESINS: EXTRUDED PIPE AND BLOW MOLDED FITTINGS: PIPE AND FITTINGS SHALL AND BE MADE OF VIRGIN PE COMPOUNDS WHICH CONFORM WITH THE REQUIREMENTS OF CELL CLASS 335400C AS DEFINED AND DESCRIBED IN ASTM D3350, EXCEPT THAT THE CARBON BLACK CONTENT SHALL NOT EXCEED 5%. COMPOUNDS THAT HAVE HIGHER CELL CLASSIFICATIONS IN ONE OR MORE PROPERTIES ARE ACCEPTABLE PROVIDED PRODUCT REQUIREMENTS ARE MET.

2. SUBMITTALS: FOR ALL HDPE PIPE AND JOINT PRODUCTS AND MATERIALS, CONTRACTOR MUST SUBMIT THE MANUFACTURER'S CERTIFICATE OF MATERIAL CONFORMANCE WITH THESE SPECIFICATIONS.

3. PIPE INSTALLATION: A. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM MANUFACTURER'S RECOMMENDATIONS. D2321 AND WHERE APPLICABLE, CONTRACTOR SHALL ADHERE TO MORE STRINGENT REQUIREMENTS WITHIN THESE SPECIFICATIONS.

B. MINIMUM PIPE COVER: PROVIDE A MINIMUM IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATION COVER OVER PIPE IN NON-TRAFFIC APPLICATIONS AND IN ALLOWABLE MINIMUM COVER IS H-20 APPLICATIONS. MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF PIPE TO PAVEMENT. MINIMUM COVER IN UNPAVED AREAS TOP OF RIGID MUST BE MAINTAINED.

***BOTH COVER REQUIREMENTS ARE MEASURED FROM THE FINISHED GRADE.

C. EXCAVATION: BACKFILL AND COMPACTION SHALL CONFORM WITH APPLICABLE LOCAL AND STATE SPECIFICATIONS.

4. REFERENCES: THE LATEST REVISIONS OF THE FOLLOWING STANDARDS ARE APPLICABLE AS NOTED HEREIN:

AASHTO M294: STANDARD SPECIFICATION FOR CORRUGATED POLYETHYLENE PIPE 12 TO 36 INCH DIAMETER. NOTE: CORRUGATIONS ANNULAR CONFIGURATION ONLY. MAY BE AASHTO MP6-95: TYPE "D" STANDARD SPECIFICATION FOR CORRUGATED POLYETHYLENE PIPE 42 AND 48 INCH DIAMETER. ASTM D3350: STANDARD SPECIFICATION FOR POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS. ASTM D2321: STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF FLEXIBLE THERMOPLASTIC SEWER PIPE. AASHTO: STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

TWA - GENERAL CONSTRUCTION NOTES

GENERAL:

1. CONSTRUCT UTILITIES IN ACCORDANCE TO TWA APPROVED PLANS AND SHOP DRAWINGS. ANY DEVIATION FROM THE APPROVED PLANS SHALL BE APPROVED BY THE DEVELOPER'S ENGINEER AND TWA.
2. A PRECONSTRUCTION MEETING WITH THE TWA'S STAFF IS REQUIRED PRIOR TO INITIATING CONSTRUCTION.
3. ALL REQUIRED PERMITS SHALL BE OBTAINED PRIOR TO INITIATING CONSTRUCTION.
4. A MINIMUM12 FOOT WIDE ACCESS ROAD SHALL BE PROVIDED FOR ALL TWA OWNED UTILITIES, WHICH ARE LOCATED OUTSIDE OF ROADWAYS. THE TOP 8" OF THE ACCESS ROAD SHALL BE STABILIZED TO A FLORIDA BEARING VALUE OF 75 PSI, AND COMPACTED TO 98% OF AASHTO T-180.
5. PIPE DEFLECTION CANNOT EXCEED 50% OF THE PIPE MANUFACTURER'S RECOMMENDATION.
6. REFERENCE TWA'S STANDARDS, SPECIFICATIONS AND DETAILS, LATEST EDITION FOR ISSUES NOT SPECIFICALLY ADDRESSED BELOW OR ON THE TWA ACCEPTED CONSTRUCTION PLANS.
7. CURRENT EDITION OF TWA'S STANDARDS, SPECIFICATIONS AND DETAILS, AT TIME OF TWA PLAN ACCEPTANCE SHALL SUPERSEDE ACCEPTED PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE TWA STANDARDS, SPECIFICATIONS AND DETAILS ARE ADHERED TO IN CONSTRUCTION.

PERMITS, PLANS, SHOP DRAWINGS:
1. PERMITS OR LETTERS OF DETERMINATION FROM FDEP SHALL BE OBTAINED FOR THE SANITARY SEWER COLLECTION SYSTEM AND WATER DISTRIBUTION SYSTEM PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. A STAMPED APPROVED SET OF PLANS BY TWA SHALL BE PRESENT ON THE SITE AT ALL TIMES. APPROVED PLANS ARE VALID FOR 12 MONTHS FROM THE DATE OF APPROVAL. IF CONSTRUCTION DOES NOT BEGIN WITHIN THE 12 MONTH PERIOD, THE DEVELOPER MUST CONTACT TWA FOR A PROJECT STATUS REVIEW AND APPROVAL EXTENSION.
3. A MINIMUM OF THREE SETS OF SHOP DRAWINGS SHALL BE SUBMITTED TO TWA FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
4. INSTALLATION OF MATERIALS AND/OR STRUCTURES PRIOR TO SHOP DRAWING APPROVAL IS DONE AT THE CONTRACTOR'S OWN RISK.
5. TWO HARD COPIES AND ONE ELECTRONIC COPY OF RECORD DRAWINGS SHALL BE SUBMITTED TO TWA AT OR BEFORE THE FINAL INSPECTION. RECORD DRAWINGS SHALL CONFORM TO SECTIONS 11.6 OF TWA STANDARDS, SPECIFICATIONS AND DETAILS.

WATER - TESTING:
1. WATER LINE SHALL BE INSTALLED, CLEANED, FLUSHED, DISINFECTED AND BACTERIOLOGICALLY TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND FDEP RULES AND REGULATIONS.
ALL WATER DISTRIBUTION SYSTEMS SHALL BE FLUSHED CLEAN OF ALL DELETERIOUS MATERIAL PRIOR TO ANY TESTING. FULL DIAMETER FLUSHING IS REQUIRED. LINES 4" AND GREATER SHALL BE PIGGED.
2. WATER LINE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA-C600 (DUCTILE IRON PIPE) AND AWWAC605/M23 (PVC PIPE) SPECIFICATIONS AT 150 PSI AND WITNESSED BY TWA PERSONNEL. NO LEAKAGE SHALL BE ALLOWED. SCHEDULE TEST A MINIMUM OF 72 HOURS IN ADVANCE.
3. ALL WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH THE LATEST VERSION OF AWWA C651 AND WITNESSED BY TWA PERSONNEL.
4. ALL BACTERIOLOGICAL SAMPLES SHALL BE WITNESSED BY TWA PERSONNEL.

WATER - MATERIALS:
1. PVC PIPE: FOUR (4) INCHES THROUGH TWELVE (12) INCHES SHALL BE AWWA C-900, LATEST EDITION. FOURTEEN (14) INCHES THROUGH THIRTY-SIX (36) INCHES SHALL BE AWWA C-905, LATEST EDITION.
2. DIP PIPE: FOUR (4)" THROUGH FIFTY-FOUR (54)" SHALL BE ANSI/AWWA A21.51/C151 WITH A MINIMUM WORKING PRESSURE CLASS 150 PIPE.
ANY FITTINGS REQUIRED SHALL BE MECHANICAL JOINT DUCTILE IRON CONFORMING TO ANSI/AWWA A21.10/C110, 250 PSI MINIMUM PRESSURE RATING, OR DUCTILE IRON COMPACT FITTINGS IN ACCORDANCE WITH ANSI/AWWA A21.53/C153.
JOINTS FOR DUCTILE IRON PIPE SHALL BE PUSH-ON OR MECHANICAL JOINTS CONFORMING TO ANSI/AWWA A21.11/C111. ABOVE GROUND JOINTS SHALL BE FLANGED WITH T5 CADMIUM PLATED BOLTS, NUTS AND WASHERS. FLANGED JOINTS SHALL CONFORM TO ANSI STANDARD B 16.1-125 LB.
WHERE DUCTILE IRON PIPE AND FITTINGS ARE TO BE BELOW GROUND OR INSTALLED IN A CASING PIPE THE COATING SHALL BE A MINIMUM 1.0 MIL THICK IN ACCORDANCE WITH ANSI/AWWA A21.51/C151.
WHERE DUCTILE IRON PIPE AND FITTINGS ARE TO BE INSTALLED ABOVE GROUND, PIPE, FITTINGS AND VALVES SHALL BE THOROUGHLY CLEANED AND GIVEN ONE FIELD COAT (MINIMUM 1.5 MILS DRY THICKNESS) OF RUST INHIBITOR PRIMER, AND TWO FINISH COATS (MINIMUM 1.5 MILS DRY THICKNESS EACH).
ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE AN INTERIOR PROTECTIVE LINING OF CEMENT-MORTAR WITH A SEAL COAT OF ASPHALTIC MATERIAL IN ACCORDANCE WITH ANSI/AWWA A21.4/C104.
THE PIPE SHALL BE POLYETHYLENE ENCASED (8 MIL) WHERE SHOWN ON THE PLANS, IN ACCORDANCE WITH ANSI/AWWA A21.51/C105.
3. POLYETHYLENE PIPE: FOUR (4)" THROUGH TWELVE (12)" SHALL BE AWWA STANDARD C906, PE3408 LATEST EDITION. THE POLYETHYLENE PIPE SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 160 PSI AND SHALL HAVE A STANDARD DIMENSION RATIO (SDR) OF 11. PIPE SHALL BE THE SAME ID AS DUCTILE IRON PIPE.
POLYETHYLENE PIPE SHALL HAVE FUSION BONDED JOINTS.
FITTINGS USED WITH POLYETHYLENE PIPE SHALL BE FUSION FITTINGS IN ACCORDANCE WITH AWWA STANDARD C906.
4. SERVICE PIPES: ALL SERVICE LINES SHALL BE 1", 1-1/2" OR 2" BLUE, PC200, SDR9, POLYETHYLENE TUBING CONFORMING TO SPECIFICATIONS IN AWWA C901, PE3608. 4" AND LARGER SERVICE PIPE SHALL BE C-900 PVC OR DIP. 3" SERVICE PIPE SHALL NOT BE PERMITTED.
5. VALVES SHALL BE RESILIENT WEDGE GATE VALVES.
6. VALVES SHALL BE LOCATED AT NOT MORE THAN 500 FOOT INTERVALS IN COMMERCIAL, INDUSTRIAL AND HIGH DENSITY RESIDENTIAL AREAS AND AT NOT MORE THAN 1000 FOOT INTERVALS IN ALL OTHER AREAS. APPROPRIATE VALVING SHALL ALSO BE PROVIDED AT THE DOWNSTREAM SIDES OF TEES AND CROSSES AND BOTH SIDES OF A DIRECTIONAL BORE OR JACK AND BORE.. THIS SHALL INCLUDE ALL SIDES OF TEES AND CROSSES WITHIN LOOPED SYSTEMS, WHERE FLOW IS POTENTIALLY MULTIDIRECTIONAL.
7. ALL METERS SHALL BE INSTALLED BY TWA AFTER ALL PAYMENT OF APPLICABLE FEES AND CHARGES. ALL METERS 2" AND LESS IN SIZE SHALL BE INSTALLED UNDERGROUND IN AN APPROVED METER BOX. METERS LARGER THAN 2" SHALL BE INSTALLED ABOVE GROUND. IN GENERAL, METERS 2 INCH AND LARGER SHALL BE LOCATED IN A METER EASEMENT LOCATED ADJACENT TO THE PUBLIC RIGHT OF WAY AND OUTSIDE OF PAVED AREAS.

REUSE - TESTING:
1. REUSE LINE SHALL BE INSTALLED, CLEANED, FLUSHED, DISINFECTED AND BACTERIOLOGICALLY TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND FDEP RULES AND REGULATIONS.
ALL REUSE DISTRIBUTION SYSTEMS SHALL BE FLUSHED CLEAN OF ALL DELETERIOUS MATERIAL PRIOR TO ANY TESTING. FULL DIAMETER FLUSHING IS REQUIRED. LINES 4" AND GREATER SHALL BE PIGGED.
2. REUSE LINES SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA-C600 (DUCTILE IRON PIPE) AND AWWAC605/M23 (PVC PIPE) SPECIFICATIONS AT 150 PSI AND WITNESSED BY TWA PERSONNEL. NO LEAKAGE SHALL BE ALLOWED. SCHEDULE TEST A MINIMUM OF 72 HOURS IN ADVANCE.
3. ALL REUSE MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH THE LATEST VERSION OF AWWA C651 AND WITNESSED BY TWA PERSONNEL.
4. ALL BACTERIOLOGICAL SAMPLES SHALL BE WITNESSED BY TWA PERSONNEL.

REUSE - MATERIALS:
1. PVC PIPE: FOUR (4) INCHES THROUGH TWELVE (12) INCHES SHALL BE AWWA C-900, LATEST EDITION. FOURTEEN (14) INCHES THROUGH THIRTY-SIX (36) INCHES SHALL BE AWWA C-905, LATEST EDITION.
2. DIP PIPE: FOUR (4)" THROUGH FIFTY-FOUR (54)" SHALL BE ANSI/AWWA A21.51/C151 WITH A MINIMUM WORKING PRESSURE CLASS 150 PIPE.
ANY FITTINGS REQUIRED SHALL BE MECHANICAL JOINT DUCTILE IRON CONFORMING TO ANSI/AWWA A21.10/C110, 250 PSI MINIMUM PRESSURE RATING, OR DUCTILE IRON COMPACT FITTINGS IN ACCORDANCE WITH ANSI/AWWA A21.53/C153.
JOINTS FOR DUCTILE IRON PIPE SHALL BE PUSH-ON OR MECHANICAL JOINTS CONFORMING TO ANSI/AWWA A21.11/C111. ABOVE GROUND JOINTS SHALL BE FLANGED WITH T5 CADMIUM PLATED BOLTS, NUTS AND WASHERS. FLANGED JOINTS SHALL CONFORM TO ANSI STANDARD B 16.1-125 LB.
WHERE DUCTILE IRON PIPE AND FITTINGS ARE TO BE BELOW GROUND OR INSTALLED IN A CASING PIPE THE COATING SHALL BE A MINIMUM 1.0 MIL THICK IN ACCORDANCE WITH ANSI/AWWA A21.51/C151.
WHERE DUCTILE IRON PIPE AND FITTINGS ARE TO BE INSTALLED ABOVE GROUND, PIPE, FITTINGS AND VALVES SHALL BE THOROUGHLY CLEANED AND GIVEN ONE FIELD COAT (MINIMUM 1.5 MILS DRY THICKNESS) OF RUST INHIBITOR PRIMER, AND TWO FINISH COATS (MINIMUM 1.5 MILS DRY THICKNESS EACH).
ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE AN INTERIOR PROTECTIVE LINING OF CEMENT-MORTAR WITH A SEAL COAT OF ASPHALTIC MATERIAL IN ACCORDANCE WITH ANSI/AWWA A21.4/C104.
THE PIPE SHALL BE POLYETHYLENE ENCASED (8 MIL) WHERE SHOWN ON THE PLANS, IN ACCORDANCE WITH ANSI/AWWA A21.51/C105.
3. POLYETHYLENE PIPE: FOUR (4)" THROUGH TWELVE (12)" SHALL BE AWWA STANDARD C906, PE3408 LATEST EDITION. THE POLYETHYLENE PIPE SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 160 PSI AND SHALL HAVE A STANDARD DIMENSION RATIO (SDR) OF 11. PIPE SHALL BE THE SAME ID AS DUCTILE IRON PIPE.
POLYETHYLENE PIPE SHALL HAVE FUSION BONDED JOINTS.
FITTINGS USED WITH POLYETHYLENE PIPE SHALL BE FUSION FITTINGS IN ACCORDANCE WITH AWWA STANDARD C906.
4. SERVICE PIPES: ALL SERVICE LINES SHALL BE 1", 1-1/2" OR 2" PURPLE, PC200, SDR9, POLYETHYLENE TUBING CONFORMING TO SPECIFICATIONS IN AWWA C901, PE3608. 4" AND LARGER SERVICE PIPE SHALL BE C-900 PVC OR DIP. 3" SERVICE PIPE SHALL NOT BE PERMITTED.
5. VALVES SHALL BE RESILIENT WEDGE GATE VALVES.

TWA - GENERAL CONSTRUCTION NOTES (CONTINUED)

6. VALVES SHALL BE LOCATED AT NOT MORE THAN 500 FOOT INTERVALS IN COMMERCIAL, INDUSTRIAL AND HIGH DENSITY RESIDENTIAL AREAS AND AT NOT MORE THAN 1000 FOOT INTERVALS IN ALL OTHER AREAS. APPROPRIATE VALVING SHALL ALSO BE PROVIDED AT THE DOWNSTREAM SIDES OF TEES AND CROSSES AND BOTH SIDES OF A DIRECTIONAL BORE OR JACK AND BORE. THIS SHALL INCLUDE ALL SIDES OF TEES AND CROSSES WITHIN LOOPED SYSTEMS, WHERE FLOW IS POTENTIALLY MULTIDIRECTIONAL.
7. ALL METERS SHALL BE INSTALLED BY THE TWA AFTER ALL PAYMENT OF APPLICABLE FEES AND CHARGES. ALL METERS 2" AND LESS IN SIZE SHALL BE INSTALLED UNDERGROUND IN AN APPROVED METER BOX. METERS LARGER THAN 2" SHALL BE INSTALLED ABOVE GROUND. IN GENERAL, METERS 2 INCH AND LARGER SHALL BE LOCATED IN A METER EASEMENT LOCATED ADJACENT TO THE PUBLIC RIGHT OF WAY AND OUTSIDE OF PAVED AREAS.

SEWER - TESTING:
PRIOR TO ANY TESTING TO BE WITNESSED, ALL PASSING SOIL DENSITY TESTS AND SLOPE SURVEYS SHALL BE SUBMITTED TO THE TWA ENGINEER AND TO THE TWA INSPECTOR.
1. ALL SANITARY MANHOLES SHALL BE INSPECTED BY TWA PERSONNEL.
2. SANITARY SEWERS SHALL BE VIDEO INSPECTED AND WITNESSED BY TWA PERSONNEL.
3. SANITARY SEWERS SHALL BE LOW PRESSURE AIR TESTED WITH NO ALLOWABLE LOSS AND WITNESSED BY TWA
PERSONNEL. SCHEDULE TEST A MINIMUM OF 72 HOURS IN ADVANCE.

GRAVITY SEWER - MATERIALS:
1. PVC PIPE: FOUR (4)" THROUGH FIFTEEN (15)" SHALL BE ASTM D3034, SDR 35. THE JOINTS SHALL BE INTEGRAL BELL ELASTOMERIC GASKET JOINTS MANUFACTURED IN ACCORDANCE WITH ASTM D3212 AND ASTM F477/
APPLICABLE UNI-BELL PLASTIC PIPE ASSOCIATION STANDARD IS UNI B-4.
PVC PIPE: EIGHTEEN (18)" THROUGH TWENTY-SEVEN (27)" SHALL BE ASTM F679, SDR 35. THE JOINTS SHALL BE INTEGRAL BELL ELASTOMERIC GASKET JOINTS MANUFACTURED IN ACCORDANCE WITH ASTM D3212 AND ASTM F477/
APPLICABLE UNI-BELL PLASTIC PIPE ASSOCIATION STANDARD IS UNI B-7.
ALL PVC PIPE SHALL BEAR THE NSF-DW SEAL. THE MINIMUM STANDARD LENGTH OF PIPE SHALL BE THIRTEEN (13)
FEET. PVC PIPE WITH LESS THAN 15 FT OF COVER SHALL BE SDR 35; 15 TO 20 FT SHALL BE SDR 26; AND 20 TO 30 FT
SHALL BE SDR 18.
2. DIP PIPE: ANSI/AWWA A21.51/C151, CLASS THICKNESS DESIGNED PER ANSI/AWWA A21.50/C150, WITH PUSH ON JOINTS. AN INTERIOR PROTECTIVE LINING OF "PROTECTO 401" EPOXY, OR EQUAL, WITH A MINIMUM DRY FILM THICKNESS 40 MILS.
3. JOINT MATERIALS:
- PVC SEWER PIPE JOINTS SHALL BE FLEXIBLE ELASTOMERIC SEALS PER ASTM D3212.
- DIP AND FITTING JOINTS SHALL BE "PUSH-ON" OR MECHANICAL JOINTS CONFORMING TO ANSI A21.11.
- JOINTS BETWEEN PIPES OF DIFFERENT MATERIALS SHALL BE MADE WITH A RIGID, PVC, ADAPTOR COUPLING. FERNCO ADAPTERS ARE NOT ALLOWED.

SEWER FORCE MAINS – TESTING:
1. FORCE MAIN PIPING SHALL BE INSTALLED AND PIGGED UNTIL CLEAN.
2. FORCE MAIN SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA-C600 (DUCTILE IRON PIPE) AND AWWAC605/M23 (PVC PIPE) SPECIFICATIONS AT 100 PSI OR 1.5 TIMES THE OPERATING PRESSURE, WHICHEVER IS GREATER FOR A MINIMUM OF 2 HOURS AND WITNESSED BY TWA PERSONNEL. NO LEAKAGE SHALL BE ALLOWED. SCHEDULE TEST A MINIMUM OF 72 HOURS IN ADVANCE.

SEWER FORCE MAINS - MATERIALS:
1. PVC PIPE: FOUR (4)" THROUGH TWELVE (12)" SHALL BE AWWA STANDARD C900 AND A DIMENSION RATIO (DR) OF
25.
PVC PIPE SHALL BE INTEGRAL BELL, PUSH-ON TYPE JOINTS.
2. DIP PIPE: FOUR (4)" THROUGH FIFTY-FOUR (54)" SHALL BE ANSI/AWWA A21.51/C151 WITH A MINIMUM OF PRESSURE CLASS 150 AND LINED WITH PROTECTO 401 OR EQUAL.
ALL FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON CONFORMING TO ANSI/AWWA A21.10/C110, 250 PSI MINIMUM PRESSURE RATING, FOUR (4) THROUGH TWELVE (12)".
JOINTS FOR DIP SHALL BE PUSH-ON OR MECHANICAL JOINTS AND JOINTS FOR FITTINGS SHALL BE MECHANICAL JOINTS CONFORMING TO ANSI/AWWA A21.11/C111.
ABOVE GROUND JOINTS SHALL BE FLANGED WITH T5 CADMIUM PLATED BOLTS, NUTS, AND WASHERS. FLANGED JOINTS SHALL CONFORM TO ANSI STANDARD B16.1-125 LB.
WHERE DUCTILE IRON PIPE AND FITTINGS ARE TO BE BELOW GROUND OR INSTALLED IN A CASING PIPE THE COATING SHALL BE A MINIMUM 1.0 MIL THICK IN ACCORDANCE WITH ANSI/AWWA A21.51/C151.
WHERE DUCTILE IRON PIPE AND FITTINGS ARE TO BE INSTALLED ABOVE GROUND, PIPE, FITTINGS AND VALVES SHALL BE THOROUGHLY CLEANED AND GIVEN ONE FIELD COAT (MINIMUM 1.5 MILS DRY THICKNESS) OF RUST INHIBITOR PRIMER, AND TWO FINISH COATS (MINIMUM 1.5 MILS DRY THICKNESS EACH).
ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE AN INTERIOR PROTECTIVE LINING OF "PROTECTO 401" EPOXY OR EQUAL WITH A MINIMUM DRY FILM THICKNESS OF 40 MILS.
THE PIPE SHALL BE POLYETHYLENE ENCASED (8 MIL) WHERE SHOWN ON THE PLANS, IN ACCORDANCE WITH ANSI/AWWA A21.51/C105.
3. POLYETHYLENE (PE3408) PIPE: FOUR (4)" THROUGH TWELVE (12)" SHALL BE IN ACCORDANCE WITH AWWA STANDARD C906, LATEST EDITION. THE POLYETHYLENE PIPE SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 100 PSI AND SHALL HAVE A DIMENSION RATIO (DR) OF 17. (3)
POLYETHYLENE PIPE SHALL HAVE FUSION BONDED JOINTS.
FITTINGS USED WITH POLYETHYLENE PIPE SHALL BE FUSION FITTINGS IN ACCORDANCE WITH AWWA STANDARD C906.
8. WASTEWATER FORCE MAINS SHALL BE EQUIPPED WITH AIR RELEASE VALVES LOCATED AT PIPING HIGH POINTS
IMMEDIATELY UPSTREAM OF DIPS, OR OTHER ELEVATION DECLINES.
9. VALVES SHALL BE RESILIENT WEDGE GATE VALVES.
10. VALVES SHALL BE LOCATED AT NOT MORE THAN 2,000 FOOT INTERVALS IN ALL AREAS.

SEPARATION REQUIREMENTS:
PER F.D.E.P. REQUIREMENTS AND SUBJECT TO TWA APPROVAL.
MISCELLANEOUS:
1. ALL TIE-INS TO EXISTING MANHOLES SHALL BE CORE DRILLED. CONNECT PIPE TO MANHOLE USING A FLEXIBLE CONNECTOR OR APPROVED A-LOK.
2. ALL MECHANICAL JOINTS SHALL BE RESTRAINED. THRUST BLOCKS ARE NOT ALLOWED FOR TWA MAINTAINED INFRASTRUCTURES.
3. MAINTAIN A MINIMUM OF 36" OF COVER MEASURED FROM THE BOTTOM OF THE SUB-GRADE OVER ALL PIPES. IF LESS THAN 36" OF COVER, USE DIP AND NOTIFY ENGINEER FOR EVALUATION.
4. GALVANIZED PIPE IS NOT ALLOWED AND IF ENCOUNTERED SHALL BE REPLACED WITH APPROVED MATERIALS.
5. MARKING TAPE SHALL BE INSTALLED 12" TO 18" OVER ALL PIPE. ALL PVC PIPE SHALL BE GREEN IN COLOR (FOR SEWER), BLUE IN COLOR (FOR WATER) AND PURPLE IN COLOR (FOR REUSE). DIP SHALL HAVE A CONTINUOUS 2" WIDE, PERMANENT GREEN/BLUE/PURPLE STRIPE (OIL BASED ENAMEL) ON THE TOP OF THE PIPE.
6. A CONTINUOUS, INSULATED 14 GAUGE COPPER WIRE SHALL BE INSTALLED UNDER THE PIPE AND BE ACCESSIBLE AT EACH VALVE BOX. DIRECTIONAL BORES SHALL USE 8 GAUGE STEEL CORE COPPER AND 8 GAUGE COPPER WIRE. ONE (1) EACH AT A MINIMUM.
7. ONLY RIGID ADAPTERS SHALL BE PERMITTED UNLESS TRANSITIONING TO CLAY PIPE.
8. IN GENERAL, ONE COMPACTION TEST SHALL BE TAKEN FOR EACH 12" LAYER OF FILL FROM THE SPRINGLINE OF THE PIPE TO THE FINISH GRADE FOR EACH 300 FEET OF PIPE AND FOR EVERY 100 SQUARE FEET OF BACKFILL AROUND STRUCTURES.
9. ALL EXISTING WATER, REUSE AND SANITARY APPURTENANCES ON A PROJECT SITE OR AFFECTED BY PROJECT WORK SHALL BE PROTECTED DURING CONSTRUCTION AND SHALL BE BROUGHT TO FINISHED GRADE PER THE STANDARD CONSTRUCTION DETAILS.
10. ALL TREE AND SHRUB ROOT BALLS SHALL BE PLACED WITH A MINIMUM OF 5' HORIZONTAL SEPARATION FROM TOHO MAINTAINED UTILITIES.
11. IF THE UNDERGROUND CONTRACTOR DE-MOBILIZES BETWEEN PHASES OF A PROJECT AND THE WATER DISTRIBUTION SYSTEM HAS BEEN CLEARED FOR USE BY FDEP, THE CONTRACTOR WILL BE REQUIRED TO INSTALL AUTOMATIC FLUSHING DEVICES ON ALL WATER MAIN DEAD-ENDS WHETHER INTENDED AS STUB-OUTS OR AS INCOMPLETE CONSTRUCTION. IF THE SITE HAS NOT BEEN CLEARED FOR USE BY FDEP, THE CONTRACTOR WILL BE REQUIRED TO PHYSICALLY DISCONNECT ALL UN-CLEARED MAINS FROM THE POINTS-OF-CONNECTION TO CLEARED MAINS.
12. WHEN REQUIRED BY ANOTHER REGULATORY AGENCY, MASONRY WALLS AROUND LIFT STATIONS SHALL REQUIRE BARBED WIRE AT THE TOP OF THE WALL. AT TWA'S DISCRETION, ALTERNATIVE ANTI-CLIMB MEASURES MAY ALSO BE UTILIZED IN PLACE OF BARBED WIRE, HOWEVER, SIGNAGE WILL BE REQUIRED ON ALL EXTERIOR WALLS INDICATING THE USE OF ANTICLIMB MEASURES THAT MAY NOT BE VISIBLE.
13. ALL PERMANENT STRUCTURES INCLUDING, BUT NOT LIMITED TO: BUILDING FOUNDATIONS, WALLS, AND LIGHT POLES SHALL BE PLACED WITH A MINIMUM 10' HORIZONTAL SEPARATION FROM ALL TWA OWNED INFRASTRUCTURE.

PLAN REPRODUCTION WARNING
THE PLANS HAVE BEEN CREATED ON ANSI D (22"x34") SHEETS, REFER TO GRAPHIC SCALE.

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ISSUED FOR CONST. 08.09.18

CONTRACT DATE:	09.18.17
BUILDING TYPE:	EXP. LITE MED40
PLAN VERSION:	July 2017
SITE NUMBER:	312536/445270
STORE NUMBER:	2017088.45

TACO BELL
PARCEL #012529302500010020
BUENAVENTURA BLVD.
KISSIMMEE, FL 34743

EXPLORER LITE
MEDIUM40

GENERAL NOTES

C-002

PROJECT NO.- SDP17-0154