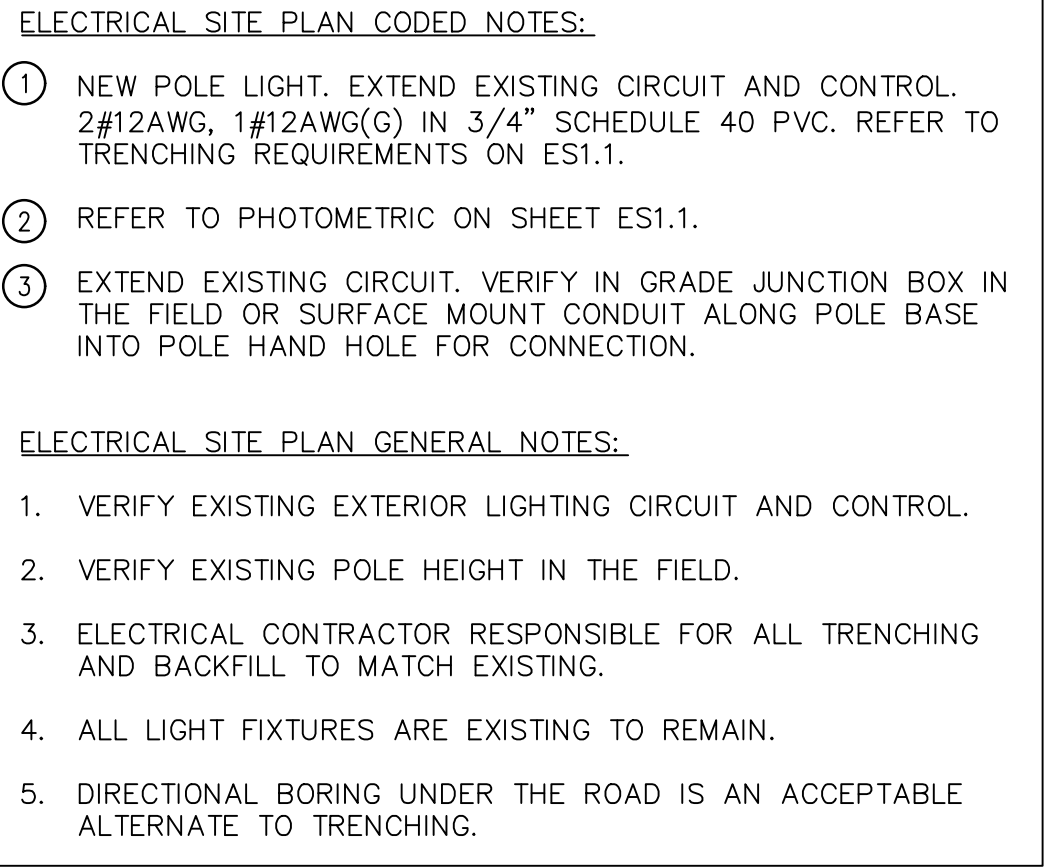


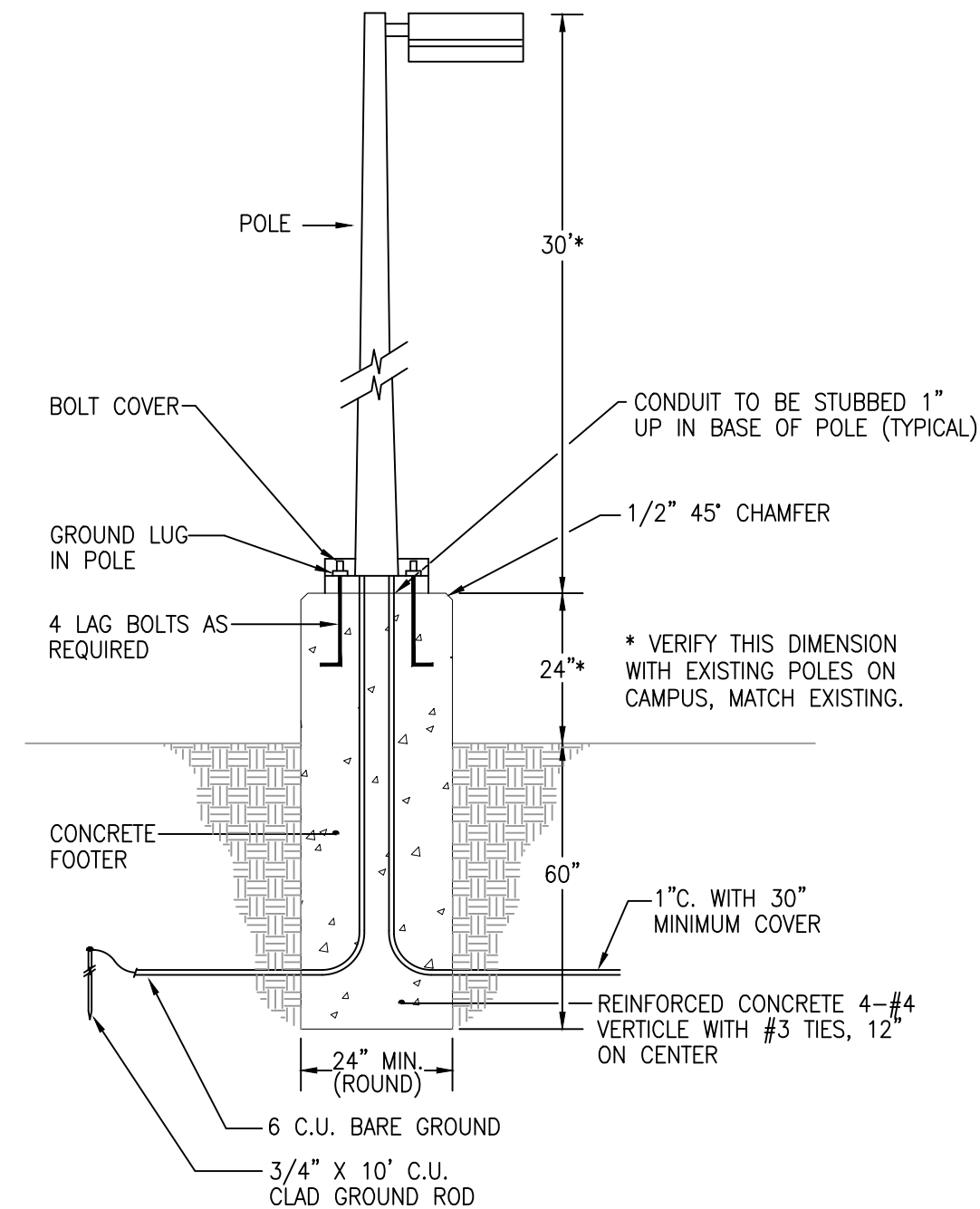
Issued For:
6-5-2024
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Laurel Lake Villa
200 Laurel Lake Drive

ELECTRICAL SITE LIGHTING PLAN



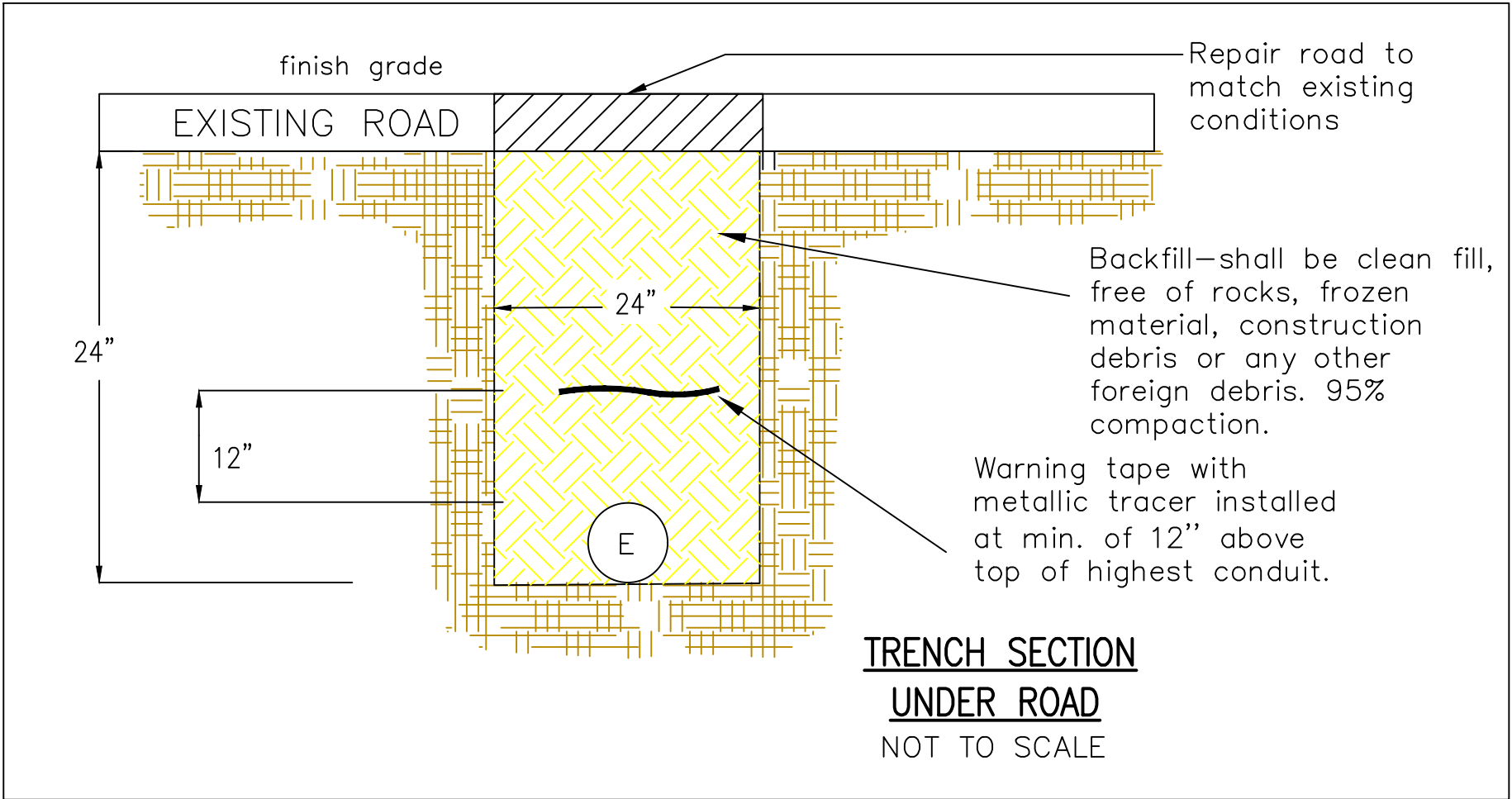
ES1.0



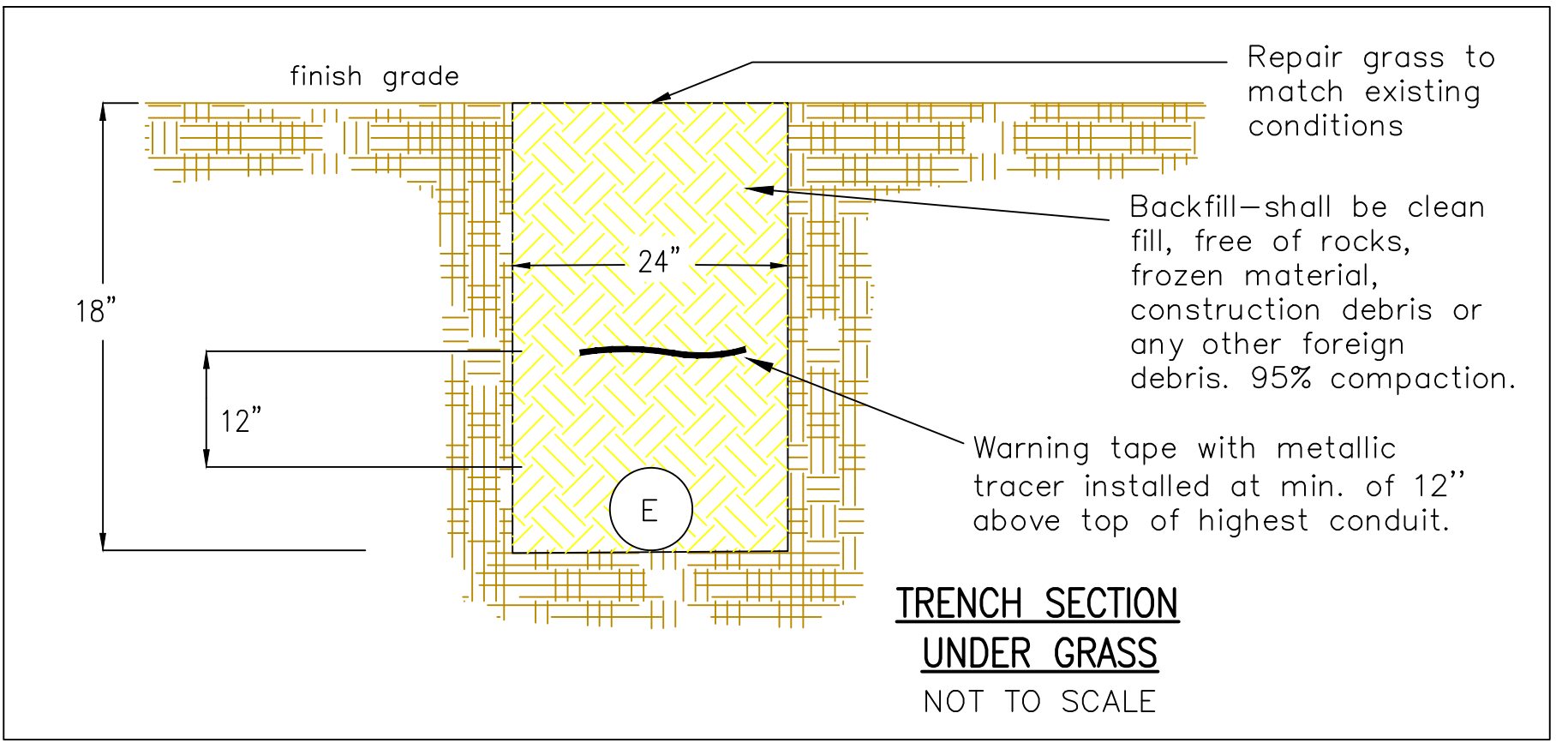
SITE LIGHT POLE MOUNTING DETAIL
NO SCALE

LIGHTING FIXTURE SCHEDULE					
TYPE	LUMINAIRE		DESCRIPTION	MOUNTING	CATALOG NO.
	LAMP	WATTAGE			
A	LED	97W	ONE-PIECE, DIE-CAST ALUMINUM HOUSING, SOLID-STATE LED PANEL, TYPE II DISTRIBUTION, BRONZE FINISH, HOUSE SIDE SHIELD.	30' POLE, VERIFY HEIGHT IN FIELD TO MATCH EXISTING POLES ON CAMPUS. MATCH POLE FINISH TO FIXTURE, MATCH POLE SHAPE TO EXISTING POLES ON CAMPUS.	COOPER LDRV-SL2-E04-E-BZ-HSS + POLE

NOTE: NEW POEL AND EXTURE SHALL MATCH THE EXISTING BASE, POLE AND FIXTURES ON SITE.



TRENCH SECTION
UNDER ROAD
NOT TO SCALE



TRENCH SECTION
UNDER GRASS
NOT TO SCALE



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Plan Revisions:
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6-5-2024

Laurel Lake Villa
200 Laurel Lake Drive
ELECTRICAL SITE LIGHTING - PHOTOMETRIC,
SCHEDULE AND DETAILS



ES1.1

GENERAL NOTES:

1. UTILIZATION OF THE ABBREVIATIONS "E.C.", "MECHANICAL CONTRACTOR", AND "G.C." WITHIN THE CONTEXT OF THESE DOCUMENTS SHALL EXPLICITLY REPRESENT "ELECTRICAL CONTRACTOR", "MECHANICAL CONTRACTOR", AND "GENERAL CONTRACTOR" RESPECTIVELY.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE VARIOUS EQUIPMENT PLACEMENTS, ROUGH-INS, BUILDING PENETRATIONS, AND SYSTEM RUNS WITH THE G.C. AND ALL OTHER TRADES, AND RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION AND PURCHASE/SHIPMENT OF MATERIALS.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF ALL LIGHT FIXTURES AND CEILING MOUNTED DEVICES WITH THE ARCHITECTURAL CEILING PLAN, SECTIONS, ELEVATIONS, AND DETAILS. THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE LOCATION OF RECEPTACLES, DATA OUTLETS, AND ALL OTHER WALL MOUNTED DEVICES WITH THE ARCHITECTURAL WALL FINISHES AND ELEVATIONS
4. THE ELECTRICAL CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR IN THE DRAWINGS, OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.
5. ALL BRANCH CIRCUITS AND FEEDERS SHALL CONTAIN INSULATED GROUNDING CONDUCTOR IN ACCORDANCE WITH SPECIFICATION SECTION 16400.
6. WIRE SIZES SHALL BE BASED ON THE 60°C. AMPACITIES FOR WIRE SIZES #14 THROUGH #1AWG, AND 75°C. AMPACITIES FOR WIRE SIZES #1/0 AWG AND LARGER.
7. ALL CONDUCTORS SHALL BE COPPER. ALUMINUM WIRING IS AN ACCEPTABLE ALTERNATE FOR FEEDERS 100 AMPERES OR LARGER.
8. ALL 15- AND 20-AMPERE, 120-VOLT NONLOCKING TYPE RECEPTACLES IN THE AREAS SPECIFIED IN NEC 406.12(1) THROUGH (7) SHALL BE LISTED TAMPER RESISTANT.
9. UTILIZATION OF THE PHRASE "PROVIDED BY" WITHIN THE CONTEXT OF THESE DOCUMENTS SHALL EXPLICITLY REPRESENT "FURNISHED AND INSTALLED BY".
10. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR ALL BRANCH CIRCUITS.
11. 120V.-20A. HOMERUNS SHALL BE #12AWG UNDER 100', #10AWG 100'-200' #8AWG 200'-300', UNLESS OTHERWISE NOTED.

ELECTRICAL SPECIFICATIONS

Architect as necessary to verify performance requirements. Submit data to the Architect.

Before final payment, demonstrate to the Owner's satisfaction the proper operation of each of the systems comprising this Contract.

Instruct the Owner's maintenance personnel in the operation and maintenance of all electrical equipment and controls.

1.04 CLEANING AND FINISHING

After all tests have been completed, clean all equipment leaving everything in working order at the completion of this work.

All debris created by the execution of this work shall be removed

COORDINATION WITH OTHER TRADES

The Contract Drawings are diagrammatic only intending to show general runs and locations of conduit, equipment, terminals and specialties and not necessarily showing all required offsets, details and accessories and equipment to be connected. Take all field measurements necessary and assume responsibility for their accuracy. All work shall be accurately laid out with other Trades to avoid conflicts and to obtain a neat and workmanlike installation that will afford maximum accessibility for operation, maintenance and headroom.

Keep fully informed of the progress of the general construction. Install work that is to be concealed within the building construction in sufficient time to secure proper location without delay to the work of other trades. All conduit and outlet boxes concealed in masonry construction shall be installed during wall construction. Attend electrical work during the progress of building-in to prevent misalignments and damages to the electrical work.

The Contractor shall be responsible for coordinating with other trades (mechanical, plumbing, etc.), and shall verify any equipment and device voltage, phase and ampacity specifications. They shall furnish and install all necessary wiring, protective devices, etc., as recommended by the manufacturer and as required for the correct and proper operation of the installed equipment.

Examine the work of other trades when their work comes in contact with or is covered by this work. Do not attach to, cover up, or finish against any defective work, or install work in a manner which will prevent proper installation of the work of other trades.

Locate all electrical equipment, devices, equipment, etc., in the field in conjunction with drawings and building engineer. Coordinate routing of all feeders, conduit runs, pullboxes, etc. to avoid conflicts with existing ductwork, plumbing, and structural components.

1.07 GUARANTEE AND WORKMANSHIP

All materials and workmanship provided under the contract shall carry the standard warranty against all defects in material and workmanship. Any fault due to defective or improper material, equipment, workmanship or design which may develop shall be made good, forthwith, by and at the expense of the Contractor for the work under his Contract, including all other damage done to areas, materials and other systems resulting from this failure.

Manufacturers shall provide their standard guarantees for work under the Electrical Trades. However, such guarantees shall be in addition to and not in lieu of all other liabilities that the manufacturer and the Contractor may have by law or by other provisions of the Contract Documents

Workmanship shall be in accordance with the best practices of the trade. Journeymen electricians under the supervision of a competent foreman shall install electrical work

1.08 SUBMITTALS

Submit drawings and wiring diagrams in accordance with Division I on all items of equipment provided for review by the Engineer. These shall include, but not be limited to, the following:

Lighting and controls

The submittals will be reviewed only for general compliance and not for dimensions, quantities, etc. The submittals that are returned shall be used for procurement. The responsibility of correct procurement remains solely with the Contractor. The submittal review shall not relieve the Contractor of responsibility for errors or omissions and deviations from the contract requirements.

The Contractor shall insure submittals bear the Contractors' dated approval stamp and indicate all options. If the submittal shows variations from the requirements of the contract documents, for any reason, the Contractor shall make specific mention of such variation in his letter of transmittal. The Contractor shall note in red on the submittal any change in design or dimension on the item submitted including changes made by the manufacturer that may differ from catalog information.

Acceptance or rejection of the proposed substitutions shall be subject to approval by the Architect and Engineer. If requested, the Contractor shall submit (at their cost) inspection samples of both the specified and the proposed substitute items for review by the Engineer.

Contractor further agrees that if deviations, discrepancies, or conflicts between shop drawing submittals and the contract documents in the form of design drawings and specifications are discovered either prior to or after shop drawing submittals are processed by the Engineer, the design drawings and specifications shall control and shall be followed.

1.09 RECORD DRAWINGS

Each Contractor or Sub-contractor for Electrical work shall keep one complete set of the contract working drawings on the job site on which he shall record any deviations or changes from such contract drawings made during construction.

These Drawings shall be kept clean and undamaged, and shall not be used for any purpose other than recording deviations from working drawings and exact locations of concealed work.

1.10 OPERATING, MAINTENANCE AND SERVICE MANUALS

The Contractor shall thoroughly instruct the representative of the Owner, to the complete satisfaction of the Architect, in the proper operation of all systems and equipment provided by him. The Contractor shall make arrangements, via the Architect, as to whom the instructions are to be given in the operation of the basic and auxiliary systems and the period of time in which they are to be given. The Architect shall be completely satisfied that the representative of the Owner has been thoroughly and completely instructed in the proper operation of all systems and equipment before final payment is made. If the Architect determines that complete and thorough instructions have not been given by the Contractor to the Owner's representative, then the Contractor shall be directed by the Architect to provide whatever instructions are necessary until the intent of this paragraph of the specification has been complied with.

Deliver to the Owner all keys, special tools and appurtenances for proper operation and maintenance of the equipment. Provide complete bound set of operating and maintenance instructions for all electrical equipment and controls.

2.01 EQUIPMENT AND MATERIALS

Equipment and materials used on this job shall be new, U.L. labeled, and O.S.H.A. approved.

Equipment and materials shall be protected and be the responsibility of this Contractor until formally accepted by the Owner.

Material and equipment built into the work for which examination service is provided shall bear the Underwriter's Label.

Materials and equipment provided under this Contract shall be new and of the

quality herein specified. Each class of materials shall be of the same type and make throughout the building.

All manufacturers of electrical equipment shall demonstrate to the satisfaction of the Contractor and Engineer that their equipment will function properly under the conditions of use as indicated on the drawings and as specified herein. Dimensions, weights, operating characteristics and all other related appurtenances should be verified before submittal of shop drawings.

PART 3 - EXECUTION

3.01 EQUIPMENT CONNECTIONS

Serve and connect equipment being installed during the construction period, but provide facilities only for serving equipment that will be moved in, set and connected later by the Owner. Provide cords and caps where required and fuse/stron fuses in switches later for future equipment connections.

3.02 SERVICE SHUTDOWNS

- A. Prior to any isolation of systems, shutdowns or demolition the Contractor shall provide necessary investigation and notify the Facilities Engineering/Maintenance personnel of work to be performed so as to avoid any detrimental shutdown of systems to adjacent spaces.
- B. Maintain existing electrical systems in service until the new systems are complete and ready for service. Disable the systems only to make switchovers and connections. Any service shutdowns that may be required shall be scheduled with and approved by the Owner. All shutdowns shall be scheduled with and approved by the Owner. A minimum of a one-week notice shall be given prior to any service shutdown. No additional compensation shall be allowed for these shutdown periods even though overtime work may be required.

END OF SECTION

SECTION 16050 - BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.01 GENERAL

A. Work Includes

Conduits
Wire and Cable
Wiring Devices
Supporting Devices

B. Related Work Specified Elsewhere

Section 16010 - General Electrical Provisions
Section 16050 - Grounding and Bonding

C. Products

1. Material and equipment built into the work for which examination service is provided shall bear the Underwriter's Label.
2. Materials and equipment provided under this Contract shall be new and of the quality herein specified. Each class of materials shall be of the same type and make throughout the building.

PART 2 - PRODUCTS AND EXECUTION

2.01 CONDUITS

A. Materials

1. Conduit shall be rigid galvanized or intermediate grade in exterior masonry walls; masonry walls below grade; concrete floors, walls or slabs; damp or wet locations; or exposed below 8 feet above finished floor. Use P.V.C. in ground applications. All other interior conduits may be EMT or MC as approved by the NEC.
2. Rigid conduit fittings shall be threaded fittings. Rigid conduit couplings and hubs to have no less than five (5) threads of conduit engaged and screwed up tight.
3. Exterior underground conduit shall be P.V.C. schedule 40, and must be encased in 6" of concrete under drives or roadways. The transition to rigid conduit must be made before the conduit enters the building.

B. Execution

1. Conduits shall be continuous and be secured to all boxes in a manner that each system shall be electrically continuous from point of service to all outlets. Terminals of all conduits shall be provided with locknuts and bushings. Plug ends of each conduit with an approved cap or disc to prevent the entrance of foreign materials during construction.
2. All conduit terminating in sheet steel enclosures shall have double locknuts and a bushing. Locknuts shall be a type which will "bite" into the metal of the box. All bushings shall be of the insulating type.
3. Homeruns to panels shall be 3/4" minimum.
4. Exterior underground conduits shall be 30" below grade, minimum.
5. A separate ground must be run in all P.V.C. conduit. Conduit size shall be increased to accept ground when required. Vertical transitions shall be made with rigid steel elts.

2.02 WIRE AND CABLE

A. Materials

1. Wire and cable for lighting feeders shall be 600 volt type THHN/THWN or XHHW copper. Aluminum wiring is an acceptable alternate for feeders 100 amperes or larger.
2. Wire and cable for power and lighting branch circuits shall be TW/UF copper for #8 and smaller and THHN or XHHW copper for #8 and larger. Wire sizes shall be based on the 60°C ampacities for wire sizes #14 through #1AWG, and 75°C ampacities for wire sizes #1/0 AWG and larger.
3. Minimum wire size for power and lighting circuits shall be #12. Wire sizes #12 and smaller shall be solid. Wire sizes #10 and larger shall be stranded.
4. Where size is not indicated, Conductor size #12 minimum shall be used for circuits less than 120 feet and size #10 minimum shall be used for circuits greater than 120 feet.
5. Joints in #10 and smaller wire shall be made with Minnesota Mining and Manufacturing Co. insulated "Scotch Locks", Ideal Co. "Wing-Nut", T & B Co. "Piggy" connectors, or with mechanically crimped sleeves as manufactured by T & B Co., or Ideal Co., or Ideal Co. Connector sleeves shall be insulated with pressure sensitive electrical tape equal to Minnesota Mining and Manufacturing Co. Scotch No. 33 "plus" or Raychem Corp. heat shrinkable tape.
6. Joints in #8 and larger shall be made with pressure type mechanical connectors and insulated with electrical tape to 150% of the insulating value of the conductor insulation.
7. Color code wire and cable for circuits as called for in the National Electric Code.
8. All mechanical wire & cable terminations shall be torque-tightened with torque wrench or torque screwdriver to manufacturer's recommended torque values.

2.03 WIRING DEVICES

A. Materials

1. Local light switches shall be back and side wired, 20 ampere, 120/277 volts, AC Specification Grade. The following manufacturers indicated are acceptable: Hubbell, Legrand, Leviton, Bryant.
2. All switch and convenience outlet plates shall be smooth finish, thermoplastic material such as nylon to suit outlets provided. To insure uniform color, plates and devices shall be of one manufacturer. In unfinished areas, use cadmium plated round corner steel cover plates.
3. All 15- and 20-ampere, 120-volt nonlocking type receptacles in the areas specified in NEC 406.12(1) through (7) shall be listed tamper resistant.
4. Ground fault circuit interrupter (G.F.C.I.) receptacles, where required by local code, shall be Hubbell #AFGF15TR.
5. Weatherproof receptacles shall be Hubbell #HBL5262WR duplex outlet with Hubbell #HBL5221 polycarbonate gray plate, box mount.
- Execution
1. Provide receptacles and switches as indicated. Colors of device and plates shall be selected by the Architect. Verify before installation.

2.05 SUPPORTING DEVICES

- A. All hardware, supports, hangers, angle iron, channels, rods, clamps necessary to install electrical equipment and lighting fixtures shall be supplied to suit conditions and application. The use of perforated straps will not be permitted.
- B. Supporting devices shall be galvanized or aluminum material.

2.07 EXCAVATION, CONCRETE AND BACKFILL

- A. Provide all excavation, concrete and backfill required for electrical work exclusively. All concrete work shall be in accordance with the requirements of The State of Ohio.

2.08 PADS, FOUNDATIONS AND ENCLOSURES

- A. Provide pads, foundations, and enclosures required for electrical equipment. All floor mounted or exterior equipment is to be on 4" concrete pads unless otherwise indicated.

B. Exterior concrete shall be thourasoeaded.

C. Pads for Utility Company transformers: follow Utility Company requirements.

END OF SECTION

SECTION 16400 - SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.01 GENERAL

A. Work Includes:

Grounding
Branch Circuit Panelboards

B. Related Work Specified Elsewhere

Section 16010 - General Electrical Provisions
Section 16050 - Basic Electrical Materials and Methods
Section 16400 - Power Distribution Equipment

1.02 GROUNDING

- A. Ground all conduits, cabinets, motors, panels and other exposed non-current carrying metal parts of electrical equipment in accordance with all provisions of the National Electric Code and local codes.
- B. Ground all conduits by means of grounding bushings on terminations at panelboards with an installed #12 conductor to grounding bus
- C. Grounding of the electrical system shall be by means of an insulated grounding conductor installed with circuit conductors in all conduits. Grounding conductors shall be sized in accordance with N.E.C. 250.95 and shall run from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housings, light switch outlet boxes or metal enclosures of served equipment.
- D. Conductors for grounding system shall be soft or medium hard drawn, stranded, bare copper except where otherwise noted.
4. All conductors #8AWG and smaller shall be insulated

PART 3 - EXECUTION

3.01 GROUNDING

- A. All connections of ground conductors to bus bars, structural members, pipes, or fences and splices of ground conductors shall be made by exothermic welds except where otherwise noted. All connections to bar lugs shall be exothermic weld or compression type. Bolted type connection of ground conductors may only be made where terminal lugs or blocks have been furnished and installed in equipment by the manufacturer.
- B. The resistance to ground for the entire grounding system shall not exceed 25 ohms under normal dry conditions.
- C. Tests of grounding resistance shall not be made within 24 hours after a rainfall. If after testing the system, it is found that the resistance to absolute earth exceeds 15 ohms, the Contractor shall install the necessary number of ground rods to reduce the resistance to less than 15 ohms. These tests shall be conducted in the presence of the local Electrical Inspector. The test results shall be submitted to the Owner/Engineer.

END OF SECTION

SECTION 16500 - LIGHTING

PART 1 - GENERAL

1.01 GENERAL

A. Work Includes

Exterior Lighting

PART 2 - PRODUCTS AND EXECUTION

2.01 EXECUTION

- A. Light fixtures (luminaires) shall be as specified on the lighting fixture schedule as indicated on the drawings. Where fixture types are indicated as a manufacturer's series, the contractor shall provide the correct trim, mounting hardware, lengths, etc., to complete the installation as indicated on the electrical/architectural drawings.
- B. All fixtures shall be securely supported with approved hangers. Fixtures shall be supported from structural ceiling or structural supports, not suspended ceiling supports, independent of ceiling material. Fixtures shall be secured per IBC, state and local seismic requirements. Surface mounted fixtures must have additional ceiling support as acceptable by the Architect.

END OF SECTION



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Laurel Lake Villa
200 Laurel Lake Drive

ELECTRICAL SITE LIGHTING SPECIFICATIONS



ES1.2