

100 N.W. 1st AVENUE, DELRAY BEACH, FL 33444

Solicitation Addendum

Addendum No.: 1

Solicitation No.: 2017-058

Project No.: 17-062

Solicitation Title: Christmas Tree and North Pole Village Assembly and

Storage

Addendum Date: July 10, 2017

Purchasing Contact: Jose Hidalgo – hidalgoj@mydelraybeach.com

THE FOLLOWING ITEMS ARE MADE AND HEREBY BECOME A PART OF THIS SOLICITATION:

Change to:

LEGAL ADVERTISEMENT Good approach to PM

The City of Delray Beach is seeking Bids from qualified contractors to assemble, disassemble and store the City one-hundred foot aluminum Christmas Tree and nine seven North Pole Village Structures, in accordance with the terms, conditions, and specifications contained in this Invitation to Bid.

Change to:

SECTION 2, SPECIAL TERMS AND CONDITIONS, ITEM 2.1

2.1 PURPOSE

The purpose of this Solicitation is to obtain bids for a five-year agreement for the assembly, dis-assembly, maintenance, repair, storage, and transportation for the City's 100 Foot Aluminum Christmas Tree as well as the nine seven North Pole Village Structures

Change to:

SECTION 3, SCOPE OF WORK, ITEM 3.1

3.1 PROJECT SCOPE

Sealed Bid to provide the following services for a five-year term for assembly, disassembly, maintenance, repair, bonded storage, and transportation for the City's one

hundred foot aluminum Christmas tree (Christmas Tree) as well as the <u>nine seven</u> North Pole Village Structures (Village). The awarded Bidder (hereinafter in this Scope of Work referred to as Contractor) shall provide all labor, materials, facilities, equipment, supplies, transportation, and travel for the work.

Add:

EXHIBIT 12, Drawings & Photos

Exhibit 12, Drawings & Photos, that includes electrical drawings, is hereby incorporated into the solicitation and part a part hereof.

NOTE: Items that are struck through are deleted. Items that are <u>underlined</u> have been added. All other terms and conditions remain as stated in the RFP.

QUESTIONS AND RESPONSES:

- Q1. How many ornaments go on the Christmas tree?
- R1. The number of ornaments is approximately 10,000.
- Q2. What sizes are the ornaments?
- R2. The ornaments are similar in size to those used for large residential Christmas trees.
- Q3. Provide the exact specifications on the tree; the number of frame pieces, the number of branches; how many branches will need 'fluffing' after assembly; type of lights on the tree; the power draw of the tree.
- R3. For information that is currently available on the tree specifications, frame pieces branches and electrical components of the tree, refer to the attached Exhibit 12, Drawings & Photos.
- Q4. Can we obtain pictures of the tree frame and branches?
- R4. For information that is currently available on the tree frame and branches, refer to the attached Exhibit 12, Drawings & Photos.
- **Q5.** Is employer's liability insurance and professional liability insurance required? R5. Yes, they are required. Refer to the Solicitation, Section 2.12, Item ii. Employer's Liability and Item iii. Professional Liability.
- Q6. Why would the warehouse that the tree is to be stored in need to be bonded? Here is the definition I found of a bonded warehouse: A bonded warehouse is a secured warehouse facility that is covered by customs rules. Companies that export products, materials and items abroad commonly use bonded warehousing facilities to store their products.

R6. Due to the value of the tree that will be store, a bonded warehouse is required.

Q7. How many North Pole Village Structures are part of the scope?

R7. Per this addendum the number of North Pole Village Structures has been updated to seven.

Q8. Who are the companies that have worked on the City Christmas tree in the past?

R8. The following are some of the firms that worked on the assembly and disassembly of the steel Christmas tree in the past. However, the new tree is aluminum and all of the services previously required may not be applicable to the contract resulting from this solicitation.

a.Iron workers – Eagle Metal

b.Electricians – Meisner Electric

c. Towing for containers - Sisters Towing

d.Flatbeds – Hard Drives

e.Cranes – Allegiance Crane, Hunter Merchant Crane

Q9. How does the tree get put together?

R9. The previous steel Christmas tree was put together by City staff with the assistance of City contractors and volunteers. This process does not apply to the contract resulting from this solicitation. The awarded Contractor will be solely responsible for all aspects of assembly and disassembly. The details and instructions for the new aluminum Christmas tree assembly and disassembly will be as specified by the manufacturer of the tree and will be provided to the awarded Contractor. Assembly of the Christmas tree must be completed in time for the tree lighting ceremony which is generally the week following Thanksgiving.

The previous process for assembly was a follows. In mid-October, the tree and village structures were transported to the assembly site. Then several of the largest rings were brought out and put into place on the ground and some of the village structures were placed inside the rings. Assembly of the rings continued at ground level along with the addition of branches, lights and ornaments until the tree was ready to stack, usually about mid-November. The tree was then stacked and the remaining rings, branches, lights and ornaments were added. Once the tree was assembled the remaining village structures and model train were put into place.

End of Addendum

INSTRUCTIONS:

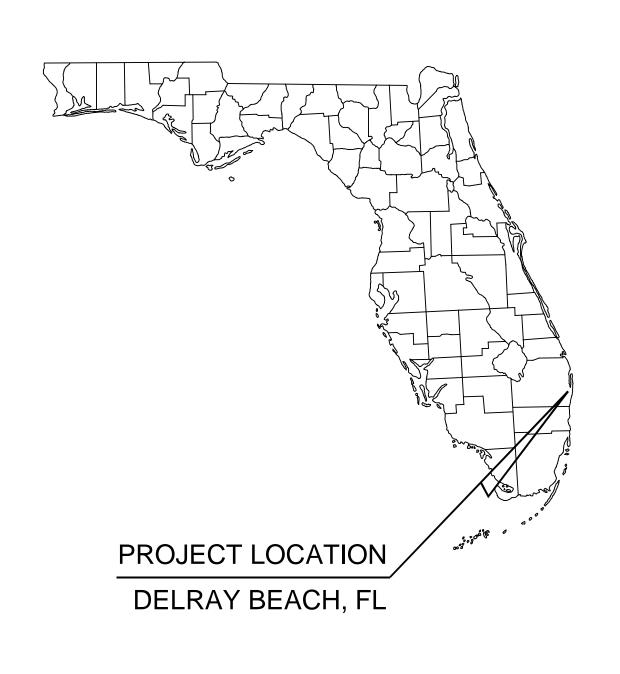
Receipt of this addendum must be acknowledged as instructed in the solicitation document. Failure to acknowledge receipt of this Addendum may result in the disqualification of Respondent's response.

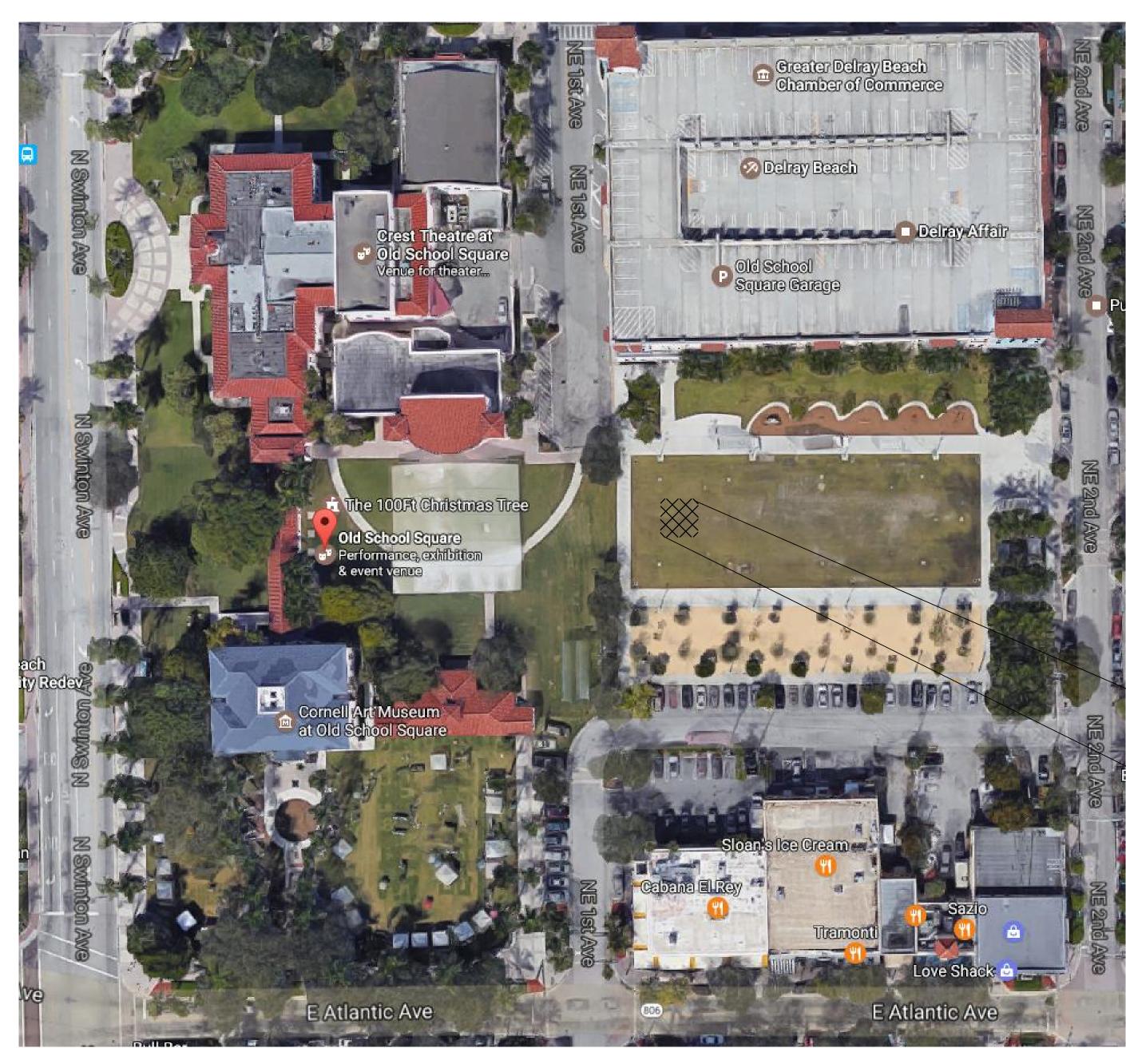
EXHIBIT 12

DELRAY CHRISTMAS TREE FOUNDATION

CONSTRUCTION SITE PLANS

CITY OF DELRAY BEACH DELRAY BEACH, FLORIDA





INDEX OF SHEETS

COVER SHEET GENERAL NOTES OVERALL SITE PLAN EXISTING SITE PLAN AND **DEMOLITION** PROPOSED PLAN DETAILS E-1.0 CHRISTMAS TREE ELECTRICAL RELOCATION PLAN E-2.0 PARTIAL ELECTRICAL RISER DIAGRAM E-3.0 PANEL SCHEDULES AND **DETAILS**

VICINITY MAP

No.	REVISIONS	DATE	BY

Kimley >>> Horn
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KHA PROJECT
044300050

DATE
JUNE 2017

SCALE AS SHOWN

DESIGNED BY CMM

DELRAY CHRISTMAS TREE
FOUNDATION
PREPARED FOR
CITY OF DELRAY CITY OF DELRAY BEACH

LICENSED PROFESSIONAL

ANGELINA G. FAIRCHILD

FLORIDA LICENSE NUMBER

#43958

FLORIDA DATE:

COVER PAGE

PROJECT

SHEET NUMBER

C-1

GENERAL NOTES:

- 1. THESE NOTES ARE NOT INTENDED TO REPLACE THE PROJECT SPECIFICATIONS OR CONSTRUCTION DRAWING NOTES & DETAILS. IN CASE OF CONFLICT BETWEEN THE REQUIREMENTS OF THE SPECIFICATIONS/CONSTRUCTION DRAWINGS AND THESE NOTES, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
- 2. THE GOVERNING CODE FOR THIS PROJECT IS THE FLORIDA BUILDING CODE, 2014 EDITION.
- 3. THE CONTRACT DOCUMENTS HAVE MADE NO INTENT TO GIVE SPECIFIC INSTRUCTIONS CONCERNING THE MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND ASSIGNMENT OF WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SUPERVISING AND DIRECTING THE WORK
- 4. TO THE BEST OF OUR KNOWLEDGE, THE CIVIL DRAWINGS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE GOVERNING BUILDING CODE.
- 5. CONSTRUCTION SHALL COMPLY WITH REQUIREMENTS OF THE GOVERNING BUILDING CODE AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL CODES, STANDARDS, REGULATIONS AND LAWS
- 6. THE CIVIL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THOSE OF THE OTHER TRADES. IF A CONFLICT EXISTS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
- 7. CONTRACTOR SHALL VISIT PROJECT SITE AND BE FAMILIAR WITH THE PROPOSED WORK. TAKE FIELD MEASUREMENTS AND VERIFY ALL FIELD CONDITIONS, AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- 8. CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS, DIMENSIONS AND SITE CONDITIONS AND COORDINATE WITH FIELD DIMENSIONS AND PROJECT SHOP DRAWINGS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS GIVEN, STRUCTURAL AND FINISHED FLOOR ELEVATIONS, MEMBER SIZES, ETC, WITH THE DRAWINGS OF OTHER TRADES BEFORE STARTING ANY WORK. REPORT ANY DISCREPANCIES VERBALLY AND IN WRITING IMMEDIATELY TO ENGINEER PRIOR TO PROCEEDING WITH WORK. WORK SHALL NOT COMMENCE UNTIL THE DISCREPANCIES ARE RESOLVED.
- 9. CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM DAMAGE AND SHALL PROTECT HIS WORK, ADJACENT PROPERTY AND THE PUBLIC. CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, CONSTRUCTION PROCEDURES AND DAMAGE OR INJURY DUE TO HIS ACT OR NEGLECT.
- 10. CONTRACTOR SHALL SUITABLY DOCUMENT EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF THE WORK, AND SHALL RESTORE ALL DAMAGED OR DISTURBED AREAS TO MEET OR EXCEED ORIGINAL SITE CONDITIONS TO THE OWNER'S SATISFACTION.
- 11. DO NOT REPRODUCE THE STRUCTURAL DRAWINGS FOR USE AS ERECTION, PLACING, FABRICATION OR SHOP DRAWINGS.
- 12. SCALING OF DRAWINGS SHALL NOT BE USED TO OBTAIN OR VERIFY ANY DIMENSION SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE ENGINEER FOR INSTRUCTION FOR ANY DIMENSION NOT GIVEN ON DRAWINGS.
- 13. DETAILS LABELED "TYPICAL DETAILS" ON THE DRAWINGS APPLY TO ALL SITUATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY DETAILED. SUCH DETAILS APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. QUESTIONS REGARDING APPLICABILITY OF TYPICAL DETAILS SHALL BE RESOLVED BY THE ENGINEER.
- 14. CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM ADVANCE NOTICE TO ENGINEER FOR ALL REQUIRED FIELD REVIEWS.
- 15. CONTRACTOR SHALL COORDINATE WITH OWNER ALL ITEMS TO BE CONTRACTED, SUPPLIED OR INSTALLED BY HIM.
- 16. CONTRACTOR IS RESPONSIBLE FOR ALL BUILDING, PERMIT, REVIEW, LICENSE AND DEVELOPMENT FEES REQUIRED TO COMPLETE THE PROJECT.
- 17. CONTRACTOR SHALL ASSEMBLE AND INSTALL MATERIALS AND PRODUCTS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND WITH INDUSTRY/ASSOCIATION STANDARDS. MATERIALS OR WORK DESCRIBED IN WORDS WHICH HAVE A WELL-KNOWN TECHNICAL TRADE MEANING SHALL BE HELD TO REFER TO THE RECOGNIZED STANDARD. ALL MATERIALS SHALL BE NEW, U.O.N.
- 18. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK, HOWEVER, NO CHANGES THAT ALTER THE CHARACTER INTENT OF THE DESIGN WILL BE MADE WITHOUT A CHANGE ORDER.

<u>UTILITIES</u>

- 1. CONTRACTOR SHALL LOCATE IN THE FIELD ALL UTILITIES OCCURRING WITHIN THE LIMITS OF EXCAVATION.
- 2. CONTRACTOR SHALL CALL SUNSHINE STATE ONE CALL OF FLORIDA, INC. (1–800–432–4770)
 AT LEAST 48 HOURS BEFORE COMMENCEMENT OF ANY EXCAVATION OPERATIONS ON SITE
- 3. DATA CONCERNING TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL—INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

DOCUMENTS AND LIMITATIONS

- 1. THE DRAWINGS, CALCULATIONS, AND REPRODUCTIONS RELATING TO THE STRUCTURAL PART OF THE PROJECT ARE INSTRUMENTS OF SERVICE TO BE USED FOR THIS PROJECT ONLY.
- 2. IT IS UNDERSTOOD THAT THE ENGINEER MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, AS TO THE FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OR PROFESSIONAL ADVICE EXCEPT THAT THESE INSTRUMENTS OF SERVICE HAVE BEEN PREPARED IN ACCORDANCE WITH CURRENT GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRACTICES.

SHOP DRAWINGS AND OTHER SUBMITTALS

- 1. REVIEW OF SUBMITTALS BY THE ENGINEER IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE. ONLY THOSE SUBMITTALS REQUIRED TO BE SUBMITTED WILL BE REVIEWED. ALL OTHERS WILL BE RETURNED WITHOUT REVIEW.
- 2. ALL SUBMITTALS SHALL BE ACCOMPANIED BY A LETTER OF TRANSMITTAL. CONTRACTOR'S SUBMITTAL NUMBER SHALL BE INDICATED ON TRANSMITTAL. DO NOT COMBINE DIFFERENT SUBMITTALS ON THE SAME TRANSMITTAL. SUBMIT SHOP DRAWINGS IN A TIMELY MANNER, CONSISTENT WITH THE ABOVE, AND PRIOR TO FABRICATION, INSTALLATION OR COMMENCEMENT OF THE WORK. ALLOW UP TO 10 WORKING DAYS FOR ENGINEER TO REVIEW AND RETURN SHOP DRAWINGS. NUMBER OF COPIES OF EACH SUBMITTED SHOP DRAWING SHALL BE SUFFICIENT FOR ENGINEER TO RETAIN 2 COPIES.

- 3. ALL SUBMITTALS MUST BEAR EVIDENCE OF CONTRACTOR'S REVIEW (INCLUDING COMPANY STAMP AND DATED SIGNATURE OF REVIEWER) AND MUST BE APPROVED OR APPROVED AS NOTED BY HIM PRIOR TO SUBMITTING TO THE ENGINEER
- 4. ALL CHANGES AND ADDITIONS MADE ON RESUBMITTALS MUST BE CLEARLY FLAGGED AND NOTED. THE PURPOSE OF THE RESUBMITTALS MUST BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. ENGINEER REVIEW WILL BE LIMITED TO THOSE ITEMS CAUSING THE RESUBMITTAL.
- 5. DO NOT REPRODUCE THE STRUCTURAL DRAWINGS FOR USE AS ERECTION, PLACING OR FABRICATION DRAWINGS.
- 6. SUBMITTALS NOT MEETING THE ABOVE CRITERIA OR SUBMITTED AFTER FABRICATION WILL NOT BE REVIEWED.

7. SUBMITTALS:

- AS A MINIMUM, THE FOLLOWING SHALL BE SUBMITTED, AS APPLICABLE, TO THE ENGINEER FOR REVIEW AND COMPLIANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS PRIOR TO FABRICATION, INSTALLATION, OR COMMENCEMENT OF THE WORK:
- A. CONCRETE, MORTAR AND GROUT MIX DESIGNS, INCLUDING ADMIXTURE DATA SHEETS.
- B. BILL OF REINFORCING AND LAYOUT.
 C. MISCELLANEOUS METAL FABRICATIONS.
- D. TIE-DOWN ANCHORS FOR ROOF TRUSS SYSTEM.
- E. HANDRAIL, GUARDRAIL AND LADDER DETAILS AND CONNECTIONS.
 F. JOINT LAYOUT PLAN AND MATERIALS.
- G. PAINT, SEALANT, TOPPINGS AND OTHER FINISH PRODUCTS.
 H. CERTIFICATIONS FOR MASONRY UNITS.
- J. TEMPORARY RETAINING WALL DESIGN DRAWINGS AND CALCULATIONS.
 K. TIE—INS TO EXISTING STRUCTURES.
- IN ADDITION, CUT SHEETS FOR WATERPROOFING, VAPOR BARRIERS, WATERSTOPS, PROPRIETARY ANCHORS, FASTENERS, OTHER STANDARD ATTACHMENTS, EXPANSION JOINTS, MORTAR, BONDING AGENT, DOORS, WINDOWS, INSULATION, AND OTHER MATERIALS AND
- APPROPRIATE CERTIFICATIONS SHALL ALSO BE SUBMITTED.

 WELDER CERTIFICATIONS FOR ALL WELDERS SHALL BE SUBMITTED. CERTIFICATIONS MUST HAVE BEEN ISSUED WITHIN 3 YEARS PRIOR TO PERFORMING WORK ON THE PROJECT.
- 8. REQUESTS FOR SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR REVIEW. SUBMIT 3 COPIES OF ALL PRODUCT DATA AND CUT SHEETS AS NECESSARY TO SHOW COMPLIANCE WITH THE PROJECT REQUIREMENTS. CONTRACTOR SHALL BEAR THE BURDEN OF OBTAINING AUTHORIZATION FOR USE OF ITEMS TO BE SUBSTITUTED. ENGINEER'S DECISION REGARDING SUBSTITUTION SHALL BE FINAL.
- 9. FOR ADDITIONAL CRITERIA APPLICABLE TO SUBMITTALS REQUIRING ENGINEERING INPUT BY A DELEGATED ENGINEER, SEE BELOW.

STRUCTURAL STEEL

- DESIGN, FABRICATE AND ERECT STRUCTURAL STEEL IN CONFORMANCE WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "LRFD MANUAL OF STEEL CONSTRUCTION — THIRD EDITION," "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES — 2005," AND "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS — 2005."
- 2. VERIFY ALL DIMENSIONS AS REQUIRED PRIOR TO FABRICATION OF ANY STRUCTURAL STEEL.

CLEAN UP

- 1. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS EMPLOYEES.
- 2. CONTRACTOR SHALL VISUALLY INSPECT INTERIOR AND EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES, STAINS, SPLASHED MATERIAL, PAINT DROPPINGS AND OTHER FOREIGN MATTER PRIOR TO COMPLETION OF THE WORK.

S-BUILT DRAWINGS

- 1. CONTRACTOR SHALL PREPARE AND MAINTAIN CURRENT A SET OF REDLINED AS—BUILT DRAWINGS SHOWING ALL DEVIATIONS AND CHANGES MADE TO THE CONSTRUCTION DRAWINGS.
- 2. AS-BUILT DRAWINGS SHALL BE MADE AVAILABLE TO THE ENGINEER FOR REVIEW UPON REQUEST AT ANY TIME DURING THE COURSE OF THE PROJECT.
- 3. CONTRACTOR SHALL SUBMIT THE ORIGINAL AS—BUILT DRAWINGS TO THE ENGINEER WITHIN ONE WEEK FROM THE DATE OF FINAL COMPLETION, AND PRIOR TO OWNER'S ACCEPTANCE OF CONTRACTOR'S FINAL INVOICE.
- 4. SUBMITTED AS-BUILT DRAWINGS WILL REMAIN THE PROPERTY OF THE ENGINEER.

ABBREVIATIONS

- EA. EACH E.F. EACH FACE EL. ELEVATION
- E.W. EACH WAY MAX. MAXIMUM
- MIN. MINIMUM O.C. ON CENTER
- STD. STANDARD
- T&B TOP & BOTTOM TYP. TYPICAL
- U.O.N. UNLESS OTHERWISE NOTED W.P. WORK POINT

DESIGN CRITERIA

2014 FLORIDA BUILDING CODE WINDLOADS (ASCE 7-10) ULTIMATE WINDSPEED = 170 MPH NOMINAL WINDSPEED = 132 MPH RISK CATEGORY: II WIND EXPOSURE: C

REFERENCE DRAWINGS

OLD SQUARE PARK: PHASE 1, CITY PROJECT NO. 2006-053, SITE CONSTRUCTION DOCUMENTS, PREPARED BY GLATTING JACKSON KERCHER ANGLIN, JULY 10, 2009.

No. REVISIONS DATE BY

Kimley » Horn
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CHECKED BY AGE

KHA PROJECT
044300050

DATE
JUNE 2017

SCALE AS SHOWN
DESIGNED BY CMM

CITY OF DELRAY

DELRAY CHRISTMAS TREE
FOUNDATION
PREPARED FOR

CITY OF DELRAY BEACH

ANGELINA G. FAIRCHILD

FLORIDA LICENSE NUMBER

#43958

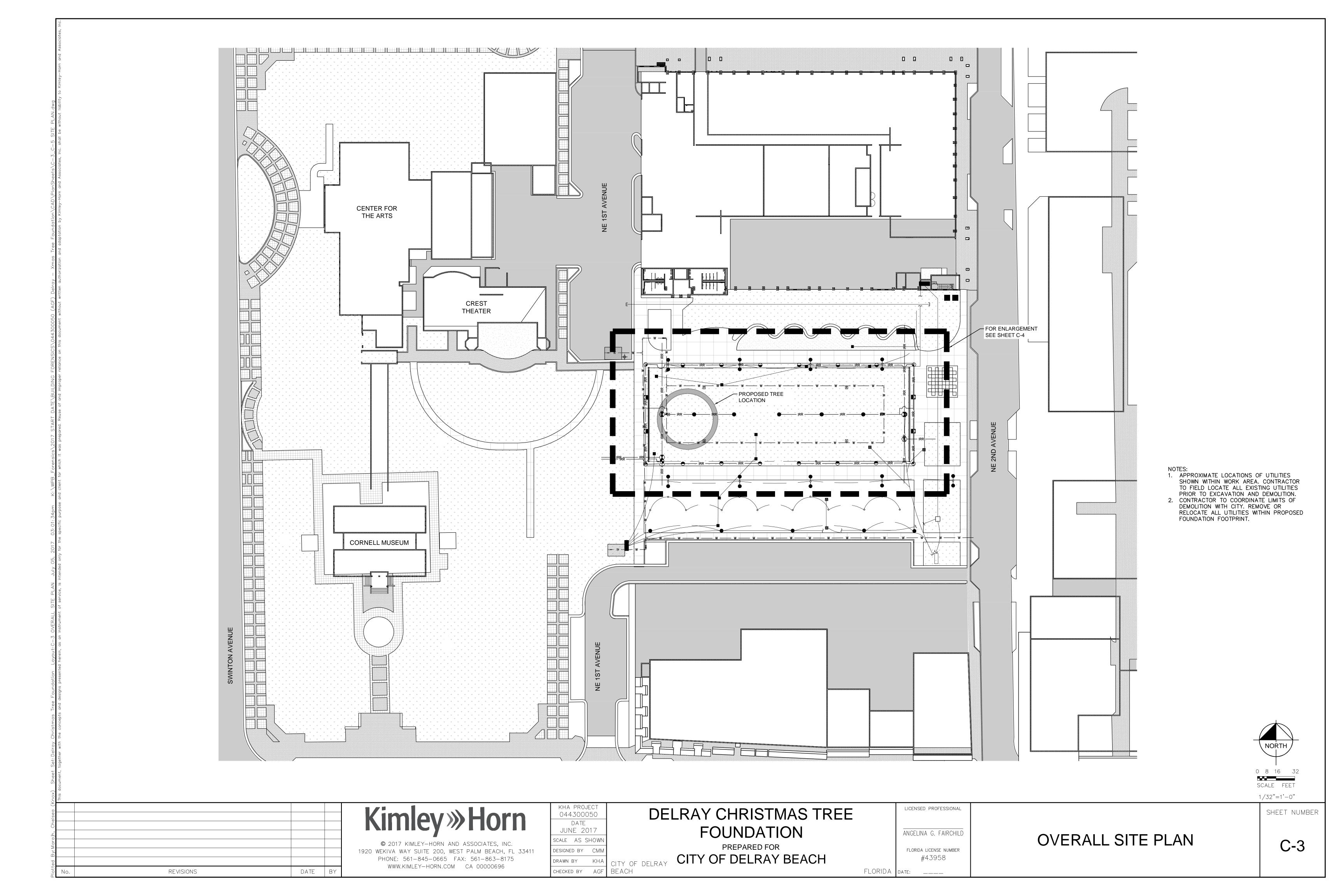
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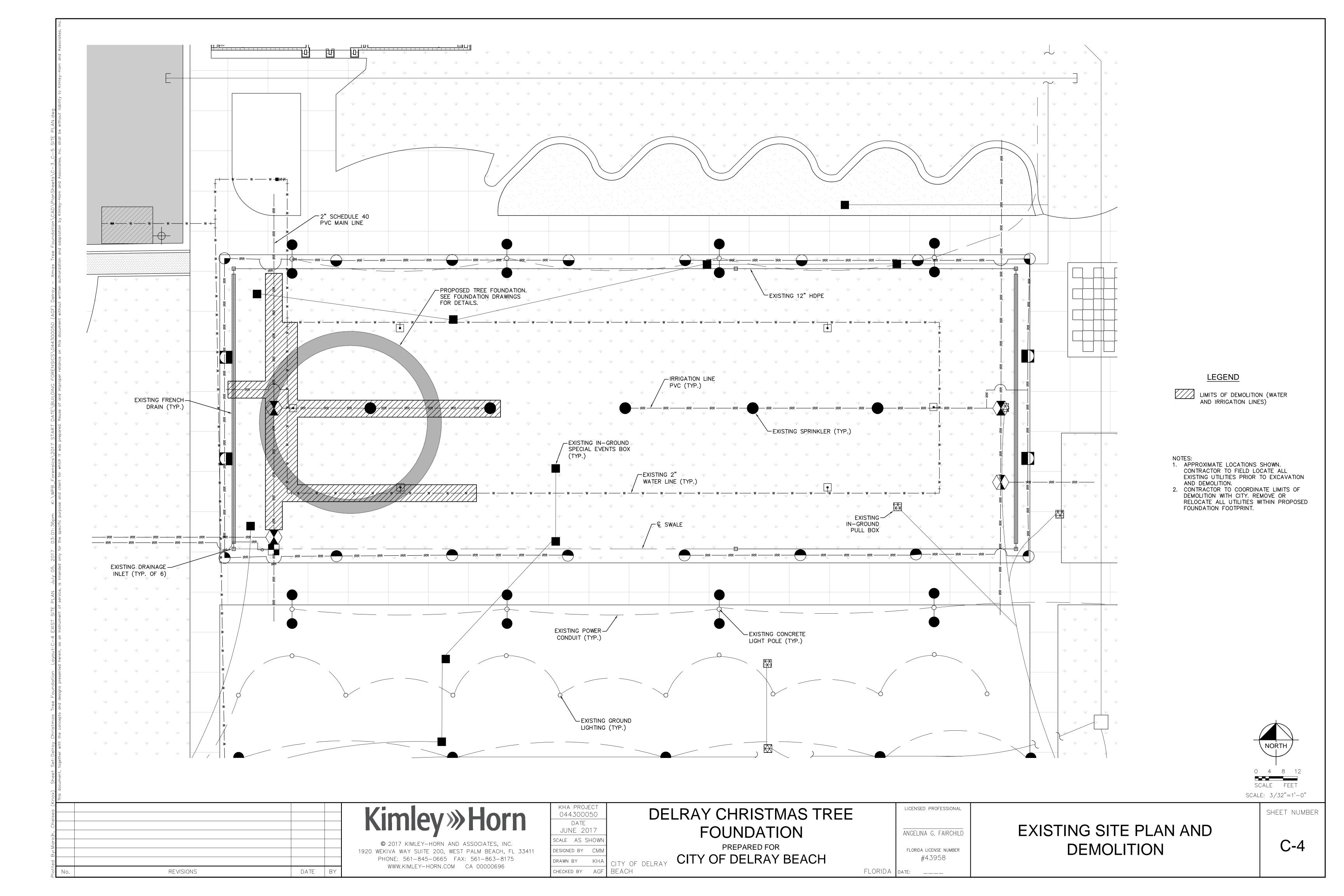
LICENSED PROFESSIONAL

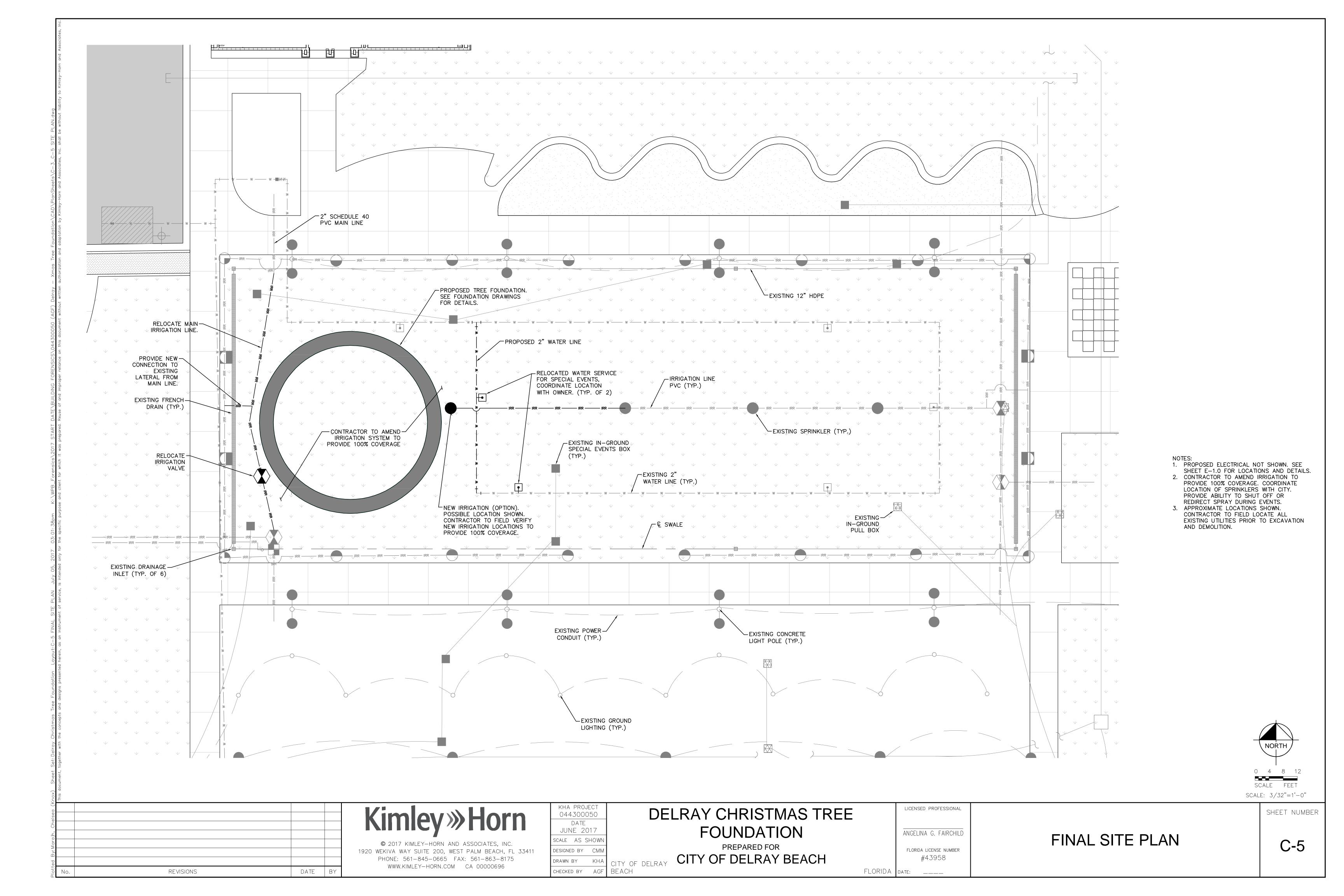
GENERAL NOTES

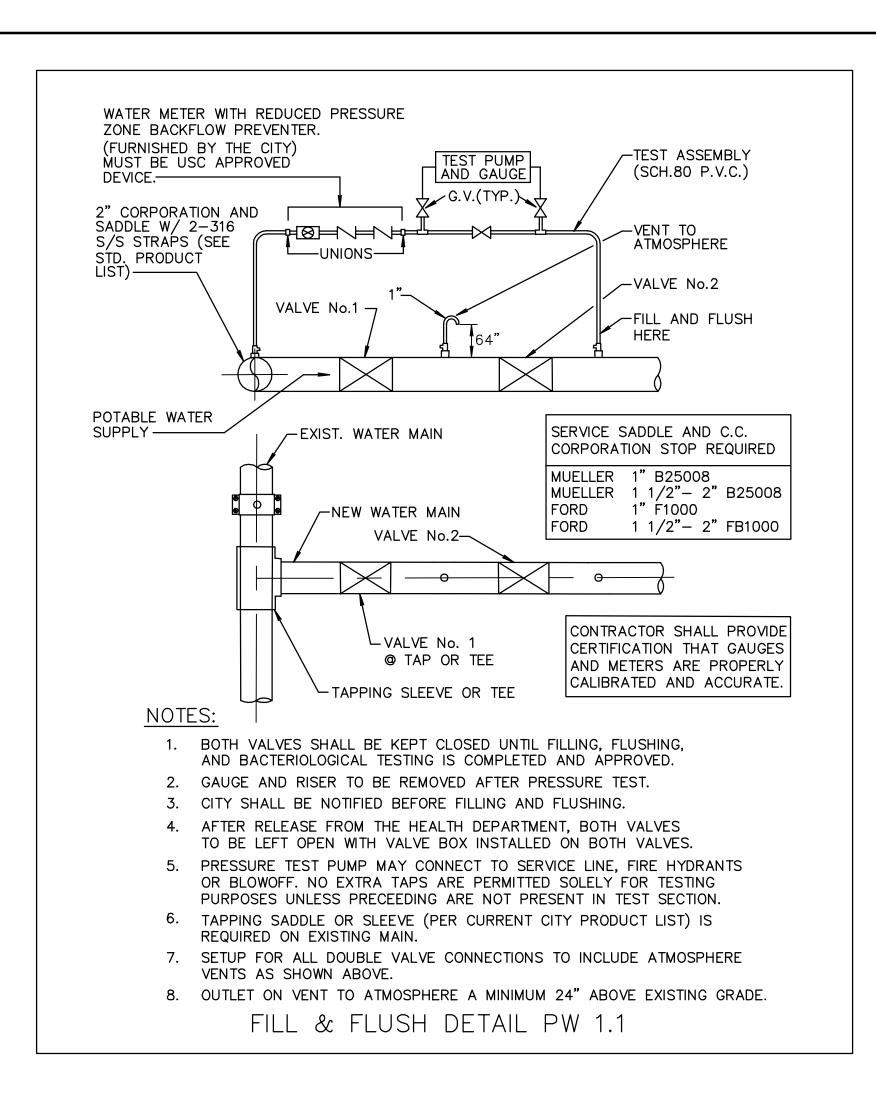
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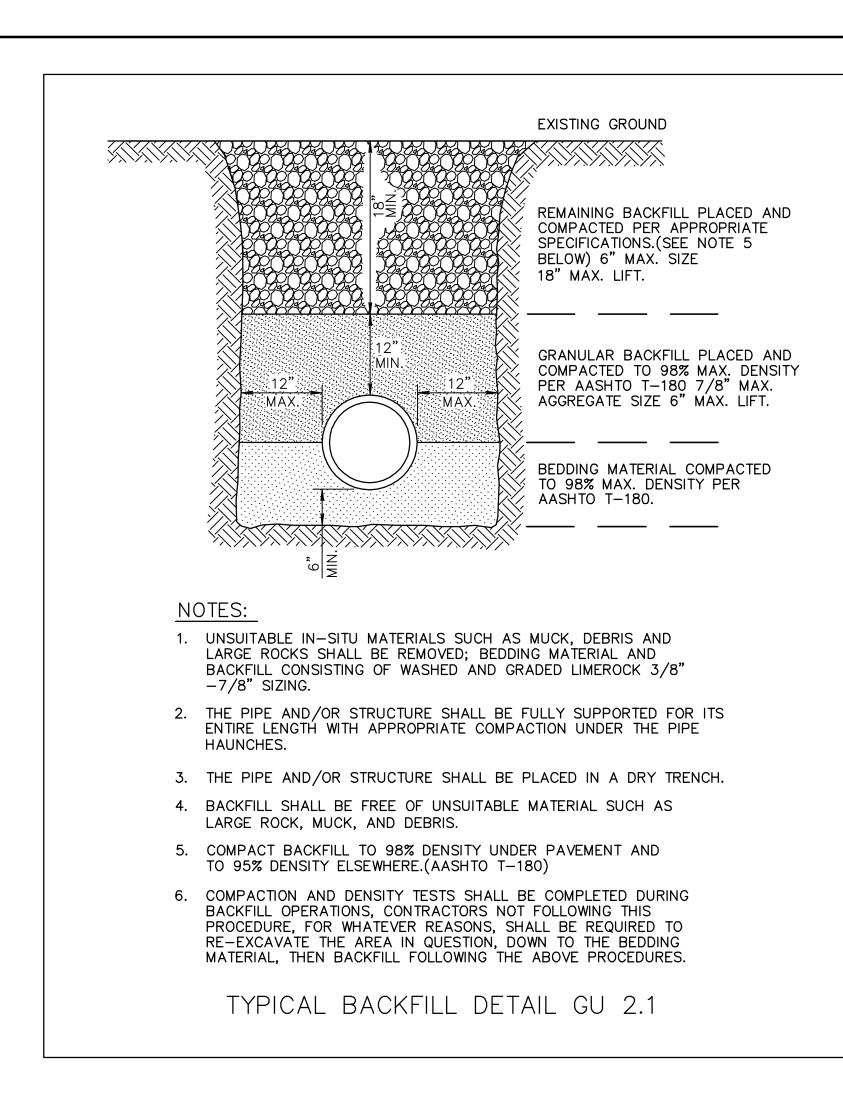
C-2

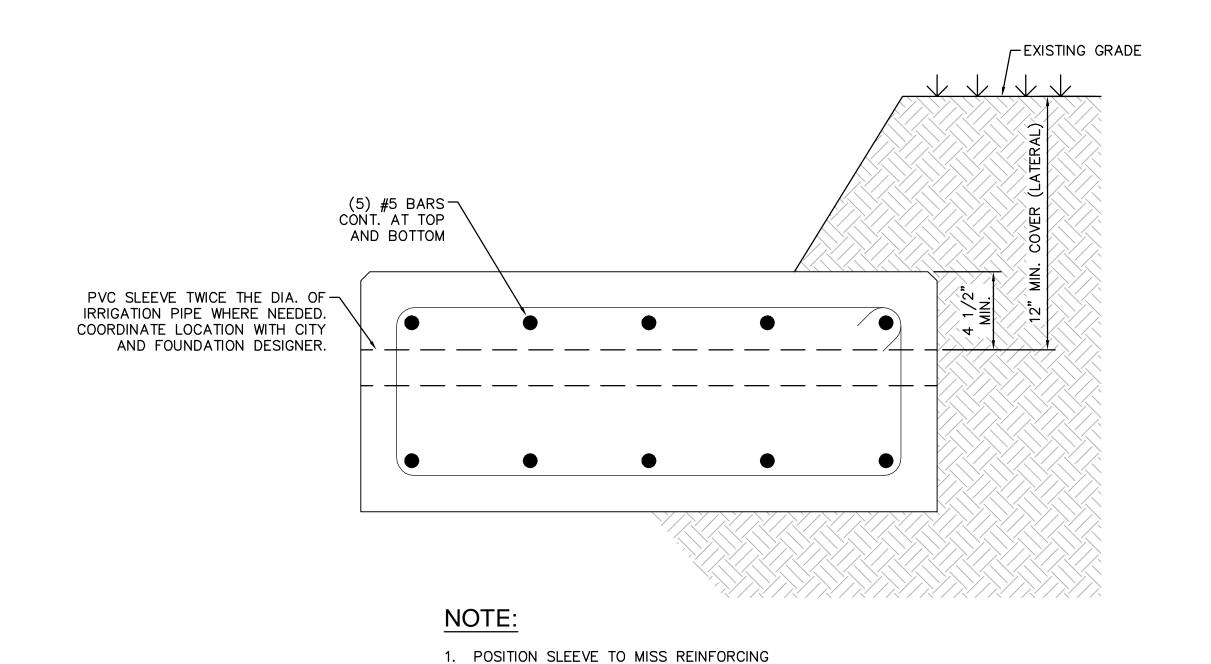








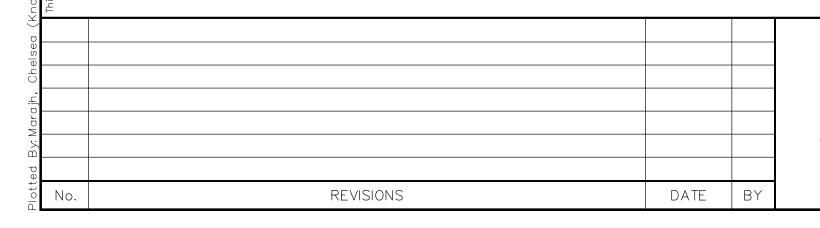




FOUNDATION SLEEVE DETAIL

2. CONTRACTOR TO COORDINATE SLEEVE LOCATION WITH

FOUNDATION DESIGNER.



Kimley» Horn

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PHONE: 561-845-0665 FAX: 561-863-8175
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KHA PROJECT 044300050 DATE JUNE 2017 SCALE AS SHOWN DESIGNED BY CMN

DELRAY CHRISTMAS TREE
FOUNDATION
PREPARED FOR

CITY OF DELRAY BEACH

ANGELINA G. FAIRCHILD

FLORIDA LICENSE NUMBER

#43958

FLORIDA | DATE: ____

LICENSED PROFESSIONAL

DETAILS

SHEET NUMBER

C-6

CHRISTMAS TREE LOCATION KEY PLAN SCALE: N.T.S.

KEYED NOTES:

- EXISTING FPL PAD MOUNTED TRANSFORMERS.
- EXISTING FPL METER FOR 480/277VAC, 3 PHASE SERVICE.
- 3 EXISTING CT CAN.
- EXISTING MDP 480/277VAC, 3 PHASE, 4W 800AMPS MCB, SERVING AREA OF WORK FOR THIS PROJECT.
- EXISTING PANEL "L1" 120/240VAC, 1 PHASE, 3W 400AMPS MCB.
- EXISTING TIME CLOCKS, POLE LIGHTS AND POLE RECEPTACLES BREAKERS.
- EXISTING 75KVA STEP DOWN TRANSFORMER 480/277V-120/240V FEEDING EXISTING PANEL "L1".
- EXISTING UNISTRUT MOUNTED ELECTRICAL SWITCHGEAR.
- EXISTING 200AMP, 480/277VAC, 1 PHASE DISCONNECT TO TRANSFORMER.
- [10] EXISTING PAD MOUNTED 75KVA STEP DOWN TRANSFORMER 480/277V-120/240V 1 PHASE FEEDING EXISTING PANEL "L3".
- EXISTING PANEL "L3" 120/240VAC, 1 PHASE, 3W 400AMPS MCB.
- EXISTING TIME CLOCKS, POLE LIGHTS AND POLE RECEPTACLES BREAKERS.
- [13] EXTEND EXISTING UNISTRUT TO ACCOMMODATE NEW ELECTRICAL SWITCHGEAR AS NEEDED.
- [14] NEW 125AMP, 480/277VAC, 3 PHASE, DISCONNECT, NEMA 4X LOCKABLE ON UNISTRUT.
- 15) NEW 75KVA, 480/277-120/240VAC, 3 PHASE, STEP DOWN TRANSFORMER NEMA 3R FOR NEW PANELS "L4" AND "L5".
- 16 NEW 225AMP, 120/208VAC, 3 PHASE, DISCONNECT, NEMA 4X LOCKABLE ON UNISTRUT.
- [17] NEW 3 POLE 225AMP, 120VAC LIGHTING CONTACTOR NEMA 3R AND REMOTE WEATHER RESISTANT SWITCH.
- (18) NEW PANEL "L4" 120/208VAC, 3 PHASE, 225AMPS NEMA 4X LOCKABLE.
- 19 NEW PANEL "L5" 120/208VAC, 3 PHASE, 225AMPS NEMA 4X LOCKABLE.
- REPLACE EXISTING SPARE 2 POLE BREAKER SPACE #5, (100AMPS, 480/277VAC) IN EXISTING PANEL MDP WITH NEW 125AMP, 3 POLE, 480/277V BREAKER. ROUTE CONDUIT AND CONDUCTORS AS SHOWN ON SITE PLAN TO NEW 125AMP, 480/277VAC, 3 PHASE DISCONNECT AT EXISTING UNISTRUT.

WARNING

IF THIS BAR DOES NOT MEASURE 1"

THEN DRAWING IS NOT TO SCALE

6-10-17

LMS LARRY M. SMITH, P.E.

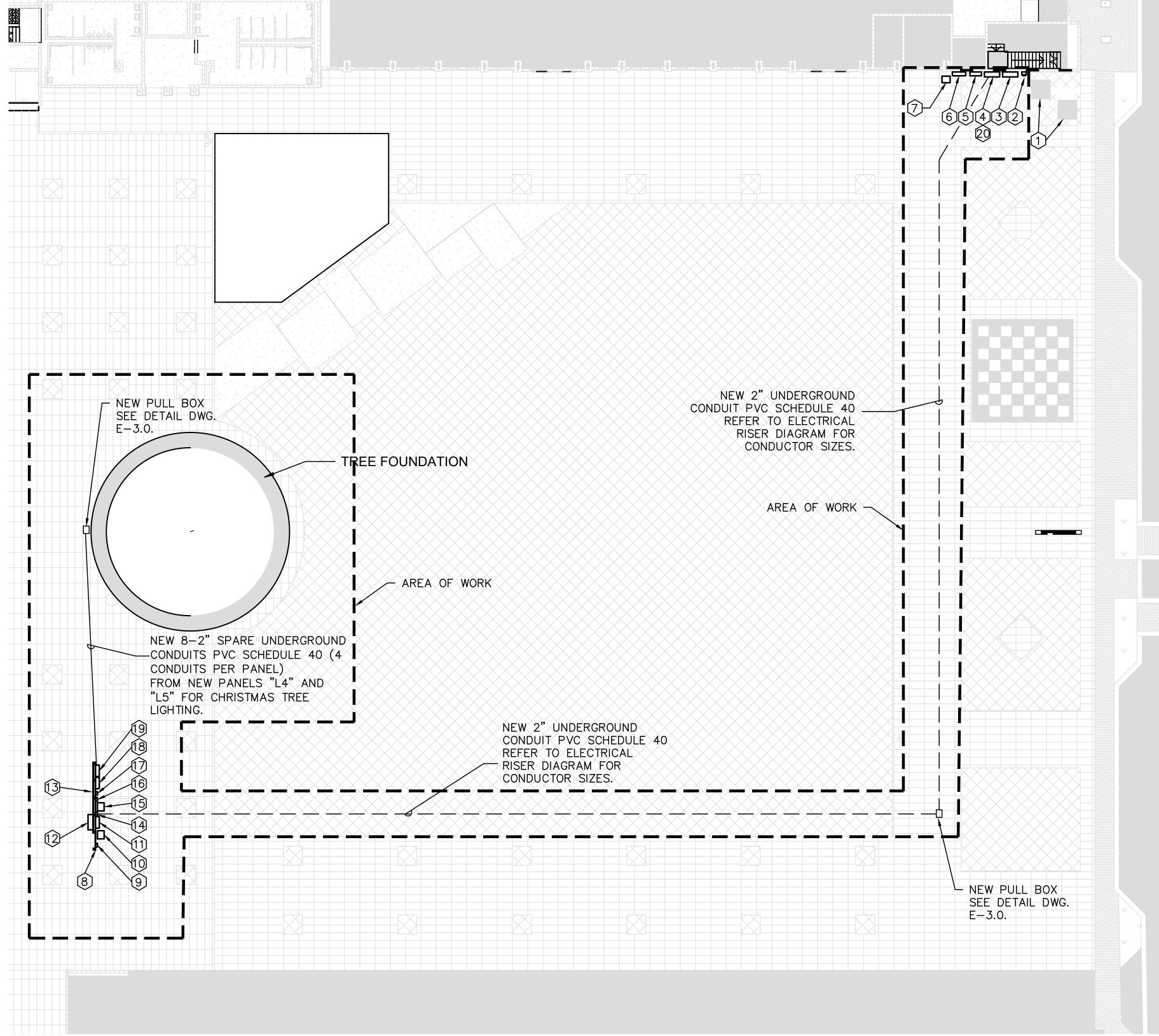
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DESIGNED:

DRAWN:

CHECKED:

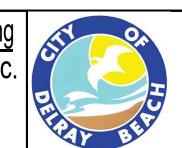
APPROVED:





2161 Palm Beach Lakes Blvd., Suite 312 West Palm Beach, Florida 33409 (561) 616-3911 fax (561) 616-3912

www.smithengineeringconsultants.com



CITY OF DELRAY BEACH **ENVIRONMENTAL SERVICES** DEPARTMENT

CHRISTMAS ALUMINUM TREE RELOCATION PROJECT

PROJECT NO. 17015

CHRISTMAS TREE ELECTRICAL RELOCATION PLAN

DRAWING NO. E-1.0

NO. DATE BY REVISION

©COPYRIGHT 2015 BY SMITH ENGINEERING CONSULTANTS, INC. THIS DRAWING IS PROVIDED FOR INFORMATIONAL PURPOSES ON UNLESS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING SMITH ENGINEERING CONSULTANTS, INC.

GENERAL NOTES AND SPECIFICATIONS:

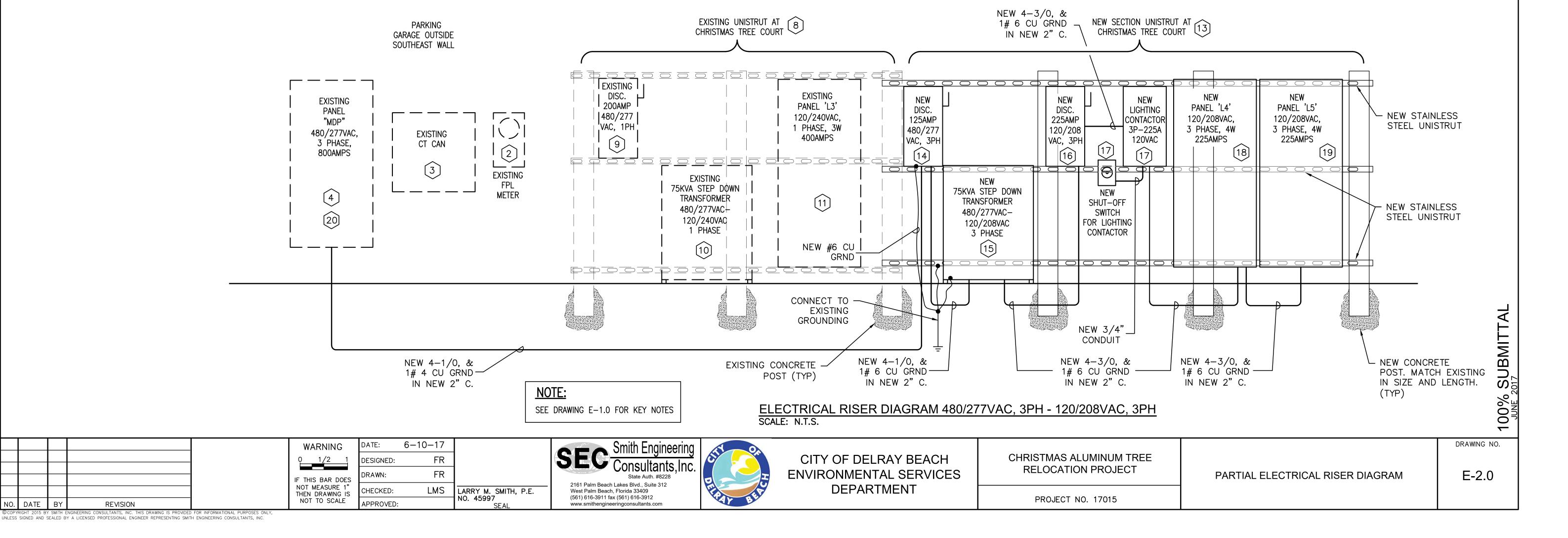
- 1. THE SCOPE OF WORK IS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS, PRIMARILY CONSIST OF THE FOLLOWING:
- 1.A. PROVIDE AND INSTALL ALL ELECTRICAL ASSOCIATED WITH NEW CHRISTMAS TREE RELOCATION LIGHTING CIRCUIT ELECTRICAL PANELS COMPLETE IN
- 1.B. PROVIDE AND INSTALL NEW CONDUIT. PULL BOXES AND WIRING COMPLETE IN PLACE.
- 2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
- 3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LOCAL CODES, CITY CODES, PALM BEACH COUNTY CODES AND THE FLORIDA BUILDING CODE. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS AND SHALL COORDINATE HIS WORK WITH THE ENGINEER AND OWNER.
- 4. THE CONTRACTOR SHALL, BEFORE SUBMITTING HIS BID, VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS. NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.
- 5. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC. ARTICLE 250. THE GROUNDING SYSTEM TEST SHALL NOT EXCEED A 48 HOUR SPAN DRY RESISTANCE OF 10 OHMS, ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST. GROUNDING AND BONDING CONNECTIONS SHALL NOT BE PAINTED. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, POWER AND CONTROL, WHETHER OR NOT INDICATED ON THE PLANS.
- 6. ALL EQUIPMENT AND MATERIAL SHALL BE UNUSED AND U.L. LISTED.

IO. DATE

REVISION

- 7. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS AND REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND
- 8. ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL ACCEPTANCE.
- 9. COORDINATE ALL ELECTRICAL EQUIPMENT LOCATIONS AND VERIFY ALL OBSTRUCTIONS WITH ALL SUBCONTRACTORS AND EQUIPMENT SUPPLIERS PRIOR TO ANY INSTALLATION. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. THESE ARE TO BE COORDINATED WITH THE OTHER TRADES SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATIONS.
- 10. ALL CONDUCTORS SHALL BE 600V, U.L. LISTED. POWER CABLES SHALL BE TYPE THHW/THWN. ALL CONDUCTING MEDIA SHALL BE COPPER. NO ALUMINUM
- 11. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40. ALL ABOVE GRADE CONDUIT SHALL BE PVC SCHEDULE 80.
- 12. ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, CONTROLLERS AND PANELBOARDS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALLS. STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
- 13. ALL REFERENCES TO A PARTICULAR MANUFACTURER ARE GIVEN ON AN "APPROVED EQUAL" BASIS.

- 14. ALL EXCAVATIONS FOR CONDUITS AND HANDHOLES SHALL BE HAND EXCAVATED AND COORDINATED WITH ENGINEER. MINIMUM DEPTH FROM TOP OF DUCTBANKS OR CONDUITS TO FINISHED GRADE SHALL BE 24" UNLESS OTHERWISE NOTED.
- 15. CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
- 16. MINIMUM DISTANCE ALLOWED BETWEEN POWER CONDUITS AND INSTRUMENTATION CONDUITS SHALL BE: 480V 2 FT 120V 1 FT
- 17. ALL LOCATIONS OF EQUIPMENT, PANELS ETC. ARE SHOWN FOR ILLUSTRATION PURPOSES. CONTRACTOR SHALL VERIFY EXACT LOCATION AND SIZE AND INSTALL AS SUCH WITH CORRESPONDING CONDUIT STUB-UPS.
- 18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING INSTALLATION FOR ALL VENDOR PROVIDED EQUIPMENT (PACKAGE SYSTEMS) INCLUDING OWNER SUPPLIED AND USER-CHOICE PANELS. IF THE SHOP DRAWINGS DIFFER FROM THE DESIGNED FACILITIES, THE CONTRACTOR SHALL REDESIGN THE FACILITIES AND SUBMIT THE REVISED DESIGN FOR THE ENGINEER'S APPROVAL ALONG WITH THE SHOP DRAWINGS. THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR THE REDESIGN NOR FOR ANY ADDITIONAL CONDUITS AND WIRING.
- 19. PROVIDE DUCT SEAL IN ALL EXISTING AND NEW CONDUITS INSIDE SWITCHGEAR AND JUNCTION BOX.
- 20. DEMOLISH ALL ITEMS AS INDICATED ON DRAWINGS. TURN OVER TO THE OWNER AT THE OWNER'S DISCRETION AND PROPERLY DISPOSE OF ALL DEMOLITION ITEMS NOT WANTED BY THE OWNER.
- 21. ALL INSTALLATION AND EQUIPMENT SHALL COMPLY WITH N.E.C. STANDARD. EXCEPT IF OTHERWISE SHOWN IN DRAWINGS.
- 22. ALL CONDUIT PENETRATIONS SHALL BE AT THE BOTTOM OF ANY ENCLOSURE. SIDE PENETRATION IS ONLY ALLOWED WHEN CONNECTING SURGE PROTECTIVE DEVICE (SPD) AND PANEL AND AS INDICATED ON DRAWINGS.
- 23. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.
- 24. CONTRACTOR SHALL, WITHIN 30 DAYS AFTER THE DATE OF THE SYSTEM ACCEPTANCE, PROVIDE TO THE BUILDING OWNER RECORD DRAWINGS OF THE ACTUAL INSTALLATION INCLUDING A SINGLE LINE DIAGRAM OF THE ELECTRICAL DISTRIBUTION SYSTEM AND RELATED FLOOR PLANS INDICATING THE LOCATION AND AREA SERVED FOR THE DISTRIBUTION.
- 25. CONTRACTOR SHALL PROVIDE TO THE BUILDING OWNER AN OPERATING AND MAINTENANCE MANUAL IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION C405.7.4.2 OF THE 2014 FLORIDA BUILDING CODE — ENERGY CONSERVATION, INCLUDING ANY AMENDMENTS THERETO.
- 26. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL PANELS, WIRE, CONDUIT, TRANSFORMER, CIRCUIT BREAKERS EQUIPMENT AND MATERIAL.
- 27. ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, CONTROLLERS AND SERVICE POINTS IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES.



NEC 220.87:

PER F.P.L. MAX. 12 MO. KVA = 133 = 159A @ 480V (0.85 P.F. ASSUMED)

X1.25 = 198.8A

100.0A PANELS 'L4' & 'L5'

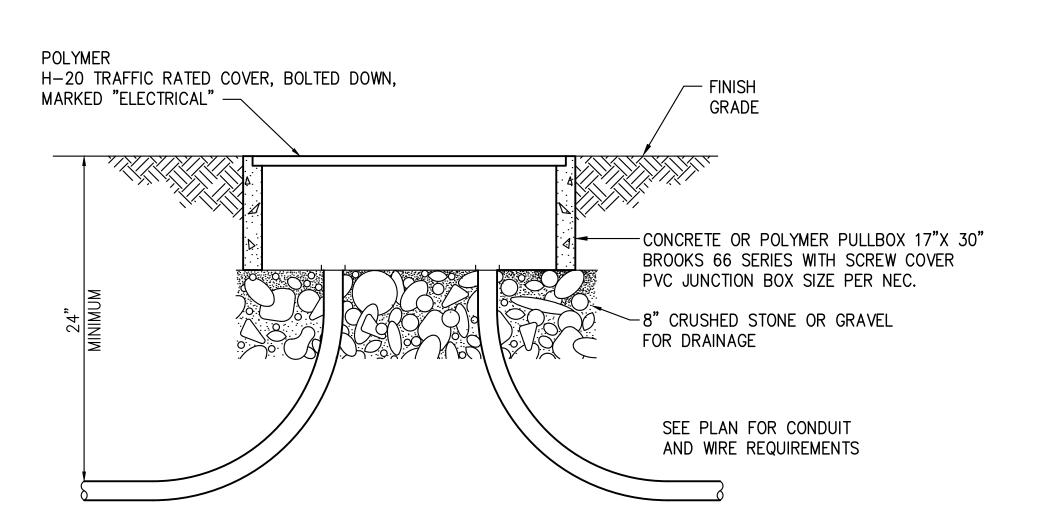
= 298.8A

THEREFORE THE EXISTING 800AMP SERVICE IS ADEQUATE.

Inp	ut Wire Size	1/0		Itage Drop Calculation Th	ince i nasc
Length (L)	Amps (I)	Constant (K)	CM (D)	Volts Dropped	
430	125	12.90	105600	11.37	
Input Volts	# of Sets (S)				468.63 Adjusted Voltag
480	1				<u> </u>

					EX	ISTI	NG	PAN	IEL	"MC	P"		(1)(2)(3	3)(4)			
	MOUNTING: SHORT CIRCUIT RATING: POLES: FED FROM PANEL:	65K 42										MAIN BF		AMPS:	800 800		
СКТ	LOAD SERVED	POLE	TRIP	WIRE	COND	AMPS 'A'	AMPS 'B'	AMPS 'C'	AMPS 'A'	AMPS 'B'	AMPS 'C'	COND	WIRE	TRIP	POLE	LOAD SERVED	скт
1	EXIST PANEL 'L1'	2/	200	3/0	1 1/2"	120.0			120.0			1 1/2"	250	200	2/	EXIST PANEL 'L3'	2
3	+						120.0			120.0						+	4
5	SPARE	2/	200											100	2/	SPARE	6
7	+															+	8
9	PANELS 'L4' & 'L5' VIA	3 /	125	10	3/4"		100.0			40.0		3/4"	10	60	3 /	EXIST. SURGE PROT.	10
11	TRANSF. (4)							100.0			40.0						12
13	L ` ` '					100.0			40.0							•	14
15	SPACE	ľ														SPACE	16
17	SPACE															SPACE	18
19	SPACE															SPACE	20
21	SPACE															SPACE	22
23	SPACE															SPACE	24
25	SPACE															SPACE	26
27	SPACE															SPACE	28
29	SPACE															SPACE	30
31	SPACE															SPACE	32
33	SPACE															SPACE	34
35	SPACE															SPACE	36
37	SPACE															SPACE	38
39	SPACE															SPACE	40
41	SPACE															SPACE	42
			CONN	ÉCTED	AMPS =	220.0	220.0	100.0	160.0	160.0	40.0		•		•		
		TOTAL	CONN	ECTED	AMPS =	380.0	380.0	140.0		249.30	KVA						
											Note:	(2) NEMA	4X ENC	LOSUR	E	CUITS AS PER FBC	
i												(3) SERV	CE ENI	KANCE	KATED		

(4) SEE DWG. E-1.0 FOR KEY NOTE #20



PULL BOX DETAIL NOT TO SCALE

							PAN	IEL '	"L4"				(1)(2)				
	MOUNTING SHORT CIRCUIT RATING POLES	9: 42K					(FEE) THRU	J LUGS	S)		MAIN BF	AIN BUS	AMPS:	225		
			MDD	VIA TO	A NOTODA	4ED											
	FED FROM PANE	L: PANEI		VIA IRA	ANSFORI					T		MANUFA	CTURER	VIYPE:	CUILE	R-HAMMER, SQ-D, GE	
CKT	LOAD SERVED	POLE	TRIP	WIRE	COND	'A'	AMPS 'B'	AMPS 'C'	AMPS 'A'	'B'	'C'	COND	WIRE	TRIP	POLE	LOAD SERVED	СКТ
1	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	2
3	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	4
5	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMAS TREE LIGHTS	6
7	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	8
9	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	10
11	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMAS TREE LIGHTS	12
13	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	14
15	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	16
17	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMAS TREE LIGHTS	18
19	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	20
21	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	22
23	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMAS TREE LIGHTS	24
25	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	26
27	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	28
29	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMAS TREE LIGHTS	30
31	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	32
33	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	34
35	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMAS TREE LIGHTS	36
37	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMAS TREE LIGHTS	38
39	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMAS TREE LIGHTS	40
41	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTIMA'S TREE LIGHTS	42
		CONNE	CTED A	AMPS F	AMPS = PNL 'L4' = PNL 'L5' =	84.0 85.0	84.0	84.0	42.0	30.24	KVA	(1) MAY	20/ VD (N DDA	NOU OE	OCUITO AO DED EDO	
		IOIAL	CONN	ECIED	AMPS =	169.0	168.0	168.0			Note:	(1) MAX (2) NEMA				RCUITS AS PER FBC (ABLE	

							PAN	IEL '	'L5"				(1)(2)				
	MOUNTING: SHORT CIRCUIT RATING: POLES: FED FROM PANEL:	42K 42	AIC									MAIN BR		AMPS: AMPS:	225 MLO		
СКТ	LOAD SERVED	POLE	TRIP	WIRE	COND	AMPS 'A'	AMPS 'B'	AMPS 'C'	AMPS 'A'	AMPS 'B'	AMPS 'C'	COND	WIRE	TRIP	POLE	LOAD SERVED	СКТ
1	CHRISTMA'S TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTIMA'S TREE LIGHTS	2
3	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTIMA'S TREE LIGHTS	4
5	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTIMA'S TREE LIGHTS	6
7	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTIMA'S TREE LIGHTS	8
9	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTIMA'S TREE LIGHTS	10
11	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTIMA'S TREE LIGHTS	12
13	CHRISTMAS TREE LIGHTS	1	20	12	2"	7.0			6			2"	12	20	1	CHRISTIMA'S TREE LIGHTS	14
15	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTIMA'S TREE LIGHTS	16
17	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTIMA'S TREE LIGHTS	18
19	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTIMA'S TREE LIGHTS	20
21	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTIMA'S TREE LIGHTS	22
23	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMA'S TREE LIGHTS	24
25	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMA'S TREE LIGHTS	26
27	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMA'S TREE LIGHTS	28
29	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMA'S TREE LIGHTS	30
31	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMA'S TREE LIGHTS	32
33	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMA'S TREE LIGHTS	34
35	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMA'S TREE LIGHTS	36
37	CHRISTMAS TREE LIGHTS	1	20	12	2"	6.0			6.0			2"	12	20	1	CHRISTMA'S TREE LIGHTS	38
39	CHRISTMAS TREE LIGHTS	1	20	12	2"		6.0			6.0		2"	12	20	1	CHRISTMA'S TREE LIGHTS	40
41	CHRISTMAS TREE LIGHTS	1	20	12	2"			6.0			6.0	2"	12	20	1	CHRISTMA'S TREE LIGHTS	42
		TOTAL			AMPS =	43.0 85.0	42.0 84.0	84.0	42.0	30.36	42.0 KVA						
											Note:	(1) MAX 3 (2) NEMA				CUITS AS PER FBC ABLE	

ELECTRICAL PANEL SCHEDULES SCALE: N.T.S.

ec.					
Proj					W
<u>:</u> :					0
ame:					
_					IF TH
Drawing					NOT THEN
Dro	NO.	DATE	BY	REVISION	NO

WARNING

0 1/2 1

IF THIS BAR DOES

NOT MEASURE 1"
THEN DRAWING IS

NOT TO SCALE

DATE: 6-10-17
DESIGNED: FR
DRAWN: FR
CHECKED: LMS
APPROVED: LARRY M. SMITH, P.E. NO. 45997
SEAL





CITY OF DELRAY BEACH ENVIRONMENTAL SERVICES DEPARTMENT CHRISTMAS ALUMINUM TREE RELOCATION PROJECT

PROJECT NO. 17015

PANEL SCHEDULES AND DETAILS

E-3.0

DRAWING NO.

100% SUBMITTAL

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		BR/	BRANCHE	S			-	2
Tree Height	Ring ID	Brai	<u>Branches</u>	Branch Spacing-ARC Dim.	Weight of Branc	Branches	Total Tree Weight	Load Per Spar
		Per Ring	Total		Per Ring	Total		
4' Top Pole		4	Top Branches		28	28		
<u>ත</u>		4	4		28	56 ,		
œ	>	ري ن	9	7.54	35	91	125	
10'	Œ	7	16	10.77	49	140	196	31
12'	0	9	25	12.57	63	203	288	49
<u>1</u> 1	m 0	<u> </u>	50 36	13.71	77	280	399	72
₫ ;	ו וד	17	67	13.31	119	497	713	54
20'	G	20	87	13.19	140	637	919	59
22'	I	22	109	13.71	154	791	1145	77
24'	_	25	134	13.57	175	966	1398	95
26'	ر	28	162	13.46	196	1162	1679	117
28		32	194	12.96	224	1386	2008	84
<u>3</u> 30	: -	3 33	227	13.71	231	1617	2349	100
34	Z	40	303	13.01	252	1869	2830	98
36'	0	41	344	13.79	287	2436	3885	140
38:	ס	44	388	13.71	308	2744	4454	162
40'	Q	48	436	13.35	336	3080	5091	139
42'	70	50	486	13.57	350	3430	5753	159
44'	ဟ	53	539	13.51	371	3801	6447	180
46	: -	56	595	13.46	392	4193	7173	201
50'	< 0	60 ×	713	13.65	406	4599	7948	179
52'	8	64	777	13.55	448	5467	9587	219
54'	×	66	843	13.71	462	5929	10450	240
56'	~	68	911	13.86	476	6405	11338	261
58'	Z	72	983	13.61	504	6909	12345	177
60'	AA	74	1057	13.76	518	7427	13377	193
62	A B	76	1133	13.89	532	7959	14905	209
ල ල	AD 3	<u>ω</u> ο	1296	13.63	581	9100	18101	253
68'	AE	86	1382	13.59	602	9702	19760	283
70'	AF	88	1470	13.71	616	10318	21454	309
72'	AG	90	1560	13.82	630	10948	23194	335
74'	2 AH	93	1653	13.78	651	11599	24976	362
78:	<u> </u>	99 6	1848	13.74	672	12271	26798	390
80.	AK	101	1949	13.81	707	13671	30560	448
82'	AL	104	2053	13.77	728	14399	32927	382
84'	AM	107	2160	13.74	749	15148	35340	412
9 60	A AN	110	2270	13.71	770	15918	37800	442
00,00	A A	115	2382	13.80	784	16702	40298	472
92'	AQ 2	118	2615	13.74	826	18333	42842	536
94'	AR	121	2736	13.71	847	19180	48847	573
96'	AS	123	2859	13.79	861	20041	51919	611
98'	AT	126	2985	13.76	882	20923	55043	649
100'	AU	129	3114	13.74	903	21826	58218	688

98' -	I	94' -	92' -	90' -	88 G	86' -	84,	82'	80' -	78' -	76' -	74' -	72' -	70' -	68'	66' -	64' -	62'	60'	58'	56') 1	27.	500	50 1 -	48' -	7 ‡	44.	40.	38	36' -	34'	32'	30' -	28'	26' -	24' -	22' -	20' -	1 <u>8</u> 1	16.	14' -	12'		0 0	→		2	Tree Height	100'	Cryst
-47' Dia.	\sim		44' Dia. (AR)	43' Dia. (AP)	42' Dia. (A)	41 Dia. (AN)	40' Dia.	39' Dia. (AL)	38' Dia. (AK)	37' Dia.	36' Dia.	35' Dia.	34' Dia.	33' Dia.		31' Dia.	30' Dia. (1)	\bigcirc		A		25' Dia. (Y)	24 Dia. ×	23 Dia. (w)	221 Dia. (V)	22' Dia U / // // // // // // // // // // // //	211 Dia. T.	19' Dia. S	18' Dia.		\neg	ماد	14' Dia.	-13' Dia. (L),	12' Dia. (K),	11' Dia.	10' Dia.	9' Dia.	8, 0, 3	7' Dia (F)	S' Dia E	S' Dia.	3: DIa. (C	Z. Dia. B				j	eight. Ring Ring Diameter ID	100' FRAME ALUMINUM	tal Valley Decorating
																																								aloulu	beyond f	Foliage			A)				4' Top		
																	= = =		==-																						frame all	extends 12"							Pole		
Fra Clar	3" x .2 Sq. T ame: 3 7-1/2" mps: 5	250 w	8 x		2-1/2 So Fram 6-1 Clamp	2" x .1 q. Tul e: 5/8 /2" Be	188 w be 3-11 x olts 6-18	7			2" Fran	' x .	188	3 w 2-13	Sq.	" B	olts	S olts					I	Fran	ne:	1/2	-13	sq. Sq. x 4"	Bo	lts	ts						Fra	'x. mme:	3/8 s: 5/	3-16	Sq. x 3	Tul					ALUMINUM		Pole		
Fra	3" x .2 Sq. T ame: 3 7-1/2" mps: 5 7-1/2"	250 w Tube 3/4-10 ' Bolts 5/16-1	8 x		2-1/2 So Fram 6-1. Clamp 6-1.	2" x .1 q. Tub e: 5/8 /2" Bo s: 5/1 /2" Bo	188 w be 3-11 x olts 6-18	7			2" Framps	' x .	188 1/2 /16-	3 w 2-13 -18	Sq. 3 x 5 x 5	5" B -1/2	olts " B	olts		16	0		Clai	ran	me: s: 5/	1/2 /16-	-13 18 x	x 4" x 4-1	Bo /2"	lts		0000		4	4	4	Fra	ıme:	3/8 s: 5/	8-16 16-	Sq. x 3	Tul	olts	1	1	N/A	N/A	GIOLOGO	Pole Ring Sections		
Fra Clar	3" x .2 Sq. T ame: 3 7-1/2" mps: 5 7-1/2"	250 w Tube 3/4-10 ' Bolts 5/16-1 ' Bolts	8 x	16	2-1/2 So Fram 6-1. Clamp 6-1.	2" x .1 q. Tub q. Tub e: 5/8 /2" Bo s: 5/1 /2" Bo	188 w be 3-11 x olts 6-18 olts	x 16	16	Cla	2"Fran	' x . me: s: 5	188	3 w 2-13 -18	Sq. 3 x 5 x 5	" B -1/2	olts	olts	10				Clai	ran	me: s: 5/ ∞	1/2 /16- ∞	-13 18 ≥ ∞	x 4" x 4-1	Bo /2"	lts Bol	0 0		8 40			4	Fra Cla	mps	3/8 s: 5/ I	3-16 16- Bolt	Sq. x 3318 x	Tul " Bo	olts	7	1 5	N/A 4	N/A Tree Top Panels	A A A A A A A A A A A A A A A A A A A			
Fra Clar	3" x .2 Sq. T ame: 3 7-1/2" mps: 5 7-1/2"	250 w Tube 3/4-10 9 Bolts 5/16-1 9 Bolts	16 110 121	16 113	2-1/2/ See Fram 6-1. Clamp 6-1.	"" x .I. Tulur x .	188 w be be 3-11 x olts 6-18 olts 16	x 16	16	Cla	2"Fraimps	me: 55	188 1/2 1/2 16-	3 w 2-13 -18	Sq. 3 x 5 x 5 5	" B -1/2	olts "Be	olts	76		72	8 68	Clar	France mps	me: s: 5, ∞	1/2 /16- &	-13 18 2 &	x 4" x 4-1 8 53	Bo /2" ~ 50	lts Bol ∞ ∘	0 44	41	40		32	4	Fra Cla	me: mps	3/8 s: 5/ I	3-16 16- 30lt 2	Sq. x 3 18 x 3 1 1 4	Tul " Bo : 3-1	olts 1/2"		5	N/A 4	N/A	A A A A A A A A A A A A A A A A A A A	Ring Sections		

Tree Height.	Ring Ring Diameter ID	4' Top Pole		Ring Sections	Ring Branch Panels	Total Branch Panels	Spars Per Section
,			ALUMINUM	N/A	Tree Top Panels	4 Tree Top	
	i Dis			N/A	4	4	
	2' Dia			1	S	6	
0.	3' Dia.			1	7	16	
12'	4' Dia		silo	1	6	25	
7 7	5' Dia (D)'	Foliage extends 12"	B	1	11	36	29.
	6' Dia	beyond frame all	ξ x x 81	1	14	50	
18'	7' Dia. (F)	around a	-91/ 91-8 M	2	17	29	
20'	8' Dia.	1	ζ :s 3/ξ :	4	20	87	
22'	9' Dia.	1	swe	4	77	109	
24'	10' Dia.		Er	4	22	134	
26'	11' Dia.			4	32	162	
28'	12' Dia.			4	33	194	
30'	13' Dia.			4	35	227	
32'	14' Dia.	1		∞	30	263	
	-15' Dia.			8	04 :	303	
	16. Dia			8	41	344	
	17' Dis			8	44	388	
	Dia: (0); (1)		sile	8	48	436	
	18 Dia. R,		Bo	000	50	486	
	Dia.		א לוו	0 00	53	530	
	01a. (T), // /		13	0 00	56	505	
	a. (u) ;	:::::::::::::::::::::::::::::::::::::::	-2/I -2/I	~	58	653	
22' Dia.	(A)		:əu	0 00	09	713	
23' Dia.			ran	0 0	64	200	
24' Dia.	×		E	0 0	99	043	
25' Dia.)	0	89	645	
26' Dia.				× ;	72	911	
27' Dia.				91	74	983	
60' 28' Dia.				16	76	1057	
62' ABJ			stl	16	0/	1133	
64' 30' Dia.		B	sil	16	00	1213	
		======================================		16	83	1296	
			S 3	16	98	1382	
			13 ×	16	88	1470	
34' Dia.			-7/	16	06	1560	
35' Dia.		======================================	:)ī	16	93	1653	
36' Dia.		##	nps.	16	96	1749	
37' Dia.				16	66	1848	
)	16	101	1949	
				16	104	2053	
			-11 x olts olts 6-18	16	107	2160	
			1, x 1 .	16	110	2270	
			Someriamps	16	112	2382	
'			ł	16	115	2497	
				16	118	2615	
,			x 01 si x 81-	1 91	121	7736	
			022. oduT -4/8: lo8 "9	91	123	2850	
90 40 Dia. AT,			sdur 2/1-2 eaue. bS	21	126	2000	
I			la	16		2985	







