STRUCTURAL GENERAL NOTES:

1. UNLESS OTHERWISE NOTED (U.O.N.) ON DRAWINGS OR IN THE SPECIFICATIONS, THE FOLLOWING GENERAL STRUCTURAL NOTES SHALL APPLY TO THIS PROJECT.

2. IF ANY ERRORS OR OMISSIONS APPEAR ON THE DRAWINGS, SPECIFICATIONS OR OTHER DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH OMISSIONS OR ERRORS PRIOR TO PROCEEDING WITH ANY WORK WHICH APPEARS IN QUESTION. IN THE EVENT OF THE CONTRACTOR'S FAILURE TO GIVE SUCH NOTICE, HE SHALL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS OR OMISSIONS AND THE COST OF RECTIFYING THE SAME.

3. DO NOT CONCEAL ANY WORK UNTIL REQUIRED INFORMATION IS RECORDED. ALL LOCATIONS FOR FUTURE CONNECTIONS OR TIE-INS SHALL BE LEFT UNBURIED AND UNCOVERED UNTIL THE DEPARTMENT'S SURVEYING FORCES OBTAIN AND RECORD THE AS-BUILT INFORMATION.

STRUCTURAL DESIGN CRITERIA:

1. THIS DESIGN COMPLIES WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE AND OTHER REFERENCED CODES AND SPECIFICATIONS. ALL REFERENCED CODES AND SPECIFICATIONS SHALL BE LATEST EDITION AT TIME OF PERMIT.

2. WIND LOAD CRITERIA:
A. BASIC WIND VELOCITY = 146 MPH AT A HEIGHT OF 30 FEET.
B. NET UPLIFT 0 P.S.F. NOTE: WIND LOADS SHALL COMPLY WITH THE "FLORIDA BUILDING CODE" AND THE "DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" (ASCE 7-05 SECTION 6) - ALL WIND PRESSURES, INCLUDING CALCULATED UPLIFT SHALL BE MODIFIED BY THE CORRESPONDING USE AND SHAPE FACTORS, INCLUDING THOSE REQUIRED FOR THE COASTAL BUILDING ZONE, IF APPLICABLE.

3. LIVE LOADS
A. FLOORS..100 P.S.F.
B. ROOF..30 P.S.F-U.O.N.
C. WELL AND VALVE PIT TOP SLAB - AASHTO H20 OCCASSIONALLY.

SEE PLANS FOR ADDITIONAL LOADING INFORMATION. RAILING AND STAIR RAILING TO COMPLY WITH F.B.C.

FOUNDATIONS:

1. SPREAD FOOTINGS (SHOP DRAWINGS FOR CONCRETE AND REINFORCEMENT REQUIRED).

A. FOUNDATIONS ARE DESIGNED TO BEAR ON WELL COMPACTED FILL OR SOIL (SEE SPECIFICATIONS) WITH AN ALLOWABLE BEARING CAPACITY OF 2000 P.S.F. FOR SITEWORK INCLUDING SURFACE STRIPPING , EXCAVATION, COMPACTION, PAVING, ETC., SEE SPECIFICATIONS. NOTIFY ENGINEER OF ANY DISCREPANCY IN SOIL BEARING CAPACITY BEFORE PROCEEDING WITH THE WORK.

B. THE ALLOWABLE BEARING CAPACITIES FOR SOILS CONSISTING OF UNDISTURBED SAND, OR SAND AND ROCK, MAY BE TAKEN AS A MAXIMUM OF 2000 POUNDS PER SQUARE FOOT (PSF) UNLESS A HIGHER VALUE IS SUBSTANTIATED BY RECOGNIZED TESTS, ANALYSIS AND PROCEDURE. AT THE TIME OF CONSTRUCTION, A LICENSED ARCHITECT OR REGISTER PROFESSIONAL ENGINEER SHALL SUBMIT TO THE BUILDING OFFICIAL A LETTER ATTESTING THAT THE SITE HAS BEEN OBSERVED AND THE FOUNDATION CONDITIONS ARE SIMILAR TO THOSE UPON WHICH THE DESIGNED IS BASED. THE LETTER SHALL BE SIGNED AND BEAR THE IMPRESS SEAL OF THE ARCHITECT OR ENGINEER, AS APPLICABLE.

C. TOP OF WALL FOOTINGS TO BE AT SAME ELEVATION AS TOP OF COLUMN FOOTINGS. WALL FOOTING REINFORCEMENT TO RUN CONTINUOUS THROUGH COLUMN FOOTING. STEP WALL FOOTING FROM HIGHER COLUMN FOOTING TO LOWER ONE.

D. ALL TOP OF FOOTINGS TO BE MINIMUM 1'-4" BELOW THE BOTTOM OF CONCRETE SLAB ON GRADE OR MINIMUM 1'-0" BELOW FINAL GRADE, WHICHEVER IS LOWER. TYPICAL, UNLESS OTHERWISE NOTED ON DRAWINGS.

SLABS ON GRADE:

1. SUBMIT SHOP DRAWINGS FOR CONCRETE AND REINFORCEMENT FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

2. ALL CONCRETE SLABS ON GRADE SHALL BE 6" THICK MINIMUM AND REINFORCED WITH #4 @12" E.W.

3. ALL CONCRETE SLABS ON GRADE TO BE IN ACCORDANCE WITH "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" (ACI 302.1R).

4. JOINTS SHALL BE PROVIDED IN ALL SLABS ON GRADE WHERE INDICATED ON DRAWINGS CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE SUBJECTED TO THE ENGINEER'S APPROVAL.

5. PROVIDE SAWCUT JOINTS IN ALL SIDEWALKS AT A MAXIMUM SPACING OF 5 FEET ON CENTER AND ISOLATION JOINTS AT A MAXIMUM OF 20-FEET APART.

6. DEPTH OF SAWCUT JOINTS SHALL BE AS FOLLOWS: 4" & 6" SLABS = 1-1/2" 8" SLABS = 2". CUTTING SHOULD BE DONE AS SOON AS POSSIBLE AFTER THE CONCRETE HARDENS, NORMALLY WITHIN 6 HOURS. THE CONCRETE IS HARD ENOUGH WHEN THE BLADE DOES NOT DISLODGE AGGREGATE AND WHEN THE EDGES OF THE CUT DO NOT RAVEL.

7. CONCRETE SLABS SHALL BE SLOPED AS SHOWN ON THE DRAWINGS. TOPPING OVER CONCRETE SLAB TO ATTAIN SPECIFIED SLOPES IS NOT ALLOWED.

CONCRETE:

1. SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

2. CONCRETE DESIGN AND REINFORCEMENT IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND WITH "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315).

3. ALL CONCRETE WORK IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE" (ACI 301). PRODUCTION OF CONCRETE, DELIVERY, AND PLACING TO BE IN ACCORDANCE WITH "HOT WEATHER CONCRETING" (ACI 305R-89) AND "COLD WEATHER CONCRETING (ACI 306R & 306.1). CONCRETE FOR SANITARY STRUCTURES SHALL ALSO COMPLY WITH THE RECOMMENDATIONS OF ACI 350R, "ENVIROMENTAL ENGINEERING CONCRETE STRUCTURES".

4. CONCRETE CURING SHALL BE DONE THROUGH WATER CURING METHOD AND SHALL COMPLY WITH ACI-305-2.2 LATEST EDITION.

5. NO ADMIXTURES PERMITTED WITHOUT THE REVIEW AND APPROVAL OF ENGINEER.

6. FOR ALL CONCRETE TO BE PLACED IN SLABS (INCLUDING SLABS ON GRADE), THE SLUMP SHALL NOT EXCEED 4-INCHES. NO WAIVERS OF THIS REQUIREMENT SHALL BE CONSIDERED. SLUMP FOR OTHER CONCRETE SHALL NOT EXCEED 5-INCHES, EXCEPT FOR PUMPED CONCRETE CONTAINING WATER REDUCING ADMIXTURES OR TREMIE CONCRETE, IN WHICH CASE SLUMP SHALL NOT EXCEED 8-INCHES.

7. ALL CONCRETE TO BE REGULAR WEIGHT WITH A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 4000 P.S.I. AT 28 DAYS, WITH A MINIMUM OF 5 BAGS OF TYPE II CEMENT, AND WATER/CEMENT RATIO OF 0.32. USE SUPERPLASTICIZER RHEOBUILT 1000 OR EQUAL TO ACHIEVE THE 0.32 WATER/CEMENT RATIO.

8. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE: SLABS, WALLS AND BEAMS: 3/4-INCH(NO. 67); ALL OTHER: 1-INCH (NO. 57) BUT NO MORE THAN 75 MINIMUM CLEAR SPACING BETWEEN INDIVIDUAL REINFORCING BARS, WIRES OR PRESTRESSING TENDONS OR DUCTS.

9. CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF FORMS, SHORING AND RESHORING AND FOR SAFE PRACTICE IN THEIR USE AND REMOVAL. CONTRACTOR TO MAINTAIN A MINIMUM OF TWO FLOORS 100.

10. PLACING OF CONCRETE IN ALL REINFORCED COLUMNS AND WALLS SHALL BE IN EQUAL LIFTS. CONCRETE SHALL BE PLACED THROUGH "ELEPHANT TRUNK" TUBULAR CHUTES LOCATED SUCH THAT THE FREE AIR DROP OF THE MIX DOES NOT EXCEED FIVE FEET.

11. SPECIFIED EXPANSION BOLTS SHALL BE OF THE SIZE INDICATED AND OF THE MAXIMUM EMBEDMENT LENGTH INTO THE CONCRETE. EXPANSION BOLTS AND ACCESSORIES SHALL BE STAINLESS STEEL DEEP WEDGE TYPE OF CHEMICAL ADHESIVE ANCHOR, AS SPECIFIED. LEAD SHIELDS ARE NOT ACCEPTABLE. EXPANSION BOLTS OR CHEMICAL ADHESIVE ANCHORS SHALL NOT BE SUBSTITUTES FOR SPECIFIED EMBEDDED ANCHOR BOLTS WITHOUT THE ENGINEER'S APPROVAL.

12. FOR PROTECTION OF CONCRETE SURFACES EXPOSED TO RAW SEWAGE, WASTEWATER SLUDGE AND THEIR GASEOUS EMISSIONS, IN OPEN OR CLOSED STRUCTURES, SEE SPECIFICATIONS.

13. SAMPLES FOR STRENGTH TEST SHALL BE AS FOLLOWS: OBTAIN AND MOLD THREE (3) SPECIMENS FOR EACH 50 CUBIC YARDS, OR FRACTION THEREOF, OF EACH CLASS OF CONCRETE PLACED EACH DAY OR AS DIRECTED BY THE ENGINEER.

14. IMMEDIATELY AFTER COMPLETION OF PLACEMENT AND FINISHING, CURE CONCRETE CONTINUOUSLY FOR MINIMUM 7 DAYS BY PONDING OR CONTINUOUS SPRINKLING OR APPLICATION OF OTHER ACCEPTABLE MOISTURE RETAINING COVERING SUBJECT TO THE APPROVAL OF THE ENGINEER.

15. SECONDARY CONCRETE TOPPINGS WHERE SPECIFIED OVER STRUCTURAL SLABS OR SLABS-ON-GRADE SHALL BE AS FOLLOWS:

A. REGULAR WEIGHT CONCRETE TOPPING SHALL HAVE A DESIGN STRENGTH OF 4,000 P.S.I. AT 28 DAYS, WITH MINIMUM 6-1/2 BAGS OF CEMENT (TYPE II) IN EACH CUBIC YARD OF CONCRETE, 3/8-INCH MAXIMUM SIZE OF AGGREGATE AND MAXIMUM 0.45 WATER/CEMENT RATIO.

B. LIGHTWEIGHT INSULATING CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, AN OVEN DRY DENSITY OF 41+/- 3 PCF A WET DENSITY AT POINT OF PLACEMENT OF 44 PCF +/- 3 PCF AND A THERMAL CONDUCTIVITY ("K" VALUE) OF 0.45 AT 25 PCF.

C. CONCRETE TOPPING SHALL BE MINIMUM 2-INCHES THICK OVER SUBSTRATE AND SLOPED AS SHOWN ON DRAWINGS. PROVIDE CONSTRUCTION JOINTS AS DETAILED.

D. NEW SLABS TO RECEIVE TOPPING SHALL BE FINISHED BY BRUSHING SURFACE WITH A COARSE WIRE BROOM TO REMOVE LAITANCE AND SCRATCH SURFACE, AND WATER CURED ONLY CONTINUOUSLY FOR A MINIMUM OF 3 DAYS. PRIOR TO PLACEMENT OF TOPPING, DAMPEN SLAB AND SCRUB INTO THE ROUGHENED SURFACE A COAT OF BONDING GROUT CONSISTING OF ONE PART CEMENT TO PART FINE SAND, MIXED TO THE CONSISTENCY OF THICK CREAM; DO NOT ALLOW TO SET OR DRY BEFORE TOPPING IS APPLIED. PLACE TOPPING, CONSOLIDATE AND FINISH AS SPECIFIED.

E. EXISTING SLABS TO RECEIVE TOPPING SHALL BE CLEAN OF ALL CONTAMINANTS PREVENTING BOND. SCARIFY EXISTING SURFACE TO A MINIMUM 1/4-INCH AMPLITUDE. PRIOR TO PLACEMENT OF TOPING, DAMPEN SLAB AND SCRUB INTO THE ROUGHENED SURFACE A COAT OF BONDING GROUT CONSISTING OF ONE PART CEMENT TO ONE PART FINE SAND, MIXED TO THE CONSISTENCY OF THICK CREAM; DO NOT ALLOW TO SET OR DRY BEFORE TOPPING IS APPLIED. PLACE TOPPING,CONSOLIDATE AND FINISH AS SPECIFIED IN THE SPECIFICATIONS.

16. MIX XYPEX OR PENETRON WATERPROOFING ADDITIVE TO THE WET AND DRY WELLS CONCRETE MIXTURE, TO THE RECOMMENDED LEVELS SPECIFIED BY THE PRODUCT MANUFACTURER.

REINFORCING STEEL:

1. SUBMIT SHOP DRAWINGS FOR REINFORCING STEEL FOR ENGINEER'S REVIEW PRIOR TO FABRICATION.

2. TO BE DOMESTIC, NEW BILLET STEEL CONFORMING TO THE LATEST ASTM, A615 GRADE 60 SPECIFICATIONS, FABRICATED IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF THE CRSI AND PLACED IN ACCORDANCE WITH ACI 315, AND ACI MANUAL OF STANDARD PRACTICE.

3. COLUMN AND WALL REINFORCEMENT: DOWELS TO BE SAME SIZE AND NUMBER AS VERTICALS ABOVE. LAP 36 BAR DIAMETER OR MINIMUM OF 18-INCHES, WHICHEVER IS GREATER. PROVIDE RIGID TEMPLETS FOR DOWEL LOCATION. PROVIDE STANDARD HOOKS FOR ALL VERTICAL NON-CONTINUOUS REINFORCEMENT, TYPICAL UNLESS OTHERWISE NOTED. PROVIDE MINIMUM 2-FEET HOOKS AT CORNERS FOR ALL HORIZONTAL EXTERIOR WALL REINFORCING AND STANDARD HOOKS FOR HORIZONTAL INTERIOR WALL REINFORCING.

4. ALL DOWELS FOR COLUMNS AND WALLS TO BE SECURED IN POSITION PRIOR TO CONCRETING. DRILLING OR PUSHING THE DOWELS INTO POSITION IN WET CONCRETE IS NOT PERMITTED.

5. CONCRETE COVER TO REINFORCING STEEL, UNLESS OTHERWISE DETAILED ON DRAWINGS:

A. FOOTINGS, INCLUDING PILING CAPS: 3".
B. COLUMNS: 1-1/2" TO TIES, OR MINIMUM 2" WHEN EXPOSED TO SEWER, WATER OR SOIL.
C. BEAMS: 1-1/2" TO STIRRUPS OR MINIMUM 2" WHEN EXPOSED TO SEWER, WATER OR SOIL.
D. WALLS: EXTERIOR FACE EXPOSED TO WEATHER =1-1/2". INTERIOR FACE=1".
E. INTERIOR STRUCTURAL SLABS: 3/4".
F. EXPOSED STRUCTURAL SLABS: 1-1/2" FOR TOP REINFORCING AND 1" FOR BOTTOM REINFORCING.
G. SLABS ON GRADE: (MEASURED FROM TOP OF SLAB.) 4" & 6" SLABS = 2"; 8" SLABS = 3".

6. MINIMUM CLEAR SPACING BETWEEN REINFORCING BARS: (DB = BAR DIAMETER)

A. BEAMS: DB ≥ 1-INCH.
B. COLUMNS: 1.5 DB ≥ 1 1/2-INCHES.
C. WHERE PARALELL REINFORCEMENT IS PLACED IN TWO OR MORE LAYERS, BARS IN THE UPPER LAYERS SHALL BE PLACED DIRECTLY ABOVE BARS IN THE BOTTOM LAYER WITH A CLEAR DISTANCE BETWEEN LAYERS NOT LESS THAN 1 INCH.
D. ALL REINFORCING PLACED THAT DOES NOT COMPLY WITH THE MINIMUM CLEAR SPACING SPECIFIED IN "A", "B" AND "C" ABOVE, WILL BE REJECTED.

7. SLAB, BEAM AND WALL REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH THE REINFORCING DIAGRAMS AND LAPPED AS SHOWN ON PLANS OR A MINIMUM OF 40 BAR DIAMETERS FOR TENSION, 30 BAR DIAMETERS FOR COMPRESSION BUT NEVER LESS THAN 18-INCHES, WHICHEVER IS GREATER. BOTTOM BARS SPLICED ONLY AT SUPPORTS, TOP BARS SPLICED ONLY AT MID-SPAN. ALL TOP BARS HOOKED AT NON-CONTINUOUS EDGES (U.O.N.). ALL HOOKS TO BE STANDARD 90 DEGREE OR 180 DEGREE HOOKS AS REQUIRED (U.O.N.).

8. REINFORCEMENT SPLICES:

A. SPLICES IN SLABS, COLUMNS AND BEAMS MUST BE DONE AS SHOWN ON PLANS.

B. REINFORCEMENT SPLICES IN STRAIGHT OR CIRCULAR WALLS SHALL BE STAGGERED AT LEAST BE STAGGERED AT LEAST 24 INCHES IN EITHER DIRECTION:

* HORIZONTALLY (PLAN VIEW) BETWEEN SPLICES IN PARALELL MATS.

* VERTICALLY (ELEVATION) BETWEEN SPLICES IN THE SAME MAT. NO SPLICE SHALL BE CONTINUOUS WITH THE NEXT ONE, HORIZONTALLY OR VERTICALLY.

9. ADDITIONAL REINFORCEMENT: PROVIDE ADDITIONAL CORNER BARS BENT WITH MINIMUM 30-INCHES LEGS EACH WAY AT CORNERS IN OUTER FACES OF ALL WALLS TO MATCH ALL HORIZONTAL BARS NOT DETAILED WITH A HOOKED END. ADDITIONAL TOP BARS, NOT SHOWN ON DRAWINGS, SHALL BE USED AS REQUIRED TO HOLD IN POSITION MAIN TOP REINFORCEMENT.

10. BOTTOM REINFORCEMENT IS SHOWN ON DRAWINGS WITH DASHED LINES. TOP REINFORCEMENT SHOWN ON DRAWINGS WITH SOLID LINES.

11. THE CONTRACTOR SHALL INFORM THE REBAR DETAILER OF HIS PROPOSED REBAR SUPPORT METHOD AND CONSTRUCTION SEQUENCES. ALL SUPPORT ITEMS AND SPLICES REQUIRED SHALL BE SO DETAILED AND PROVIDED.

12. BAR LENGTHS SHOWN ON DRAWINGS INCLUDE THE HOOK LENGTH. THIS LENGTH IS SHOWN TO INDICATE TO THE CONTRACTOR THE CLOSEST ACCURACY IN BAR LENGTH AND PLACING OF SAME. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THIS LENGTH WITH STRUCTURAL DRAWINGS AND ACTUAL FIELD CONDITIONS AND TO FURNISH THE FINAL BAR DETAILING ON THE CORRESPONDING SHOP DRAWINGS. CONTRACTOR SHALL BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER.

13. MECHANICAL CONNECTIONS OF REINFORCING BARS:

A. ALL MECHANICAL CONNECTIONS SHOWN IN DETAILS OR SPECIFIED SHALL BE THREADED TYPE, COMPLYING WITH ALL LATEST ACI, CRSI AND ASTM REQUIREMENTS FOR A TENSION TYPE SPLICE.

B. PROVIDE AND PLACE THE REINFORCING REQUIRED FOR FUTURE CONNECTION WITH A THREADED STEEL SLEEVE AND AN INTERNAL PLASTIC COUPLER PROTECTOR ON THE FUTURE CONNECTION END OF SLEEVE.

C. COMPLY WITH ALL SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR THE REBAR END PREPARATION, COUPLER PROTECTION, CLEARANCES AND PLACING SO AS TO MAKE THE FUTURE CONNECTION POSSIBLE.

D. NO WELDED TYPE SPLICES SHALL BE USED.

E. CONTRACTOR TO SUBMIT SHOP DRAWINGS WITH ALL TECHNICAL DATA RELATED TO THE SELECTED MECHANICAL CONNECTION FOR ENGINEER'S REVIEW.

LINTELS:

1. SHOP DRAWINGS FOR REINFORCING REQUIRED.

2. THE CONTRACTOR SHALL PROVIDE PRECAST OR CAST-IN-PLACE LINTELS AT THE HEADS OF ALL OPENINGS IN MASONRY WALLS NOT EXCEEDING 8 FEET IN WIDTH WHERE BEAMS HAVE NOT BEEN SPECIFIED. LINTEL MAY BE INTEGRAL WITH THE TIE BEAM WHEN HEAD OF THE OPENING IS 16" OR LESS BELOW. CONTINUE TYPICAL BOTTOM BARS THROUGH AND ADD 2 #5 BOTTOM BARS AT DROP. ADD 2 #3 STIRRUPS AT 6" O.C. EACH END AND BALANCE AT 12 INCHES AT DROP. MINIMUM BEARING FOR ALL LINTELS 8 INCHES EACH SIDE, OR PROVIDE DOWELS AND POCKETS IN ADJACENT COLUMNS.

3. LINTEL TO BE MINIMUM OF 8" DEEP, WITH 2 #4 TOP AND 2 #4 BOTTOM FOR SPANS LESS THAN 6 FEET, 12" DEEP WITH 2 #5 TOP AND BOTTOM AND 2 #3 STIRRUPS AT 6" O.C. EACH END, FOR SPANS GREATER THAN 6 FEET UP TO 8 FEET. PROVIDE LINTELS OF SAME DEPTH WITH HALF THE REINFORCEMENT FOR 4-INCHES THICK WALLS.

4. FOR SPANS GREATER THAN 8 FEET, SEE DRAWINGS AND BEAM SCHEDULE FOR STRUCTURAL BEAMS.

MASONRY WALLS & PARTITIONS:

1. SUBMIT MASONRY AND REINFORCING SHOP DRAWINGS FOR ENGINEER'S REVIEW.

2. CONCRETE MASONRY UNITS (BLOCKS) SHALL COMPLY WITH THE PROVISIONS OF THE ASCE/ACI 530 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

3. HOLLOW BLOCK SHALL COMPLY TO ASTM C90, TYPE L, GRADE N-1. SOLID BLOCK SHALL COMPLY WITH ASTM C145, TYPE I, GRADE N-1 AND USED ONLY WHEREPERMITTED BY ENGINEER.

4. MORTAR SHALL COMPLY WITH ASTM C270, TYPE M, WITH A MINIMUN COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI. LAY UNITS WITH FULL MORTAR COVERAGE ON BOTH HORIZONTAL AND VERTICAL JOINTS.

5. MINIMUN HORIZONTAL JOINT REINFORCEMENT SHALL BE PROVIDED AT EVERY SECOND COURSE (16" VERTICAL) FOR BEARING OR NON BEARING EXTERIOR MASONRY WALLS REINFORCEMENT SHALL PROVIDE 2-3/16" SIDE RODS (ONE EACH SIDE) AND 9 GAGE CROSS RODS, LADDER TYPE FOR VERTICALLY REINFORCED MASONRY AND TRUSS TYPE FOR ALL OTHERS. REINFORCEMENT SHALL EXTEND 4" INTO THE COLUMNS OR TIED TO STRUCTURAL COLUMNS WITH 2#4 DOWELS EXTENDING 12" EACH SIDE OF COLUMN TO SPLICE WITH THE WALL REINFORCEMENT SIDE RODS, OR ANY OTHER ACCEPTED METHOD SUBJECT TO ENGINEER'S APPROVAL.

6. VERTICAL REINFORCING, WHERE SPECIFIED, SHALL CONFORM TO ASTM A615, GRADE 60. FILL ALL REINFORCED CELLS WITH 3000 PSI CONCRETE OR GROUT. SEE DRAWINGS FOR SIZE AND SPACING OF VERTICAL REINFORCING.

7. MASONRY COMPRESSIVE STRENGTH F'M = 1500 PSI.
8. UNLESS OTHERWISE DETAILED ON DRAWINGS PROVIDE, WHERE INDICATED OR REQUIRED BY THE FBC, CHAPTER 21:

A. TIE BEAMS: 8"X12" REINFORCED WITH 2#5 TOP AND BOTTOM WITH #3 STIRRUPS (4 @ 12" EACH END-REM @ 18") FOR 8" MASONRY WALL AND 4"X12" WITH 1#4 TOP AND BOTTOM FOR 4" MASONRY PARTITIONS. ADD 2#5 CORNER BENT BARS EXTENDING 30 INCHES FROM CORNER, ONE TOP, ONE BOTTOM, AT EXTERIOR FACE OF BEAM.

B. TIE COLUMNS: 8"X12" REINFORCED WITH 4#5 VERTICAL AND #3 TIES AT 8" ON CENTER. DOWEL INTO STRUCTURE ABOVE AND BELOW AS DETAILED AND REQUIRED BY THE F.B.C. CHAPTER 21. THE CONCRETE SHALL BE PLACED IN MASONRY TYING BEAMS AND COLUMNS AFTER MASONRY IS IN PLACE, OR APPROVED METAL ANCHORS SHALL BE USED. COLUMNS SHALL BE PLACED AT ALL CORNERS AND AT 16 FEET INTERVALS - WHEN HORIZONTAL OPENING EXCEED 8 FEET, TIE COLUMNS SHALL BE PROVIDED AT EACH SIDE OF OPENINGS. WHEN OPENINGS ARE BETWEEN 3 AND 8 FEET IN WIDTH, SUCH OPENINGS SHALL HAVE ONE # 5 VERTICAL REINFORCING BAR AT EACH SIDE. THE VERTICAL BAR SHALL BE PLACED IN CONCRETE FILLED CELLS AND SHALL EXTEND INTO FOOTINGS AND INTO TIE BEAMS. ALL SUCH BARS SHALL BE CONTINUOUS FROM FOOTING TO TIE BEAM.

C. MASONRY WALL PANEL AS MEASURED BETWEEN TIE COLUMNS AND TIE BEAMS WHICH FRAME THE PANEL SHALL NOT EXCEED 240 SQ.FT.

D. FURNISH AND INSTALL GALVANIZED DOVETAILS ANCHORS AT EVERY OTHER BLOCK COURSE ABUTTING STRUCTURAL COLUMNS. (@ 16" O.C.) AND AT EVERY BLOCK JOINT ABUTTING BOTTOM OF BEAMS (@16" O.C.) DOVETAILS TO BE INSTALLED BLOCK COURSES ABUTTING STRUCTURAL COLUMNS OTHER THAN WHERE JOINT REINFORCING IS PLACED.

9. STUCCO :

A. ALL HORIZONTAL AND VERTICAL JOINTS BETWEEN CONCRETE BLOCKS AND ADJACENT FLUSH CONCRETE STRUCTURE SHALL BE COVERED WITH A 13 ± INCHES WIDE GALVANIZED WIRE STEEL MESH LATH 250 LBS. PER SQ. YD. MEETING ASTM C-847 AND A-653 NAILED 8" O.C. MAX. TO IT BEFORE APPLYING THE STUCCO.

B. STUCCO ON WALLS SHALL BE 3/4" THICK MIN AND APPLIED WHERE SHOWN ON DRAWINGS AND AS FOLLOWS:

* TEXTURE FINISH: 5/8" SCRATCH BROWN AND 1/8" SPRAYED TEXTURE FINISH.

* SMOOTH FINISH: 5/8" SCRATCH BROWN AND 1/8" SPRAYED SMOOTH FINISH.

STRUCTURAL AND MISCELLANEOUS STEEL:

1. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR ENGINEER'S REVIEW PRIOR TO FABRICATION. THE SUBMITTAL SHALL INCLUDE THE PROJECT IDENTITY, THE LOADING AND DESIGN CRITERIA; FRAMING PLAN AND CONNECTION DETAILS; LIST THE DESIGN CRITERIA AND LOADING. SPECIFY ALL MEMBER SIZES, BRACING ANCHORAGE, CONNECTIONS, TRUSS LOCATIONS AND OTHER NECESSARY TEMPORARY AND PERMANENT FABRICATION AND ERECTION INFORMATION.

2. ALL STRUCTURAL STEEL TO BE DOMESTIC ASTM. A36 (FY=36 KSI), DESIGNED IN ACCORDANCE WITH THE LATEST AISC. "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND THE AISC CODE OF STANDARD PRACTICE.

3. STEEL TUBES TO BE DOMESTIC STEEL CONFORMING TO ASTM. A500 GRADE B (FY=46 KSI).

4. HIGH STRENGTH BOLTS TO BE ASTM A325, DOUBLE HOT-DIPPED GALVANIZED, UNLESS OTHERWISE SPECIFIED. PROVIDE MATCHING HIGH STRENGTH NUTS AND WASHERS.

5. ALL STRUCTURAL STEEL, TUBING, ANCHORS AND ANCHOR BOLTS SHALL BE DOUBLE HOT-DIP GALVANIZED AFTER FABRICATION.

6. ALL STAINLESS STEEL SHALL CONFORM TO AISI TYPE 316 AND TYPE 316L WHERE WELDING IS REQUIRED.

7. ALL WELDING TO BE IN ACCORDANCE WITH AWS LATEST "STRUCTURAL WELDING CODE - STEEL", (ANSI /AWS D1.1). RUSTPROOF ALL FIELD WELDS AND SURROUNDING AREA WITH TWO (2) COATS OF ZINC BASED PAINT.

8. ALL CONNECTIONS SHALL BE AS SHOWN AND INDICATED ON DRAWINGS.

9. SPLICE LOCATIONS, OTHER THAN SHOWN ON DRAWINGS, TO BE REVIEWED BY ENGINEER.

10. STEEL BEAMS BEARING ON WALLS TO HAVE ANGLE ANCHORS AND/OR BEARING STEEL PLATES, AS SHOWN ON THE DRAWINGS.

11. SHOP COAT ALL STRUCTURAL STEEL WITH RUSTOLEUM "769" RED PRIMER OR APPROVED EQUAL PRIOR TO INSTALLATION.

STRUCTURAL ALUMINUM:

1. STRUCTURAL ALUMINUM SHALL BE DOMESTIC ALLOY 6061-T6, DESIGNED IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION'S SPECIFICATIONS FOR ALUMINUM STRUCTURES, LATEST EDITION.

2. FASTENERS: UNLESS DETAILED OTHERWISE, ALL FASTENERS SHALL BE 316 STAINLESS STEEL. ALUMINUM BOLTS, WHERE SPECIFIED, SHALL BE 2024-T4 OR 6061-T6 ALLOY.

3. ALL WELDING SHALL CONFORM WITH AWS D1.2, LATEST STRUCTURAL WELDING CODE-ALUMINUM.

4. WHERE THE CONTACT OF DISSIMILAR METALS MAY CAUSE ELECTROLYSIS OR WHERE ALUMINUM WILL COME IN CONTACT WITH CONCRETE, MORTAR OR PLASTER, THE CONTACT SURFACE OF THE ALUMINUM SHALL BE COATED WITH 1 COAT OF ZINC CHROMATE PRIMER AND ONE HEAVY COAT OF ALUMINUM PIGMENTED ASPHALT PAINT.

WINDOW STORM SHUTTERS:

1. ALL EXTERIOR OPENINGS, OTHER THAN IMPACT RESISTANT DOORS AND WINDOWS AND APPROVED ROLLING UP DOORS, AS CERTIFIED BY NOTICE OF ACCEPTANCE FROM MIAMI DADE COUNTY PRODUCT CONTROL APPROVAL, SHALL BE PROTECTED BY METAL STORM SHUTTERS AS PER FLORIDA BUILDING CODE.

2. STORM SHUTTERS MAY BE GALVANIZED STEEL OR ALUMINUM AS PER MANUFACTURER SPECIFICATIONS DESCRIBED ON NOTICE OF ACCEPTANCE.

3. STORM SHUTTERS MODELS VARIES FROM ROLL UP SHUTTERS MOTORIZED AND WITHOUT MOTOR, ACCORDEON AND FOLDED "V" SHAPE. FOLDED STORM PANELS SHALL BE USED IF NO OTHERWISE SPECIFIED AND SHALL SPAN VERTICALLY OR HORIZONTALLY FROM A WALL MOUNTED BASE TO A HEADER OR BETWEEN WALL MOUNTED SIDE JAMBS.

4. ALL STORM SHUTTERS SECTIONS AND ATTACHMENT TO THE MAIN STRUCTURE ARE TO BE FROM WELL-KNOWN MANUFACTURER; DESIGNED BY A FLORIDA REGISTERED ENGINEER AND TESTED BY CERTIFIED LABORATORY FOR LARGE AND SMALL MISSILE IMPACT, WITH UPDATED SIGNED AND APPROVED NOA FROM MIAMI DADE PRODUCT CONTROL APPROVAL AND AS REQUIRED BY LATEST REVISION OF THE FLORIDA BUILDING CODE TEST PROTOCOLS FOR HIGH VELOCITY HURRICANE ZONES.

5. SUBMIT SHOP DRAWINGS OF SHUTTERS WITH NOTICE OF ACCEPTANCE BY MIAMI DADE PRODUCT CONTROL APPROVAL FOR ARCHITECT/ENGINEER OF RECORDS APPROVAL.

6. ALL LOUVERS TO MEET WINDLOAD AND IMPACT LOAD REQUIREMENTS OF THE FBC AND SHALL NOT REQUIRE HURRICANE PROTECTION. AS PER RUSKIN MANUFACTURING OR APPROVED EQUAL AND TO MEET PRODUCT CONTROL ACCEPTANCE NUMBER 01-0912.02.

WATERSTOPS:

1. ALL WATERSTOPS SHALL BE POLYVINYL CHLORIDE (PVC) AND SHALL BE OF THE TYPE SHOWN ON THE "PVC WATERSTOP DETAILS" FOR THE SPECIFIED JOINT. SUBMIT SHOPDRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

2. INSTALLATION:

A. DURING PROGRESS OF WORK ALL WATERSTOPS SHALL BE PROTECTED FROM DAMAGE AND SHALL BE FREE OF OIL, DIRT AND CONCRETE SPATTER. UNCOIL WATERSTOP COILS SEVERAL DAYS BEFORE INSTALLATION TO INSURE EASE OF INSTALLATION AND FABRICATION. BE SURE STEEL REINFORCING BARS DO NOT INTERFERE WITH PROPER POSITIONING OF WATERSTOP.

B. THE LOCATION AND EMBEDMENT OF THE WATERSTOP SHALL BE AS SHOWN ON THE PLANS AND ON THE "PVC WATERSTOP DETAILS", WITH APPROXIMATELY ONE-HALF OF THE WIDTH OF THE WATERSTOP EMBEDDED IN THE CONCRETE ON EACH SIDE O THE JOINT. ALL WATERSTOPS SHALL BE SUFFICIENTLY HELD IN PLACE TO INSURE THAT THEY ARE CORRECTLY POSITIONED TO FORM A CONTINUOUS WATERTIGHT DIAPHRAGM IN THE JOINT. THE METHOD USED TO FASTEN THE WATERSTOP MAY BE AS FOLLOWS:
(1) EXTENDING THROUGH A SLOT IN THE KEYWAY.
(2) HELD IN PLACE BY SPLIT BULKHEADS.
(3) HOG RING ND WIRE TIE TO REINFORCING BARS EVERY 12 INCHES ALWAYS SECURE HOG RING OR WIRE BETWEEN THE LAST RIB AND THE END OF THE WATERSTOP.

3. CARE SHOULD BE TAKEN DURING CONCRETE PLACEMENT ON HORIZONTAL SECTIONS TO PREVENT EXCESSIVE MOVEMENT OF THE WATERSTOP TO INSURE AGAINST DISPLACEMENT. ALWAYS THOROUGHLY AND SYSTEMATICALLY VIBRATE CONCRETE AROUND THE WATERSTOP TO AVOID THE AIR ENTRAPMENT AND TO PROVIDE A POSITIVE CONTACT BETWEEN THE WATERSTOP AND THE CONCRETE. ON THE SECOND POUR, SWEEP HORIZONTAL JOINTS TO INSURE THAT THERE IS NO FOREIGN MATTER TO INTERFERE WITH POSITIVE CONTACT BETWEEN THE WATERSTOP AND THE CONCRETE. WHEN USING SPLIT-RIBBED WATERSTOPS, THE SPLIT LEG OF THE WATERSTOP IS OPENED AND NAILED TO THE BULKHEAD BETWEEN THE LAST RIB AND THE EDGE. UPON STRIPPING THE FORMS, THE SPLIT LEGS ARE JOINED TOGETHER BY USING A RUBBER BASED CONTACT CEMENT AND PLACING HOG RINGS EVERY 12-INCHES AND WIRE TIED TO THE REINFORCING BAR.

4. DO NOT DRIVE NAILS THROUGH THE WATERSTOP. DO NOT EMBED WATERSTOP BULB IN CONCRETE; IT MUST BE POSITIONED IN CENTER OF JOINT TO INSURE PROPER PERFORMANCE. SWEEP OR BLOW CLEAN ALL HORIZONTAL JOINTS PRIOR TO POURING IN ORDER TO INSURE THAT FOREIGN MATERIAL DOES NOT INTERFERE WITH THE DIRECT CONTACT BETWEEN WATERSTOP AND CONCRETE. SECURE WATERSTOP PROPERLY TO PREVENT MISALIGNMENT OF WATERSTOP DURING CONCRETE OPERATIONS.

5. THERMOPLASTIC BUTT SPLICES SHALL BE PERFORMED USING APPROVED PREFABRICATED PRETESTED FITTINGS (FLAT AND 90° ELLS, TEES AND CROSSES). DO NOT LAP SPLICE WATERSTOPS.

ENGINEER'S REVIEW OF SHOP DRAWINGS:

1. THE REVIEW BY THE ENGINEER; OF DRAWINGS, DATA AND SAMPLES SUBMITTED BY THE CONTRACTOR WILL COVER ONLY GENERAL CONFORMITY TO THE DRAWING AND SPECIFICATIONS. THE ENGINEER'S REVIEW WILL NOT CONSTITUTE AN APPROVAL OF DIMENSIONS, QUANTITIES, AND DETAILS OF THE MATERIAL, EQUIPMENT, DEVICE, OR ITEM SHOWN. THE REVIEW OF DRAWINGS AND SCHEDULES WILL BE GENERAL, AND SHALL NOT BE CONSTRUED:

A) AS PERMITTING ANY DEPARTURE FROM THE CONTRACT REQUIREMENTS.

B) AS RELIEVING THE CONTRACTOR OF RESPONSIBILITY FOR ANY ERRORS, INCLUDING DETAILS, DIMENSIONS, AND MATERIALS.

C) AS APPROVING DEPARTURES FROM DETAILS FURNISHED BY THE ENGINEER, EXCEPT AS OTHERWISE PROVIDED HEREIN.

2. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR DETAILS OF DESIGN, CORRECT DIMENSIONS FOR PROPER FITTING, CAPACITY, PERFORMANCE, CONSTRUCTION, OR ANY OTHER REQUIREMENT OF THE CONTRACT.

3. SHOP DRAWINGS SHALL BE DATED AND SIGNED BY THE CONTRACTOR AND BY THE SUPPLIER BEFORE SUBMITTING TO THE ENGINEER. NON COMPLIANCE WILL CAUSE REJECTION WITHOUT REVIEWING.

4. FIVE COPIES OF SHOP DRAWINGS ARE REQUIRED FOR WASD FILES IN ADDITION TO THE AMOUNT OF COPIES REQUIRED BY THE CONTRACTOR. NON COMPLIANCE WILL CAUSE REJECTION WITHOUT REVIEWING.

5. SEE SPECS, SECTION 01340 FOR FURTHER SHOP DRAWING REQUIREMENTS.

6. WHEN SUBMITTING CONCRETE MIX SHOP DRAWINGS THE CONTRACTOR SHALL INDICATE CLEARLY WHERE THE CONCRETE MIX WILL BE USED.

MISCELLANEOUS:

1. ALL ELEVATIONS SHOWN ON DRAWINGS REFER TO NATIONAL GEODETIC VERTICAL DATUM OF 1929 (N.G.V.D.-29).

2. CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON DRAWINGS, ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.

3. COORDINATE EXACT SIZE AND LOCATION OF CONCRETE EQUIPMENT PADS, PIPES, PIPE ENCASEMENT, WALL PIPE SLEEVES, CORBELS, PIPE SUPPORTS AND OTHER MISCELLANEOUS ITEMS TO BE PLACED PRIOR TO POURING CONCRETE, WITH MECHANICAL AND ELECTRICAL DRAWINGS AND MANUFACTURER'S REVIEWED SHOP DWG.

4. NO CONDUITS, PIPES, SLEEVES OR ANY OTHER ITEM SHALL BE EMBEDDED IN CONCRETE ALONG, THROUGH OR UNDER ANY BEAM, COLUMN, FOOTING, GRADE BEAM, SLAB, WALL OR ANY OTHER STRUCTURAL MEMBER WITHOUT THE PRIOR APPROVAL OF THE ENGINEER. SHOP DRAWINGS SHALL BE SUBMITTED PRIOR TO ANY WORK TO OBTAIN THE CORRESPONDING ENGINEER'S APPROVAL. WHEN APPROVED, PLACING SHALL COMPLY WITH ACI.-318, SECTION 6.3

5. WHEN PLACING HANGERS TO SUPPORT PIPES OR ANY OTHER EQUIPMENT NO DRILLS OR SHOTS TO SECURE FASTENERS ARE PERMITTED IN ANY CONCRETE JOIST OF DOUBLE TEE STEM: THOSE HANGERS SHALL BE PLACED ON THE SLAB ON TOP OF THE JOIST OR THE FLANGE SLAB OF THE DOUBLE TEES.

6. SUPERIMPOSED LOADS DUE TO CONSTRUCTION EQUIPMENT OR MATERIALS ABOVE POURED IN PLACE CONCRETE, PRESTRESSED DOUBLE TEES AND PRESTRESSED CONCRETE OR STEEL JOISTS, FLOOR OR ROOF DECKS, SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS. SHOP DRAWINGS SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL SHOWING THE AMOUNT AND LOCATION OF SUCH LOADS PRIOR TO PLACING THEM OVER THE DECK.

7. ALL PHASES OF CONCRETE CONSTRUCTION, INCLUDING MATERIALS, FOUNDATIONS, CAST-IN-PLACE AND PRECAST CONCRETE, REINFORCING STEEL, MASONRY, FORM WORK AND ALL OTHER RELATED PROCEDURES AND MATERIALS SHALL COMPLY WITH THE MOST STRINGENT ALLOWED TOLERANCES OF ACI-301 AND ACI-117 STANDARDS. (LATEST EDITION).

ALSO THEY SHALL COMPLY WITH THE LATEST APPLICABLE ACI STANDARD, SPECIAL PUBLICATION OR COMMITTEE REPORT AS SHOWN OR MENTIONED ON THE "ACI MANUAL OF CONCRETE PRACTICE".

NON COMPLIANCE WITH THESE STANDARDS WILL CAUSE FULL REJECTION OF ANY WORK DONE.

MIAMI-DADE COUNTY
Delivering Excellence Every Day

WATER AND SEWER DEPARTMENT
ENGINEERING DIVISION
3071 SW 38TH AVENUE
MIAMI, FLORIDA 33146-2221
305-665 7471
miamidade.gov

PUMP STATION No. 0000
FACILITY OFFICIAL ADDRESS, FLORIDA 33100-0000
TYPICAL SUBMERSIBLE SEWAGE PUMP STATION
(WASD DESIGN STANDARD UPDATE 2012)

STRUCTURAL GENERAL NOTES

DRAWING HISTORY

RELEASED FOR		DATE	BY
REVIEW 30%			
REVIEW 70%			
REVIEW 100%			
PERMIT			

REVISIONS

No.	DESCRIPTION	DATE	BY

APPROVALS

CHIEF ENGINEER:	
SECTION HEAD:	
PROJECT MGR.:	
DESIGNED: X.X.X.	CHECKED: X.X.X.
DRAWN: X.X.X.	FINAL CHECK: X.X.X.

XXXXXXX XXXXX
XXXXXXXXXX Engineer
State of Florida - License No. 00000
Date:__________

ER No. : S000000	PCTS No. : 00000
FILE NAME: 00000X00.DWG	
DATE: APR. 06, 2012	SCALE: AS NOTED

SHEET S-3

DWG. No. S-00000-A