1. APPLICABLE CODES

1.1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARD AND SPECIFICATIONS OF THE CITY OF MIAMI BEACH AND ALL OTHER LOCAL, STATE AND NATIONAL CODES WHERE APPLICABLE EXCEPT WITHIN DEPARTMENT OF TRANSPORTATION (D.O.T.) R/W WHERIN FLORIDA DEPARTMENT OF TRANSPORTATION (F.D.O.T) GOVERNS.

1.2. ALL CONSTRUCTION SHALL BE DONE IN A SAFE MANNER AND IN STRICT COMPLIANCE WITH ALL THE REQUIREMENTS OF FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AND ALL STATE AND LOCAL SAFETY AND HEALTH REGULATIONS.

1.3. ALL ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM 1988, (NAVD) UNLESS OTHERWISE NOTED.

1.4. THE CITY OF MIAMI BEACH WATER AND SEWER DEPARTMENT WATER AND SEWER SPECIFICATIONS SHALL DICTATE WHEN IN CONFLICT WITH ANY OF THE FOLLOWING SPECIFICATIONS.

1.5. ALL MATERIALS AND CONSTRUCTION WITHIN THE D.O.T. R/W SHALL CONFORM TO THE D.O.T. "DESIGN STANDARDS" (2015) AND "STANDARD SPECIFICATIONS" (2015).

1.6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MAINTENANCE OF TRAFFIC (M.O.T) PLAN PRIOR TO CONSTRUCTION. THE CONSULTANT'S ENGINEER SHALL ENSURE THAT THE M.O.T PLAN FOR THE PROJECT CONFORMS WITH STANDARD INDEX SERIES 600, APPLICABLE INDEX FOR WORK BEING PERFORMED. THE CONTRACTOR SHALL ENSURE THE M.O.T. PLAN IS IMPLEMENTED EXACTLY AS APPROVED.

2. PRECONSTRUCTION RESPONSIBILITIES

2.5. UPON THE RECEIPT OF THE "NOTICE TO PROCEED", THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD AND ARRANGE A PRECONSTRUCTION CONFERENCE TO INCLUDE ALL INVOLVED GOVERNMENTAL AGENCIES, UTILITY OWNERS, THE OWNER AND THE ENGINEER OF RECORD.

2.6. THE CONTRACTOR SHALL OBTAIN A SUNSHINE STATE ONE CALL OF FLORIDA, INC. CERTIFICATION NUMBER AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION, CALL 1-800-432-4770.

2.7. ALL UTILITY EASEMENTS TO BE SECURED PRIOR TO CONSTRUCTION (IF REQUIRED).

2.8. LOCATION OF EXISTING FACILITIES AS SHOWN ON CONSTRUCTION DRAWINGS ARE DRAWN FROM AVAILABLE RECORDS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE FACILITIES SHOWN OR FOR ANY FACILITY NOT SHOWN. THE CONTRACTOR SHALL VERIFY, IF POSSIBLE, THE ELEVATIONS AND LOCATIONS OF EXISTING FACILITIES PRIOR TO CONSTRUCTION. IF AN EXISTING FACILITY IS FOUND TO CONFLICT WITH THE PROPOSED CONSTRUCTION UPON EXCAVATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD SO THAT APPROPRIATE MEASURES CAN BE TAKEN TO RESOLVE THE PROBLEM.

2.9. THE CONTRACTOR MUST CALL THE CITY OF MIAMI BEACH AT LEAST 48 HOURS BEFORE ANY EXCAVATION WITHIN THE R/W TO DETERMINE THE LOCATION TO OF THE EXISTING TRAFFIC SIGNAL INTERCONNECT CABLE.

3. INSPECTIONS

3.1. THE CONTRACTOR SHALL NOTIFY THE CITY OF MIAMI BEACH, AND ANY OTHER GOVERNMENTAL AGENCIES HAVING JURISDICTION AT LEAST 24 HOURS PRIOR TO BEGINNING CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS, WHERE APPLICABLE:

3.1.1. CLEARING AND FILLING
3.1.2. STORM DRAINAGE SYSTEM
3.1.3. SANITARY SEWER SYSTEM
3.1.4. WATER DISTRIBUTION SYSTEM
3.1.5. SUBGRADE
3.1.6. LIMEROCK BASE
3.1.7. ASPHALTIC CONCRETE
3.1.8. SIDEWALK
3.1.9. FINAL

4. SHOP DRAWINGS

4.1. PRIOR TO THEIR CONSTRUCTION OR INSTALLATION, SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD AND THE CITY OF MIAMI BEACH FOR THE FOLLOWING: SANITARY MANHOLES, STORM DRAIN MANHOLES, CATCH BASINS, FIRE HYDRANTS, PIPING, VALVES AND ALL REQUIRED ACCESSORIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL OTHER AGENCY APPROVALS IF REQUIRED.

5. TEMPORARY FACILITIES

5.1. TEMPORARY FACILITIES:

5.1.1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY.

5.2. TRAFFIC REGULATION:

5.2.1. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHTS-OF-WAY SHALL BE IN ACCORDANCE WITH MANUAL TRAFFIC CONTROL DEVICES (M.U.T.C.D.).

5.2.2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.

5.2.3. NO TRENCHES OR HOLES NEAR WALKWAYS, IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF THE CITY OF MIAMI BEACH.

5.2.4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR ANY NECESSARY CONSTRUCTION, PAVEMENT MARKING AND SIGNAGE OR ANY PEDESTRIAN SIGNALIZATION AND/OR SIGNAL MODIFICATION TO ACCOMMODATE AN ALTERNATE SAFE WALK ROUTE.

6. WATER DISTRIBUTION SYSTEM

6.1. SEPARATION OF WATER AND SEWER MAINS:

6.1.1. SANITARY SEWERS, STORM SEWERS, AND FORCE MAINS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS, STORM SEWERS, AND FORCE MAINS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 12" INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHENEVER POSSIBLE.

6.1.2. WHERE SANITARY SEWERS, STORM SEWERS, OR FORCE MAINS MUST CROSS A WATER MAIN WITH LESS THAN 12" INCHES VERTICAL DISTANCE, BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.

6.1.3. ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING).

6.1.4. WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 12" INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP, AND THE CROSSING SHALL BE ARRANGED TO MEET THE REQUIREMENTS ABOVE.

6.1.5. A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

6.1.6. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

6.1.7. WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 12" INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SANITARY SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

6.1.8. CONTRACTOR SHALL MAINTAIN WATER SERVICE TO ALL EXISTING FACILITIES DURING CONSTRUCTION.

6.2. MATERIALS:

6.2.1. POLYVINYL CHLORIDE (PVC) PIPE SHALL BE DR 18 ANSI / AWWA C900-97 OR LATEST REVISION.

6.2.2. ALL PIPE LARGER THAN 12" DIAMETER MUST BE DUCTILE IRON (MIN. CLASS 50). 8" AND 10" DIP (MIN. CLASS 50) 4" AND 6" DIP (MIN. CLASS 52). ALL DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWWA C151/A21.51-96 AND CEMENT MORTAR LINED AND SEAL COATED PER ANSI/AWWA C104/A21.4-95.

6.2.3. FITTINGS SHALL BE DUCTILE IRON MEETING ANSI/AWWA C-153/A21.53-00 SPECIFICATIONS. FITTINGS MUST BE CEMENT LINED AND SEAL COATED PER ANSI/AWWA C104/A21.4-95.

6.2.4. VALVES SHALL BE GATE VALVES, IRON BODY, FULLY RESILIENT SEAT BRONZED MOUNTED NON-RISING STEM, RATED AT 200 PSI AND CONFORMING TO ANSI/AWWA C509-94 OR LATEST REVISION, AND SHALL HAVE MECHANICAL JOINTS.

6.2.4.1. GATE VALVES 4" AND LARGER SHALL BE MUELLER A-2380-20, RESILIENT SEATED GATE VALVES SHALL BE AMERICAN 80 LINE OR CLOW F-6100, CONFORMING TO ANSI/AWWA C500-93.

6.2.4.2. TAPPING VALVES SHALL BE MUELLER H667 OR APPROVED EQUAL.

6.2.4.3. GATE VALVES 3" OR LESS SHALL HAVE THE SAME REQUIREMENTS AS LARGER GATE VALVES. THEY SHALL BE 2" RSW VALUE WITH 2" OPERATING NUT.

6.2.5. TAPPING SLEEVES SHALL BE MUELLER H615, CLOW F-2505 OR APPROVED EQUAL.

6.2.6. VALVE BOXES SHALL BE TYLER OR APPROVED EQUAL.

6.2.7. RETAINER GLANDS SHALL BE MEGA-LUG AND CONFORM TO ANSI / AWWA C111/A21.11-00 OR LATEST REVISION. ALL GLANDS SHALL BE MANUFACTURED FROM DUCTILE IRON AS LISTED BY UNDERWRITERS LABORATORIES FOR 250 PSI MINIMUM WATER PRESSURE RATING.

6.2.8. NO DRESSER COUPLINGS SHALL BE ALLOWED ON DISTRIBUTION SYSTEM.

6.2.9. FIRE HYDRANTS SHALL BE MUELLER CENTURION TRAFFIC TYPE A-423 WITH 5 1/4" INTERNAL VALVE OPENING OR APPROVED EQUAL. MAIN VALVE OPENING TO BE DETERMINED BY THE WATER DEPARTMENT. PUMPER NOZZLE TO BE 18" FROM FINISHED GRADE OR CENTERLINE OF ADJACENT ROADWAY WHICHEVER IS GREATER. ALL HYDRANTS TO BE INSTALLED WITH CONTROL VALVE. RETAINER GLANDS ARE PREFERRED FOR RESTRAINING. FIRE HYDRANT SHALL COMPLY WITH ANSI/AWWA C502-94.

6.2.10. FIRE HYDRANTS SHALL BE PAINTED YELLOW. (RUSTOLEUM #944 SAFETY YELLOW OR APPROVED EQUAL)

6.3. SERVICE CONNECTION:

6.3.1. SERVICE SADDLES SHALL BE STAINLESS STEEL STRAPS, SADDLES SHALL BE DOUBLE STRAP TYPE. ALL SERVICE SADDLES SHALL CONFORM TO ANSI/AWWA C111/A21.11-00 AND ASTM A-588.

6.3.2. SERVICE LINES SHALL BE POLYETHYLENE (3408), 250 PSI RATED, SDR9. PIPE JOINTS SHALL BE OF THE COMPRESSION TYPE TOTALLY CONFINED GRIP SEAL AND COUPLING NUT WITH STAINLESS STEEL INSERTS.

6.3.3. CORPORATION STOPS SHALL BE MANUFACTURED OF BRASS ALLOY IN ACCORDANCE WITH ASTM B-62 WITH THREADED ENDS, AS MANUFACTURED BY MUELLER H10046 OR APPROVED EQUAL.

6.3.4. CURB STOPS SHALL BE MUELLER H10203 OR APPROVED EQUAL.

6.3.5. METER STOPS SHALL BE LOCKWING TYPE AND SHALL BE OF BRONZE CONSTRUCTION IN ACCORDANCE WITH ASTM B-62. METER STOPS SHALL BE CLOSED BOTTOM DESIGN AND RESILIENT "O" RING SEALED AGAINST EXTERNAL LEAKAGE AT THE TOP. STOPS SHALL BE EQUIPPED WITH A METER COUPLING NUT ON THE OUTLET SIDES, AS MANUFACTURED BY MUELLER OR APPROVED EQUAL.

6.4. INSTALLATION:

6.4.1. ALL PVC PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE UNI-BELL PLASTIC PIPE ASSOCIATIONS "GUIDE FOR INSTALLATION OF PVC PRESSURE PIPE FOR MUNICIPAL WATER DISTRIBUTION SYSTEM."

6.4.2. ALL DIP SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600-99 OR LATEST REVISION.

6.4.3. ALL WATER MAINS SHALL BE LAID WITH A MINIMUM 36" COVER FOR PVC AND 30" FOR DIP.

6.4.4. NO CONNECTIONS TO EXISTING LINES SHALL BE MADE UNTIL PRESSURE TESTS & BACTERIOLOGICAL TESTS HAVE BEEN PERFORMED AND THE SYSTEM IS ACCEPTABLE TO THE CITY OF MIAMI BEACH AND THE HEALTH DEPARTMENT.

6.4.5. PIPE DEFLECTION SHALL NOT EXCEED 75% OF THE MAXIMUM DEFLECTION RECOMMENDED BY THE MANUFACTURER.

6.4.6. A CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED. BACKFILL MATERIAL SHALL BE TAMPED IN LAYERS AROUND THE PIPE AS SHOWN ON THE PLANS. STONES FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST 6" BELOW THE BOTTOM OF THE PIPE.

6.4.7. ALL VALVES SHALL BE INSTALLED WITH ADJUSTABLE CAST IRON VALVE BOXES WITH THE WORD "WATER" CAST IN THE COVER. U.S.F. OR APPROVED EQUAL.

6.4.8. ALL FITTINGS TO BE RESTRAINED WITH MEGALUG OR APPROVED EQUAL.

6.4.9. LOCATOR TAPE AND WIRE MUST BE INSTALLED 12" ABOVE NEW WATER MAINS. TAPE WILL BE 3" WIDE AND COLOR CODED. LOCATE WIRE WILL SHALL BE NO.14 STRAND AND COLOR CODED.

6.4.10. R.P.M.'S TO BE INSTALLED, PRIOR TO C/O, AT CENTER OF NEAREST DRIVE AISLE ADJACENT TO ALL HYDRANTS (BLUE) AND GATE VALVES (WHITE). FOR HYDRANTS AT CORNERS (2) TWO R.P.M.'S SHALL BE INSTALLED, ONE AT EACH ROADWAY.

6.5. TESTING:

6.5.1. BEFORE ANY PHYSICAL CONNECTIONS TO THE EXISTING WATER MAINS ARE MADE, THE COMPLETE WATER SYSTEM SHALL BE PRESSURE TESTED AND DISINFECTED. HYDROSTATIC TESTING OF NEW MAINS SHALL BE PERFORMED AT A MINIMUM STARTING PRESSURE OF 150 PSI FOR TWO HOURS IN ACCORDANCE WITH ANSI/AWWA C600-99 OR LATEST REVISION, THE PRESSURE TEST SHALL NOT VARY MORE THAN 5 PSI DURING THE TEST.

6.5.2. THE PRESSURE TEST SHALL BE WITNESSED BY A REPRESENTATIVE OF THE CITY OF MIAMI BEACH UTILITIES DEPARTMENT AND THE ENGINEER OF RECORD.

6.5.3. ALL NEW WATER MAINS SHALL BE PIGGED AND CANON FLUSHED PRIOR TO DISINFECTION.

6.5.4. BEFORE ACCEPTANCE FOR OPERATION, THE WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE ANSI/AWWA C651-99; 150 PSI MINIMUM STARTING TEST PRESSURE. METER RECONNECTIONS MAY BE MADE TO NEW LINES AFTER TWO CONSECUTIVE DAYS OF BACTERIOLOGICAL SAMPLES HAVE PASSED, AND COPIES OF RESULTS HAVE BEEN RECEIVED BY THE ENGINEER, THE CITY OF MIAMI BEACH, AND HRS.

6.5.5. SAMPLING POINTS SHALL BE PROVIDED AT THE LOCATIONS SHOWN ON THE PLANS. IF NOT SPECIFIED, SAMPLING POINTS SHALL BE PROVIDED AT INTERVALS OF 1200' MAXIMUM FOR LINES GREATER THAN 2000' IN LENGTH.

6.5.6. THE ALLOWABLE LEAKAGE SHALL BE LESS THAN THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FORMULA: $L=\frac{[P-0.2\,S]^2}{P+0.8\,S}$ IN WHICH L EQUALS THE ALLOWABLE LEAKAGE IN GALLONS PER HOUR. S EQUALS LENGTH OF PIPE (LINEAR FEET), D EQUALS NOMINAL DIAMETER OF PIPE (INCHES) AND P EQUALS THE SQUARE ROOT OF THE AVE PRESSURE.

7. GRAVITY SEWER COLLECTION SYSTEM

7.1. GENERAL

7.1.1. DISTANCE AND LENGTHS SHOWN ON PLANS ARE REFERENCED TO THE CENTER OF STRUCTURES.

7.2. MATERIALS:

7.2.1. ALL SEWER PIPE AND FITTINGS SHALL BE PVC SDR35 PIPE CONFORMING TO ANSI/AWWA STANDARD C900-89, CLASS 150. WITH PUSH-ON RUBBER GASKET JOINTS OR DUCTILE IRON PIPE WITH EPOXY COATING, PROTECTED 401 (MIN.CLASS 52), AS INDICATED ON THE DRAWINGS.

7.2.2. MANHOLES SHALL BE PRECAST PER ASTM C 478 WITH 4,000 PSI CONCRETE AND GRADE 60 STEEL. MONOLITHICALLY POURED BASES ONLY.

7.2.3. MANHOLES ARE TO BE SEALED WITH ANTI-HYDRO CEMENT OR APPROVED EQUAL - NO MOULDING PLASTER.

7.3. INSTALLATION:

7.3.1. PVC SEWER PIPE SHALL BE LAID IN ACCORDANCE WITH ASTM D 2321 AND THE UNI- BELL PLASTIC PIPE ASSOCIATION'S "RECOMMENDED PRACTICE FOR THE INSTALLATION OF PVC SEWER PIPE."

7.3.2. DUCTILE IRON PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600-93 OR LATEST REVISION.

7.3.3. SAND COLLAR SHALL BE GROUTED IN PLACE AT EACH PIPE CONNECTION INTO A MANHOLE WALL.

7.3.4. MANHOLES SHALL BE SET PLUMB TO LINE AND GRADE ON FIRM SUBGRADE PROVIDING UNIFORM BEARING UNDER THE BASE.

7.3.5. ALL OPENINGS AND JOINTS SHALL BE SEALED WATERTIGHT.

7.3.6. THE ENTIRE INSIDE AND OUTSIDE OF THE MANHOLES SHALL BE PAINTED WITH TWO COATS: FIRST COAT RED, SECOND COAT BLACK (8 MILS EACH) OF KOPPERS 300-M BITUMASTIC PAINT OR ENGINEER'S APPROVED EQUAL.

7.3.7. EXISTING SEWER SYSTEM MUST REMAIN SEPERATE FROM NEW SEWER SYSTEM WITH A WING-NUT TYPE MECHANICAL PLUG UNTIL CERTIFICATION.

7.4. TESTING:

7.4.1. AFTER CONSTRUCTION OF THE SEWER SYSTEM, THE ENGINEER MAY REQUIRE A VISUAL INFILTRATION AND/OR EXFILTRATION TEST TO BE PERFORMED ON THE ENTIRE SYSTEM OR ANY PART THEREOF.

7.4.2. AN AIR TEST MAY BE SUBSTITUTED FOR THE WATER EXFILTRATION TEST, UPON APPROVAL OF THE ENGINEER.

7.4.3. MANHOLE LEAKAGE TEST SHALL NOT EXCEED FOUR GALLONS PER DAY PER UNIT. NO VISIBLE LEAKAGE ALLOWED.

7.4.4. SEWER PIPE LEAKAGE ALLOWABLE SHALL NOT EXCEED 150 GALLONS PER DAY PER INCH DIAMETER PER MILE IN A TWO HOUR TEST PERIOD FOR ANY SECTION TESTED. NO VISIBLE LEAKAGE SHALL BE ALLOWED.

8. SEWAGE FORCEMAIN

8.1. GENERAL:

8.1.1. NO CONNECTIONS TO THE EXISTING LINES SHALL BE MADE UNTIL PRESSURE TESTS HAVE BEEN PERFORMED AND THE SYSTEM IS ACCEPTABLE TO THE CITY OF MIAMI BEACH.

8.1.2. INITIAL BACK FILL (WITHIN 12" OF PIPE) FOR MAINS SHALL BE SAND WITH NO ROCKS LARGER THAN 3" IN DIAMETER.

8.2. MATERIALS:

8.2.1. DUCTILE IRON PIPE (D.I.P.) SHALL BE CLASS 50, CLASS 57 IN PAVED AREAS, EPOXY LINED AND BITUMINOUS COATED OUTSIDE, MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C104/A21.4-95 AND C151/A21.51-96 OR LATEST REVISION. THE PIPE SHALL WITHSTAND A WORKING PRESSURE OF 250 PSI. THE JOINTS SHALL BE BELL AND SPIGOT PUSH-ON TYPE.

8.2.2. FITTING FOR MAINS 4" AND LARGER SHALL BE D.I.P. MECHANICAL JOINT CONFORMING TO ANSI/AWWA C110/A21.10-98 OR LATEST REVISION, COMPLETE WITH GLANDS, GASKETS, BOLTS AND NUTS.

8.2.3. VALVES SHALL BE GATE VALVES (FOR WATER) OR PLUG VALVES (FOR SEWER), IRON BODY, FULLY RESILIENT SEAT BRONZED MOUNTED NON-RISING STEM, RATED AT 200 PSI AND CONFORMING TO ANSI/AWWA C509-94 OR LATEST REVISION, AND SHALL HAVE MECHANICAL JOINTS.

8.3. INSTALLATION:

8.3.1. VALVES SHALL BE INSTALLED WITH ADJUSTABLE CAST IRON VALVE BOXES WITH THE WORD "SEWER" CAST IN THE COVER.

9. STORM DRAINAGE

9.1. GENERAL:

9.1.1. DISTANCES AND LENGTHS SHOWN ON PLANS ARE REFERENCED TO THE CENTER OF STRUCTURES.

9.2. MATERIALS:

9.2.1. HIGH-DENSITY POLYETHYLENE (H.D.P.E.) SHALL MEET THE REQUIREMENTS OF ASTM F2619 / F2619M, LATEST REVISION.

9.2.2. REINFORCED CONCRETE PIPE (R.C.P.) SHALL MEET THE REQUIREMENTS OF ASTM C-76, LATEST REVISION. RUBBER GASKETS OR OTHER MANUFACTURER SUPPLIED JOINT SEALER SHALL BE USED.

9.2.3. CORRUGATED ALUMINUM PIPE (C.A.P.) SHALL BE HELICAL TYPE, CONFORMING TO ASTM B209 AND AASHTO M196, AS MANUFACTURED BY KAISER ALUMINUM, INC., OR APPROVED EQUAL. THE CORRUGATION PATTERN AND GAUGE SHALL BE AS FOLLOWS:

DIA.	CORRUGATION	GAUGE
12" to 21"	2 2/3" x 1/2"	16
24" to 27"	2 2/3" x 1/2"	16
30"	2 2/3" x 1/2"	14
36" to 54"	3" x 1"	14
60" to 78"	3" x 1"	12

9.2.4. PIPE COUPLINGS FOR C.A.P. SHALL BE 12" WIDE (MINIMUM) 24" FOR 60" DIAMETER OR LARGER. SPLIT BANDS OF THE SAME ALLOY AS THE PIPE MAY BE ONE GAUGE LIGHTER THAN THE PIPE. POLYURETHANE OR OTHER MANUFACTURER SUPPLIED SEALANT SHALL BE USED WITH THE COUPLINGS.

9.2.5. FIELD JOINTS IN THE PIPE SHALL BE MADE WITH ALUMINUM SPIRAL RIB PIPE FORMED FROM COILED ALUMINUM SHEETS AND SHALL CONFORM TO ASTM B2-09 AND AASHTO M196, AS APPROVED BY KAISER ALUMINUM, INC., OR APPROVED EQUAL.

9.2.6. ALL DRAINAGE CATCH BASINS AND STRUCTURES SHALL BE PRECAST CONCRETE AS MANUFACTURED BY U.S. PRECAST CORPORATION, UNLESS OTHERWISE NOTED ON THE PLANS. BLOCK CATCH BASINS WILL BE ALLOWED ONLY WITH APPROVAL OF THE ENGINEER.

9.3. INSTALLATION:

9.3.1. PIPE SHALL BE PLACED ON A MINIMUM OF 8" STABLE GRANULAR MATERIAL FREE OF ROCK FORMATION AND OTHER FOREIGN FORMATIONS, AND CONSTRUCTED TO A UNIFORM GRADE AND LINE.

9.3.2. BACKFILL MATERIAL SHALL BE WELL GRADED GRANULAR MATERIAL, WELL TAMPED TO A HEIGHT OF 12 INCHES ABOVE PIPE AS SHOWN ON THE PLANS. TAMPING TO BE DONE IN LAYERS NOT TO EXCEED 12 INCHES.

9.3.3. PROVIDE A MINIMUM PROTECTIVE COVER OF 18 INCHES OVER STORM SEWER AND AVOID UNNECESSARY CROSSING BY HEAVY CONSTRUCTION VEHICLES DURING CONSTRUCTION.

9.3.4. THE CONTRACTOR SHALL NOTIFY THE CITY OF MIAMI BEACH ENGINEERING DIVISION AT LEAST 7 DAYS PRIOR TO THE START OF THE CONSTRUCTION AND INSPECTION.

10. PAVING AND SIDEWALKS

10.1. GENERAL:

10.1.1. ALL MUCK AND YIELDING MATERIAL WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH CLEAN FILL MATERIAL WHICH SHALL BE COMPACTED AND SHAPED TO CONFORM TO THE REQUIRED SECTION. COMPACTED AREAS, AS SHOWN ON THE PLANS AND OR AS DETERMINED BY THE ENGINEER, SHALL BE COMPACTED TO NOT LESS THAN 98% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE, AS DETERMINED BY AASHTO T-180, LATEST REVISION. AREAS TO BE STABILIZED, AS DETERMINED BY THE ENGINEER, SHALL HAVE A MINIMUM LBR-40.

10.1.2. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF LIMEROCK BASE.

10.1.3. ALL EXISTING PAVEMENT, CUT OR DAMAGED BY CONSTRUCTION, SHALL BE PROPERLY RESTORED AT THE CONTRACTOR'S EXPENSE.

10.1.4. WHERE ANY PROPOSED PAVEMENT IS TO BE CONNECTED TO EXISTING PAVEMENT, THE EXISTING EDGE OF PAVEMENT SHALL BE SAW CUT.

10.2. MATERIALS:

10.2.1. BASE COURSE SHALL BE CRUSHED LIMEROCK WITH A MINIMUM OF 70% CARBONATES OF CALCIUM AND MAGNESIUM.

10.2.2. ASPHALT SURFACES SHALL BE TYPE S-III ASPHALTIC CONCRETE, UNLESS OTHERWISE SPECIFIED ON THE PLANS, TWO (2) SHALL BE A MINIMUM OF 1-1/2" THICK, A AND SHALL BE APPLIED IN (2) 3/4" LIFTS.

10.2.3. MINIMUM SIDEWALK CONSTRUCTION SHALL BE 4 INCH THICK CONCRETE, MINIMUM 3000psi COMPRESSIVE STRENGTH AT 28 DAYS. SAWCUT CONSTRUCTION JOINTS 5 FOOT O.C. WITHIN 48 HOURS OF PLACING, EXPANSION JOINTS SHALL BE 20 FOOT O.C.

10.2.4. CURBS AND GUTTERS: CONCRETE 3000psi COMPRESSIVE STRENGTH AT 28 DAYS, SAWCUT CONSTRUCTION JOINTS 10 FOOT O.C. WITHIN 48 HOURS OF PLACING.

10.2.5. REINFORCED CONCRETE SLABS SHALL BE CONSTRUCTED OF CLASS I CONCRETE WITH A MINIMUM STRENGTH OF 3,000 PSI AND SHALL BE REINFORCED WITH A 6" x 6" NO. 10 GAUGE WIRE MESH.

10.3. INSTALLATION:

10.3.1. SUBGRADE FOR PAVEMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 98% OF THE MAXIMUM DENSITY (AASHTO T-99(c)), AND SHALL HAVE A MINIMUM LBR 40.

10.3.2. BASE COURSE MATERIAL FOR PAVED AREAS SHALL BE AS SHOWN ON PLANS FOR VARIOUS LOCATIONS.

10.3.3. BASE COURSE MATERIAL FOR CURBS AND GUTTERS SHALL BE A MINIMUM THICKNESS OF 6 INCH.

10.3.4. BASE COURSE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS PER AASHTO T-180 AND SHALL HAVE A MINIMUM LBR OF 100.

10.3.5. INSTALLATION OF THE WEARING SURFACE SHALL CONFORM WITH THE REQUIREMENTS OF THE D.O.T. STANDARD SPECIFICATIONS FOR TYPE S-3 ASPHALTIC CONCRETE.

10.4. TESTING:

10.4.1. THE FINISHED SURFACE OF THE BASE COURSE AND THAT OF THE WEARING SURFACE SHALL NOT VARY MORE THAN 1/4" FROM THE TEMPLATE. ANY IRREGULARITIES EXCEEDING THIS LIMIT SHALL BE CORRECTED.

10.4.2. DENSITY TESTS SHALL BE TAKEN BY AN INDEPENDENT TESTING LABORATORY CERTIFIED BY THE STATE OF FLORIDA, WHERE DIRECTED BY THE ENGINEER.

10.4.3. ALL TESTING COSTS (PAVING) SHALL BE PAID FOR BY THE CONTRACTOR.

10.4.4. DENSITY TESTS ON THE STABILIZED SUBGRADE SHALL BE SUPPLIED TO THE ENGINEER OF RECORD AND APPROVED BEFORE ANY LIMEROCK BASE IS CONSTRUCTED.

10.4.5. DENSITY TESTS AND AS-BUILTS ON THE FINISHED LIMEROCK BASE SHALL BE SUPPLIED TO THE ENGINEER OF RECORD, AND APPROVED BEFORE ANY ASPHALT PAVEMENT IS CONSTRUCTED.

11. PROJECT CLOSEOUT

11.1. CLEANING UP:

11.1.1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER, AND UPON FINAL CLEAN-UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN.

11.1.2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS WORK, EQUIPMENT, OR EMPLOYEES, TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. TO THAT END, THE CONTRACTOR SHALL DO, AS REQUIRED, ALL NECESSARY HIGHWAY, DRIVEWAY, WALK AND LANDSCAPING WORK. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.

11.1.3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR HAS BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING THE PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.

11.2. ALL PROPERTY MONUMENTS OR PERMANENT REFERENCES, REMOVED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED BY A STATE OF FLORIDA REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.

11.3. ALL UNPAVED SURFACES DISTURBED AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED BEFORE THE CONSTRUCTION.

12. ENGINEER'S AS-BUILT REQUIREMENTS

12.1. AS-BUILTS OF WATER LINES SHALL INCLUDE THE FOLLOWING INFORMATION:

12.1.1. TOP OF PIPE ELEVATIONS EVERY 100 LF.

12.1.2. LOCATIONS AND ELEVATIONS OF ALL FITTINGS INCLUDING BENDS, TEES, GATE VALVES, DOUBLE DETECTOR CHECK VALVES, FIRE HYDRANTS, ETC.

12.1.3. ALL TIE INS TO EXISTING LINES SHALL BE AS-BUILT.

12.1.4. THE ENDS OF ALL WATER SERVICES AT THE BUILDINGS OR HOMES SHALL BE AS-BUILT OR WHERE THE WATER SERVICE TERMINATES.

12.2. AS-BUILTS OF ALL GRAVITY SANITARY SEWER LINES SHALL INCLUDE THE FOLLOWING INFORMATION:

12.2.1. RIMS, INVERTS AND LENGTH OF PIPING BETWEEN STRUCTURES AS WELL AS SLOPES.

12.2.2. THE STUB ENDS OF ALL SEWER LATERALS SHALL BE LOCATED AND IF THERE ARE ANY CLEANOUTS INSTALLED ON THE SEWER LATERALS THEN THE INVERT ELEVATION OF THESE CLEANOUTS SHALL BE OBTAINED.

12.2.3. LIFT STATION AS-BUILTS SHALL CONSIST OF TOP OF WET WELL ELEVATION, INVERT ELEVATION OF THE INCOMING LINE, BOTTOM OF THE WET WELL AND AS-BUILTS OF THE COMPOUND AREA.

12.3. AS-BUILTS OF ALL DRAINAGE LINES SHALL INCLUDE THE FOLLOWING INFORMATION:

12.3.1. RIMS, INVERTS AND LENGTH OF PIPING BETWEEN STRUCTURES AND WEIR ELEVATIONS IF APPLICABLE.

12.3.2. THE SIZE OF THE PIPING SHALL BE VERIFIED BY THE SURVEY CREW AT THE TIME OF AS-BUILT.

12.3.3. DRAINAGE WELL STRUCTURE AS-BUILTS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP OF CASING ELEVATION, TOP AND BOTTOM ELEVATIONS OF THE BAFFLE WALLS, RIM ELEVATIONS AND INVERTS OF PIPING.

12.4. ALL ROCK AS-BUILTS FOR PARKING LOT AREAS SHALL CONSIST OF THE FOLLOWING:

12.4.1. ROCK ELEVATIONS AT ALL HIGH AND LOW POINTS, AND AT ENOUGH INTERMEDIATE POINTS TO CONFIRM SLOPE CONSISTENCY.

12.4.2. ROCK AS-BUILTS SHALL BE TAKEN AT ALL LOCATIONS WHERE THERE IS A FINISH GRADE ELEVATION SHOWN ON THE DESIGN PLANS.

12.4.3. ALL CATCH BASIN AND MANHOLE RIM ELEVATIONS SHALL BE SHOWN.

12.4.4. ELEVATIONS AROUND ISLAND AREAS WILL ALSO BE REQUIRED.

12.4.5. WHERE CONCRETE IS TO BE USED AS A FINISHED PRODUCT FOR THE ROADWAY OR PARKING LOT ROCK AS-BUILTS WILL BE REQUIRED AS INDICTED ABOVE AS WELL AS AS-BUILTS ON THE FINISHED CONCRETE AT LOCATIONS WHERE THERE IS A FINISH GRADE ELEVATION SHOWN ON THE DESIGN PLANS. F AS-BUILTS SHALL BE TAKEN ON ALL PAVED AND UNPAVED SWALES, PRIOR TO PLACEMENT OF ASPHALT OR TOPSOIL/SOD, AT ENOUGH INTERMEDIATE POINTS TO CONFIRM SLOPE CONSISTENCY AND CONFORMANCE TO THE PLAN DETAILS.

12.5. RETENTION AREA AS-BUILT ELEVATIONS SHALL BE TAKEN AT THE BOTTOM OF THE RETENTION AREA AND AT THE TOP OF BANK. IF THERE ARE CONTOURS INDICATED ON THE DESIGN PLANS, THEN THEY SHALL BE AS-BUILTED AS WELL.

12.6. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL PREPARE RECORD DRAWINGS, "AS-BUILTS", ON FULL SIZE, 24" X 36" REPRODUCIBLE MATERIAL. WHERE WATER AND SEWER INFORMATION ARE ON THE SAME PAGE THE WATER LINE SHALL BE AS-BUILT BY STATION AND OFFSET UTILIZING THE SANITARY SEWER SYSTEM AS THE BASE LINE. IF IT IS NOT PRACTICAL TO UTILIZE THE SEWER SYSTEM AS A BASE LINE THEN THE SURVEYOR SHALL CONTACT THE ENGINEER OF RECORD SO THAT A SUBSTITUTE BASELINE MAY BE CHOSEN. ALL RECORD DRAWING, "AS-BUILT", INFORMATION SHALL BE PUT ON THE LATEST ENGINEERING DRAWINGS. ONE (1) SET OF REPRODUCIBLE RECORD DRAWINGS, "AS-BUILTS", SHALL BE SUBMITTED ALONG WITH EIGHT (8) SETS OF BLUE OR BLACKLINE DRAWINGS. THESE DRAWINGS SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL LAND SURVEYOR. ADDITIONALLY, AN ELECTRONIC COPY OF THESE RECORD DRAWINGS, "AS-BUILTS", SHALL BE SUBMITTED TO THE ENGINEER OF RECORD IN AUTOCAD, VERSION 2014.

		No.	DATE	REVISIONS
SP	5/5/20			
DESIGNED BY	DATE			
RE	5/5/20			
DRAWN BY	DATE			
MR	5/5/20			
CHECKED BY	DATE			
RR	5/5/20			
APPROVED BY	DATE			

PRIVATE RESIDENCE
28 WEST DI LIDO DRIVE
MIAMI BEACH, FL

ROSS ENGINEERING, INC.
3325 S. UNIVERSITY DRIVE, SUITE 111
DAVIE, FLORIDA 33328
(954)318-0624 (954)358-0190 FAX
CERTIFICATE OF AUTHORIZATION No. 9808

ROBERT J. ROSS, P.E.
FLORIDA P.E. No. 59485
DATE:5/5/2020

GENERAL NOTES AND SPECIFICATIONS

SCALE:

SHEET No. C1.1

CALCULATIONS OF MINIMUM AND MAXIMUM YARDS
AS PROVIDED BY THE CITY OF MIAMI BEACH
(ELEVATIONS BELOW ARE IN NGVD)

Calculation of Minimum and Maximum Yards

PROPERTY CONDITIONS

Waterfront Lot (Yes/No)	YES
Corner property (Yes/No)	NO
Sidewalk (yes/no)	YES
Sidewalk elevation at the centerline of the front of the property	6.300
Crown of road at center of property (if no sidwalk exists or is proposed)	0.000
Flood Elevation	9.000
Freeboard (provided)	5.000

INTERIOR SIDEYARD CONDITIONS

Inidcate yes only for the condition that applies		Max. Yard Elevation
Yes	Default Condion unless one of the below applies Maximum Yard Elevation	8.800
	Is the average grade of adjacent lot along the abutting side yard equal or greater than adjusted grade?	10.150
	Is the abutting property vacant?	10.150
	Is their a joint agreement between abutting properties, for a higher elevation, not to exceed flood elevation?	9.000

REAR YARD CONDITIONS

Inidcate yes only for the condition that applies		Max. Yard Elevation
Yes	Default Condion unless one of the below applies Maximum Yard Elevation	8.800
	Is the average grade of adjacent lot along the abutting side yard equal or greater than adjusted grade?	10.150
	Is the abutting property vacant?	10.150
	Is their a joint agreement between abutting properties, for a higher elevation, not to exceed flood elevation?	9.000

RESULTS

Grade	6.3
Adjusted Grade	7.65
30" above Grade	8.8
Future Crown of Road	5.25
Future Adjusted Grade	7.625
Minimum Freeboard Elev.	10.000
Maximum Freeboard Elev.	14.000
Minimum Yard Elevation	6.56
Min. Garage elevation (for a detached or attached garage, not under the house	7.65
Minimum garage ceiling elevation	18.000

Front Yard	
Min Yard Elevation	6.560
Max Yard Elevation	8.800
Interior Side	
Min Yard Elevation	6.560
Max Yard Elevation	8.800
Interior Side	
Min Yard Elevation	6.560
Max yard Elevation	8.800
Waterfront	
Min Yard Elevation	6.560
Max Yard Elevation	14.000

Interior Side Yard
Minimum Yard Elevation: 6.560
Maximum Yard Elevation 8.800

Waterfront
Minimum Yard Elevation: 6.560
Maximum Yard Elevation: 14.000

Interior Side
Minimum Yard Elevation: 6.560
Maximum Yard Elevation 8.800

Front Yard
Minimum Yard Elevation: 6.560
Maximum Yard Elevation: 8.800

SP	5/5/20		
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RR	5/5/20		
APPROVED BY	DATE	No.	DATE REVISIONS

PRIVATE RESIDENCE
28 WEST DI LIDO DRIVE
MIAMI BEACH, FL

ROSS ENGINEERING, INC.
3325 S. UNIVERSITY DRIVE, SUITE 111
DAVIE, FLORIDA 33328
(954)318-0624 (954)358-0190 FAX
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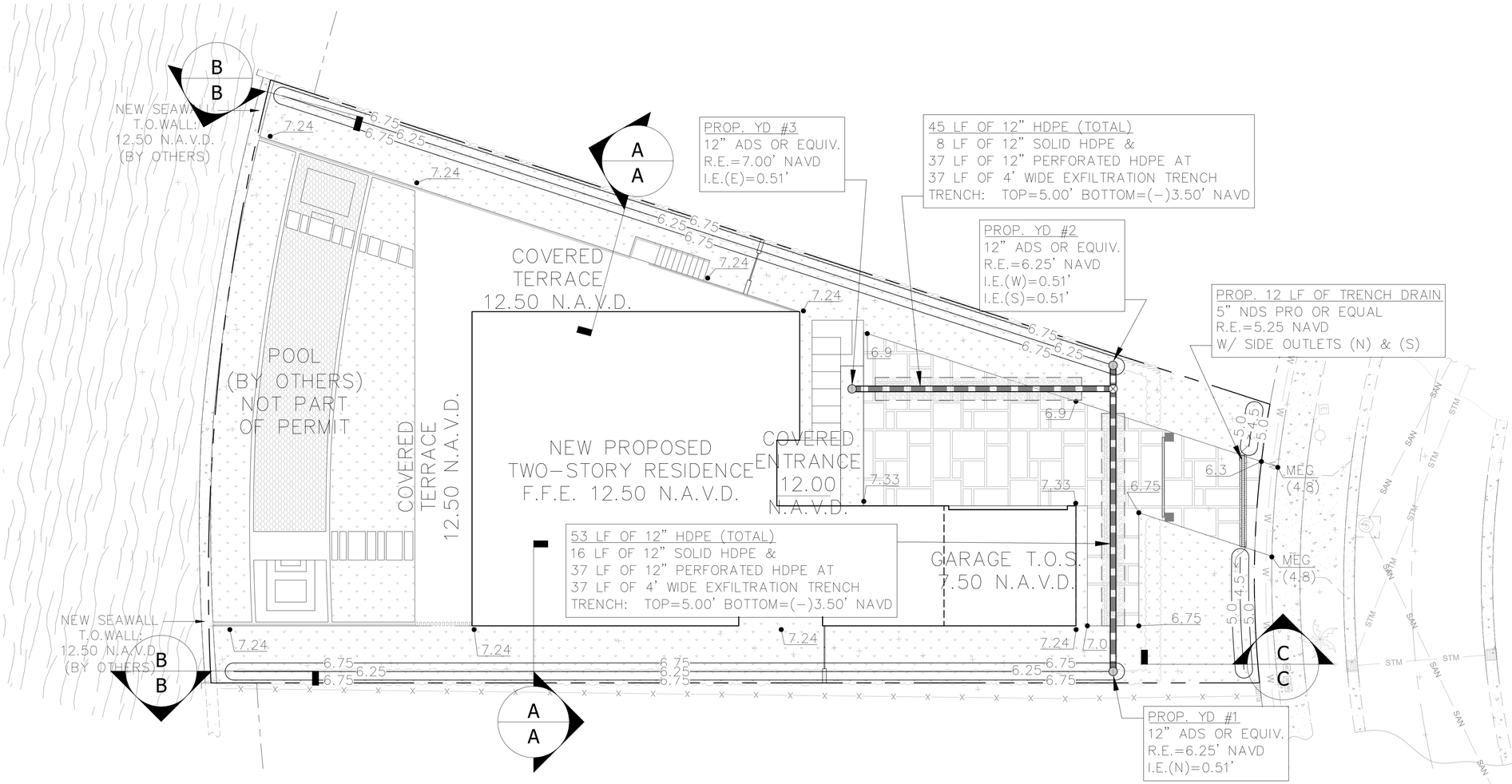
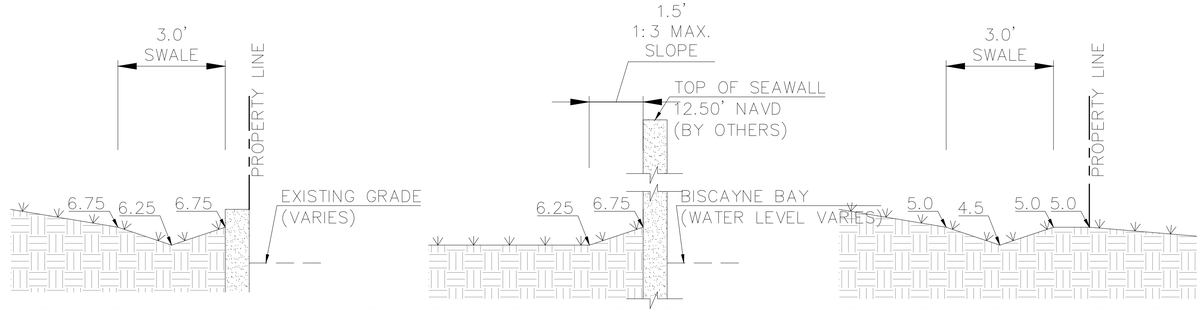
ROBERT J. ROSS, P.E.
FLORIDA P.E. No. 59485
DATE:5/5/2020

GRADE TABULATIONS AS PROVIDED BY THE CITY OF MIAMI BEACH

SCALE:





SECTION "A-A"
NTS

SECTION "B-B"
NTS

SECTION "C-C"
NTS

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

LEGEND

- PROPERTY LINE
- EXISTING BUILDING
- OH OH — EXISTING OVERHEAD LINE
- W W — EXISTING WATER LINE
- SAN SAN — EXISTING SANITARY SEWER LINE
- X X — EXISTING CHAIN LINK FENCE
- EXISTING ASPHALT
- PROPOSED SOD
- 5.50 — PROPOSED CONTOUR LINE
- 5.00 — PROPOSED GRADE
- MEG (5.00) — MATCH EXISTING GRADE (MEG)
- FLOW ARROW
- PROPOSED YARD DRAIN (YD)
- C.O. — PROPOSED CLEAN OUT (CO)
- PROPOSED DRAINAGE PIPE
- PROPOSED DRAINAGE PIPE W/ EXFILTRATION TRENCH

CITY OF MIAMI BEACH NOTES:

1. ADEQUATE DRAINAGE SHALL BE PROVIDED, AND SURFACE RUN-OFF WATER SHALL BE DIVERTED TO A STORM CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION IN ACCORDANCE WITH FLORIDA BUILDING CODE AND CITY OF MIAMI BEACH CODE ORDINANCES. ALL SITE DRAINAGE IS DESIGNED AND SHALL BE CONSTRUCTED IN SUCH A MANNER THAT RUN-OFF RATES, VOLUME AND POLLUTANT LOADS NOT EXCEEDING PREDEVELOPMENT CONDITIONS AND PREVENTING FLOODING OF ADJACENT PROPERTIES AND PUBLIC RIGHT-OF WAY.

NOTES:

1. EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE LOCATIONS AND HAVE BEEN PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR TO FIELD VERIFY ANY CONFLICTS WITH TREES AND/OR UTILITIES AND DRAINAGE. CONTRACTOR TO NOTIFY ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH ANY SOLUTION TO THE CONFLICT.
3. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO SAFEGUARD ALL EXISTING STRUCTURES AND UTILITIES. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NOT EXPENSE TO THE SUBJECT UTILITY. CALL "SUNSHINE" 48 HOURS BEFORE DIGGING.
4. CONTRACTOR IS TO RESTORE ANY CURB, LANDSCAPE, ASPHALT, ETC. (NOT SCHEDULED FOR DEMOLITION) DAMAGED DURING CONSTRUCTION TO A CONDITION EQUAL TO WHAT IS EXISTING.
5. ALL EXISTING AND PROPOSED ELEVATIONS SHOWN ON THE CONSTRUCTION DOCUMENTS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD).

SP	5/5/20		
DESIGNED BY	DATE		
RE	5/5/20		
DRAWN BY	DATE		
MR	5/5/20		
CHECKED BY	DATE		
RR	5/5/20		
APPROVED BY	DATE	No.	DATE REVISIONS

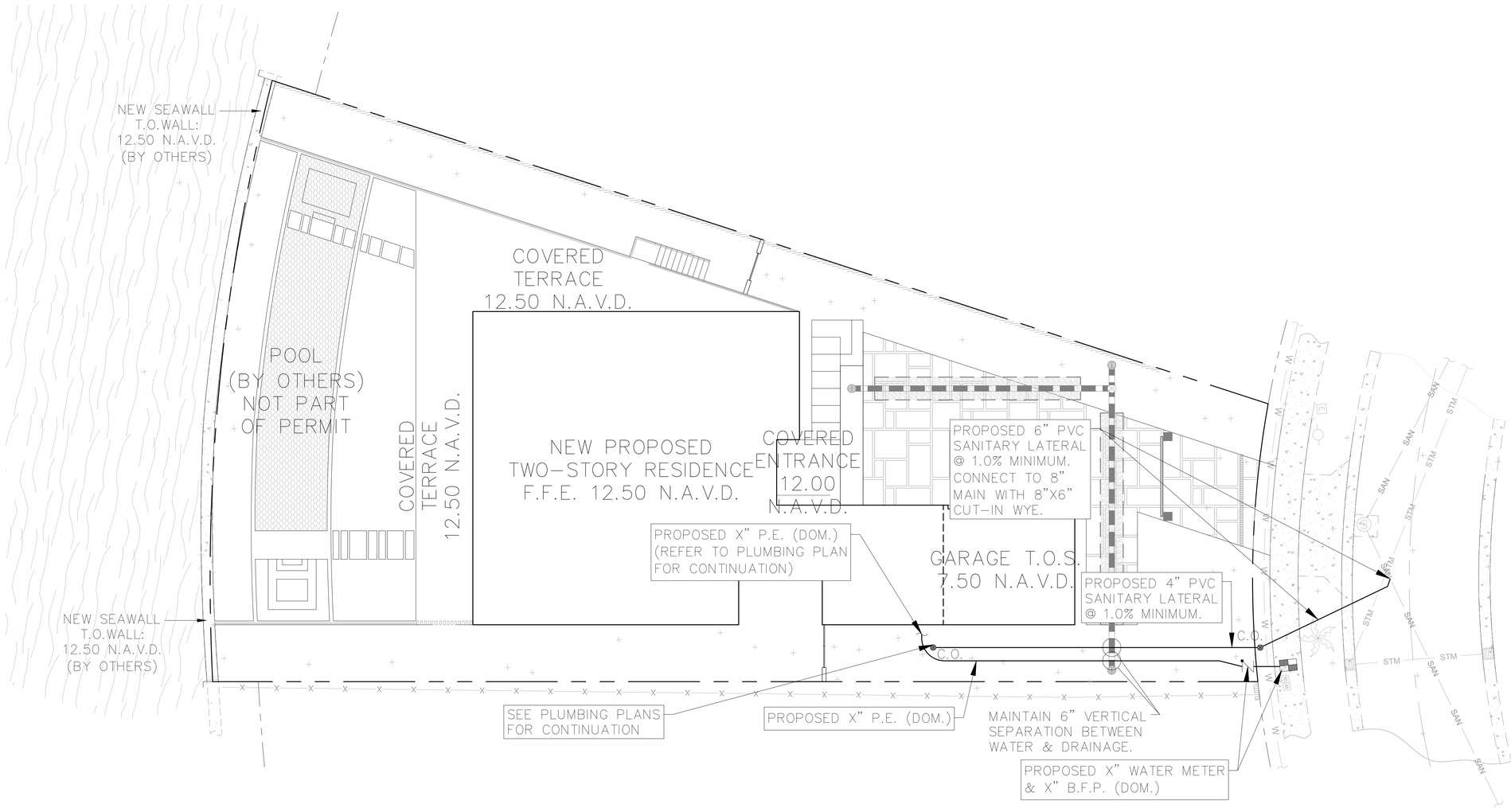
PRIVATE RESIDENCE
28 WEST DI LIDO DRIVE
MIAMI BEACH, FL

RE ROSS ENGINEERING, INC.
3325 S. UNIVERSITY DRIVE, SUITE 111
DAVIE, FLORIDA 33328
(954)318-0624 (954)358-0190 FAX
CERTIFICATE OF AUTHORIZATION No. 9808

ROBERT J. ROSS, P.E.
FLORIDA P.E. No. 59485
DATE:5/5/2020

PAVING GRADING AND DRAINAGE PLAN

SCALE: 1"=10' | SHEET No. C2.0



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Sunshine811

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Check positive response codes before you dig!

LEGEND

	PROPERTY LINE
	EXISTING BUILDING
OH OH	EXISTING OVERHEAD LINE
W W	EXISTING WATER LINE
SAN SAN	EXISTING SANITARY SEWER LINE
	PROPOSED WATER LINE
	PROPOSED BACKFLOW PREVENTER
	PROPOSED WATER METER
	PROPOSED SANITARY LINE
C.O.	PROPOSED CLEAN OUT

NOTES:

1. EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE LOCATIONS AND HAVE BEEN PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR TO FIELD VERIFY ANY CONFLICTS WITH TREES AND/OR UTILITIES AND DRAINAGE. CONTRACTOR TO NOTIFY ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH ANY SOLUTION TO THE CONFLICT.
3. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO SAFEGUARD ALL EXISTING STRUCTURES AND UTILITIES, ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NOT EXPENSE TO THE SUBJECT UTILITY. CALL "SUNSHINE" 48 HOURS BEFORE DIGGING.
4. CONTRACTOR IS TO RESTORE ANY CURB, LANDSCAPE, ASPHALT, ETC. (NOT SCHEDULED FOR DEMOLITION) DAMAGED DURING CONSTRUCTION TO A CONDITION EQUAL TO WHAT IS EXISTING.

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DESIGNED BY	DATE		
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CHECKED BY	DATE		
RR	5/5/20		
APPROVED BY	DATE	No.	DATE REVISIONS

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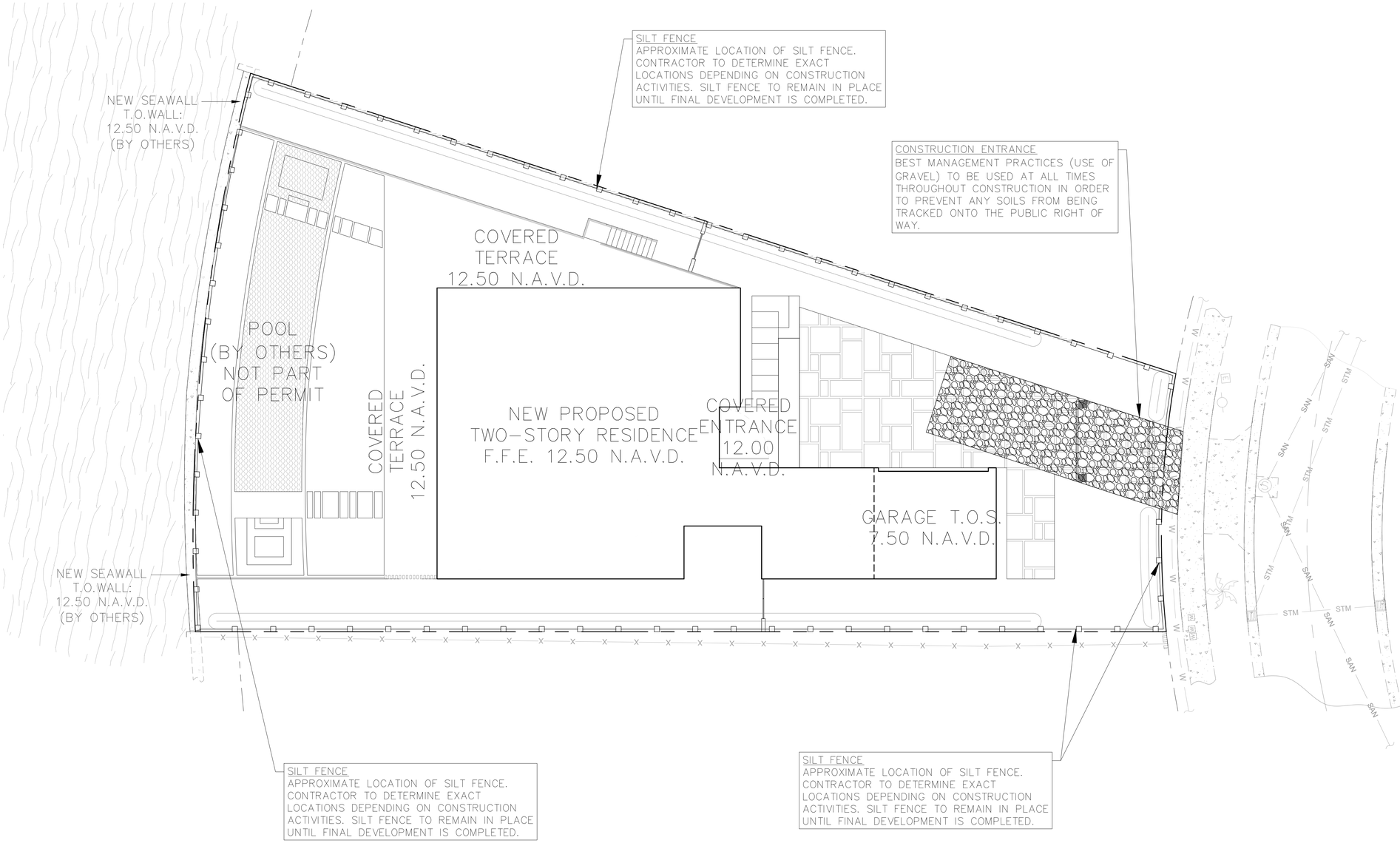
ROBERT J. ROSS, P.E.
FLORIDA P.E. No. 59485
DATE:5/5/2020

WATER AND SANITARY SEWER PLAN

SCALE: 1"=10' | SHEET No. C3.0



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Sunshine811

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Check positive response codes before you dig!

LEGEND

- PROPERTY LINE
- SILT FENCE
- HAY BALE
- CONSTRUCTION ENTRANCE (GRAVEL)

SP	5/5/20			
DESIGNED BY	DATE			
RE	5/5/20			
DRAWN BY	DATE			
MR	5/5/20			
CHECKED BY	DATE			
RR	5/5/20			
APPROVED BY	DATE	No.	DATE	REVISIONS

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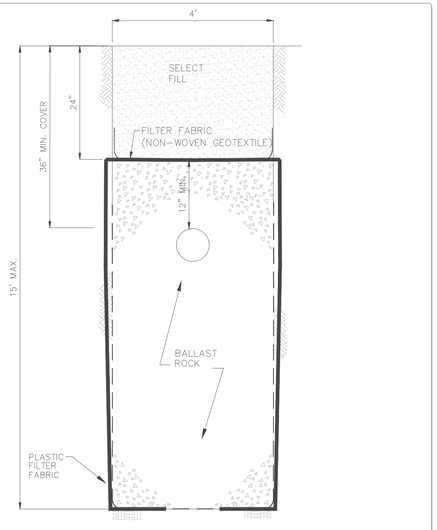
ROBERT J. ROSS, P.E.
FLORIDA P.E. No. 59485
DATE:5/5/2020

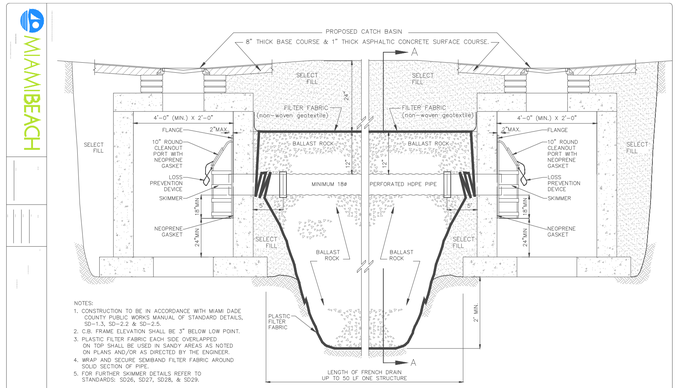
POLLUTION PREVENTION CONTROL PLAN

SCALE: #####

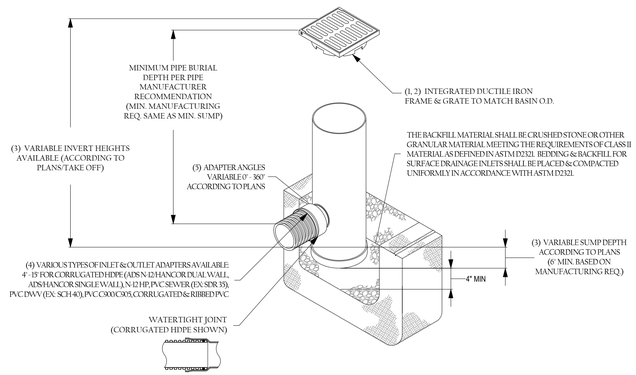


SECTION A–A

EXFILTRATION TRENCH DETAIL
SECTION A–A
N.T.S.

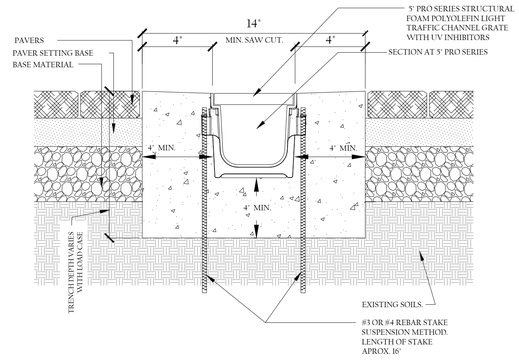


EXFILTRATION TRENCH
N.T.S.



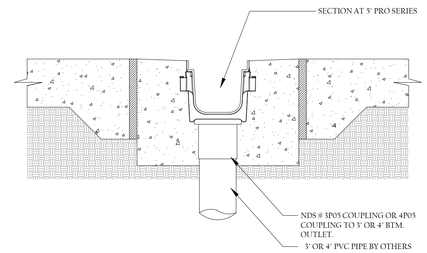
1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12 HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS

NYLOPLAST YARD DRAIN
NTS



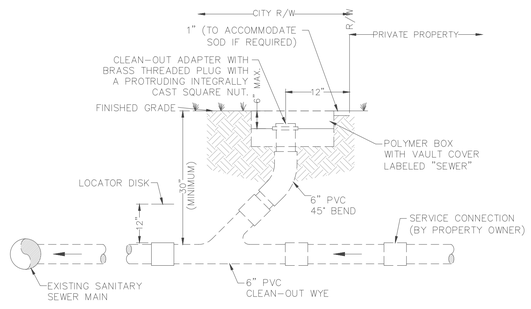
NOTE:
- CHANNELS TO BE INSTALLED WITH GRATE. GRATE TO BE PROTECTED FROM CONCRETE POUR.
- SET TRENCH DRAIN IN CHANNEL SURROUNDED BY 4" OF CONCRETE OR THICKNESS OF THE CONCRETE SLAB WITH A MINIMUM OF 2,500 P.S.I. AVOID FULL LOAD TRAFFIC FOR 28 DAYS OR UNTIL CONCRETE HAS COMPLETELY HARDENED.

5" NDS PRO SERIES INSTALLATION (TYPICAL)
CLASS B INSTALLATION, NDS PRODUCT #864 NTS



5" NDS PRO SERIES BTM. OUTLET (TYPICAL)
NTS

F:\WORK\$ALL\CAD-DWG\STANDARDS\CMB_ STANDARD_DETAILS\Public Works Manual (2015)\CMB Sanitary Details\SANITARY DETAIL.dwg



NOTE:

1. PROVIDE APPROVED PLUG OR JOINT FOR DISSIMILAR GRAVITY SEWER PIPE FOR HOUSE SERVICE CONNECTION.
2. CLEAN-OUT ASSEMBLY SHALL BE INSTALLED AT PROPERTY LINE
3. 30" MIN. FOR RESIDENTIAL SERVICE UNLESS OTHERWISE SHOWN.
4. 8" DIAMETER LATERALS FOR MULTI-FAMILY AND NON-RESIDENTIAL PROPERTIES ARE TO BE CONNECTED TO THE MAIN THROUGH A MANHOLE.

TYPICAL CLEAN-OUT INSTALLATION CONNECTION
N.T.S.

DCS	5/5/20			
DESIGNED BY	DATE			
DCS	5/5/20			
DRAWN BY	DATE			
RR	5/5/20			
CHECKED BY	DATE			
RR	5/5/20			
APPROVED BY	DATE	No.	DATE	REVISIONS

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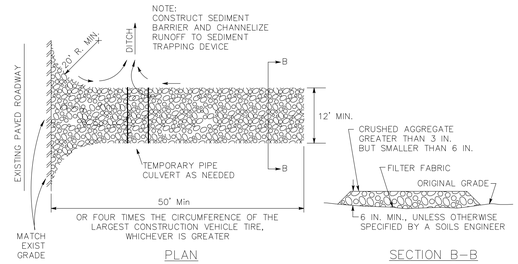
FLORIDA P.E. No. 59485
DATE:5/5/2020

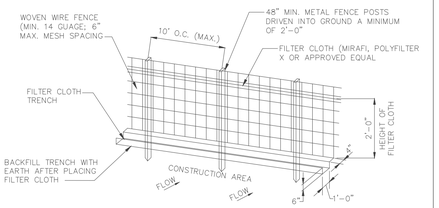
PAVING GRADING DRAINAGE & SANITARY SEWER DETAILS

SCALE:

SHEET No. C5.1



CONSTRUCTION ENTRANCE (TYPICAL)
NTS



CONSTRUCTION SPECIFICATIONS:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS BY USE OF WIRE TIES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE BY USE OF WIRE TIES SPACED EVERY 24" X 24".
3. SILT FENCES TO BE INSTALLED IN LOCATIONS AS SHOWN ON THIS EROSION AND SEDIMENT CONTROL PLAN PRIOR TO BEGINNING OF CONSTRUCTION TO CONTROL SEDIMENT.
4. SILT FENCES TO BE MAINTAINED AND CLEANED AS NECESSARY TO MAINTAIN IN FUNCTIONAL CONDITION.
5. SILT FENCES TO BE REMOVED AND THE AREA TO BE RESTORED TO ITS NATURAL CONDITION WHEN PERMANENT EROSION AND SEDIMENT CONTROL PROCEDURES ARE EFFECTIVE.

FILTER FENCE
N.T.S.

EROSION AND SEDIMENT CONTROL GENERAL NOTE:

THE FOLLOWING DETAILS AND SPECIFICATIONS ARE BEST MANAGEMENT PRACTICES (BMPs) FOR EROSION AND SEDIMENT CONTROL FOR CONSTRUCTION ACTIVITY. THE FDOT MANUAL AND FLORIDA'S EROSION AND SEDIMENT CONTROL MANUAL MAY BE UTILIZED TO MEET EROSION AND SETTLEMENT CONTROL REQUIREMENTS. THESE DETAILS, SPECIFICATIONS, AND STANDARDS ARE PRESENTED OR REFERENCED HERE ONLY AS A SUGGESTED APPROACH DEVELOPED FOR USE BY THE OWNER, THE DESIGN PROFESSIONAL, AND/OR THE CONTRACTOR IN THE SELECTION, THE DESIGN, AND THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION TECHNIQUES TO COMPLY WITH THE NPDES STORM WATER REGULATIONS ESTABLISHED BY THE FDEP FOR CONSTRUCTION ACTIVITY.

IT IS THE RESPONSIBILITY OF THE DESIGN PROFESSIONAL TO PREPARE A STORMWATER POLLUTION PREVENTION PLAN THAT INCLUDES SITE-SPECIFIC BMPs. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE AN EROSION AND SEDIMENT CONTROL PLAN AND TO IMPLEMENT BMPs PURSUANT TO THAT PLAN. IF SITE CONDITIONS WARRANT ADDITIONAL BMPs, THE CONTRACTOR SHALL IMPLEMENT THOSE BMPs ACCORDINGLY.

EROSION AND SEDIMENT CONTROL GENERAL NOTE
N.T.S.

1. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SILT FROM SITE IF NOT REUSABLE ON-SITE AND ASSURING PLAN ALIGNMENT AND GRADE IN ALL DITCHES AND SWALES AT COMPLETION OF CONSTRUCTION.
2. THE SITE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER COMPLETIONOF CONSTRUCTION AND ONLY WHEN AREAS HAVE BEEN STABILIZED.
3. ADDITIONAL PROTECTION – ON-SITE PROTECTION MUST BE PROVIDED THAT WILL NOT PERMIT SILT TO LEAVE THE PROJECT CONFINES DUE TO UNFORSEEN CONDITIONS OR ACCIDENTS.
4. CONTRACTOR SHALL ENSURE THAT ALL DRAINAGE STRUCTURES, PIPES, ETC. ARE CLEANED OUT AND WORKING PROPERLY AT TIME OF ACCEPTANCE.
5. WIRE MESH SHALL BE LAID OVER THE TOP DROP INLET SO THAT THE WIRE EXTENDS A MINIMUM OF 1 FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH ½-INCH OPENING SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.
6. FDOT NO.1 COARSE AGGREGATE SHALL BE PLACED OVER THE WIRE MESH AS INDICATED ON DETAIL. THE DEPTH OF STONE SHALL BE AT LEASE 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEASE 18 INCHES ON ALL SIDES.
7. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE INLET, CLEANED AND REPLACED.
8. BALE SHALL BE EITHER WIRE-BOUND OR STRING-TIED WITH THE BINDINGS ORIENTED AROUND THE SIDES RATHER THAN OVER AND UNDER THE BALES.
9. BALES SHALL BE PLACED LENGTHWISE IN SINGLE ROW SURROUNDING THE INLET, WITH THE ENDS OF ADJACENT BALES PRESSED TOGETHER.
10. THE FILTER BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED AROUND THE INLET AND WIDTH OF A BALE TO A MINIMUM DEPTH OF FOUR INCHES. AFTER THE BALES ARE STACKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AND COMPACTED AGAINST THE FILTER BARRIER.
11. EACH BALE SHALL BE SECURELY ANCHORED AND HELD IN PLACE BY AT LEAST TWO STAKES OR REBARS DRIVEN THROUGH THE BALE.
12. LOOSE STRAW SHOULD BE WEDGED BETWEEN BALE STO PREVENT WATER FROM ENTERING BETWEEN BALES.

EROSION AND SEDIMENT CONTROL NOTES
N.T.S.

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13. HAYBALE BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEASE DAILY DURING PROLONGED RAINFALL.
14. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED BALES, END RUNS AND UNDERCUTTING BENEATH BALES.
15. NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BALES SHALL BE ACCOMPLISHED PROMPTLY.
16. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
17. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE HAYBALE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFROM TO THE EXISTING GRADE, PREPARED AND SEEDED.
18. SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEASE DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
19. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
20. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
21. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHENTHE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE ASSIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THT IT WILL NOT ERODE.
22. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING THE BEST EROSION AND SEDIMENT CONTROL PRACTICES AS OUTLINED IN THE PLANS, SPECIFICATIONS AND APPLICABLE WATER MANAGEMENT DISTRICT PERMIT(S) FOR THIS PROJECT.
23. FOR ADDITIONAL INFORMATION ON SEDIMENT AND EROSION CONTROL REFER TO "THE FLORIDA DEVELOPMENT MANUAL – A GUIDE TO SOUND LAND AND WATER MANAGAEMENT" FROM THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION (FDER), CHAPTER 6.
24. EROSION AND SEDIMENT CONTROL BARRIERS SHALL BE PLACED ADJACENT TO ALL WETLAND AREAS WHERE THERE IS POTENTIAL FOR DOWNSTREAM WATER QUALITY DEGRADATION.

EROSION AND SEDIMENT CONTROL NOTES
N.T.S.

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25. ALL DISTURBED AREAS SHALL BE GRASSED, FERTILIZED, MULCHED AND MAINTAINED UNTIL A PERMANENT VEGETATIVE COVER IS ESTABLISHED.
26. SOD SHALL BE PLACED IN AREAS WHICH MAY REQUIRE IMMEDIATE EROSION PROTECTION TO ENSURE WATER QUALITY STANDARDS ARE MAINTAINED.
27. ANY DISCHARGE FROM DEWATERING ACTIVITY SHALL BE FILTERED AND CONVEYED TO THE OUTFALL IN A MANNER WHICH PREVENTS EROSION AND TRANSPORTATION OF SUSPENDED SOLIDS TO THE RECEIVING OUTFALL.
28. DEWATERING PUMPS SHALL NOT EXCEED THE CAPACITY OF THAT WHICH REQUIRES A CONSUMPTIVE USE PERMIT FROM THE APPLICABLE WATER MANAGEMENT DISTRICT.
29. ALL DISTURBED AREAS TO BE STABILIZED THROUGH COMPACTION, SILT SCREENS, HAYBALES AND GRASSING. ALL FILL SLOPES 3:1 OR STEEPER TO RECEIVE STAKED SOLID SOD.
30. ALL DEWATERING, EROSION, AND SEDIMENT CONTROL TO REMAIN IN PLACE AFTER COMPLETION OF CONSTRUCTION AND BE REMOVED OLY WHEN AREAS HAVE BEEN STABILIZED.
31. THIS PLAN INDICATES THE MINIMUM EROSION AND SEDIMENT CONTROL MEASURES REQUIRED FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL APPLICABLE RULES, REGULATIONS AND WATER QUALITY GUIDELINES AND MAY NEED TO INSTALL ADDITIONAL CONTROLS.
32. ALL EXCAVATIONS AND EARTHWORK SHALL BE DONE IN A MANNER TO MINIMIZE WATER TURBIDITY AND POLLUTION. DISCHARGE SHALL BE CONTROLLED AND REROUTED THROUGH HAY FILTERS, SILTATION DIAPERS AND SUMPS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION, CORRECTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION IN ACCORDANCE WITH CHAPTER 62-302, FLORIDA ADMINISTRATIVE CODE.
33. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ANY SEDIMENT THAT LEAVES THE SITE AND CHANGES ANY DOWNSTREAM CONDITIONS BY RAISING CHANNEL BOTTOMS AND/OR CLOGGING OUTFALL CULVERTS.
34. THE CONTRACTOR SHALL PAY FOR ANY WATER QUALITY CONTROL VIOLATIONS FROM ANY AGENCY THAT RESULTS IN FINES BEING ASSESSED TO THE OWNER BECAUSE OF THE CONTRACTOR'S FAILURE TO ELIMINATE TURBID RUNOFF FROM LEAVING THE SITE AND RAISING BACKGROUND LEVELS ABOVE EXISTING BACKGROUND LEVEL.
35. A MINIMUM OF ONE OF THE EROSION CONTROL MEASURE OPTION'S SHOWN FOR ALL DROP INLETS WILL BE USED BY THE CONTRACTOR.
36. FLOATING TURBIDITY BARRIERS WILL BE PLACED AT ALL OUTFALL LOCATIONS. IF SEAGRASSES ARE PRESENT BARRIERS WILL NOT BE PLACED OVER THEM. THE FLOATING TURBIDITY BARRIERS SHALL BE INSTALLED IN A MANNER TO PREVENT MANATEE ENTANGLEMENT.
37. SILT FENCES OR HAYBALES WILL BE USED ALONG BOTH SIDES OF LIMITS OF CONSTRUCTION TO MINIMIZE OFFSITE SILTATION MIGRATION.

EROSION AND SEDIMENT CONTROL NOTES
N.T.S.

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DCS	5/5/20		
DESIGNED BY	DATE		
DCS	5/5/20		
DRAWN BY	DATE		
RR	5/5/20		
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RR	5/5/20		
APPROVED BY	DATE	No.	DATE	REVISIONS

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ROBERT J. ROSS, P.E.
FLORIDA P.E. No. 59485
DATE:5/5/2020

WATER AND POLLUTION PREVENTION CONTROL DETAILS

SCALE:

SHEET No. C5.2