



Request for Qualifications Package

For

Electrical Improvements

**Foraker, Southwest & Tecumseh Wastewater
Project**

Elkhart County, Indiana

March 2023



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**ELKHART COUNTY, INDIANA
FORAKER, SOUTHWEST AND TECUMSEH WASTEWATER PROJECT
ELECTRICAL IMPROVEMENTS REQUEST FOR QUALIFICATIONS
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VARIOUS FORMS

LETTER OF INTEREST

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REQUEST FOR QUALIFICATIONS FOR FORAKER, SOUTHWEST, TECUMSEH WASTEWATER PROJECT ELECTRICAL IMPROVEMENTS

ARTICLE 1—OWNER AND PURPOSE

Submit responses to this request for qualifications (RFQ) to: **ELKHART COUNTY, County Commissioners ICO Jeff Taylor, 117 North Second Street, Goshen, IN 46526.**

The intent of this RFQ is to seek interest in participating in the project as described in the following sections. By submitting the Letter of Interest provided in this RFQ, Contractor affirms they are able, willing, and properly licensed to complete all aspects of the work within the timeline described in the following sections of this RFQ. Expressing interest does not obligate or guarantee the Contractor to participate in the project, but certifies Contractors qualifications, availability, and interest to participate in the project.

ARTICLE 2—ATTACHMENTS TO RFQ

The following documents must be submitted with and made a condition of this RFQ:

- A. Required Certificate of Insurance;
- B. Contractor's license number as evidence of Contractor's Electrical License.

ARTICLE 3—PROJECT SEQUENCE

The following describes the general sequence of events for a Contractor to be eligible for, participate in, and to be paid for satisfactory work completed as a part of this project:

- Step 1 - Contractors will express their interest and ability to participate in the project by fully responding to this RFQ. Fully responding to this RFQ satisfies this Step.
- Step 2 - Contractors will need to participate in a preconstruction meeting prior to being asked to provide a quote for services on any property.
- Step 3 - County will provide a list of all electrical contractors that completed Steps 1 and Step 2 above to the property owners within the Foraker, Southwest, Tecumseh Acres service area. Lochmueller Group will provide each property owner with a scope of service flow chart that will help the contractor identify the services needed for the specific property.
- Step 4 - Property owners will independently select at least 3 approved Contractors from the list provided in Step 3 above and seek independent quotes for work to be performed in the name of the Property Owner from each Contractor.
- Step 5 - Contractor may contact Lochmueller Group at 260.494.3046 to verify details relevant to the specific property and then must submit its detailed quote directly to the property owner and simultaneously provide an electronic copy to Lochmueller Group (ElkhartQuotes@lochgroup.com).
- Step 6 - Property owners will deliver all quotes received (at least 3 responses required, which may include verified notices from contractors that they do not have capacity to provide a quote) to Elkhart County for review and authorization to proceed with the lowest responsive and responsible bidder. Elkhart County agrees to cover the

expenses owed to the lowest responsive and responsible bidder in an amount not to exceed the lowest bid.

Step 7 – Elkhart County provides property owner written approval and notice to proceed.

Step 8 - During and after completion of work, the work may be inspected by Elkhart County. Once satisfactory work has been performed, the invoice will be submitted by the contractor to the property owner for submission to Elkhart County for payment of the approved amount within 30 days of receiving the invoice (no interest or penalties may be placed on the amount owed if paid by Elkhart County within 30 days of receiving the invoice). Simultaneous with delivering the invoice to the property owner, Contractor must deliver a copy to Elkhart County at the address provided above for submitting responses to this RFQ.

ARTICLE 4—PROJECT DESCRIPTION

4.01 *Project Scope*

Contractor is responsible for installing new electrical components necessary to service a new septic tank effluent pump (STEP) system at residences and commercial facilities within the project areas of Foraker, Southwest and Tecumseh Acres in Elkhart County, Indiana. There are currently 139 proposed installations required. Contractors must not take on work that they cannot perform within the parameters described in this RFQ.

If the existing electrical service is sized to handle an additional branch circuit, the work will consist of installing a new circuit breaker and electrical branch circuit to a new disconnect located on the exterior of the home and within proximity of the new pumping system. The location of the new STEP unit can be provided to electricians prior to quoting.

If the existing service or panelboard does not have sufficient capacity, in addition to construction of the new disconnect, the work will also include the installation of an additional or upgraded panelboard to service the STEP system. Proposed costs must only be sufficient to cover the necessary upgrades (parts and labor) to bring the service into compliance with the required power requirements.

The total cost for any work needed at each location is not anticipated to exceed \$2,500 per location.

Contractor is responsible for acquiring any and all permits associated with any work to be performed. This will include coordination with NIPSCO as required.

Included in the Appendix are drawings and one-line diagrams illustrating the general scope of the project. These details are for illustration purposes only. Contractors are encouraged to visit each site prior to providing a quote to perform a visual inspection and determine extent of work required. Once a quote is accepted, no additional funds will be provided even if the work becomes more difficult than expected. If additional work is necessary that is outside the original scope, but within the scope of work to be performed as described herein (e.g., it is determined that a new panelboard is necessary), Contractor may request a change order that will be accepted or denied in Elkhart County's sole discretion.

All work must be done in accordance with all local, state, and federal regulations.

Contractors that are asked to do additional electrical work, beyond the scope of this RFQ, will be required to contract directly with the property owner by separate agreement and payment for such additional services outside the scope of this project are not guaranteed by Elkhart County. Any work outside of the scope of this RFQ must be quoted and invoiced separately directly to property owner with no copy provided to Elkhart County.

4.02 *Project Materials*

Below is a list of items that will be needed for this work as well as a brief description of requirements to supplement information shown on the Drawings:

A. Schedule 40 1" PVC Conduit

- a. For each electrical raceway system, provide a complete assembly of conduit with all required fittings; including, but not necessarily limited to, connectors, nipples, couplings, elbows, expansion fittings, pull boxes and other components and accessories as needed to form a complete system.
- b. Provide conduit, and raceway accessories including straps, hangers, angles, support chairs, etc. as required for a complete system.
- c. NEMA Stds. Pub. No. TC2, Type 3, Schedule 40, for direct burial, manufactured from ASTM D1784 PVC in compliance with NEMA TC2. PVC conduit must be UL listed. Joints must be solvent cement types.
- d. Provide PVC elbows, bends, fittings, and adapters as required for a complete installation. PVC conduit and tubing fittings must comply with NEMA Stds. Pub. No. TC3, match to conduit/tubing type and material. Provide solvent cement as recommended by the conduit manufacturer.
- e. Conduits turning up out of the ground must have galvanized steel elbows and extensions.

B. #14 and #10 CU THWN Wire

- a. Provide electrical wires, cables and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, for a complete installation, and for application indicated.
- b. Provide factory-fabricated wire of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper selection as determined by Installer to comply with project requirements, NEC and NEMA standards. Select from the following UL types, those wires with construction features which fulfill project requirements. Conductors must be annealed copper.
- c. All materials must be new, manufactured in accordance with latest edition of UL, NEMA, ANSI, and IPCEA.
- d. All cables furnished must be of same type and by same manufacturer. All accessories of a particular type must be by the same manufacturer.
- e. All connectors must be insulated mechanical-bolted parallel or compression type for feeders and generator circuits; twist-on insulated metal spring connectors for #12 and #10 awg miscellaneous branch circuit wiring, including equipment ground conductors.

C. Panelboard

- a. Provide panelboards, enclosures and ancillary components, of types, sizes, and ratings indicated on Drawings; design and construct in accordance with published product information; equip with proper number of unitary branch devices as required for complete installation.

- b. Provide galvanized sheet steel cabinet enclosures, in sizes required and or other NEMA types as indicated, code-gauge, minimum 16-gauge thickness. Provide NEMA 4X stainless steel enclosures for all outdoor panelboards.
- c. Provide enclosures, which are fabricated by the same manufacturer as the panelboards and which mate properly with the panelboards to be enclosed.
- d. Installation of a new breaker for the STEP system inside the existing residential panelboard must match existing panelboard KAIC rating and breaker type.
- e. All materials provided and installed must comply with applicable NEC, NEMA and UL standards and requirements.

D. Disconnect Switch

- a. All switches must have switch blades which are fully visible in the "OFF" position when the switch door is open. All current- carrying parts must be plated to resist corrosion and promote cool operation. Switches must have removable arc suppressors where necessary to permit easy access to line-side lugs. Lugs must be copper and must be front-removable and UL listed for 75 degrees C copper conductors.
- b. Switching mechanism must be quick-make, quick-break, with handle that is pad-lockable in the "OFF" position. The handle position must indicate whether the switch is "ON" or "OFF".
- c. Enclosure must be suitable for the environment in which it is installed; or NEMA 4X outdoor weatherproof. Enclosure door must have door interlock, with defeat mechanism, which prevents the door from opening when the switch is "ON".
- d. All fusible switches must accept Class R current limiting fuses and must have rejection clips. UL listed short-circuit rating must be 200,000 rms symmetrical amperes with Class R fuses.
- e. Ampere rating must be provided as shown on the Drawings.
- f. Approved manufacturers are Eaton / Cutler-Hammer, Square D Company, Siemens and Hubbell.

ARTICLE 5—TIME OF COMPLETION

Contractor will have 30 days from the Notice to Proceed to complete the work.

All work on all properties must be completed no later than August 31, 2023.

ARTICLE 6—CONTRACTOR’S ACKNOWLEDGEMENT

Contractor accepts all terms and conditions of the Notice to Contractors.

ARTICLE 7—CONTRACTOR’S REPRESENTATIONS AND CERTIFICATIONS

7.01 Contractor’s Representations

- A. In responding to this RFQ, Contractor represents the following:
 - 1. Contractor has examined and carefully studied the RFQ Documents, including Addenda.

2. Contractor is familiar with all laws and regulations that may affect cost, progress, and performance of the work described in this RFQ.
3. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the site; and the RFQ Documents, with respect to the effect of such information, observations, and technical data on (a) the cost, progress, and performance of the work described herein; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, if selected as a Contractor; and (c) Contractor's safety precautions and programs.
4. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the work described herein at rates at or below \$2,500.00, with all work to be completed on or before August 31, 2023, and in accordance with the other terms and conditions of this RFQ.
5. Contractor is aware of the general nature of work needing to be performed on behalf of property owner and work being completed by others at the site that relates to the work as indicated in the RFQ Documents.
6. Contractor has given Lochmueller Group written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the RFQ Documents, and of discrepancies between site conditions and the RFQ Documents, and the written resolution thereof by Lochmueller Group is acceptable to Contractor.
7. The RFQ Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the work to be quoted following this RFQ.

7.02 *Contractor's Certifications*

A. The Contractor certifies the following:

1. This RFQ is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Contractor has not directly or indirectly induced or solicited any other Contractor to submit a false or sham response to RFQ.
3. Contractor has not solicited or induced any individual or entity to refrain from responding.
4. Contractor has not engaged in and agrees that throughout the quoting process will not engage in corrupt, fraudulent, collusive, or coercive practices in competing for a Contract. For the purposes of this Paragraph 7.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the response process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the response process to the detriment of Owner, (b) to establish quote prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

- c. Collusive practice means a scheme or arrangement between two or more Contractors, with or without the knowledge of Owner, a purpose of which is to establish quote prices at artificial, non-competitive levels.
- d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the response process or affect the execution of a contract.

7.03 *Contractor's Warranty*

- A. The Contractor warrants that all work will be completed in compliance with all local, state and federal codes and regulations including the National Electric Code.
- B. Work must be constructed free of material and workmanship defects.
- C. Contractor must warranty work for a period of no less than one (1) year from final date of install.
 - 1. Warranty must include all parts and installation.
 - 2. For any warranty claim, the Contractor must provide a replacement or repair for any damaged or defective parts, free of charge for the period set forth above.

[Letter of Interest with Signatures on Next Page]

Letter of Interest

Please Initial on each line.

_____ We meet all of the requirements in this RFQ and are capable and willing to be included on the electricians list for electrical work associated with the Foraker, Southwest, and Tecumseh Acres STEP project.

_____ We understand that by submitting a response we certify our ability to perform the maximum scope of work for any given property as described in this RFQ for a price of \$2,500.00 or less per property.

_____ We understand that all work will be quoted, competitively, and we are willing to provide quotes, free of charge, to any person(s) that contacts our company, if our workload at the time of such request allows.

_____ We acknowledge that by responding to this RFQ, that we are not obligated or guaranteed to perform any work on this project, but request that we be an approved Contractor authorized to submit quotes for such work.

_____ We acknowledge that all properties that my company is awarded the contract on, must be completed by August 31, 2023 and commit that we will only submit quotes for projects that we have resources available to complete awarded work within that timeframe.

Documents provided with this Letter of Interest:

_____ Certificate of Insurance/Bonding

_____ Evidence of authority to perform Electrical Work in Elkhart County, Indiana. (Electrical License)

Contractor:

(typed or printed name of organization)

Name: _____
(printed) (signature)

Title: _____
(typed or printed)

Address: _____
(typed or printed)

Phone Number: _____
(typed or printed)

Date: _____
(typed or printed)

Email: _____
(typed or printed)

NOTICE TO ELECTRICAL CONTRACTORS

Notice is hereby given that the Board of County Commissioners of Elkhart County, Indiana, will receive responses up to **9:00 AM on Monday, April 3, 2023**, for inclusion for initial participation in the following project.

ELECTRICAL REQUEST FOR QUALIFICATIONS
FORAKER, SOUTHWEST, AND TECUMSEH WASTEWATER PROJECT
– ELKHART COUNTY.

Electrical contractors interested in performing similar standard electrical work on one or more residential and commercial properties with Elkhart County paying the invoice should consider responding to this request to be added to an approved vendor list for work relevant to the Foraker, Southwest, and Tecumseh Wastewater Project in Elkhart County. It is the responsibility of the Contractor to ensure that their response is delivered on time to the Office of the Elkhart County Commissioners, County Administration Building, 117 N. Second Street, Goshen, IN 46526. Responses to this RFQ will be acknowledged during the regularly scheduled Elkhart County Commissioner's meeting beginning at 9:00 a.m. on April 10, 2023, at 117 N. Second Street Goshen, IN 46526.

The RFQ will be posted online at <https://elkhartcounty.com/en/about-elkhart-county/foraker-wastewater-project/> and can be requested from Lochmueller Group by emailing Anthony Goodnight at agoodnight@lochgroup.com or calling (260) 519-2823. There is no cost for the materials. For questions related to the RFQ or the process moving forward please contact Lochmueller Group by calling Anthony Goodnight at (260) 519-2823.

The work is subject to all the provisions of the RFQ Documents. The Board of County Commissioners reserves the right to reject any and all responses or to waive any informalities in the response process. While additional electrical contractors may be added after April 10, 2023, such contractors are not guaranteed to make the initial list of approved contractors.

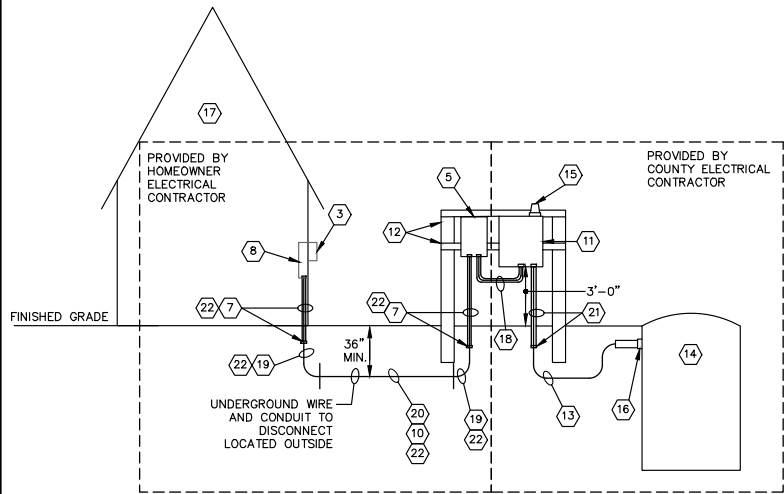
Dated March 13, 2023:

Brad Rogers, President
Elkhart County Commissioners

NEWSPAPERS: Goshen News
and Middlebury Independent
Advertise Wednesday, March 15
And Wednesday March 22

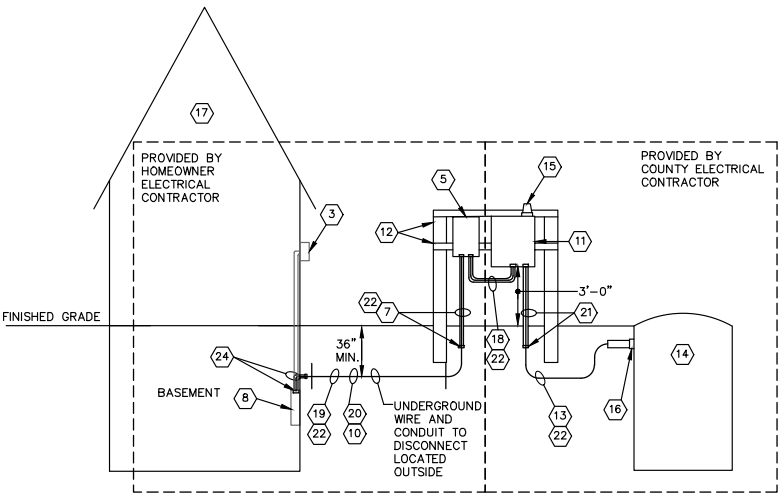
APPENDIX
PROJECT DRAWINGS

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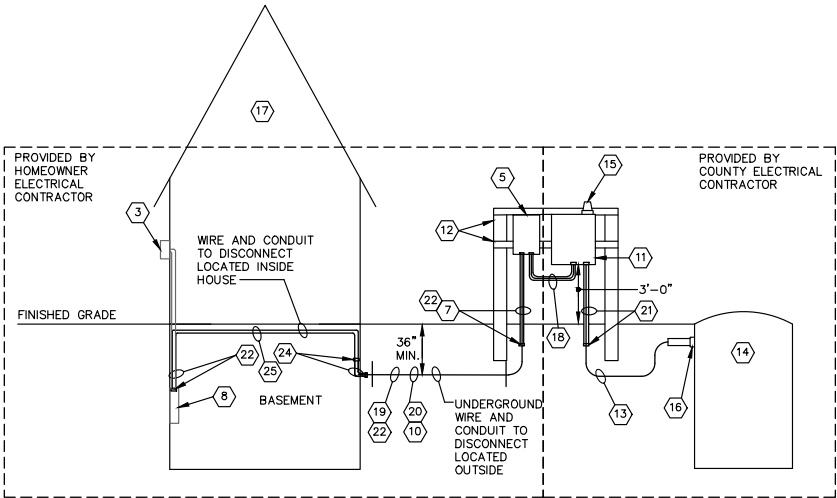
ELECTRICAL DETAILS-SETUP 1
EXISTING ABOVE GRADE PANELBOARD

NOT TO SCALE



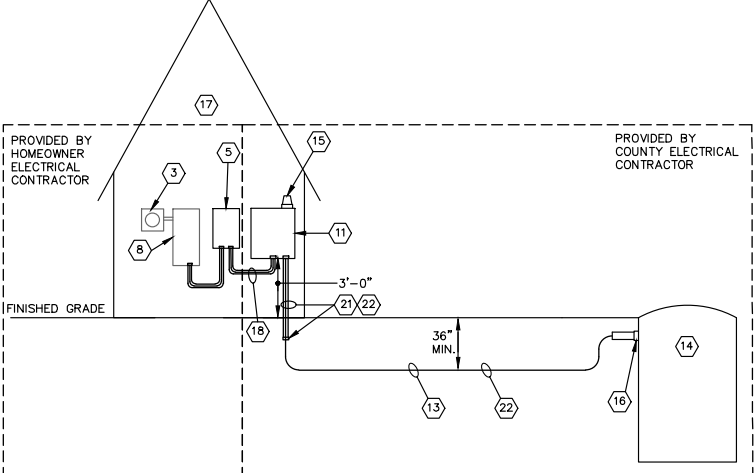
ELECTRICAL DETAILS-SETUP 2
EXISTING BELOW GRADE PANELBOARD

NOT TO SCALE



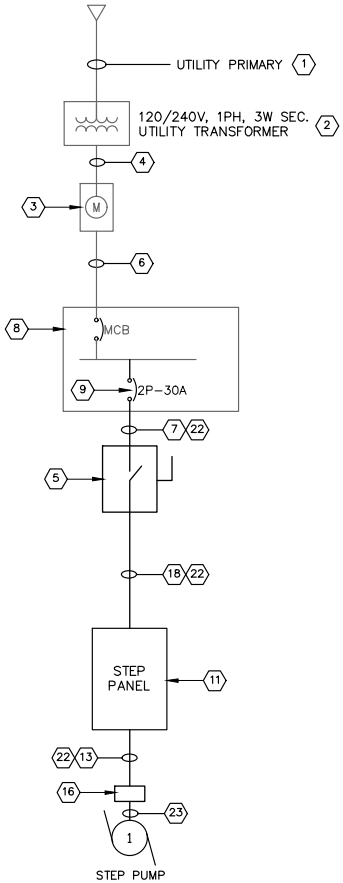
ELECTRICAL DETAILS - SETUP 3
WIRING TO THE EQUIPMENT RACK INSIDE HOUSE

NOT TO SCALE



ELECTRICAL DETAILS - SETUP 4
EXISTING HOUSE TO THE STEP UNIT

NOT TO SCALE



POWER ONE-LINE DIAGRAM

NOT TO SCALE

ELECTRICAL GENERAL NOTES:

- HOMEOWNER ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HOME OWNER PRIOR TO INSTALLATION OF NEW STEP SYSTEM. LOCATE AND PROTECT EXISTING WIRING AND CONDUIT DURING INSTALLATION. INSTALLATION TO THE EXISTING RESIDENTIAL PANEL SHALL MEET THE NEC REQUIREMENTS.
- COUNTY ELECTRICAL CONDUCTORS FEEDING THE STEP SYSTEM SHALL BE 3 CONDUCTOR WITH GROUND. A NEUTRAL IS REQUIRED FOR THE STEP PANEL TO OPERATE PROPERLY.
- HOMEOWNER ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR EXISTING CUSTOMER PANELBOARD LOAD CALCULATION PRIOR TO INSTALLATION TO CONFIRM IF THE EXISTING SERVICE IS LARGE ENOUGH TO ACCOMMODATE THE STEP SYSTEM.
- HOMEOWNER ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO UPGRADE THE EXISTING UTILITY SERVICE TO ACCOMMODATE THE NEW STEP SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE LOCAL UTILITY COMPANY, "NIPSCO" FOR INSTALLATION REQUIREMENTS AND SCOPE OF WORK BY THE UTILITY AND THE CONTRACTOR. CONTRACTOR SHALL ALSO BE RESPONSIBLE TO UPGRADE ALL THE OTHER ELECTRICAL EQUIPMENTS FROM THE DOWNSTREAM OF THE UTILITY SIDE TO THE PANELBOARD WHICH INCLUDES REMOVING THE EXISTING WIRING, CONDUITS, DISCONNECT SWITCH, PANELBOARD ETC. TERMINATION OF EXISTING WIRING AND CONDUIT FOR THE EXISTING PANELBOARD TO THE NEW PANELBOARD BY THE CONTRACTOR.
- HOMEOWNER ELECTRICAL CONTRACTOR SHALL PROVIDE/NOTIFY OWNER ABOUT THE MAXIMUM LOAD INFORMATION WHICH COULD BE ADDED IN FUTURE AFTER THE INSTALLATION OF NEW STEP SYSTEM WITHOUT TRIPPING THE MAIN BREAKER AT THE PANELBOARD.

ELECTRICAL KEYED NOTES:

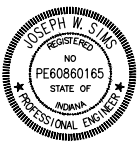
- EXISTING LOCAL UTILITY PRIMARY.
- EXISTING UTILITY TRANSFORMER TO REMAIN.
- EXISTING UTILITY METER AND METER BASE TO REMAIN.
- EXISTING SECONDARY WIRING TO REMAIN FROM THE UTILITY TRANSFORMER.
- NEW NEMA 3R, 120/240V, 1PH, 2P-30A NON-FUSED DISCONNECT SWITCH. FURNISHED AND INSTALLED BY CONTRACTOR.
- EXISTING WIRING AND CONDUIT TO REMAIN FROM EXISTING UTILITY METER TO THE EXISTING RESIDENTIAL PANELBOARD. 3/4" SCH 40 PVC CONDUIT.
- ABOVE GROUND BRANCH CIRCUIT. 2-#10 CU, 1-#10 CU NEUTRAL, 1-#10 CU GND, 3/4" C.
- EXISTING RESIDENTIAL PANELBOARD TO REMAIN.
- INSTALL NEW (1) 2P-30A BREAKER INSIDE THE EXISTING RESIDENTIAL PANELBOARD. MATCH EXISTING PANELBOARD KAIC RATING AND BREAKER TYPE.
- DIRECT BURIED UF CABLE FURNISHED AND INSTALLED BY CONTRACTOR.
- NEW NEMA 4X ENCLOSURE STEP CONTROL PANEL. FURNISHED BY MANUFACTURER AND INSTALLED BY CONTRACTOR.
- HOMEOWNER ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW WELDED RIGID GALVANIZED STEEL EQUIPMENT RACK USING 4"x4" SQUARE VERTICAL POSTED AND 4"x4" UNISTRUT CROSS BARS. BASE OF THE EQUIPMENT RACK POST SHALL BE BURIED 3'-0" BELOW GRADE.
- (2) 1" SCH 40 PVC CONDUITS. ONE 1" SCH 40 PVC CONDUIT FOR PUMP CONTROL CIRCUIT, 8-#14 CU, 1-#14 CU GND AND ONE 1" SCH 40 PVC CONDUIT FOR PUMP POWER CIRCUIT, 2-#10 CU, 1-#10 CU GND.
- NEW STEP PUMP UNIT. FURNISHED BY MANUFACTURER AND INSTALLED BY CONTRACTOR.
- ALARM LIGHT. FURNISHED AND INSTALLED BY MANUFACTURER.
- 1-1/2" ELECTRICAL COUPLING FURNISHED W/ STEP SYSTEM. CONTRACTOR TO FURNISH 1-1/2" X 12" SCH. 40 PVC CONDUIT. CONNECT TO COUPLING. PROVIDE PVC SPLICE BOX AND UNDERGROUND RATED SPLICES.
- EXISTING HOUSE TO REMAIN.
- CONTRACTOR SHALL FURNISH AND INSTALL 3/4" SCH 40 PVC CONDUIT FOR STEP CONTROL PANEL PUMP MOTOR POWER CABLE. 2-#10 CU, 1-#10 CU NEUTRAL, 1-#10 CU GND.
- CONTRACTOR SHALL FURNISH AND INSTALL 1" PVC CONDUIT, 36" RADIUS WIDE SWEEP ELBOW FOR TRANSITION TO ABOVE GRADE.
- UNDERGROUND BRANCH CIRCUIT 1" SCH. 40 PVC C., 2-#10 CU, 1-#10 CU NEUTRAL, 1-#10 CU GND.
- CONTRACTOR SHALL FURNISH AND INSTALL (2) 1" SCH 40 PVC CONDUIT W/ PUMP MOTOR POWER AND CONTROL CABLE. PROVIDE MALE ADAPTER W/ BUSHING ON BURIED END OF CONDUIT. CONDUIT SHALL EXTEND 12" BELOW FINISHED GRADE.
- UP-SIZE CURRENT CARRYING CONDUCTORS (AND CONDUIT PER NEC TABLE C.9) IF NECESSARY FOR VOLTAGE DROP. SEE CHART THIS SHEET. TERMINATE CONDUIT 12" BFG WITH BUSHING.
- PUMP MOTOR POWER AND CONTROL CABLE FURNISHED WITH PUMP MOTOR, INSTALLED AND TERMINATED BY CONTRACTOR IN 1" SCH 40 PVC CONDUIT. CABLE SHALL BE DIRECT BURIED.
- CONTRACTOR SHALL FURNISH AND INSTALL 1" GRS CONDUIT, 36" RADIUS WIDE SWEEP ELBOW FOR TRANSITION FROM INSIDE TO OUTSIDE. PROVIDE CONDUIT BUSHING AT EACH END.
- CONTRACTOR SHALL FURNISH AND INSTALL 1" SCH 40 PVC CONDUIT INSIDE THE BASEMENT AREA.

STEP SYSTEM ELECTRICAL ONE-LINE DIAGRAMS & DETAILS - EXISTING PANELBOARD

NOT TO SCALE

Elkhart County
HIGHWAY DEPARTMENT

610 STEURY AVE, GOSHEN, IN 46528
PH: 574-534-9394
FAX: 574-533-7103
WWW.ELKCOHWY.ORG



RECOMMENDED
FOR APPROVAL *Joseph W. Sims* 12/30/2022
Joseph W. Sims DATE

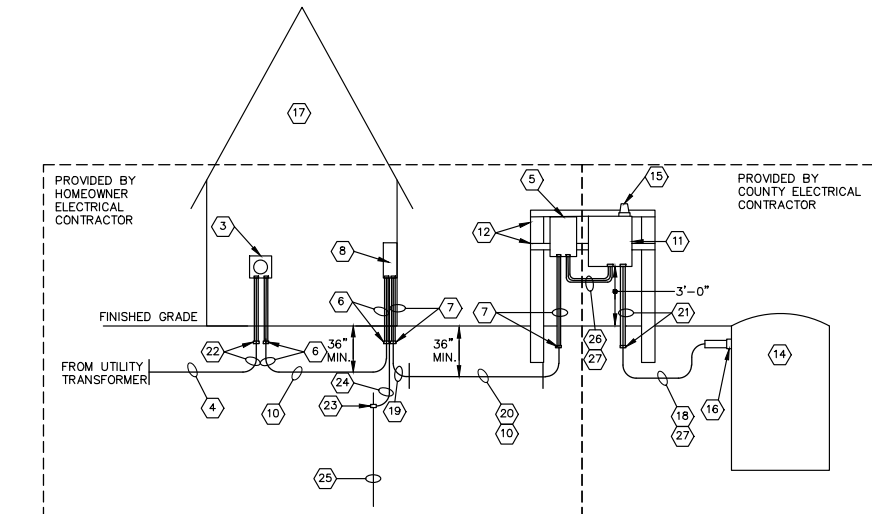
DESIGNED: TEAM DRAWN: TEAM
CHECKED: JWS CHECKED: JWS

ELKHART COUNTY
FORAKER, SOUTHWEST AND TECUMSEH
WASTEWATER PROJECT

STEP SYSTEM ELECTRICAL ONE-LINE
DIAGRAM & DETAILS

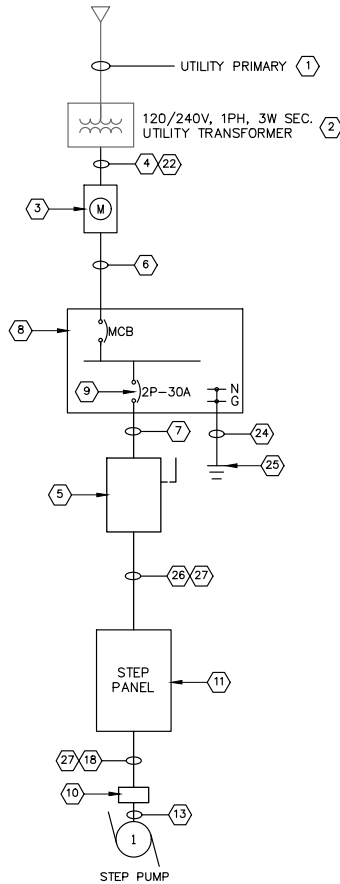
HORIZONTAL SCALE	ROAD FILE
N/A	
VERTICAL SCALE	DESIGNATION
N/A	
SURVEY BOOK	SHEET
CONTRACT	E200
	PROJECT
	121-3040-01W

CONTROL PANEL POWER WIRING CONDUCTOR SHALL BE 3 CONDUCTOR WITH GROUND		
LENGTH	CU. WIRE	AL. WIRE
< 50'	#10	#10
50' ≤ L < 100'	#10	#10
100' ≤ L < 150'	#10	#10
150' ≤ L < 200'	#10	#8
200' ≤ L < 250'	#10	#8
250' ≤ L < 300'	#8	#8
300' ≤ L < 350'	#8	#6
350' ≤ L < 400'	#8	#6
400' ≤ L < 450'	#6	#4
450' ≤ L < 500'	#6	#4
500' ≤ L < 550'	#6	#4
550' ≤ L < 600'	#6	#4
600' ≤ L < 650'	#6	#4
650' ≤ L < 700'	#6	#3
700' ≤ L < 750'	#4	#3
750' ≤ L < 800'	#4	#3
800' ≤ L < 850'	#4	#3
850' ≤ L < 900'	#4	#2
900' ≤ L < 950'	#4	#2
950' ≤ L < 1,000'	#4	#2
1,000' ≤ L < 1,050'	#4	#2
1,050' ≤ L < 1,100'	#4	#1
1,100' ≤ L < 1,150'	#3	#1
1,150' ≤ L < 1,200'	#3	#1
1,200' ≤ L < 1,250'	#3	#1
1,250' ≤ L < 1,300'	#3	#1/0
1,300' ≤ L < 1,350'	#3	#1/0
1,350' ≤ L < 1,400'	#2	#1/0
1,450' ≤ L < 1,500'	#2	#1/0
Voltage Drop Calculations take into account motor in-rush.		



ELECTRICAL DETAILS - EXISTING SERVICE SIZE AND PANELBOARD UPGRADE

NOT TO SCALE



POWER ONE-LINE DIAGRAM

NOT TO SCALE

STEP SYSTEM ELECTRICAL ONE-LINE DIAGRAMS & DETAILS

NOT TO SCALE

ELECTRICAL GENERAL NOTES:

- A. HOMEOWNER ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HOME OWNER PRIOR TO INSTALLATION. LOCATE AND PROTECT EXISTING WIRING AND CONDUIT DURING INSTALLATION. INSTALLATION TO THE EXISTING RESIDENTIAL PANEL SHALL MEET THE NEC REQUIREMENTS.
- B. COUNTY ELECTRICAL CONDUCTORS FEEDING THE STEP SYSTEM SHALL BE 3 CONDUCTOR WITH GROUND. A NEUTRAL IS REQUIRED FOR THE STEP PANEL TO OPERATE PROPERLY.
- C. IF AFTER EXAMINATION BY THE HOMEOWNER'S ELECTRICAL CONTRACTOR, THE HOMEOWNER'S ELECTRICAL CONTRACTOR DEEMS REPLACEMENT OF THE EXISTING ELECTRICAL SERVICE IS NEEDED, THE HOMEOWNER'S ELECTRICAL CONTRACTOR SHALL CONSULT WITH THE ENGINEER, IN WRITING, PRIOR TO PERFORMING THE REPLACEMENT WORK.

ELECTRICAL KEYED NOTES:

1. EXISTING LOCAL UTILITY PRIMARY.
2. EXISTING UTILITY TRANSFORMER TO REMAIN.
3. EXISTING METER AND BASE TO BE REMOVED. REPLACE WITH 100A OR 200A METER AND METER BASE AS PER UTILITY'S REQUIREMENTS BY HOMEOWNER ELECTRICAL CONTRACTOR.
4. NEW SECONDARY WRING AND CONDUIT TO THE UTILITY METER FROM THE UTILITY TRANSFORMER AS PER UTILITY'S REQUIREMENTS.
5. NEW NEMA 3R, 120/240V, 1PH, 2P-30A NON FUSED DISCONNECT SWITCH. FURNISHED AND INSTALLED BY CONTRACTOR.
6. 2-#2 CU, 1-#2 CU NEUTRAL CONDUCTOR, 1-#8 CU GND, 1-1/4" SCH. 40 PVC CONDUIT FOR 100A SERVICE. 2-#3/0 CU, 1-#3/0 CU NEUTRAL CONDUCTOR, 1-#6 CU GND, 2" SCH. 40 PVC CONDUIT FOR 200A SERVICE.
7. ABOVE GROUND BRANCH CIRCUIT - 1" SCH 40 PVC. 2-#10 CU, 1-#10 CU NEUTRAL, 1-#10 CU GND. UP-SIZE CURRENT CARRYING CONDUCTORS (AND CONDUIT PER NEC TABLE C.9) IF NECESSARY FOR VOLTAGE DROP. SEE CHART THIS SHEET. TERMINATE CONDUIT 12" BFG WITH BUSHING.
8. NEW 100A OR 200A, 120/240V, 1PH, 3W, 22KAIC RESIDENTIAL PANELBOARD. PANELBOARD SHALL MATCH THE NEW UTILITY SERVICE SIZE. CONTRACTOR SHALL RETERMINATE EXISTING WIRING AND CONDUITS TO THE NEW PANELBOARD.
9. USE (1) 2P-30A BREAKER INSIDE THE NEW RESIDENTIAL PANELBOARD.
10. 1-1/2" ELECTRICAL COUPLING FURNISHED W/ STEP SYSTEM. CONTRACTOR TO FURNISH 1-1/2" X 12" SCH. 40 PVC CONDUIT, CONNECT TO COUPLING. PROVIDE PVC SPLICE BOX AND UNDERGROUND RATED SPLICES.
11. NEW NEMA 4X ENCLOSURE STEP CONTROL PANEL. FURNISHED BY MANUFACTURER AND INSTALLED BY CONTRACTOR.
12. HOME OWNER ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW WELDED RIGID GALVANIZED STEEL EQUIPMENT RACK USING 4"x4" SQUARE VERTICAL POSTED AND 4"x4" UNISTRUT CROSS BARS. BASE OF THE EQUIPMENT RACK POST SHALL BE BURIED 3'-0" BELOW GRADE.
13. PUMP MOTOR POWER AND CONTROL CABLE FURNISHED WITH PUMP MOTOR, INSTALLED AND TERMINATED BY CONTRACTOR IN 1" SCH 40 PVC CONDUIT. CABLE SHALL BE DIRECT BURIED.
14. NEW STEP PUMP UNIT. FURNISHED BY MANUFACTURER AND INSTALLED BY CONTRACTOR.
15. ALARM LIGHT. FURNISHED AND INSTALLED BY STEP MANUFACTURER.
16. 1-1/2" ELECTRICAL COUPLING FURNISHED W/ STEP SYSTEM. CONTRACTOR TO FURNISH 1-1/2" X 12" SCH. 40 PVC CONDUIT, CONNECT TO COUPLING.
17. EXISTING HOUSE TO REMAIN.
18. (2) 1" SCH 40 PVC CONDUITS. ONE 1" SCH 40 PVC CONDUIT FOR PUMP CONTROL CIRCUIT, 8-#14 CU, 1-#14 CU GND AND ONE 1" SCH 40 PVC CONDUIT FOR PUMP POWER CIRCUIT, 2-#10 CU, 1-#10 CU GND.
19. CONTRACTOR SHALL FURNISH AND INSTALL 1" SCH 40 PVC FOR TRANSITION TO ABOVE GRADE. UP-SIZE CURRENT CARRYING CONDUCTORS (AND CONDUIT PER NEC TABLE C.9) IF NECESSARY FOR VOLTAGE DROP. SEE CHART THIS SHEET.
20. UNDERGROUND BRANCH CIRCUIT - 1" SCH. 40 PVC C, 2-#10 CU, 1-#10 CU NEUTRAL, 1-#10 CU GND. UP-SIZE CURRENT CARRYING CONDUCTORS (AND CONDUIT PER NEC TABLE C.9) IF NECESSARY FOR VOLTAGE DROP. SEE CHART THIS SHEET.
21. CONTRACTOR SHALL FURNISH AND INSTALL (2) 1" SCH 40 PVC W/ PUMP MOTOR POWER AND CONTROL CABLE. PROVIDE MALE ADAPTER W/ BUSHING ON BURIED END OF CONDUIT. CONDUIT SHALL EXTEND 12" BELOW FINISHED GRADE.
22. UNDERGROUND SERVICE - 2" SCH. 40 PVC C., 2-#2 CU THWN, 1-#2 CU THWN NEUTRAL (GROUNDED) CONDUCTOR FOR 100A SERVICE AND 2-#3/0 CU THWN, 1-#3/0 CU THWN NEUTRAL (GROUNDED) CONDUCTOR FOR 200A SERVICE. UNGROUNDED CONDUCTORS SHALL BE BLUE AND RED. GROUNDED CONDUCTORS SHALL BE WHITE.
23. GROUNDING ELECTRODE TO GROUND ROD. GROUND CLAMP - BLACKBURN #JAB34H OR APPROVED EQUAL.
24. CONTRACTOR SHALL FURNISH AND INSTALL #3 BARE CU GROUND. CADWELD CONNECTION TO GROUND ROD.
25. 3/4" X 8' COPPER CLAD GROUND ROD; FURNISHED AND INSTALLED BY CONTRACTOR. TOP OF ROD TO BE BURIED 2'-0" BELOW GRADE.
26. CONTRACTOR SHALL FURNISH AND INSTALL 3/4" SCH 40 PVC CONDUIT FOR STEP CONTROL PANEL PUMP MOTOR POWER CABLE. 2-#10 CU, 1-#10 CU NEUTRAL, 1-#10 CU GND.
27. UP-SIZE CURRENT CARRYING CONDUCTORS (AND CONDUIT PER NEC TABLE C.9) IF NECESSARY FOR VOLTAGE DROP. SEE CHART THIS SHEET. TERMINATE CONDUIT 12" BFG WITH BUSHING.

Elkhart County
HIGHWAY DEPARTMENT

610 STEURY AVE, GOSHEN, IN 46528
PH: 574-534-9394
FAX: 574-533-7103
WWW.ELKCOHWY.ORG



RECOMMENDED
FOR APPROVAL *Joseph W. Sims* 12/30/2022
Joseph W. Sims DATE

DESIGNED: _____ TEAM _____
CHECKED: _____ JWS _____
DRAWN: _____ TEAM _____
CHECKED: _____ JWS _____

ELKHART COUNTY
FORAKER, SOUTHWEST AND TECUMSEH
WASTEWATER PROJECT

STEP SYSTEM ELECTRICAL ONE-LINE
DIAGRAM & DETAILS-OPTION D

HORIZONTAL SCALE	ROAD FILE
N/A	
VERTICAL SCALE	DESIGNATION
N/A	
SURVEY BOOK	SHEET
CONTRACT	E201 PROJECT
	121-3040-01W