



6805 Overseas Highway Marathon, Florida 33050 (305) 289-4161 ph (305) 289-4162 fax

#### **Generator Scope**

**To:** James Contino Wharton-Smith

From: Steve Suggs

**Date:** February 26<sup>th</sup> 2018

**Re:** KWRU Generator Scope

The items listed below are to be included in a COP for installation of the new KWRU backup generator.

- ➤ Demolition & removal of the existing generator. Coordinate with KWRU staff if they would like to salvage any part of the generator prior to disposal.
- ➤ Demolition of the existing external fuel tank containment area. Fuel tank shall remain the property of KWRU and will be relocated on the site to an area designated by KWRU staff.
- > Installation of modified generator foundation as shown and described in the attached plans.
- Coordinate delivery with Generator supplier and offloading of generator from freight shipper.
- > Setting & installation of generator on modified foundation as shown in attached plans.
- ➤ Underlayment (like what is proposed for the filters) shall be installed between generator fuel tank and concrete.
- > Supply and installation of generator tie-downs as shown on the attached plans including all misc. hardware.
- > Installation of aluminum handrail as shown in the attached PDF.
- > Design and installation of aluminum access stairway as shown in the attached plans.
- > Supply and installation of access ladder as shown in the attached plans.

#### **Electrical scope:**

Modification of generator distribution system from 1200 amp single breaker to (2) 600 amp rated breakers. Work to be performed in accordance with the latest version of the NEC by a professionally licensed electrician. Breaker modification work shall be warranted by the contractor in accordance with the provisions shown in division 16000 specifications.

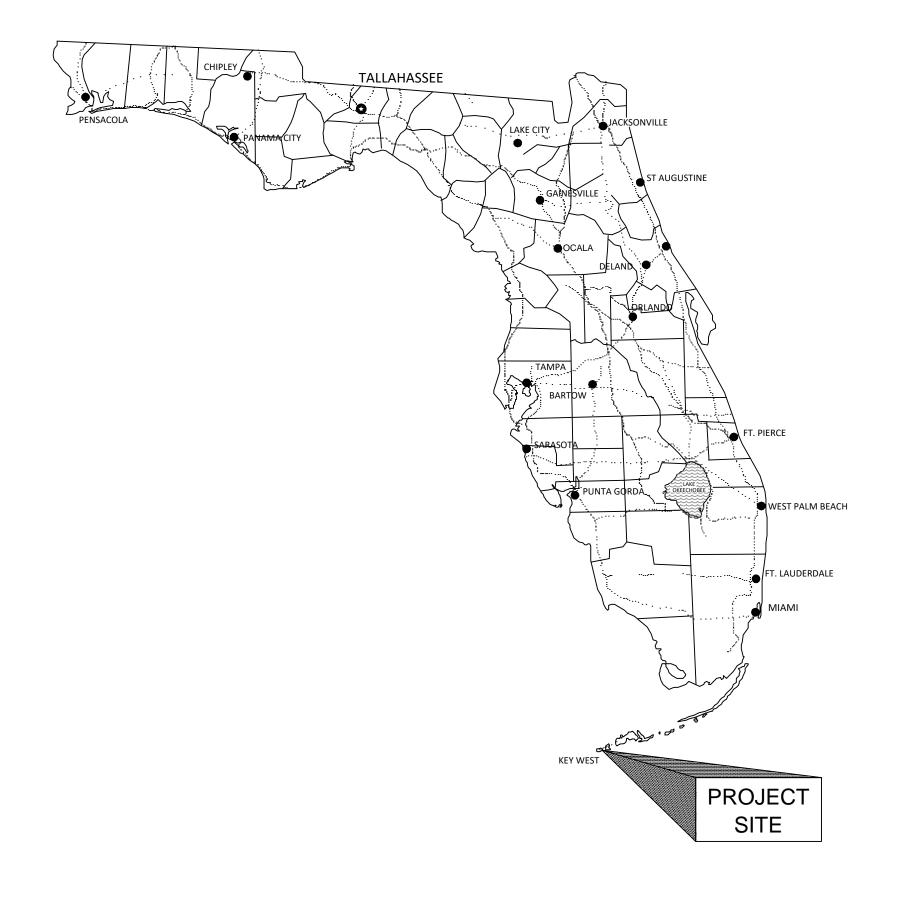
- Supply and installation of a 600 amp 316SS NEMA 4X rated ATS to replace existing transfer switch. Transfer switch shall be similar to the one installed as part of the WWTP plant expansion project.
- Existing disconnect that was just installed as part of the WWTP expansion project shall be relocated and reused.
- o Contractor shall install all conduit, 316SS conduit supports, wires, etc.. necessary to provide a functioning system. Conduit sizes to be per NEC.
- Contractor shall supply all necessary components to wire temporary onsite generator into existing electrical system in order to provide backup power for the WWTP while new generator is being installed.
- New ATS status shall be shown in SCADA just as the one installed during the WWTP expansion.
- ➤ The contractor shall provide any and all items not described in this document and the attached plans that is required for proper installation and function of the generator system.

# CONSTRUCTION PLANS

# FOR

# KWRU WWTP GENERATOR REPLACEMENT KW RESORT UTILITIES

SECTION 35, TOWNSHIP 67 SOUTH, RANGE 25 EAST STOCK ISLAND, FLORIDA





**LOCATION MAP** 

## OWNER

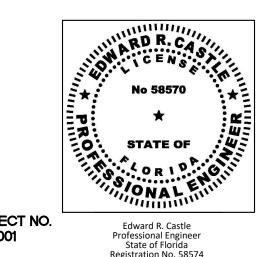
KW RESORT UTILITIES CORP 6630 FRONT ST. STOCK ISLAND FL, 33040

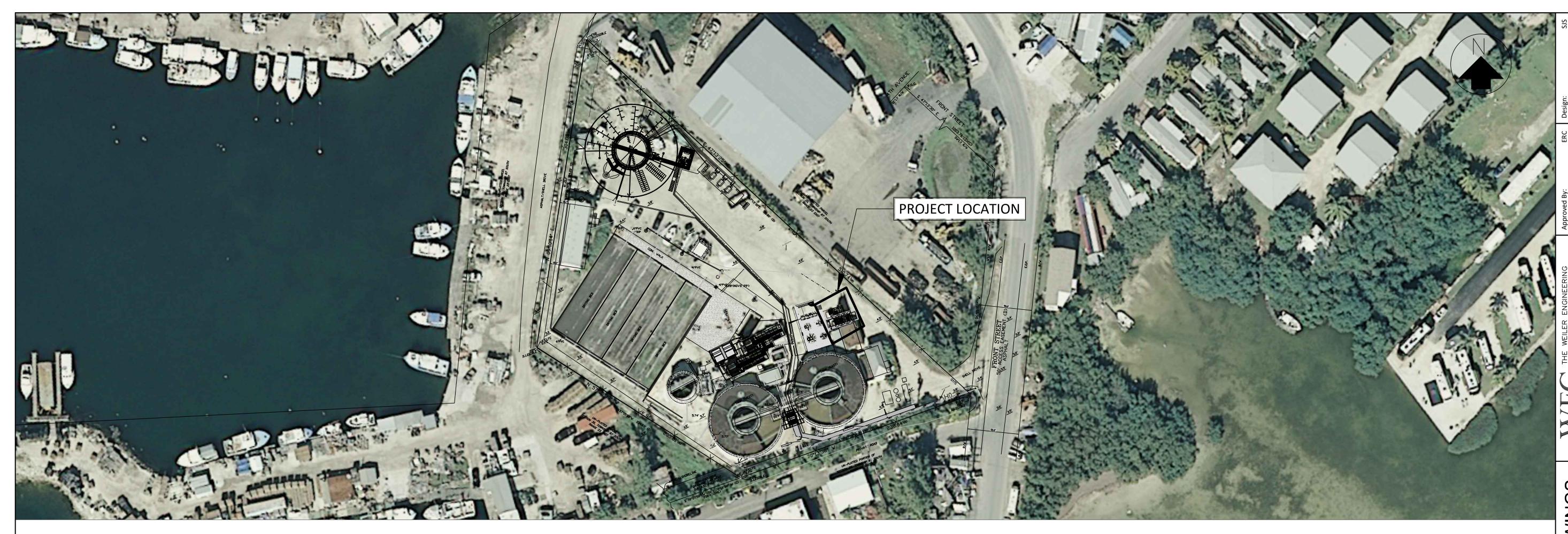
### PREPARED BY

THE WEILER ENGINEERING CORPORATION
6805 OVERSEAS HIGHWAY
MARATHON FLORIDA, 33050
EB # 6656
(305) 289-4161



Edward R. Castle, State of Florida, Professional Engineer, License No. 58574. This item has been electronically signed and sealed by Edward R. Castle, P.E. using an SHA-1 Authentication code. Printed copies of this document are not considered signed and sealed and the SHA-1 authentication code must be verified on any electronic copies.





# **GENERAL SHEETS**

G-01 COVER

G-02 SITE MAP, INDEX OF DRAWINGS

G-03 GENERAL NOTES

G-04 STRUCTURAL NOTES

G-05 ABBREVIATIONS & SYMBOL LEGEND

# SITE MAP

**DETAILS SHEETS** 

D-01 GENERATOR DETAILS

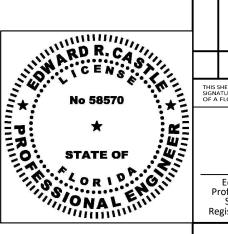
D-02 GENERATOR DETAILS

D-03 LADDER DETAILS

D-04 HANDRAIL DETAILS

D-05 ALUMINUM GRATING DETAILS

SITE MAP, INDEX OF DRAWINGS
FOR
KWRU WWTP EXPANSION



PRE-CONSTRUCTION REQUIREMENTS THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO CONSTRUCTION TO FAMILIARIZE HIMSELF WITH THE CONDITIONS FOR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL OBTAIN FROM THE OWNER A WRITTEN LIST OF ALL PERMITS AND COPIES THEREOF, AND CAREFULLY REVIEW ALL PLANS, SPECIFICATIONS, AND PERMITS PREVIOUSLY SECURED ON BEHALF OF THE OWNER. IN CASE OF ANY DISCREPANCY EITHER IN PERMIT DOCUMENTS, PLANS, DRAWINGS, OR SPECIFICATIONS, THE CONTRACTOR MUST PROMPTLY SUBMIT A "WRITTEN CLARIFICATION REQUEST" TO THE OWNER, WHO WILL PROMPTLY FORWARD SAME TO THE ENGINEER WHO WILL MAKE A DETERMINATION IN WRITING. THE CONTRACTOR MUST VERIFY EXISTING FACILITY INFORMATION, AND ALL DESIGN/PERMIT DATA REQUIRED FOR WORK THAT IS TO CONNECT WITH EXISTING FACILITIES. ANY DISCREPANCIES BETWEEN THE CONTRACT REQUIREMENTS AND THE EXISTING CONDITIONS MUST BE REFERRED TO THE OWNER, IN WRITING, FOR AN ENGINEERING DETERMINATION. ANY FUTURE ADJUSTMENT DUE TO FAILURE BY THE CONTRACTOR TO IDENTIFY THE RELATED DISCREPANCY, WILL BE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY LICENSES ADDITIONAL PERMITS, AND FOR COMPLYING WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, CODES, AND REGULATIONS IN CONNECTION WITH THE PERFORMANCE OF THE WORK.

CONSTRUCTION SAFFTY AND LIABILITY

THE CONTRACTOR MUST TAKE PROPER SAFETY AND HEALTH PRECAUTIONS TO PROTECT THE WORK, THE WORKERS, THE PUBLIC, AND THE PROPERTY OF OTHERS. THE CONTRACTOR IS RESPONSIBLE ALSO FOR ALL MATERIALS DELIVERED AND WORK PERFORMED UNTIL COMPLETION AND ALL ACCEPTANCES HAVE BEEN OBTAINED THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO PERSONS OR PROPERTY THAT OCCURS AS A RESULT OF HIS NEGLIGENCE. THE CONTRACTOR MUST SAVE HARMLESS AND INDEMNIFY THE OWNER AND THE ENGINEER OF RECORD, ITS OFFICERS, REPRESENTATIVES AND EMPLOYEES FROM ALL CLAIMS, LOSS, DAMAGE, ACTIONS, CAUSES OF ACTION, AND/OR EXPENSES RESULTING FROM, BROUGHT FOR, OR ON ACCOUNT OF ANY PERSONAL INJURY OR PROPERTY DAMAGE RECEIVED OR SUSTAINED BY ANY PERSONS OR PROPERTY GROWING OUT OF OCCURRING, OR ATTRIBUTABLE TO ANY WORK PERFORMED UNDER OR RELATED TO THIS CONTRACT, RESULTING IN WHOLE OR IN PART FROM THE NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, ANY SUBCONTRACTOR, OR ANY EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE CONTRACTOR OR ANY SUBCONTRACTOR.

UNLESS OTHERWISE SPECIFIED BY THE UTILITY, THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENTS OF THE WATER, GAS, SEWER, TELEPHONE, AND POWER COMPANIES. 10 DAYS IN ADVANCE, THAT HE INTENDS TO START WORK IN A SPECIFIC AREA, THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITY FOR THE SUPPORT AND PROTECTION OF SEWERS, DRAINS, WATER LINES, GAS LINES, CONDUITS OF ANY KIND, LITHITIES OR OTHER STRUCTURES OWNED BY THE CITY, COUNTY, STATE OR BY PRIVATE OR PUBLIC UTILITIES LEGALLY OCCUPYING ANY STREET, ALLEY, PUBLIC PLACE, RIGHT-OF-WAY, OR EASEMENT.

#### **PROJECT SIGN**

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A CONSTRUCTION PROJECT SIGN AT A LOCATION DIRECTED BY THE OWNER. THE WEILER ENGINEERING CORPORATION SHALL PROVIDE A SEPARATE SIGN FOR INSTALLATION BY THE CONTRACTOR AT THIS LOCATION. THESE SIGNS SHALL BE ERECTED WITHIN 15 DAYS AFTER RECEIVING A NOTICE TO PROCEED. UPON PROJECT COMPLETION, THE CONTRACTOR SHALL REMOVE THESE SIGNS AND RETURN TO WEILER ENGINEERING CORPORATION THEIR SIGN.

**ENVIRONMENTAL PROTECTION DURING CONSTRUCTION** PROTECTION OF LAND RESOURCES - EXCEPT IN AREAS IDENTIFIED ON THE PLANS TO BE CLEARED, THE CONTRACTOR MUST NOT DEFACE, INJURE, OR DESTROY TREES OR SHRUBS OR REMOVE OR CUT THEM WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER. IN THE ABSENCE OF A CLEARING PLAN,

AREAS SHOWN FOR IMPROVEMENTS SHALL BE CLEARED UNLESS NOTED PROTECTION OF WATER RESOURCES - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INVESTIGATE AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, REGIONAL COUNTY AND MUNICIPAL LAWS CONCERNING POLLUTION OF WATER RESOURCES. ALL WORK MUST BE PERFORMED IN SUCH A MANNER THAT OBJECTIONABLE CONDITIONS WILL NOT BE CREATED IN PUBLIC WATERS

RUNNING THROUGH, OR ADJACENT TO THE PROJECT AREA. 1. EROSION AND SEDIMENT CONTROL - ALL PRACTICABLE AND NECESSARY EFFORT SHOULD BE TAKEN DURING CONSTRUCTION TO CONTROL AND PREVENT EROSION AND THE TRANSPORT OF SEDIMENT TO SURFACE DRAINS, SURFACE WATER, OR ONTO OTHER PROPERTY BY ANY OR ALL OF THE FOLLOWING METHODS:

A. STORMWATER FACILITIES ARE TO BE BUILT AS EARLY IN THE CONSTRUCTION PHASE AS POSSIBLE TO ENSURE THE TREATMENT OF STORMWATER RUNOFF. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, HOWEVER, SUCH AS BERMS, SEDIMENT BASINS, GRASSING, SODDING, SAND BAGGING, BALED HAY OR STRAW, FLOATING SILT. BARRIERS, STACKED SILT BARRIERS, ETC., MUST BE PROVIDED AND MAINTAINED UNTIL THE PERMANENT FACILITIES ARE COMPLETED AND OPERATIONAL.

B. REVEGETATION AND STABILIZATION OF DISTURBED GROUND SURFACES SHOULD BE ACCOMPLISHED AS SOON AS POSSIBLE. C. FULL COMPACTION OF ANY FILL MATERIAL PLACED AROUND

NEWLY INSTALLED STRUCTURES. D. PROHIBIT THE USE OF ANY CONSTRUCTION EQUIPMENT THAT LEAKS EXCESSIVE AMOUNTS OF FUEL OIL, OR HYDRAULIC

2. ALL DISTURBED AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE, EXCEPT RETENTION AREAS, AND SHALL BE STABILIZED BY SODDING, EXCEPT WHERE SEEDING AND MULCHING ARE CALLED FOR ON THI PLANS. THE LATEST VERSION OF THE F.D.O.T. ROAD AND BRIDGE SPECIFICATIONS SHALL BE USED UNLESS MORE RESTRICTIVE LOCAL SPECIFICATIONS EXIST.

CONTRACTOR RESPONSIBLE FOR STABILIZING AND MAINTAINING SLOPES AND SOD THROUGHOUT CONSTRUCTION UNTIL SUCH TIME AS APPROVED

PROTECTION OF FISH AND WILDLIFE

THE CONTRACTOR MUST AT ALL TIMES PERFORM ALL WORK IN A WAY AND TAKE SUCH STEPS AS REQUIRED TO PREVENT ANY INTERFERENCE WITH OR DISTURBANCE TO FISH AND WILDLIFE. THE CONTRACTOR SHALL NOT ALTER WATER FLOWS OR OTHERWISE DISTURB NATIVE HABITATS AND JURISDICTIONAL WETLANDS LOCATED WITHIN AND/OR ADJACENT TO THE PROJECT AREA.

RECORDING AND PRESERVING HISTORICAL AND ARCHEOLOGICAL FINDS ALL ITEMS HAVING ANY APPARENT HISTORICAL OR ARCHEOLOGICAL INTEREST THAT ARE DISCOVERED IN THE COURSE OF ANY CONSTRUCTION ACTIVITIES MUST BE CARFFULLY PRESERVED. THE CONTRACTOR MUST LEAVE THE ARCHEOLOGICAL FIND UNDISTURBED AND MUST IMMEDIATELY REPORT THE FIND TO THE OWNER SO THAT THE PROPER AUTHORITY MAY BE NOTIFIED.

**EARTHWORK** I. GENERAL 1.01 SUBMITTALS

A. EROSION AND CONTROL MEASURES

3. COMPACTION TESTS C. SOIL CLASSIFICATION TESTS

). PRESERVATION PLANS 1-02 SITE EXAMINATION A. CONTRACTORS, BEFORE SUBMITTING BIDS, SHALL INFORM THEMSELVES AS TO LOCATION AND NATURE OF THE WORK, CHARACTER OF EQUIPMENT AND FACILITIES NEEDED FOR PERFORMANCE OF THE WORK, GENERAL AND LOCAL CONDITIONS PREVAILING AT THE SITE, AND OTHER MATTERS WHICH MAY IN ANY WAY, AFFECT THE WORK UNDER CONTRACT.

B. EXAMINE SOURCES OF INFORMATION CONCERNING GROUND WATER LEVEL, WHETHER SURFACE OR SUBSURFACE. EACH BIDDER TO DRAW HIS OWN CONCLUSION CONCERNING GROUND WATER LEVELS AND HOW WATER AFFECTS HIS

1-03 SUBSURFACE INVESTIGATIONS

THE PERIOD OF CONSTRUCTION.

A. SUBSURFACE DATA, INCLUDING GROUND WATER ELEVATIONS OR CONDITIONS, IF SHOWN ON THE DRAWINGS OR ATTACHED TO THESE SPECIFICATIONS, ARE PRESENTED ONLY AS INFORMATION THAT IS AVAILABLE WHICH INDICATED CERTAIN CONDITIONS FOUND AND LIMITED TO THE EXACT LOCATIONS, SHALL NOT BE INTERPRETED AS AN INDICATION OF CONDITIONS THAT MAY ACTUALLY BE DEVELOPED THROUGH THE PERIOD OF CONSTRUCTION. BIDDERS SHALL EXAMINE THE SITE OF THE WORK AND MAKE THEIR OWN DETERMINATION OF THE CHARACTER OF MATERIALS AND THE CONDITIONS TO BE ENCOUNTERED ON THE WORK, AND THEIR PROPOSAL SHALL BE BASED UPON THEIR OWN INVESTIGATIONS. THE OWNER AND ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR VARIATIONS FOUND TO EXIST BETWEEN THE ATTACHED DATA ABOVE REFERRED TO AND ACTUAL FIELD CONDITIONS THAT DEVELOP THROUGH

B. WHERE EXISTING GRADES, UTILITY LINES AND SUBSTRUCTURES ARE SHOWN ON THE DRAWINGS, THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR CORRECTNESS OF EXISTING CONDITIONS INDICATED. THE CONTRACTOR SHALL ASCERTAIN EXACT LOCATIONS OF UTILITIES AND SUBSTRUCTURES THAT MAY BE AFFECTED BY THIS PROJECT, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY THAT MAY RESULT FROM WORKING ON OR NEAR THOSE UTILITIES, SUBSTRUCTURES WHICH ARE NOT TO BE REMOVED OR DEMOLISHED. THE CONTRACTOR SHALL MAKE HIS OWN DEDUCTIONS OF THE SUBSURFACE CONDITIONS WHICH MAY AFFECT METHODS OR COST OF CONSTRUCTION AND HE AGREES THAT HE WILL MAKE NO CLAIM FOR DAMAGES OR OTHER COMPENSATION

EXCEPT SUCH AS ARE PROVIDED FOR IN THE AGREEMENT, SHOULD HE FIND

CONDITIONS DURING THE PROGRESS OF THE WORK DIFFERENT FROM THOSE AS

1-04 BENCH MARKS AND MONUMENTS

CALCULATED OR ANTICIPATED BY HIM.

A. MAINTAIN CAREFULLY EXISTING BENCH MARKS, MONUMENTS, AND OTHER REFERENCE POINTS IF DISTURBED OR DESTROYED, REPLACE AS DIRECTED.

A. CONDITION OF PREMISES: ACCEPT SITE AS FOUND AND EXCAVATE, FILL, COMPACT, AND BACKFILL SITE AS HEREINAFTER SPECIFIED.

1. EXISTING STRUCTURES AND PROPERTY: TAKE PRECAUTIONS TO GUARD AGAINST MOVEMENT OR SETTLEMENT OF ADJACENT STRUCTURES AND FACILITIES; PROVIDE AND PLACE BRACING OR SHORING AS NECESSARY OR PROPER IN CONNECTION THEREWITH; BE RESPONSIBLE FOR SAFETY AND SUPPORT OF SUCH STRUCTURES; BE LIABLE FOR ANY MOVEMENT OR SETTLEMENT, ANY DAMAGE OR INJURY CAUSED THEREBY OR RESULTING THEREFROM. IF AT ANY SAFETY OR ANY ADJACENT STRUCTURES APPEARS TO BE ENDANGERED, CEASE OPERATION, TAKE PRECAUTIONS TO SUPPORT SUCH STRUCTURES AND NOTIFY THE OWNER. RESUME OPERATIONS ONLY AFTER PERMISSION HAS BEEN CHANGED BY THE OWNER.

2. SIDEWALKS AND STREETS: TAKE PRECAUTIONS TO GUARD AGAINST MOVEMENT, SETTLEMENT OR COLLAPSE OF ANY SIDEWALKS, CURBS OR STREET PASSAGES ON ADJOINING SITE; BE LIABLE FOR ANY SUCH MOVEMENT, SETTLEMENT OR COLLAPSE; REPAIR PROMPTLY SUCH DAMAGE WHEN SO ORDERED; INSTALL SUCH SHORING, INCLUDING SHEET PILING, AS MAY BE REQUIRED DURING EXCAVATION, TO PROTECT BANKS, ADJACENT PAVING, STRUCTURES AND UTILITIES.

3. RESPONSIBILITY: BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING STRUCTURES OR TO EQUIPMENT AND FURNISHINGS HOUSED THEREIN WHICH ARE DUE DIRECTLY OR INDIRECTLY TO CONSTRUCTION OPERATIONS, EXCEPT WHERE REMOVAL IS NECESSITATED BY SITE GRADING OR LOCATION OF NEW BUILDING. USE EVERY POSSIBLE PRECAUTION TO PREVENT INJURIES TO LANDSCAPING, DRIVES, CURBS AND WALKS ON OR ADJACENT TO SITE OF THE WORK AND REPLACE, AT NO EXPENSE TO OWNER, ANY OF SUCH DESTROYED.

II. EXECUTION

A. ACCOMPLISH IN A MANNER THAT PROVIDES FOR THE SAFETY OF THE PUBLIC

AND WORKMEN AND PROVIDE FOR THE PROTECTION OF ALL PROPERTY. B. CONSTRUCTION: DO NOT CLOSE, OBSTRUCT OR STORE MATERIAL OR EQUIPMENT IN STREETS, SIDEWALKS, ALLEYS OR PASSAGEWAYS WITHOUT A

PERMIT IN ACCORDANCE WITH LOCAL ORDINANCES, REGULATIONS AND CODES. C. INTERFERENCE: CONDUCT OPERATIONS WITH MINIMUM INTERFERENCE WITH ROADS, STREETS, DRIVEWAYS, ALLEYS, SIDEWALKS AND OTHER FACILITIES. D. PNEUMATIC TOOLS: WORK WITH PNEUMATIC OR VIBRATORY TOOLS WILL BE

PERMITTED ONLY IN A MANNER WHICH CAUSES NO RELATED DAMAGES. E. REMOVAL: UNLESS OTHERWISE NOTED OR SPECIFIED TO BE RELOCATED OR STORED, ALL MATERIALS REMOVED BECOME THE PROPERTY OF THE CONTRACTOR AND ARE TO BE REMOVED COMPLETELY AWAY FROM THE SITE BY HIM. DO NOT STORE OR PERMIT DEBRIS TO ACCUMULATE ON THE SITE.

F. TEMPORARY STRUCTURES: REMOVE ALL TEMPORARY STRUCTURES WHEN THEY ARE NO LONGER REQUIRED. G. REPAIR: CLEAN UP. REPAIR OR REPLACE AT NO COST TO OWNER ALL

PROPERTY DAMAGED BY REASON OF REQUIRED WORK. ALL PATCHWORK SHALL MATCH EXISTING AND BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER BY CRAFTSMEN SKILLED IN THE TRADE INVOLVED. IN NEWLY GRADED AREAS TAKE EVERY PRECAUTION AND TEMPORARY MEASURE NECESSARY, TO PREVENT DAMAGE FROM EROSION OF FRESHLY GRADED AREA. WHERE ANY SETTLEMENT OR WASHING MAY OCCUR PRIOR TO ACCEPTANCE OF THE WORK, REPAIR AND RE-ESTABLISH GRADES TO THE REQUIRED ELEVATIONS AND SLOPES AT NO ADDITIONAL COST TO THE OWNER. THIS APPLIES TO DAMAGE TO THE NEWLY GRADED AREAS WITHIN THE CONSTRUCTION LIMITS AND DAMAGE TO ADJACENT PROPERTIES BY ERODED MATERIAL.

2-02 LOCATIONS AND ELEVATIONS

A CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SURVEYS MEASUREMENTS AND LAYOUTS REQUIRED FOR PROPER EXECUTION OF THE WORK. LAY OUT LINES AND GRADES FROM EXISTING SURVEY CONTROL SYSTEM AND AS SHOWN ON DRAWINGS.

2-03 CLEARING AND GRUBBING A. WITHIN LIMITS OF AREAS DESIGNATED FOR GRADING AND SITE CONSTRUCTION WORK, REMOVE TREES, BRUSH, STUMPS, WOOD, DEBRIS AND OTHER DELETERIOUS MATERIALS NOT REQUIRED TO REMAIN AS PART OF FINISHED

B. REMOVE ALL GRASS, PLANTS, VEGETATION AND ORGANIC MATERIAL FROM SAME

2-04 STRIPING

A. STRIP ALL TOPSOIL ORGANIC MATERIAL SURFACE LITTER, RUBBLE, AND OVERBURDEN FOR ENTIRE DEPTH OF ROOT SYSTEM OF GRASS OR OTHER VEGETATION OVER THE LIMITS OF CONSTRUCTION. B. STOCKPILE TOPSOIL ON SITE WHERE DIRECTED.

2-05 EXCAVATION

CONSTRUCTION. DEWATER AS NEEDED.

A. BEGIN EXCAVATION AFTER STRIPPING, CLEARING AND GRUBBING WHERE APPLICABLE, HAS BEEN COMPLETED. B. EXCAVATE TO GRADES REQUIRED TO ACCOMMODATE THE PROPOSED

C. REMOVE "UNSATISFACTORY MATERIALS" ENCOUNTERED FROM THE BUILDING AREAS. AND OTHER NON-LANDSCAPED AREAS.

D. EXCAVATE IN SUCH A MANNER THAT QUICK AND EFFICIENT DRAINAGE OF STORMWATER WILL BE AFFECTED E. CLASSIFY EXCAVATED MATERIALS AND STOCKPILE SEPARATELY SUITABLE SOILS FOR USE AS BACKFILL MATERIALS. IF SUFFICIENT QUANTITIES OF **EXCAVATED MATERIALS MEETING REQUIREMENTS FOR BACKFILL ARE NOT** 

F. STOCKPILE EXCAVATED MATERIAL SUITABLE FOR USE AS FILL AND BACKFILL. 2-06 FILLING, BACKFILLING AND COMPACTING A. THE WORK CONSISTS OF COMPACTION OF EXISTING EARTH (EXCLUDE ROCK),

AVAILABLE ON SITE, PROVIDE MATERIALS MEETING THESE REQUIREMENTS.

SURFACES AFTER EXCAVATION, FILLING AND COMPACTION OF SAID AREA TO LEVELS REQUIRED WITH SUITABLE BACKFILL MATERIAL. B. MATERIALS: "SATISFACTORY FILL MATERIALS" AASHTO CLASSIFICATION A-3

OR BETTER SHALL BE USED IN FILLS AND BACKFILLS. C. FILLING AND BACKFILLING: PLACE "SATISFACTORY FILL MATERIAL" IN HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH. COMPACT AS SPECIFIED HEREIN NO MATERIAL SHALL BE PLACED ON SURFACES THAT

ARF MUDDY D. COMPACTION: COMPACTION SHALL BE WITH EQUIPMENT SUITED TO SOIL BEING COMPACTED. MOISTEN OR AERATE MATERIAL AS NECESSARY TO PROVIDE MOISTURE CONTENT THAT WILL READILY FACILITATE OBTAINING SPECIFIED COMPACTION WITH EQUIPMENT USED. COMPACT EACH LAYER TO NOT LESS THAN PERCENTAGE OF MAXIMUM DENSITY SPECIFIED BELOW DETERMINED IN ACCORDANCE WITH AASHTO T-180. INSURE THAT THE COMPACTION OF PREVIOUSLY PREPARED FILL AREAS HAS BEEN MAINTAINED

E. RECONDITIONING OF SUBGRADE: WHERE APPROVED COMPACTED SUBGRADES ARE DISTURBED BY THE CONTRACTOR'S SUBSEQUENT OPERATIONS OR ADVERSE WEATHER SUBGRADE SHALL BE SCARIFIED AND COMPACTED AS SPECIFIED HEREIN BEFORE TO REQUIRED DENSITY PRIOR TO FURTHER CONSTRUCTION THEREON. RE-COMPACTION OVER UNDERGROUND UTILITIES SHALL BE BY POWER-DRIVEN HAND TAMPERS.

F. COMPACTION REQUIREMENTS 1. FILL UNDER LAWNS AND PLANTED:

2. BELOW SLABS ON GRADE AND CONCRETE WALKS: 98% 3. UNDER PAVING PARKING AREAS:

A. THE CONTRACTOR WILL PROVIDE THE SERVICES OF A TESTING LABORATORY TO PERFORM SPECIFIED TESTS, INSPECTIONS, INSTRUMENTATION AND INSPECTION OF THE WORK.

B. TESTS OF MATERIALS SHALL BE AS FOLLOWS: 1. SOIL CLASSIFICATION: ONE TEST FROM EACH TYPE OF MATERIAL ENCOUNTERED AND OR PROPOSED TO BE USED.

2. LABORATORY TESTS FOR MOISTURE-CONTEST AND DENSITY ACCORDING TO AASHTO T-180: ONE TEST FOR EACH MATERIAL ENCOUNTERED AND/OR PROPOSED TO BE USED. 3. FIELD TESTS FOR MOISTURE CONTEST AND DENSITY: ONE TEST PER

LAYER OF FILL PER 5,000 SQUARE FEET OF AREA.

SUPPLEMENTAL SPECIFICATIONS

THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND ADHERE TO THE SPECIFICATIONS AND STANDARDS OF THE UTILITY COMPANIES WHICH ARE SERVING THE PROJECT SITE. THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND COMPLY WITH ALL SITE DEVELOPMENT STANDARDS AND CODES OF THE REGULATORY AGENCIES ASSOCIATED WITH THIS PROJECT.

POTABLE WATER DISTRIBUTION/WASTEWATER COLLECTION INSTALLATION UNLESS OTHERWISE NOTED ON THE PLANS, THE STANDARDS AND SPECIFICATIONS OF THE ASSOCIATED UTILITY COMPANY SERVING THE PROJECT SITE SHALL BE ADHERED TO FOR ALL MATERIALS, INSTALLATION, TESTING, AND CERTIFICATION ACTIVITIES FOR ALL PUMP STATIONS, MAIN LINES, SERVICES, AND APPURTENANCES, IF STANDARDS AND SPECIFICATIONS ARE NOT AVAILABLE. THE CONTRACTOR SHALL CONFORM WITH THE LATEST STANDARDS AND SPECIFICATIONS ADOPTED BY MONROE COUNTY UTILITIES. LOCAL GOVERNMENTAL REGULATIONS, OR THE MANUFACTURERS RECOMMENDED INSTALLATION PROCEDURES, WHICHEVER IS SPECIFICALLY THE MOST RESTRICTIVE. A COPY OF THE MONROE COUNTY UTILITIES SPECIFICATIONS CAN BE REVIEWED AT THE OFFICE OF THE WEILER ENGINEERING CORPORATION

STORMWATER PIPE INSTALLATION AND MISCELLANEOUS EXCAVATIONS UNLESS OTHERWISE NOTED ON THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL

PERFORM THE EXCAVATION, BEDDING, JOINTS, AND BACKFILLING OPERATIONS IN ACCORDANCE WITH THE POTABLE WATER/ WASTEWATER INSTALLATION SPECIFICATIONS, LOCAL GOVERNMENTAL REGULATIONS OR STANDARDS, F.D.O.T. STANDARDS AND SPECIFICATIONS OR MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES, WHICHEVER IS SPECIFICALLY THE MOST RESTRICTIVE.

UNSUITABLE MATERIALS

IF UNSUITABLE MATERIAL IS ENCOUNTERED WITHIN THE ROADWAY AREA AND/OR UTILITY AREAS IT SHALL BE REMOVED TO A DEPTH OF THREE (3) FEET BELOW THE SUB-BASE OR TRENCH BOTTOM AND SHALL BE BACKFILLED WITH THE A-3 MATERIAL OR BETTER WITH PLACEMENT AND COMPACTION METHODS IN ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS OR AS OTHERWISE NOTED ON THE PLANS. UNSUITABLE MATERIALS SHALL BE REMOVED FROM SITE, UNLESS THE ENGINEER APPROVES USE WITHIN LANDSCAPED AREAS.

**DEWATERING** 

A. DEWATERING CONSISTS OF PERFORMING ALL WORK NECESSARY TO REMOVE SURFACE WATER AND/OR CONTROL THE GROUND WATER LEVELS AND HYDROSTATIC PRESSURES IN ORDER TO PERMIT ALL EXCAVATION AND CONSTRUCTION UNDER THIS CONTRAST TO BE PERFORMED IN THE DRY.

B. WORK OF THIS SECTION INCLUDES INSTALLATION, OPERATIONS, MAINTENANCE, SUPERVISION, SUPPLY, DISMANTLING, AND REMOVAL FROM THE SITE OF THE DEWATERING EQUIPMENT.

C. THE CONTRACTOR MUST FAMILIARIZE HIMSELF WITH THE POTENTIAL FOR EXCESSIVE RAINFALL, THE GROUND CONDITIONS, AND THE GROUND WATER CONDITIONS, GROUND WATER ELEVATION CAN FLUCTUATE. IT IS ANTICIPATED THAT ANY EXCAVATIONS MAY ENCOUNTER THE GROUND WATER

D. DRAINAGE OF THE SITE: AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN AND OPERATE ADEQUATE SURFACE AND SUBSURFACE DRAINAGE METHODS IN ORDER TO KEEP THE CONSTRUCTION SITE DRY AND IN SUCH CONDITION THAT PLACEMENT AND COMPACTION OF FILL MAY PROCEED UNHINDERED BY SATURATION OF THE AREA DURING CONSTRUCTION, THE SURFACE OF THE BACKFILL AREA SHALL BE LEFT IN SUCH CONDITION THAT PRECIPITATION AND/OR SURFACE WATER WILL RUN OFF WITHOUT PONDING.

1-02 METHOD A. THE CONTROL OF ALL SURFACE AND SUBSURFACE WATER IS PART OF THE DEWATERING REQUIREMENTS, MAINTAIN ADEQUATE CONTROL SO THAT THE STABILITY OF EXCAVATED AND CONSTRUCTION SLOPES IS NOT ADVERSELY FEECTED BY WATER THAT FROSION IS CONTROLLED. AND THE ELOODING O EXCAVATIONS OR DAMAGE TO STRUCTURES DOES NOT OCCUR. DRAIN SURFACE WATER AWAY FROM THE EXCAVATION.

B. DISPOSE OF ALL WATER REMOVED FROM THE EXCAVATION IN A MANNER THAT WILL NOT ENDANGER PUBLIC HEALTH, PROPERTY, OR PORTIONS OF THE WORK UNDER CONSTRUCTION OR COMPLETED. DISPOSE OF WATER IN A MANNER THAT WILL CAUSE NO INCONVENIENCE WHATSOEVER TO THE OWNER OR TO OTHERS ENGAGED IN WORK AT THE SITE.

C. DISPOSE OF WATER RESULTING FROM DEWATERING OPERATIONS IN ACCORDANCE WITH CITY, COUNTY, STATE AND FEDERAL REGULATIONS. D. CONDUCT OPERATIONS SO THAT STORMWATER RUNOFF, SEDIMENT IS NOT DISCHARGED TO THE ADJACENT WATER BODIES, SEWERS, STREETS AND

ADJACENT PROPERTIES E. DEWATERING SYSTEM SHALL BE SO DESIGNED AS TO PREVENT REMOVAL OF SOIL FINES FROM THE SITE DURING THE DEWATERING OPERATION

PORTLAND CEMENT CONCRETE

1-01 QUALITY ASSURANCE A. COMPLY WITH ACI STANDARDS RECOMMENDED PRACTICES FOR CONSTRUCTION OF CONCRETE PAVEMENTS AND CONCRETE BASES (ACI316, LATEST EDITION)

A. THE FOLLOWING REFERENCE STANDARDS OF THE ISSUES LISTED BELOW BUT REFERRED TO THEREAFTER BY BASIC DESIGNATION ONLY, FORM A PART OF THIS SPECIFICATION TO THE EXTENT INDICATED BY THE REFERENCES THERETO. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH HEREINAFTER SPECIFIED STANDARDS.

1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) 2. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) STANDARD.

3. FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) 1991 STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - SECTION 350 - "CEMENT CONCRETE PAVEMENT".

4. T-180 MOISTURE-DENSITY RELATIONS OF SOILS. 1-03 SUBMITTALS THE CONTRACTOR SHALL SUBMIT TWO COPIES OF TEST REPORTS PREPARED BY

AN INDEPENDENT TESTING LABORATORY AND CERTIFIED BY A PROFESSIONAL ENGINEER REGISTERED TO PRACTICE IN THE STATE OF FLORIDA. THESE REPORTS SHALL INDICATE ALL TESTS PERFORMED AND SHALL INCLUDE A CERTIFICATION STATEMENT OF COMPLIANCE WITH THE PROJECT SPECIFICATIONS. TESTS SHALL BE PERFORMED AS SPECIFIED UNDER THIS

1. SUBMIT FOR REVIEW THE FOLLOWING A. CONCRETE DESIGN MIX AND PROVING FLEXURAL STRENGTH

(MODULUS OF RUPTURE) TESTS B. EXPANSION JOINT FILLER DATE

C. JOINT SEALER DATE D. PROPOSED PAVING CONSTRUCTION PLAN WHICH SHALL SHOW THE CONCRETE PAVING JOINT TYPES AND LOCATIONS AND SHALL INCLUDE A STATEMENT OF PROPOSED SEQUENCE AND SCHEDULE OF PAVING OPERATIONS

E. RESULTS OF CONCRETE TESTS F. RESULTS OF FIELD TESTS OF LBR AND COMPACTION OF STABILIZED SUBGRADE.

SPECIFICATIONS SS-S401 OR SS-S-2009 (COLD APPLIED)

1-04 MATERIALS

A. STABILIZED SUBGRADE: PROVIDE 12 INCH STABILIZED SUBGRADE (LBR 40 MIN) COMPACTED TO A MINIMUM DENSITY OF 98% AS DETERMINED BY AASHTO

B. CONCRETE: CONCRETE FOR CONCRETE PAVEMENT SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. A SLUMP RANGE BETWEEN 2 TO 4 INCHES AND A 28 DAY MODULES OR RUPTURE OF 650 PSI AS DETERMINED BY THE REQUIREMENTS OF PARAGRAPH TESTING SPECIFIED HEREINAFTER. C. JOINT SEALER: JOINT SEALING SHALL CONFORM TO FEDERAL

A. COMPLY WITH AC STANDARD 316-74 AND SECTION 350, FDOT STANDARDS AND

SPECIFICATIONS. UNLESS OTHERWISE SPECIFIED HEREIN. B. FINAL GRADING: ALL CONCRETE PAVEMENT SHALL HAVE A MAXIMUM DEVIATION OF 1/8 INCH (PLUS/MINUS) FROM THE SPECIFIED SURFACE PLANE

AND PLAN GRADES. C. THE SURFACE FINISH SHALL BE APPROVED BY THE OWNER OR HIS REPRESENTATIVE, IN GENERAL THE TEXTURE IS OF A MEDIUM BROOM FINISH AFTER FLOATING.

D. JOINTS 1. CONTRACTION JOINTS INDICATED ON DRAWINGS, OR AS REQUIRED, SHALL BE PLACED PERPENDICULAR TO THE FINISH GRADE OF THE CONCRETE. JOINTS SHALL BE CUT TO A DEPTH OF 1/4 OF THE SLAB THICKNESS BY CUTTING WITH AN EDGING TOOL HAVING A 1/4 INCH RADIUS OR BY SAWING WITH A BLADE PRODUCING A CUT NOT LESS THAN 1/8 INCH IN WIDTH. SAW JOINTS WITHIN 4 TO 6 HOURS OF CONCRETE PLACEMENT.

2. EXPANSION JOINTS SHALL BE PLACED WHERE INDICATED ON DRAWINGS, OR AS REQUIRED, USING 1/2 INCH THICK PREFORMED EXPANSION JOINT MATERIAL ANCHOR WITH APPROVED DEVICES TO PREVENT DISPLACEMENT DURING PLACEMENT AND FINISHING. EDGES SHALL BE ROUNDED WITH AN EDGING TOOL. JOINTS SHALL BE FULL DEPTH OF CONCRETE EXCEPT THAT TOP EDGES SHALL BE 1/2 INCH BELOW THE FINISH CONCRETE SURFACE. EXPANSION JOINTS SHALL BE SEALED TO THE SURFACE BY FILLING WITH JOINT SEALING COMPOUND. JOINTS SHALL BE CLEAN AND DRY BEFORE SEALING COMPOUND IS PUT IN PLACE.

3. CONSTRUCTION JOINTS ARE TO BE USED AT CONTRACTION JOINT LOCATIONS TO STOP CONCRETE POURS.

E. CURING: CONCRETE SHALL BE CURED BY PROTECTING IT AGAINST LOSS OF MOISTURE AND MECHANICAL INJURY FOR AT LEAST THREE DAYS AFTER PLACEMENT. A PIGMENTED LIQUID CURING MEMBRANE SHALL BE APPLIED IMMEDIATELY AFTER FINISHING; OPERATION AT THE RATE OF ONE GALLON TO NOT MORE THAN 200 SQUARE FEET.

F. CLEANING AND SEALING JOINTS: JOINTS SHALL BE FILLED WITH JOINT-SEALING MATERIAL NO LESS THAN 8 HOURS AND WITHIN 2 WEEKS AFTER JOINTS ARE BUT. JUST PRIOR TO SEALING, EACH JOINT SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATERIAL INCLUDING ANY MEMBRANE CURING COMPOUND.

G. TESTING: LABORATORY AND FIELD TESTING SHALL BE AT THE CONTRACTOR'S EXPENSE. IN ADDITION, ALL RETESTING SHALL BE DONE AT CONTRACTOR'S

1. DESIGN MIXES AND TESTING REQUIREMENTS FOR THE CONCRETE PAVEMENT SHALL BE AS FOLLOWS: A. FLEXURAL STRENGTH TESTS OF CONCRETE AS BASIS FOR

B. SLUMP, MODULES OF RUPTURE AND 7-AND 20 DAY COMPRESSIVE STRENGTH TESTS SHALL BE PERFORMED ON SAMPLES TAKEN AT THE SITE AT A FREQUENCY OF TWO PER

2. WHERE THE FLEXURAL STRENGTH OF THE CONCRETE IS SPECIFIED, MAKE ONE STRENGTH TEST AND ONE FLEXURAL TEST FOLLOWING (ASTM C192 AND ASTM C78) FOR FACH 100 CUBIC YARDS OR FRACTION THEREOF PLACED PER DAY NUMBER OF CYLINDERS SHALL BE THREE FOR STRENGTH TEST AND THREE FOR FLEXURAL TEST. TEST ONE AT THREE DAYS, ONE AT SEVEN DAYS AND ONE AT 28 DAYS

PORTLAND CEMENT CONCRETE - CONCRETE SHALL BE TESTED FOR THE FOLLOWING PARAMETERS: SLUMP, MODULES OF RUPTURE, AND 7 AND 28 DAY COMPRESSIVE STRENGTH TESTS SHALL BE PERFORMED ON SAMPLES TAKEN AT THE SITE AT A FREQUENCY OF TWO PER ACRE. A PROFESSIONAL ENGINEER'S CERTIFICATION OF COMPLIANCE SHALL BE PROVIDED BY THE TESTING LAB. RETENTION/DETENTION FACILITIES - IF INCLUDED WITHIN THE PROJECT, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND PERFORM A DRAW DOWN AND CAPACITY TEST OF THE FACILITIES. THE CONTRACTOR SHALL PROVIDE SUFFICIENT WATER AND ACCEPTABLE MEANS TO MEASURE THE WATER VOLUMES PROVIDED, IF REQUIRED BY THE ENGINEER, IF A FILTRATION SYSTEM IS INCLUDED WITHIN THE PROJECT, THE FILTER MEDIA SHALL BE TESTED FOR COMPLIANCE WITH ALL CURRENT SPECIFICATIONS OF THE WATER MANAGEMENT DISTRICT. A PROFESSIONAL ENGINEER'S CERTIFICATION OF COMPLIANCE SHALL BE PROVIDED BY THE TESTING LAB.

IN ADDITION TO THE ENVIRONMENTAL PROTECTION DURING CONSTRUCTION SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM THE FOLLOWING IN THE ORDER LISTED: 1. PRIOR TO COMMENCEMENT, PROVIDE NOTIFICATION TO THE LOCAL WATER MANAGEMENT

DISTRICT AND LOCAL GOVERNMENT OFFICES. 2. ERECT A TURBIDITY SCREEN ON ANY DOWNSTREAM SYSTEM WHICH RECEIVES RUNOFF FROM THE PROJECT. INSTALL OUTFALL CONTROL STRUCTURE AND FILTRATION SYSTEM

IF INCLUDED 3. PROVIDE A TEMPORARY FILTER CLOTH COVERED WITH GRAVEL OVER ANY PROPOSED

4. INSTALL A TEMPORARY TURBIDITY SCREEN AT ALL CONTROL STRUCTURES. 5. CONSTRUCT A TEMPORARY PERIMETER BERM AS NECESSARY TO DIRECT ALL RUNOFF

WITHIN ANY AREA PLANNED FOR CLEARING. 5. MAINTAIN FILTER DURING CONSTRUCTION TO PROVIDE CONTINUOUS OPERATION. 7. UPON PERFORMING FINAL GRADING, THE CONTRACTOR SHALL REMOVE ALL SILTS, CLAYS AND OTHER DELETERIOUS MATERIAL FROM THE BOTTOM OF ALL STORMWATER MANAGEMENT

AREAS PRIOR TO GRASSING. 8. AFTER ACHIEVING A NON-ERODIBLE COVER OF GRASS, REMOVE TEMPORARY FILTER CLOTH AND GRAVEL OVER FILTERS AND REPLACE WITH NEW FILTER CLOTH AND COVER MATERIAL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS

. NOTIFY THE OWNER FOR FINAL INSPECTION. 10. UPON FINAL APPROVAL FROM OWNER, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES.

A. ALL VALVE OPERATORS AND HAND WHEELS, ETC. SHALL FACE AND BE ACCESSIBLE TO PLATFORMS OR OPERATING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR PROPER ORIENTATION TO MEET THIS REQUIREMENT.

B. PIPING PLANS DO NOT PURPORT TO SHOW ALL FITTINGS, SPECIALS, ETC., WHICH MAY BE NECESSARY TO ACCOMMODATE FIELD LAYING CONDITIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL EXTRA PIPE FITTINGS TO AFFORD PROPER PIPE CLEARANCES AND ALIGNMENT WHERE

C. ALL HYDRAULIC STRUCTURES SHALL HAVE WALL PIPES AT PIPE PENETRATIONS.

AND BE THOROUGHLY COMPACTED, UNLESS OTHERWISE SPECIFIED.

NECESSARY AT NO ADDITIONAL COST TO THE OWNER.

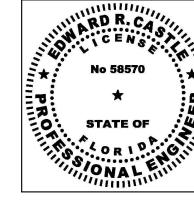
D. ALL BENDS, TEES, PLUGS, ETC. ON PRESSURE MAINS SHALL BE RESTRAINED IN ACCORDANCE ALL TRENCHES FOR NEW PIPING AND CONDUIT SHALL BE BACKFILLED WITH SUITABLE MATERIAL

WHERE DRAINING AND CLEANING OF EXISTING TANKS IS REQUIRED TO PERFORM WORK UNDER THIS CONTRACT, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO OPERATE ALL VALVES, GATES, AND PUMPS TO ACCOMPLISH BY-PASS OF THE UNIT, TO DRAIN WASTEWATER BACK TO HEAD OF PLANT AND TO CLEAN AND DISPOSE OF ALL SLUDGE REMOVED.

ALL EXISTING EQUIPMENT, PIPING, VALVES AND OTHER ITEMS REMOVED AND DEEMED REUSEABLE DURING CONSTRUCTION OPERATIONS SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STRORED ON THE SITE IN THE LOCATION DESIGNATED BY THE OWNER.

H. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FLOWS THROUGH EXISTING PIPING AND STRUCTURES AND DIVERSION OF FLOWS AS NECESSARY DURING CONSTRUCTION UNDER THIS CONTRACT. TO INSURE CONTINUATION OF PLANT OPERATION WITHOUT INTERRUPTION. ALL WORK WHICH AFFECTS PLANT OPERATIONS SHALL BE COORDINATED AND SCHEDULED TO THE SATISFACTION OF PLANT PERSONNEL PRIOR TO BEGINNING. ALL WORK ON EXISTING SYSTEM SHALL BE COORDINATED A MINIMUM OF 72 HOURS PRIOR WITH THE OWNER.

DIMENSION, ELEVATIONS, AND LOCATIONS SHOWN ON THESE DRAWINGS FOR EXISTING STRUCTURES, PIPING, ETC., MAY BE FROM RECORD DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL INFORMATION PRIOR TO BEGINNING HIS CONSTRUCTION OPERATIONS IN EACH AREA AND AT NO ADDITIONAL COST TO THE OWNER. MAKE ALL NECESSARY ADJUSTMENTS TO PERFORM THE INTENT OF WORK UNDER THIS CONTRACT.



Edward R. Castle rofessional Engineer State of Florida

Registration No. 58574

eet No. G-03

#### SHOP DRAWINGS

- 1. PROVIDE FABRICATION SHOP DRAWINGS AND ERECTION SHOP DRAWINGS FOR REVIEW ON ITEMS INDICATED IN THESE NOTES. DESIGN ON STRUCTURAL ITEMS SHALL BE PERFORMED BY AN EXPERIENCED PROFESSIONAL ENGINEER REGISTERED IN FLORIDA. DESIGN CALCULATIONS SHALL BE SUBMITTED FOR REVIEW UPON REQUEST.
- 2. DRAWINGS SHALL INCLUDE ALL DESIGN LOADS, CONNECTION DETAILS, HANDLING REQUIREMENTS, AND PLAN LOCATIONS. SHOP DRAWINGS MUST BE SIGNED AND SEALED BY THE PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN.
- 3. ALL SHOP DRAWINGS TO HAVE CONTRACTORS REVIEW STAMP PRIOR TO SUBMISSION TO THE ENGINEER.

#### **DESIGN DATA**

- 1. THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH FLORIDA BUILDING CODE 2017.
- 2. SOILS PER GEOTHECHNICAL REPORT "UNIVERSAL ENGINEERING SCIENCES No: 0530.1400016.000" FROM MARCH 27, 2014 AND OTHER SOIL CONSIDERATIONS.
- 3. BASIC WIND SPEED (V) = 200 MPH; STRUCTURAL CATEGORY: III
- 4. EXPOSURE "C"
- 5. FLOOD RESISTANT CONSTRUCTION IS IN COMPLIANCE WITH ASCE 24-05 AND ASCE 7-10 STANDARDS

#### FOUNDATION SOILS

- 1. SLABS AND FOOTINGS TO BE PLACED ON UNDISTURBED SOIL. IF FILL MATERIAL IS REQUIRED, PLACE IN 8"-12" LIFTS AND COMPACT TO 98% DENSITY AS MEASURED BY THE STANDARD PROCTOR DENSITY
- 2. FILL AND EXISTING SUB-GRADE MATERIALS SHALL CONTAIN NO MUCK, STUMPS, ROOTS, BRUSH, VEGETABLE MATTER, RUBBISH OR OTHER MATERIAL THAT WILL NOT COMPACT INTO A SUITABLE SUBGRADE.

#### STRUCTURAL STEEL

- 1) ALL STRUCTURAL STEEL COMPONETS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AISC STEEL AND CONSTRUCTION MANUAL.
- 2) ALL W-SHAPES AND C-SHAPES SHALL BE ASTM A992 WITH Fy=50 ksi.
- 3) ALL RECTANGULAR AND SQUARE HSS SHAPES SHALL BE ASTM A500 GRADE B WITH Fy= 46 ksi.
- 4) ALL STEEL PLATES AND OTHER MISC. ELEMENTS SHALL BE ASTM A992 WITH Fy=50 ksi.
- 5) ALL BOLTS NUTS AND WASHERS SHALL BE HDG

#### CONCRETE:

- 1. USE 5000 PSI CONCRETE MINIMUM, TARGETED SLUMP 4 INCHES, MAXIMUM W/C RATIO OF 0.44, AIR CONTENT 1-6%, UNLESS STATED OTHERWISE ON PLANS.
- 2. CURING: CONCRETE SHALL BE CURED BY PROTECTING IT AGAINST LOSS OF MOISTURE AND MECHANICAL INJURY FOR AT LEAST THREE DAYS AFTER PLACEMENT. A LIQUID CURING MEMBRANE SHALL BE APPLIED IMMEDIATELY AFTER FINISHING; APPLY AT THE RATE OF ONE GALLON TO NOT MORE THAN 200 SQUARE FEET.
- ALTERNATIVELY WET CURING CAN BE IMPLEMENTED. ALL EXPOSED SURFACES SHALL BE KEPT CONTINUOUSLY WET FOR AT LEAST THREE DAYS AFTER PLACEMENT.
- 3. TESTING: LABORATORY AND FIELD TESTING SHALL BE PERFORMED BY LICENSED TESTING LABORATORY. MINIMUM OF 3 SAMPLES SHALL BE TAKEN AND TESTED.
- 3.1 THE MINIMUM SAMPLING FREQUENCY IS:
- A) ONCE A DAY FOR A GIVEN CLASS.
- B) ONCE EVERY 50 CUBIC YARDS.
- C) ONCE EACH 5000 FEET<sup>2</sup> OF SURFACE AREA FOR SLABS OR WALLS.
- 3.2 SAMPLES ARE TAKEN ON A RANDOM BASIS CONCRETE IS NOT TO BE SAMPLED DUE TO APPEARANCE, CONVENIENCE, OR OTHER BIASED CRITERIA.
- 3.3 EACH SET OF CYLINDERS COME FROM A DIFFERENT BATCH OF CONCRETE.
- 3.4 NO WATER WAS ADDED TO THE CONCRETE AFTER THE SAMPLES WERE TAKEN.
- 3.5 QUALIFIED FIELD TESTING TECHNICIANS PERFORMED THE TEST ON THE FRESH CONCRETE.
- 3.6 QUALIFIED LABORATORY TECHNICIAN PERFORMED ALL REQUIRED LABORATORY TESTS.
- 3.7 MINIMUM (3) ORIGINALS SIGNED LAB TESTING RESULTS SHALL BE SUBMITTED TO ENGINEER AND OWNER.
- 4. REINFORCEMENT SHALL BE GRADE 60 BILLET STEEL, DEFORMED, STRENGTH = 60,000 PSI.
- MATERIALS, BAR CLEARANCES, COVER, & OTHER DETAILING TO BE IN ACCORDANCE WITH ACI-318.
- 5. REINFORCEMENT SHALL BE CLEAN AND FREE OF RUST AND LUBRICANTS.
- 6. ALL EXPOSED EDGES OF CAST-IN-PLACE AND PRECAST MEMBERS SHALL HAVE 3/4" CHAMFERS, UNLESS SHOWN OTHERWISE ON THE PLANS.
- 7. USE ONLY PLASTIC OR STAINLESS CHAIRS FOR REBAR SUPPORT.
- 8. PRECAST PRESTRESSED CONCRETE PRODUCTS TOLERANCES SHALL BE AS DESCRIBED IN THE TABLE 8.2.1 OF "PCI DESIGN HANDBOOK/SIXTH EDITION"
- 9. CAST-IN-PLACE AND PRECAST MEMBERS ERECTION TOLERANCES SHALL BE AS SPECIFIED IN THE TABLE 8.2.2 OR IN SECTION 8.3 OF "PCI DESIGN HANDBOOK/SIXTH EDITION"

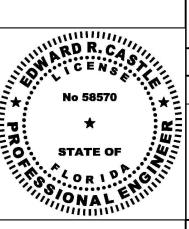
#### **CONCRETE PAVEMENTS:**

- 1. USE CLASS I (Pavement) 5000 PSI CONCRETE, TARGETED SLUMP 4 INCHES, MAXIMUM W/C RATIO OF 0.44, AIR CONTENT 1-6%.
- 2. ALL SURFACES SHALL HAVE LIGHT BROOM FINISH.
- 3. AFTER COMPLETING THE FINISHING OPERATIONS AND AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO NOT MAR THE SURFACE, COVER AND CURE THE ENTIRE SURFACE. OR UNIFORMLY APPLY CURING COMPOUND TO THE SURFACES TO BE CURED. IN A SINGLE COAT, CONTINUOUS FILM. AT THE MINIMUM RATE OF 1 GALLON TO EVERY 200 FT<sup>2</sup>, BY A MECHANICAL SPRAYER. AT THE TIME OF USE. THOROUGHLY MIX THE COMPOUND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- 4. SAW CUT CONTROL JOINTS IN NEW PAVEMENT AT 10'-14' MAX. ALIGN JOINTS WITH COLUMNS AXIS. CONTROL JOINTS SHALL BE 1/8" Min. WIDE AND 1.5" DEEP.
- CONTROL JOINTS SHALL BE CUT AS SOON AS POSSIBLE BUT NOT LATER THAN 72 HOURS FROM CONCRETE PLACEMENT.
- 5. PROTECT FRESH CONCRETE FROM VEHICULAR TRAFFIC FOR 7 DAYS MINIMUM.

	Approved By:	ERC	Design:	
	Scale:	AS SHOWN	Drawn: C'	CWK,
	Job No:	16013.001	Checked:	
	Date Issued:	AS STAMPED		
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**XPANSION** NOTE KWRU

neet No. G-04



Edward R. Castle Professional Engineer State of Florida Registration No. 58574

# **ABBREVIATIONS**

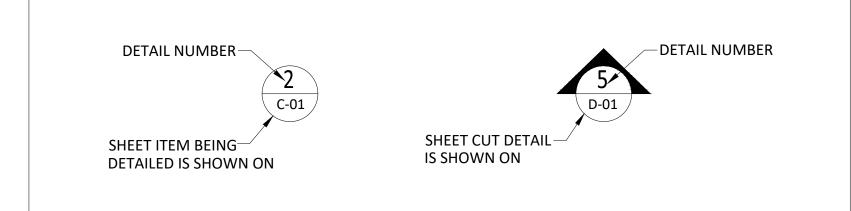
			ADDILLA	.,			
A A/C	Air Conditioner	E EFF	Effluent	L LF	Linear Foot	R REF	Reference
ACP	Asbestos Cement Pipe	EL	Elevation	LH	Left Hand	REQD	Required
AL, ALUM	Aluminum	ELEV	Elevator	LWFC	Lightweight Concrete Fill	REV	Revision
ALT	Alternate	EMER	Emergency	LWL	Low Water Level	RH	Right Hand
AMP	Ampere	EO	Electrically Operated	M MAX	Maximum	RM	Room
ARV	Air Release Valve	EOP	Edge Of Pavement	MBR	Membrane Batch Reactor	RPM	Revolution Per Minute
ASB	Asbestos	EQ	Equal or Equalization	MCC	Motor Control Center	RFG	Refridgerator
AUX	Auxiliary	EQUIP	Equipment	MECH	Mechanical	SS	South
AWL	Average Water Level	EW	Each Way	MEMB	Membrane	SBR	Sequencing Batch Reactor
BFP	Backflow Preventer	EXH	Exhaust	MFM	Magnetic Flow Meter	SCH	Schedule
BFV	Butterfly Valve	EXP	Expansion	MG	Million Gallons	SECT	Section
BHP	Brake Horsepower	F FE	Flow Element or Fire Extinguisher	MGD	Million Gallons Per Day	SD	Storm Drain
BL, B	Baseline	FFE	Finished Floor Elevation	MH	Manhole	SF	Square Feet
BLDG	Building	FH	Fire Hydrant	MIN	Minute or Minimum	SHWR	Shower
BM	Bench Mark	FIN	Finished	MISC	Miscellaneous	SOV	Solenoid Valve
BPS	Booster Pump Station	FLG	Flange	MJ	Mechanical Joint	SPEC	Specification
BPV	Back Pressure Valve	FLM	Flow Meter	MM	Millimeter	SS	Stainless Steel
BSMT	Basement Ball, Walter	FM	Force Main	MO	Motor Operated	STO	Storage
BV	Ball Valve	FPS	Feet Per Second	MSL	Mean Sea Level	STD	Standard
BYP	Bypass	FRP	Fiber Reinforced Plastic	MW	Megawatt or Monitoring Well	SWW	Storm Water Well
CCC	Chlorine Contact Chamber	FT	Foot	MWL	Maximum Water Level	SYM	Symbol
CB	Catch Basin	FTG	Footing	NN	North	T T&P	Time and Pressure
CA	Compressed Air	G GA	Gauge	NA NA	Not Applicable	TB	Thurst Block
CCB	Chlorine Contact Basin	GAL	Gallon	NG	Natural Gas	TDH	Total Dynamic Head
CEM	Cement	GALV	Galvanized	NO, #	Number	TEMP	Temperature
CF	Cubic Foot	GLV	Globe Valve	NOM	Nominal	TOP	Top of Pavement
CFS	Cubic Feet Per Second	GPD	Gallons Per Day	NPT	National Pipe Thread	TOS	Top of Slab
CFM	Cubic Feet Per Minute	GPH	Gallons Per Hour	NPW	Non-Potable Water	TOW	Top of Wall
CI	Cast Iron	GPM	Gallons Per Minute	NTS	Not To Scale	TYP	Typical
CIP	Cast Iron Pipe	GV	Gate Valve	O OC	On Center	U UON	Unless Otherwise Noted
CIPC	Cast-in-Place Concrete	H HB	Hose Bibb	OD	Outside Diameter	VV	Volt
CL, Q	Centerline	HDWR	Hardware	ODC	Odor Control	VAC	Vacuum
CLR	Clear	HORZ	Horizontal	P PC	Porous Concrete	VAL	VALVE
CMU	Concrete Masonry Unit	HP	Horsepower	PD	Plant Drain	VAT	Vinyl Asbestos Tile
CO	Clean Out	HR	Handrail	PG	Pressure Gauge	VCP	Vitrified Clay Pipe
COL	Column	HT	Height	PI	Plant Influent	VCT	Vitrified Clay Tile
CONC	Concrete	HWL	High Water Level	PL, PL	Property Line	VEL	Velocity
CONT	Continuous	HZ	Hertz	PLC	Programmable Logic Center	VIF	Verify In Field
CTR	Center	I ID	Inside Diameter	PLV	Plug Valve	VERT	Vertical
CV	Check Valve	IN, "	Inch	PPS	Plant Pump Station	VOL	Volume
CWR	Cold Water Return	INF	Influent	PRDV	Pressure Reducing Valve	WW	Watt or West
CWS	Cold Water Supply	INV	Invert	PRIM	Primary	W/D	Washer / Dryer
DEG, *	Degree Degree	IPF	Iron Pin Found	PRV	Pressure Relief Valve	WAS	Waste Activated Sludge
DLa, DI	Ductile Iron	IPS	Injection Pump Station	PSS	Pressure Safty Switch	WS	Waste Sludge or Water Stop
DIA, Ø	Diameter	IW	Injection Well	PSW	Pressure Switch	WT	Weight
DIA, <b>E</b>	Diameter  Ductile Iron Pipe	J JCT	Junction	PVC	Polyvinyl Chloride	ww	Weight Wastewater
	•			PVMT		WWF	
DN	Down	K KG	Kilogram		Pavement		Welded Wire Fabric
DO	Dissolved Oxygen	KSI	Kips Per Square Inch	PW	Potable Water	WWTP	Wastewater Treatment Plant
DS	Digested Sludge	KGV	Knife Gate Valve	Q QTY	Quantity	Y YH	Yard Hydrant
E	East	KW	Kilowatt	R RAD, R	Radius	YR	Year
ECC	Eccentric	L LAB	Laboratory	RC	Reinforced Concrete		
EF	Each Face	LB	Pound	RCC	Roller Compacted Concrete		

# GENERAL SYMBOL LEGEND

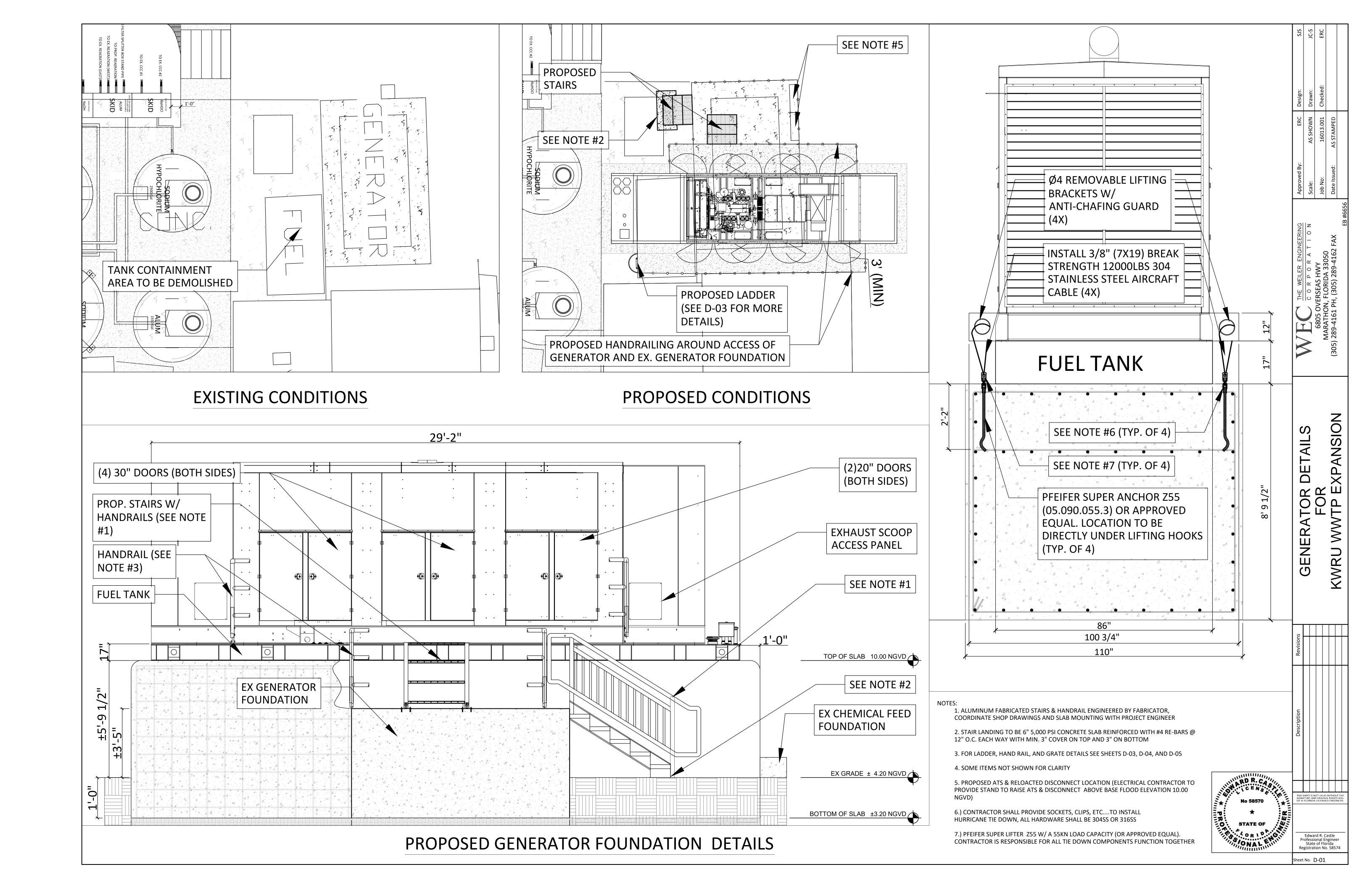
303 ———	EXISTING CONTOUR		OVERHEAD ELECTRIC WIRE
303	FINISHED CONTOUR	◯ <sub>PP</sub>	EXISTING POWER POLE
÷ <sup>20.5</sup>	SPOT ELEVATION		PROPOSED PIPING
•	ELEVATION DESIGNATION	=======================================	EXISTING PIPING
<b>-</b>	HOSE BIBB		
	EXISTING ELECTRICAL	<b>&gt;</b>	YARD HYDRANT - PROPOSED
xx	EXISTING FENCE	Þ	YARD HYDRANT - EXISTING
XXX	NEW FENCE	+	FIRE HYDRANT - PROPOSED
P	PROPERTY LINE	- <del>\</del>	FIRE HYDRANT - EXISTING
R/W	RIGHT-OF-WAY LINE	соФ	CLEAN OUT - PROPOSED
	BALL VALVE	DB-MOV-15	VALVE DESIGNATION
	REDUCER	DB-DLS-5	EQUIPMENT LABEL
/_	CHECK VALVE		FIELD MOUNTED
	GATE VALVE		FIELD PANEL MOUNTED
<b>————</b>	PLUG VALVE		
	BALANCING VALVE	(I)	INTERLOCK
	BUTTERFLY VALVE		PUMP
	ISOLATION VALVE	XXX	INSTRUMENT (FIELD MTD.)
S	SOLENOID VALVE	XXX	INSTRUMENT (MTD. IN PRIMARY LOCATION)
R	PNEUMATIC CONTROL VALVE	S	SCADA
<u>~</u>	PRESSURE REGULATING VALVE	$\Diamond$	FLOAT SWITCH
$\supset$	SURGE RELIEF VALVE	XXX	DI OT LIGHT
Ţ	AIR RELEASE VALVE	000	PILOT LIGHT
M	NEEDLE VALVE		
	3-WAY ACTUATED VALVE		
	UNDERGROUND ELECTRIC		
FE	FLOW METER		
	CITY WATER LINE (POTABLE)		
——— СНЕМ ————	PROPOSED CHEMICAL LINE		
CHL ———	EXISTING CHLORINE		
s	EXISTING SANITARY SEWER LINE		
	LIQUID CALIBRATION TUBE		

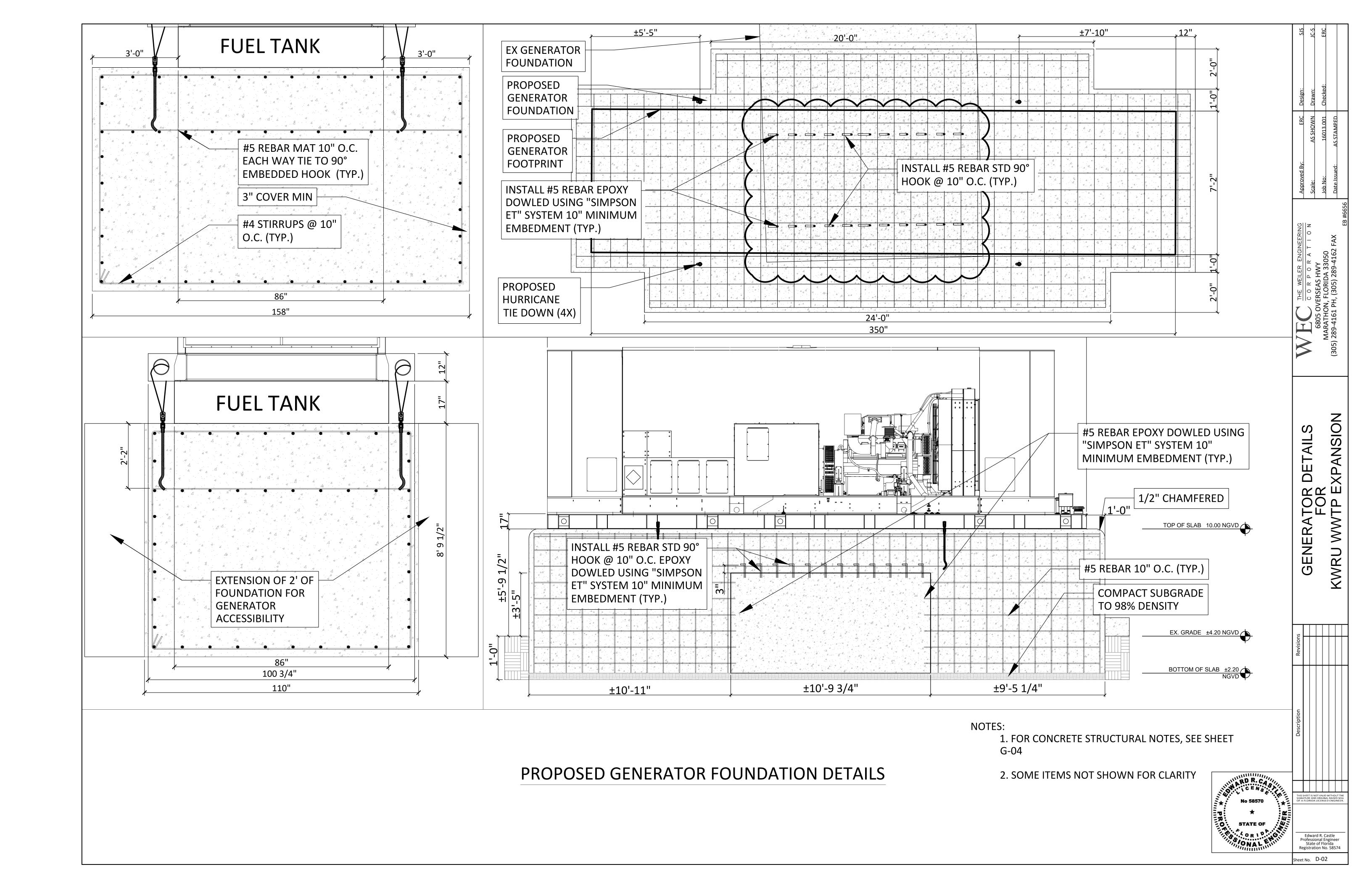
NOTE: LEGEND APPLIES WHERE INADEQUATE DESCRIPTION AVAILABLE. VERIFY CONFLICTS WITH ENGINEER.

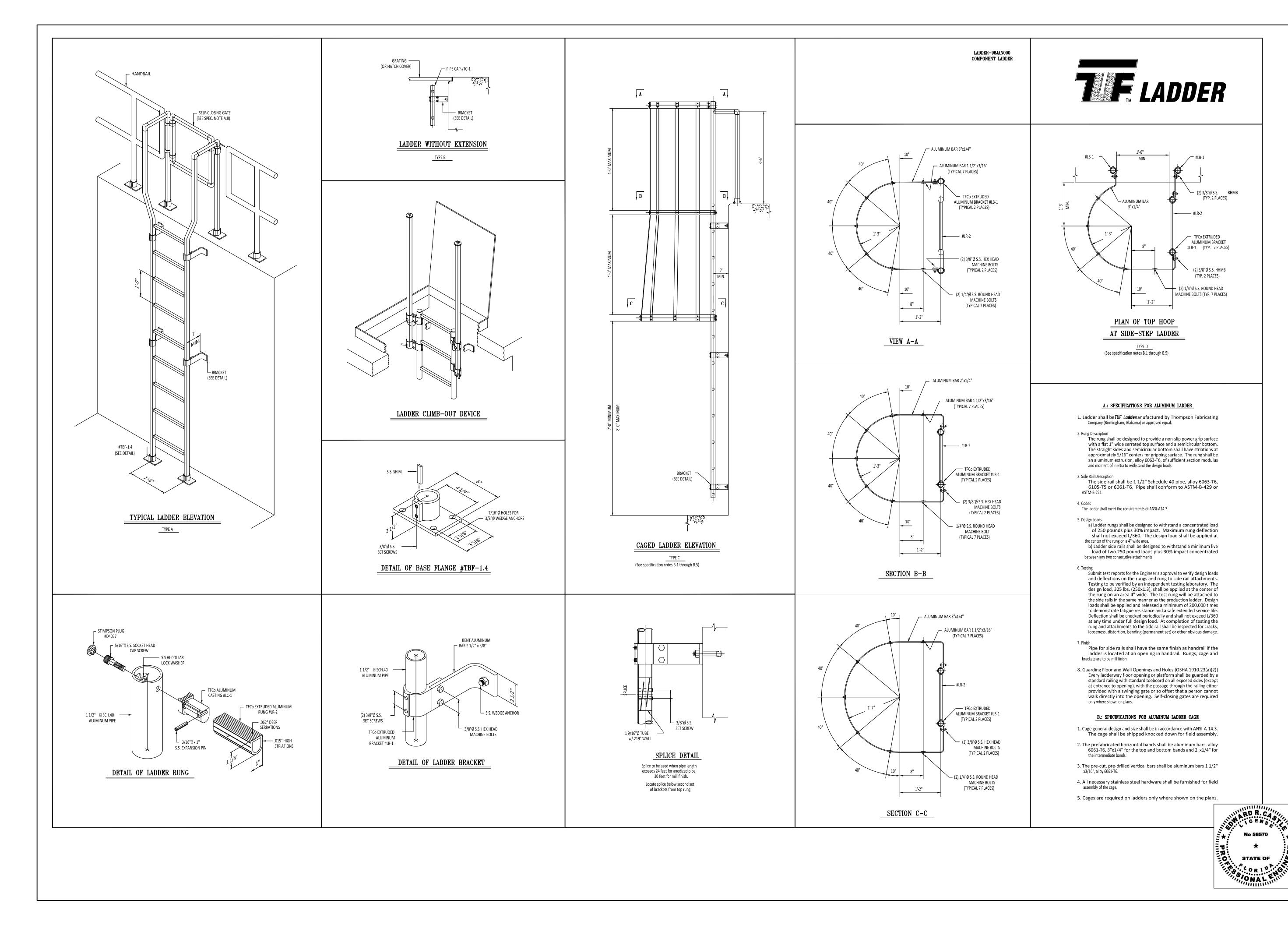
# SECTION CUTS & DETAIL CALLOUTS



LEGEND FOR KWRU WWTP EXPANSION







ERC Design: S
WN Drawn: CWK,SJS, JC
O01 Checked: El

Approved By: ERC Design:

Scale: AS SHOWN Drawn:

Job No: 16013.001 Checked:

Date Issued: AS STAMPED

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LATTER DETAILS FOR U WWTP EXPANSION

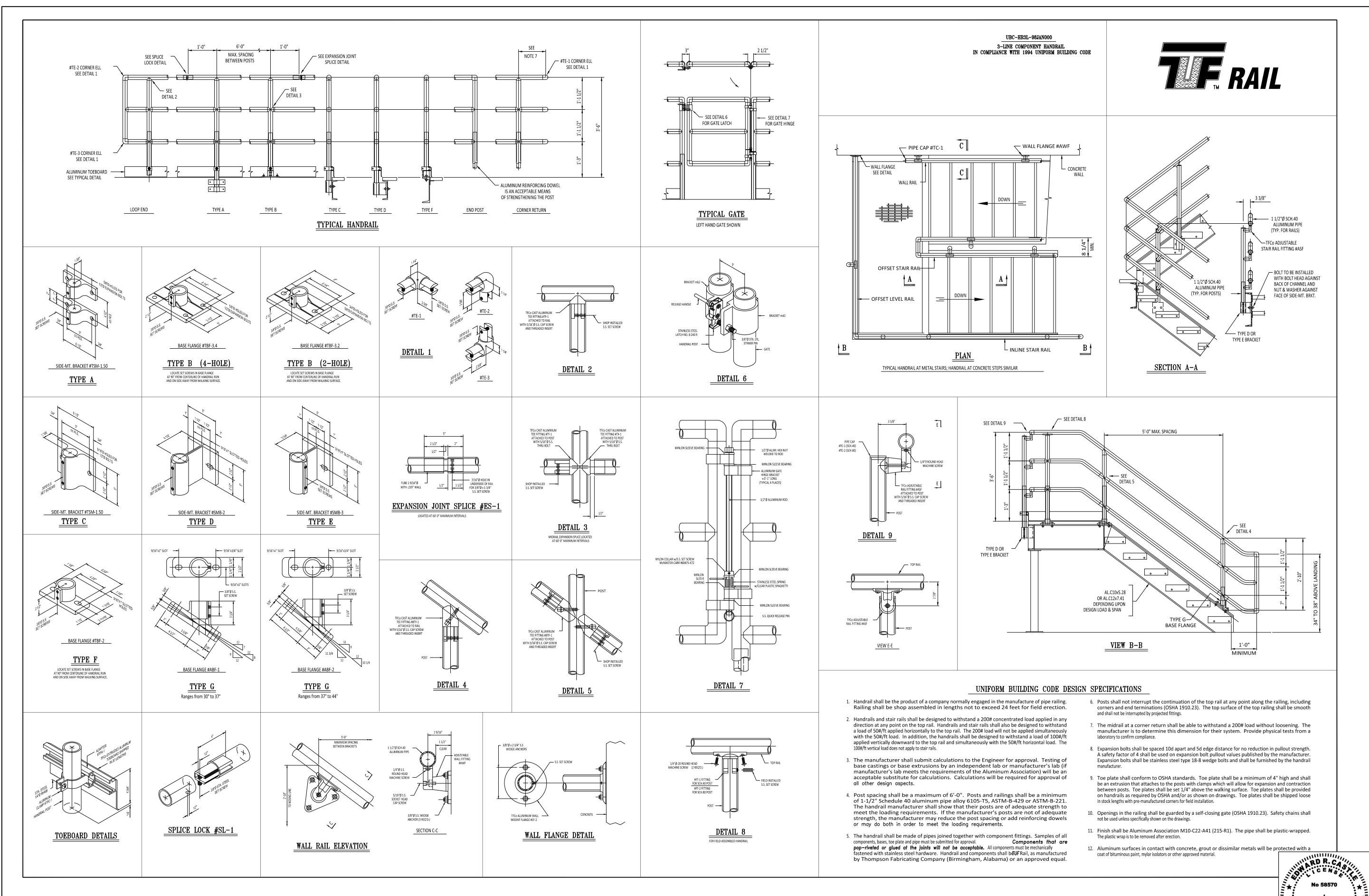
Revisions

Description

THIS SHEET IS NOT VALID WITH SIGNATURE AND ORIGINAL RAIS OF A FLORIDA LICENSED ENG

Edward R. Castle Professional Engineer State of Florida Registration No. 58574

Sheet No. D-03



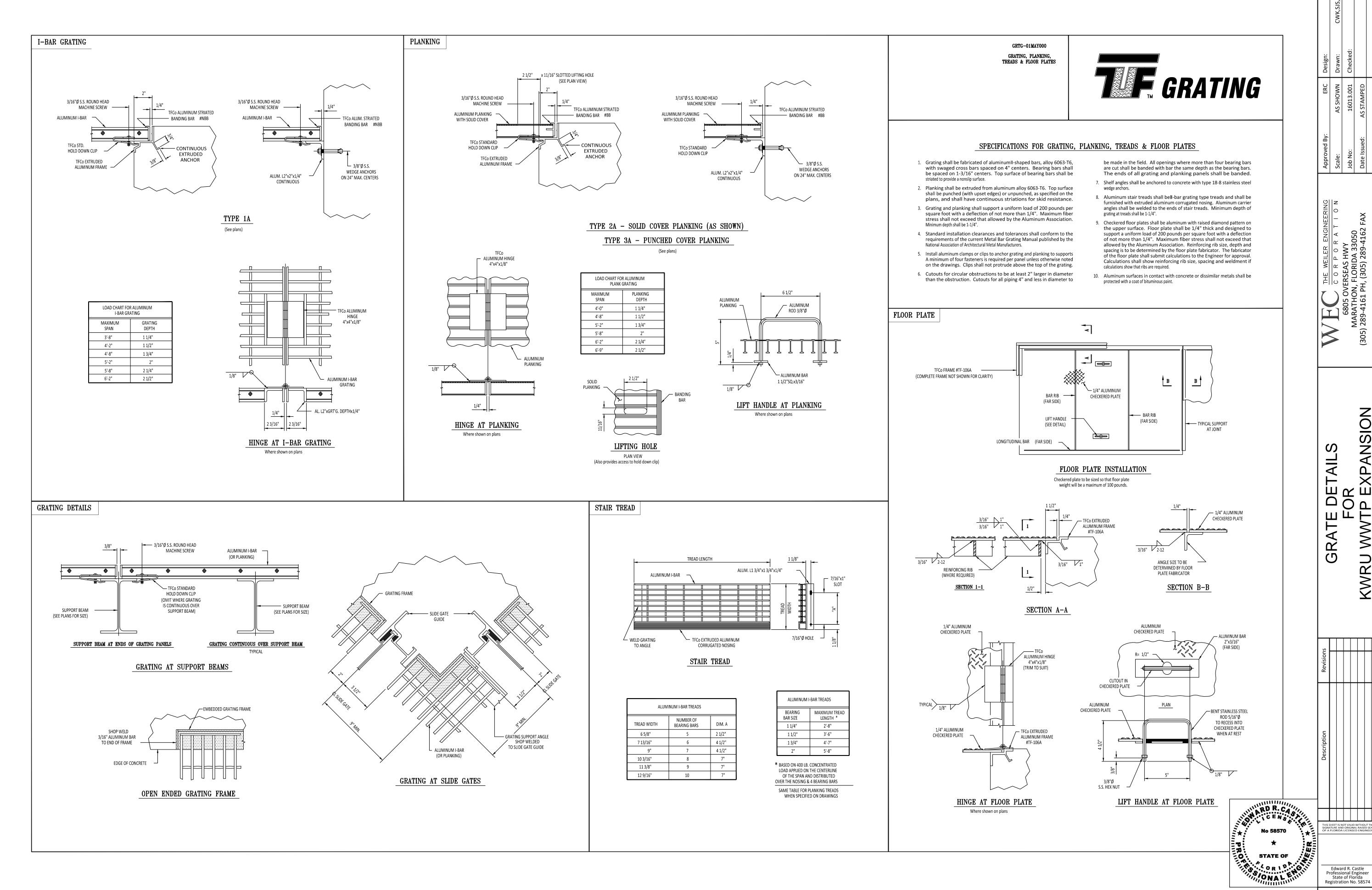
THIS SHEET IS NOT VALID WITH SIGNATURE AND ORIGINAL RAIS OF A FLORIDA LICENSED ENG

Edward R. Castle
Professional Engineer
State of Florida
Registration No. 58574

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