

<p align="center">County of Wake Finance / Procurement Services – Room 2902 Wake County Justice Center – 2nd Floor 301 S. McDowell Street Raleigh, NC 27601</p>	<p align="center">INVITATION FOR BID NUMBER: 25-084</p>
	<p>Bids will be publicly opened: <u>Wednesday Sept 24, 2025 at 2:00 PM</u></p>
	<p>Contract Type: Service Agreement</p>
<p>Refer ALL Inquiries to: Eric Staehle Telephone No. 919.830-0294</p>	<p>Commodity: Public Water Supply Well Lake Myra County Park</p>
<p>E-Mail: eric.staehle@wake.gov</p>	<p>Using Agency Name: Facilities Design & Construction</p>
<p>(See page 2 for mailing instructions.)</p>	<p>Agency Requisition No. None</p>

NOTICE TO BIDDERS:

PRE-BID SITE MEETING: A Non-Mandatory Pre-Bid meeting will be held on site on Wednesday September 3, 2025 at 9:30 AM. See Figure 2 in Technical Specifications, for Pre-Bid meeting parking instructions and meeting location.

Pre-Bid Meeting contact: Eric Staehle; eric.staehle@wake.gov; 919-830-0294

All questions to be submitted to Eric Staehle by 2:00 PM Friday September 12

SPECIAL NOTE: Procurement Services is located in the Wake County Justice Center. Access is best by using 301 S.McDowell Street, Raleigh, NC 27601

YOU WILL BE REQUIRED TO GO THROUGH SECURITY AND METAL DETECTION IF YOU HAND DELIVER YOUR BID.

PLEASE FACTOR THIS INTO YOU BID DELIVERY PLANS AS NO EXCEPTIONS WILL BE ALLOWED AND LATE BIDS WILL NOT BE ACCEPTED.

Sealed bids, subject to the conditions made a part hereof, will be received at this office for furnishing and delivering the commodity as described herein. Refer to page 2 for proper mailing instructions.

Bids submitted via facsimile (FAX) machine, or email, in response to this Invitation for Bids will not be accepted. Bids are subject to rejection unless submitted on this form. **Late bids, regardless of delivery means, will not be accepted. Bid/proposal delivery by any courier service may be subject to some access limitations should the delivery person be using hand trucks or carts. This should be factored into your delivery decisions.**

Delivery date: _____ Bidder is urged to state earliest guaranteed delivery.

EXECUTION

In compliance with this Invitation for Bids, and subject to all the conditions herein, the undersigned offers and agrees to furnish and deliver any or all items upon which prices are bid, at the prices set opposite each item within the time specified herein. By executing this bid, I certify that this bid is submitted competitively and without collusion (G.S. 143-54).

Unless stated otherwise within this document, Wake County, upon mutual agreement with the vendor, may purchase additional quantities at the same or better pricing for **one (1)** year from date of contract award.

Failure to execute/sign bid prior to submittal shall render bid invalid.

BIDDER: _____

BIDDER:		FEDERAL ID OR SOCIAL SECURITY NO.	
STREET ADDRESS:		P.O. BOX:	ZIP:
CITY & STATE & ZIP:		TELEPHONE NUMBER:	TOLL FREE TEL. NO (800)
TYPE OR PRINT NAME & TITLE OF PERSON SIGNING:		FAX NUMBER:	
AUTHORIZED SIGNATURE:	DATE:	E-MAIL:	

Offer valid for 60 days from date of bid opening unless otherwise stated herein. Prompt Payment Discount: _____ %
 _____ days (See Instructions to Bidders, Item 7).

MAILING INSTRUCTIONS: Mail only one fully executed bid document, unless otherwise instructed, and only one bid per envelope. Address envelope and insert bid number as shown below. It is the responsibility of the bidder to have the bid in this office by the specified time and date of opening. If sending via USPS, allow one extra day for Wake County internal processing.

BID NO. 25-084
 Wake County Procurement Services
 Wake County Justice Center - Ste 2900
 301 S. McDowell Street
 Raleigh, NC 27601

TABULATIONS: Tabulations will normally be available not later than three (3) working days after opening.

TRANSPORTATION CHARGES:

FOB Destination: Freight, handling and distribution charges shall be included in the total price of each item listed. Any additional charges included on the invoice shall not be honored for payment, unless authorized by change order by the Wake County. In cases where materials are shipped against this order by parties, other than the Contractor, the shipper must be instructed to show the purchase order number on all packages and shipping manifests to ensure proper identification and payment of invoices. Complete packing list must accompany each shipment.

ADDENDA

It is solely the bidder's responsibility to ensure they have all necessary information prior to submitting a bid/proposal. This includes any and all addenda. Bidder is to acknowledge all addenda or risk rejection of bid or proposal.

Addenda One _____ Addenda Two _____ Addenda Three _____
 Addenda Four _____ Addenda Five _____ Addenda Six _____

Lake Myra County Park, Wake County, NC – Water Supply Well
Wendell, Wake County, NC
(Cost Submission Worksheet, Cost per Well)

Bidding Form

Wake County reserves the right to reject any and all bids for any reason. This request for bids is not an offer to contract for any services. The Contractor shall use the bid sheet below to provide pricing for work. Bids should be inclusive of all mobilization, materials, labor, expenses, and fees required to provide a turn-key completed project. We are requesting the cost per well. The Project will include the construction of one well based on the cost per well shown in this bid form. Two well locations are considered, each with different efforts needed for site clearing, grading, erosion and sediment control protection, and site restoration. Please list these site costs for each site separately below.

Description of Services*	Quantity	Unit Rate	Total
SET UP			
Mobilization	1	\$ _____ per site	\$ _____
CASING INSTALLATION			
Drilling overburden (14" diameter)	50	\$ _____ per foot	\$ _____
Steel casing installation (8" diameter black steel or galvanized steel casing)	50	\$ _____ per foot	\$ _____
Drive shoe (8")	1	\$ _____ per shoe	\$ _____
Centralizers	3	\$ _____ each	\$ _____
Grouting from surface	50	\$ _____ per foot	\$ _____
Halt drilling for 24 hours for grout to cure	1	\$ _____ per site	\$ _____
BOREHOLE INSTALLATION			
6" diameter borehole	250	\$ _____ per foot	\$ _____
Enlarge to 8" diameter borehole	250	\$ _____ per foot	\$ _____
Sample collection every 10 feet	30	\$ _____ per sample	\$ _____
Caliper logging and video logging	1	\$ _____ per well	\$ _____
Well development air lift	1	\$ _____ per well	\$ _____
Well alignment testing & certification	1	\$ _____ per well	\$ _____
Disinfection & Bacteriologic testing of bore hole	1	\$ _____ per well	\$ _____

BIDDER: _____

Lake Myra County Park, Wake County, NC – Water Supply Well
Wendell, Wake County, NC
(Cost Submission Worksheet, Cost per Well)

Description of Services*	Quantity	Unit Rate	Total
TESTING			
6-hour step-drawdown test	1	\$ _____ per well	\$ _____
24-hour aquifer test	1	\$ _____ per well	\$ _____
Water quality testing for New Public Supply Well per NCDEQ Requirements	1	\$ _____ per well	\$ _____
SITE COMPLETION			
Site Restoration	1	\$ _____ per site	\$ _____
COST PER WELL			
Total Cost without site clearing, grading, erosion control, and site restoration		COST PER WELL :	\$ _____
SITE SETUP, PROTECTION, RESTORATION: WELL A			
Site clearing, grading, erosion control Well A	1	\$ _____	\$ _____
Well Abandonment Well A (if needed)	1	\$ _____ per site	\$ _____
		TOTAL SITE COSTS FOR WELL A:	\$ _____
SITE SETUP, PROTECTION, RESTORATION: WELL B			
Site clearing, grading, erosion control Well B	1	\$ _____	\$ _____
Well Abandonment Well B (if needed)	1	\$ _____ per site	\$ _____
		TOTAL SITE COSTS FOR WELL B:	\$ _____

* Compensation for work will be based upon unit rates and actual units incurred to complete the project. Pricing shall include all labor, travel, expenses, materials, and equipment required to complete a turn-key job as specified in the Well Construction Specifications prepared by Groundwater Management Associates Inc. dated 7-16-2025.

Date of Bid Submittal: _____

Name of Offering _____

Firm and Contact: _____

Address: _____

Telephone and Email: _____

Name and NCWCC License Number of Supervising Driller: _____

ATTACHED DOCUMENTS FOR BIDDING:

- Pre-Bid Meeting – Location Maps
- Technical Specifications –
Lake Myra County Park Water Supply Well
Wendell, Wake County, NC
- Wake County Well Permits

INSTRUCTIONS TO BIDDERS

1. **READ, REVIEW AND COMPLY:** It shall be the bidder's responsibility to read this entire document, review all enclosures and attachments, and comply with all requirements specified herein.
2. **DEFINITIONS:**
 - **THE COUNTY:** Is the County of Wake, North Carolina and its agencies.
 - **OFFEROR:** Company, firm, corporation, partnership, individual, etc., submitting a response to a solicitation.
3. **NOTICE TO BIDDERS:** All bids are subject to the provisions of the Instructions to Bidders, special terms and conditions specific to this Invitation for Bids, the specifications, and the Terms and Conditions. The County objects to and will not evaluate or consider any additional terms and conditions submitted with a bidder response. This applies to any language appearing in or attached to the document as part of the bidder's response. **DO NOT ATTACH ANY ADDITIONAL TERMS AND CONDITIONS.** By execution and delivery of this document, the bidder agrees that any additional terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect.
4. **EXECUTION:** Failure to sign the bid response will render bid invalid.
5. **ORDER OF PRECEDENCE:** In cases of conflict between specific provisions in this bid, the order of precedence shall be (1) special terms and conditions specific to this bid, (2) specifications, (3) Terms and Conditions, and (4) Instructions to Bidders.
6. **TIME FOR CONSIDERATION:** Unless otherwise indicated on the first page of this document, bidder's offer shall be valid for 60 days from the date of bid opening. Preference may be given to bids allowing not less than 60 days for consideration and acceptance.
7. **PROMPT PAYMENT DISCOUNTS:** Bidders are urged to compute all discounts into the price offered. If a prompt payment discount is offered, it will not be considered in the award of the contract except as a factor to aid in resolving cases of identical prices.
8. **SPECIFICATIONS:** Any deviation from specifications indicated herein must be clearly pointed out; otherwise, it will be considered that items offered are in strict compliance with these specifications, and bidder will be held responsible therefore. Deviations shall be explained in detail. **The bidder shall not construe this paragraph as inviting deviation or implying that any deviation will be acceptable.**
9. **INFORMATION AND DESCRIPTIVE LITERATURE:** Bidder is to furnish all information requested and in the spaces provided in this document. Further, if required elsewhere in this bid, each bidder must submit with their bid sketches, descriptive literature and/or complete specifications covering the products offered. Reference to literature submitted with a previous bid will not satisfy this provision. Bids which do not comply with these requirements will be subject to rejection.
10. **RECYCLING AND SOURCE REDUCTION:** It is the policy of this County to encourage and promote the purchase of products with recycled content to the extent economically practicable, and to purchase items which are reusable, refillable, repairable, more durable, and less toxic to the extent that the purchase or use is practicable and cost-effective. We also encourage and promote using minimal packaging and the use of recycled/recyclable products in the packaging of commodities purchased. However, no sacrifice in quality of packaging will be acceptable. The company remains responsible for providing packaging that will protect the commodity and contain it for its intended use. Companies are strongly urged to bring to the attention of the purchasers those products or packaging they offer which have recycled content and that are recyclable.
11. **CLARIFICATIONS/INTERPRETATIONS:** Any and all questions regarding this document must be addressed to the purchaser named on the cover sheet of this document. Do not contact the user directly. Any and all revisions to this document shall be made only by written addendum from Wake County Procurement Services. The bidder is cautioned that the requirements of this bid can be altered only by written addendum and that verbal communications from whatever source are of no effect.
12. **ACCEPTANCE AND REJECTION:** The County reserves the right to reject any and all bids, to waive any informality in bids and, unless otherwise specified by the bidder, to accept any item in the bid. If an extended price is obviously in error, the unit price will control.
13. **REFERENCES:** The County reserves the right to require a list of users of the exact item offered. The County may contact these users to determine acceptability of the bid. Such information may be considered in the evaluation of the bid.

14. **TAXES:**

- **FEDERAL:** All agencies participating in this contract are exempt from Federal Taxes, such as excise and transportation. Exemption forms submitted by the contractor will be executed and returned by the using agency.
- **OTHER:** Prices offered are not to include any personal property taxes, nor any sales or use tax (or fees) unless required by the North Carolina Department of Revenue.

15. **AWARD OF CONTRACT:** The County will consider such factors as: prices offered; the quality of the articles offered; the general reputation and performance capabilities of the bidders; the substantial conformity with the specifications and other conditions set forth in the bid; the suitability of the articles for the intended use; the related services needed; the date or dates of delivery and performance; and such other factors deemed by the County to be pertinent or peculiar to the purchase in question. Unless otherwise specified by the County or the bidder, the County reserves the right to accept any item or group of items on a multi-item bid. In addition, Wake County reserves the right to make partial, progressive or multiple awards: where it is advantageous to award separately by items; or where more than one supplier is needed to provide the contemplated requirements as to quantity, quality, delivery, service, geographical areas; other factors deemed by Wake County to be pertinent or peculiar to the purchase in question.

16. **HISTORICALLY UNDERUTILIZED BUSINESSES:** The County invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled.

17. **CONFIDENTIAL INFORMATION:**

Wake County is subject to North Carolina's Public Records Act located in Chapter 132 of the North Carolina General Statutes. As a result, information submitted to and received by Wake County in response to a Request for Proposal/Request For Bid/Request For Quote/Request for Qualifications, or any other procurement method (collectively "Procurement Process"), is considered public record and may be released for public inspection after the contract award, or as otherwise permitted under NCGS § 143, without further notice to the proposer. The County does not intend to elicit confidential or trade secret information in response to a Procurement Process and assumes no responsibility for the submission of such information. Wake County reserves the right to share any information submitted in response to a Procurement Process with any person(s) or firm(s) involved in the review and evaluation phase of the Procurement Process.

If a proposer nonetheless submits information in a bid proposal or other response to a Procurement Process and it considers such information to be confidential, then all four requirements of [NCGS 132-1.2](#) "Confidential Information" must be met for the County to consider withholding the information from public inspection in response to a public records request. **Among other legal requirements, information deemed to be "confidential" or "trade secret" by proposer must be clearly marked as such on the face of the document(s) at the time of the initial disclosure/submittal of RFP.** In addition, although not required by law, Wake County requests that any proposer who submits a proposal or response containing any such designation of confidentiality also submit a second copy of the proposal or response with the respective page(s) or section(s) redacted. The County will not agree to withhold an entire proposal or response from public inspection, thus proposers should refrain from including blanket restrictions on disclosure or all-encompassing claims of confidentiality.

When a public records request is made for information contained in or attached to a proposal or response that has been clearly marked as "trade secret" or "confidential" upon its submission, Wake County may, in its discretion and without further notice, release the redacted copy of the proposal or response to the requester if one has been previously submitted. Otherwise, the proposer will be notified of the request and given an opportunity to provide within a reasonable period a written explanation of the basis for claiming protection under N.C.G.S. 66-152 and N.C.G.S. 132-1 and/or a redacted proposal or response. The County shall make the final determination on release of the information. Should any civil action be brought against the County in an effort to compel or prevent the disclosure of information contained in a proposal or response that is deemed confidential by a proposer, the proposer may participate at its own expense; and by deeming any information in a proposal or response confidential, proposer further agrees to indemnify and hold harmless the County for and against any costs incurred by the County as a result of such litigation, including but not limited to fees or expenses arising out of N.C.G.S. 66-153 and N.C.G.S. 132-9.

18. **SAMPLES:** Sample of items, when required, must be furnished as stipulated herein, free of expense, and if not destroyed will, upon request be returned at the bidder's expense. Written request for the return of samples must be made within 10 days following date of bid opening. Otherwise the samples will become the property of the County. Each individual sample must be labeled with the bidder's name, bid number, and item number. A sample, on which an award is made, will be retained until the contract is completed, and then returned, if requested, as specified above.

19. **MISCELLANEOUS:** Masculine pronouns shall be read to include feminine pronouns and the singular of any word or phrase shall be read to include the plural and vice versa.

20. **IRAN DIVESTMENT ACT:** By signing this agreement or acceptance of this contract/purchase order or by submission of any bid, proposal, etc, vendors, contractors certify that as of the date of execution, receipt, or submission they are not listed on the Final Divestment List created by the NC Office of State Treasurer pursuant to [NCGS 147 Article 6E, Iran Divestment Act](#), Iran Divestment Act Certification. Vendors and contractors shall not utilize any subcontractor that is identified on the Final Divestment List. In addition, any organization defined under NCGS 147-86.80(2), Divestment from Companies Boycotting Israel, shall not engage in business totaling more than \$1,000 with any company/business, etc. that boycotts Israel. A list of companies that boycott

Israel is maintained by the NC Office of State Treasurer, pursuant to NCGS 147-86.81(a)(1). Any company listed as boycotting Israel is not eligible to do business with any State agency or political subdivision of the State.

21. **E-VERIFY:** To ensure compliance with the E-Verify requirements of the General Statutes of North Carolina, all contractors, including any subcontractors employed by the contractor(s), by submitting a bid, proposal or any other response, or by providing any material, equipment, supplies, services, etc., attest and affirm that they are aware and in full compliance with Article 2 of Chapter 64, (NCGS64-26(a)) relating to the E-Verify requirements.
22. **FEDERAL UNIFORM GUIDANCE:** If the source of funds for this contract is federal funds, the following federal provisions apply pursuant to 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II (as applicable):

Equal Employment Opportunity (41 C.F.R. Part 60); Davis-Bacon Act (40 U.S.C. 3141-3148); Copeland "Anti-Kickback" Act (40 U.S.C. 3145); Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708); Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387); Debarment and Suspension (Executive Orders 12549 and 12689); Byrd Anti-Lobbying Amendment (31 U.S.C. 1352); Procurement of Recovered Materials (2 C.F.R. § 200.322); and Record Retention Requirements (2 CFR § 200.324)
23. **ANTI-DISCRIMINATION:** In consideration of signing this Agreement, the Parties hereby agree not to discriminate in any manner on the basis of race, natural hair or hairstyles, ethnicity, creed, color, sex, pregnancy, marital or familial status, sexual orientation, gender identity or expression, national origin or ancestry, marital or familial status, pregnancy, National Guard or veteran status, religious belief or non-belief, age, or disability with reference to the subject matter of this Contract. The Parties agree to comply with the provisions and intent of Wake County Ordinance SL 2017-4. This anti-discrimination provision shall be binding on the successors and assigns of the Parties with reference to the subject matter of this Contract.

General Terms and Conditions for Goods and Services

1. **Default and Performance:** In the event any equipment, software, or service furnished by the contractor in the performance of any contract awarded by the county should fail to conform to the contract specifications, the County may cancel and procure the articles or services from other sources and hold the Contractor responsible for any excess costs occasioned thereby. The County reserves the right to require performance bond or other acceptable alternative guarantees from the Contractor without expense to the County, if so indicated in the bid. The rights and remedies of the County provided above shall not be exclusive and are in addition to any other rights and remedies provided by law or under the contract.
2. **Governmental Restrictions:** In the event any governmental restrictions are imposed that necessitate alteration of the material, quality, workmanship, or performance of the items offered prior to their delivery, it shall be the responsibility of the Contractor to notify the County in writing, at once, indicating the specific regulation that required such alterations. The County reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the contract.
3. **Availability of Funds:** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the agency for the purpose set forth in this agreement. If funds to affect such payment are not available, the Contractor agrees to take back any affected equipment and products furnished under this contract, terminate any services supplied to the County under this contract, and relieve the County of any further obligation thereof.
4. **Taxes:** The County of Wake is exempt from Federal excise taxes and no payment will be made for any personal property taxes levied on the contractor or on any taxes levied on employee wages. Applicable State or local sales taxes shall be invoiced as a separate item.
5. **Situs:** The place of this contract or purchase order, its situs and forum, shall be Wake County, North Carolina, where all matters, whether sounding in contract or in tort, relating to its validity, construction, interpretation and enforcement shall be determined.
6. **Governing Laws:** This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.
7. **Inspection at Contractor's Site:** The County reserves the right to inspect, at a reasonable time, the equipment/item, plant or other facilities of a prospective contractor prior to contract award, and during the contract term as necessary for determination that such equipment/item, plant or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract.
8. **Payment Terms:** Payment terms are Net 30 days after receipt of correct invoice or acceptance of goods, whichever is later. Payment terms for services are due and payable the month following the month for which charges accrue, or in accordance with the contract payment schedule. The using agency is responsible for all payments under the contract.
9. **Affirmative Action:** The contractor will take affirmative action in complying with all Federal and State requirements.
10. **Condition and Packaging:** Unless otherwise provided by special terms and conditions or specifications, it is understood and agreed that any item offered or shipped has not been sold or used for any purpose and shall be in first class condition. All containers/packaging shall be suitable for handling, storage or shipment.

11. **Standards:** All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate state inspector, which customarily requires identification marking of the appropriate safety standard organization; such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and/or National Electrical Manufacturers' Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and state and federal requirements relating to clean air and water pollution.
12. **General Indemnity:** The contractor shall hold and save the County of Wake, its officers, agents and employees, harmless from liability of any kind, including all claims and losses, accruing or resulting to any other person, firm or corporation furnishing or supplying work, services, materials or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm or corporation that may be injured or damaged by the Contractor in the performance of this contract and that are attributable to the negligence or intentionally tortuous acts of the Contractor.
13. **Advertising/Press Release:** The contractor shall not publicly disseminate any information concerning the contract without prior written approval from the County of Wake or its agent.
14. **Patent, Copyright, and Trade Secret Protection:**
 - a. No deliverable(s) produced, in whole or in part, under this contract, shall be the subject of an application for copyright or patent by or on behalf of the Contractor, its employees, agents, officers, assigns, or subcontractor(s). The Contractor, at its own expense, shall defend any action brought against the County to the extent that such action is based upon a claim that the equipment or software supplied by the Contractor, or the operation of such equipment pursuant to a current version of Contractor-supplied operating software, infringes a United States patent, or copyright or violates a trade secret. The Contractor shall pay those costs and damages finally awarded against the County in any such action. Such defense and payment shall be conditioned on the following:
 - 1) That the Contractor shall be notified within a reasonable time in writing by the County of any such claim; and,
 - 2) That the Contractor shall have the sole control of the defense of any action on such claim and all negotiations for its settlement or compromise provided, however, that the County shall have the option to participate in such action at its own expense.
 - b. Should the machines, or software, or the operation thereof become, or in the Contractor's opinion are likely to become, the subject of a claim of infringement of a United States patent, copyright, or a trade secret, the County shall permit the Contractor, at its option and expense, either to procure for the County the right to continue using the equipment or software, or to replace or modify the same so that they become noninfringing and continue to meet bid specifications. If neither of these options can reasonably be taken, or if the use of such equipment or software by the County shall be prevented by injunction, the Contractor agrees to take back such equipment or software, and refund any sums the County has paid Contractor less any reasonable amount for use or damage and make every reasonable effort to assist the County in procuring substitute equipment or software. If, in the sole opinion of the County, the return of such infringing equipment or software makes the retention of other items of equipment or software acquired from the Contractor under this contract impractical, the County shall then have the option of terminating the contract, or applicable portions thereof, without penalty or termination charge. The Contractor agrees to take back such equipment or software and refund any sums the County has paid Contractor less any reasonable amount for use or damage.
15. **Access to Persons and Records:** Pursuant to N.C. General Statutes, and Federal law, the County Auditor, appropriate federal officials, and their respective authorized employees or agents are authorized to examine all books, records, and accounts of the Contractor insofar as they relate to transactions with any department, board, officer, commission, institution, or other agency of Wake County Government pursuant to the performance of this contract or to costs charged to this contract. The Contractor shall retain any such books, records, and accounts for a minimum of three (3) years after the completion of this contract.
16. **Assignment:** No assignment of the contractor's obligations or right to receive payment hereunder shall be permitted. However, upon written request and approval by the issuing purchasing authority, the Agency may:
 - a. Forward the contractor's payment check(s) directly to any person or entity designated by the contractor, or
 - b. Include any person or entity designated by contractor as a joint payee on the contractor's payment check(s).In no event shall such approval and action obligate the County to anyone other than the contractor and the contractor shall remain responsible for fulfillment of all contract obligations.
17. **Termination for Convenience (Service and Indefinite Quantity Contracts Only):** The County may terminate this contract, in whole or in part, by giving 30 days prior notice in writing to the Contractor. Such notice of cancellation, as required herein, shall be transmitted via US Mail, email or fax, with receipt confirmed. The 30 days notice for termination shall begin on the day the receipt is confirmed.
18. **Limitation of Liability:**
 - a. Where equipment is under the County's exclusive management and control, the Contractor shall not be liable for any damages caused by the county's failure to fulfill any County responsibilities of assuring the proper use, management and supervision of the equipment and programs, audit controls, operating methods, office procedures, or for establishing all proper checkpoints necessary for the County's intended use.
 - b. The liability amount may be adjusted by the issuing agency based upon a documented total risk assessment, but in no event shall the liability for damages be less than the total value of the contract. The foregoing limitation of liability shall not apply to

the payment of costs and damage awards referred to in the Paragraph entitled "Patent, Copyright, and Trade Secret Protection", to claims covered by other specific provisions calling for liquidated damages or specifying a different limit of liability, or to claims for injury to persons or damage to property caused by Contractor's negligence or willful or wanton conduct. This limitation of liability does not apply to the receipt of court costs or attorney's fees that might be awarded by a court in addition to damages after litigation based on this contract.

19. Contractor's Liability for Injury to Persons or Damage to Property:

- a. The Contractor shall be liable for damages arising out of injury to the person and/or damage to the property of the County, employees of the County, persons designated by the County for training, or any other person(s) other than agents or employees of the Contractor, designated by the County for any purpose, prior to, during, or subsequent to delivery, installation, acceptance, and use of the equipment either at the Contractor's site or at the County's place of business, provided that the injury or damage was caused by the fault or negligence of the Contractor.
- b. Contractor shall not be liable for damages arising out of or caused by an alteration or an attachment not made or installed by the Contractor, or for damage to alterations or attachments that may result from the normal operation and maintenance of the Contractor's equipment.

20. Changes: This order or contract is awarded subject to shipment of quantities, qualities, and prices indicated by the order or contract, and all conditions and instructions of the order and the contract or proposal on which it is based. Any changes made to this order or contract proposed by the contractor is hereby rejected unless accepted in writing by the County. The County shall not be responsible for goods or services delivered without a written purchase order or authorization from the applicable County purchasing authority.

Where the County requests a change, the contractor may submit a request for contract adjustment, which shall be in the form of a complete change proposal fully supported by factual information and shall separately identify all increases and all decreases in costs. The request shall be submitted by a senior official authorized to bind the Contractor in a signed writing.

21. Price Adjustments (Term Contracts Only): Any price changes, downward or upward, which might be permitted during the contract period, must be general, either by reason of market change or on the part of the Contractor to other customers.

- a. **Notification:** Must be given to the issuing purchasing authority, in writing, concerning any proposed price adjustments. Such notification shall be accompanied by copy of manufacturer's official notice or other acceptable evidence that the change is general in nature.
- b. **Decreases:** Shall receive full proportionate benefit immediately at any time during the contract period.
- c. **Increases:** All prices shall be firm against any increase for 180 days from the effective date of the contract. After this period, a request for increase may be submitted with the county reserving the right to accept or reject the increase, or cancel the contract. Such action by the county shall occur not later than 15 days after the receipt of a properly documented request for price increase. Any increases accepted shall become effective not later than 30 days after the expiration of the original 15 days reserved to evaluate the request for increase.
- d. **Invoices:** It is understood and agreed that orders will be shipped at the established contract prices in effect on dates orders are placed. Invoicing at variance with this provision will subject the contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate item.

22. Transportation: Transportation of goods shall be FOB Destination. Freight, handling, hazardous material charges, and distribution and installation charges shall be included in the total price of each item. Any additional charges shall not be honored for payment unless authorized in writing by the County.

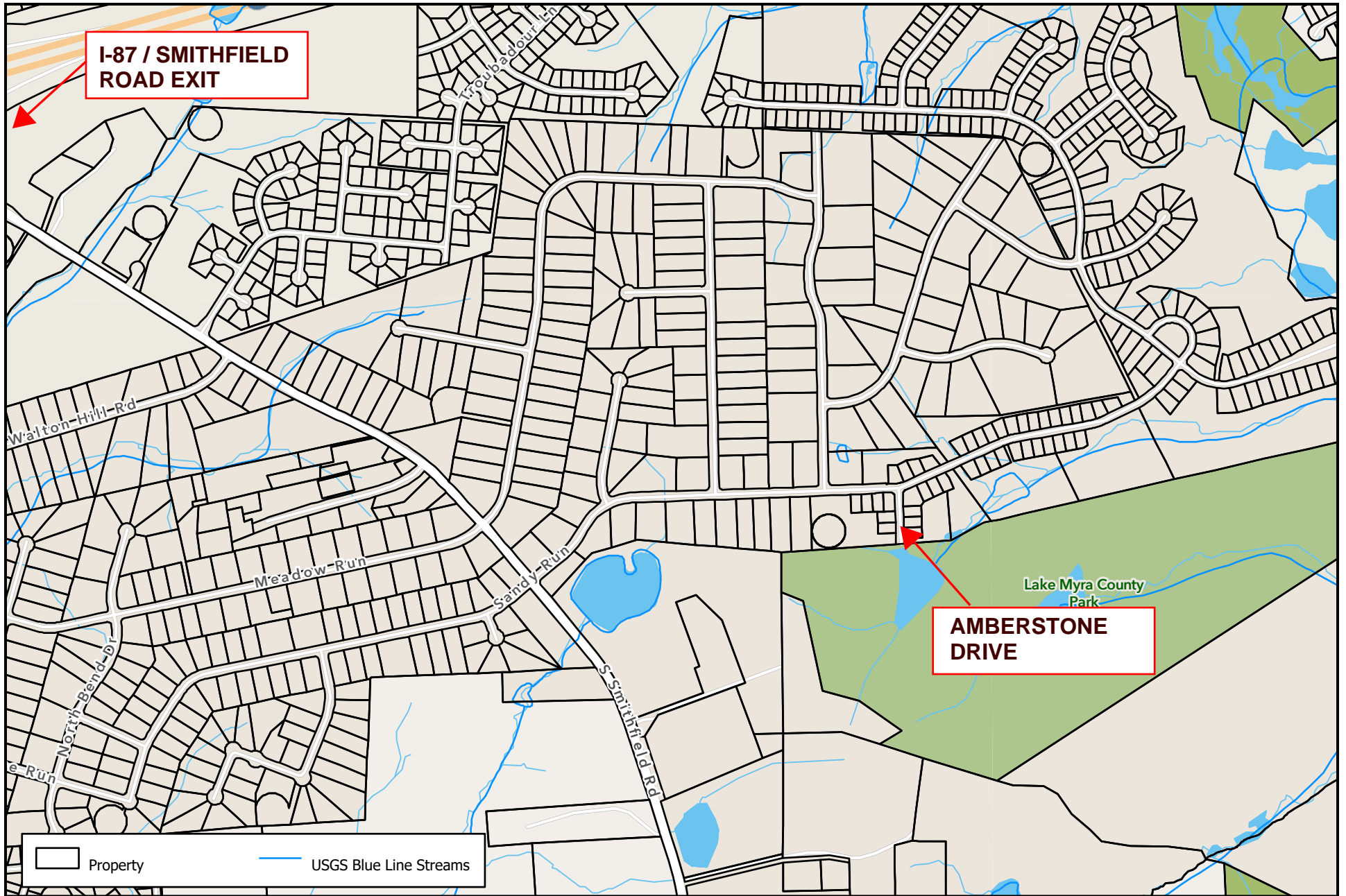
23. Signature Warranty: Each individual signing warrants that he or she is duly authorized by the Party to sign this contract and bind the Party to the terms and conditions of this contract.

24. Compliance with Laws: The Contractor shall comply with all laws, ordinances, codes, rules, regulations, and licensing requirements that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction and/or authority.

25. Severability: In the event that a court of competent jurisdiction holds that a provision or requirement of this contract violates any applicable law, each such provision or requirement shall be enforced only to the extent it is not in violation of law or is not otherwise unenforceable and all other provisions and requirements of this contract shall remain in full force and effect.

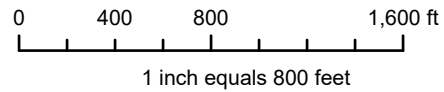
26. Federal Intellectual Bankruptcy Act: The Parties agree that Wake County shall be entitled to all rights and benefits of the Federal Intellectual Bankruptcy Act, Public Law 100-506, and any amendments thereto.

PRE-BID MEETING LOCATION MAPS

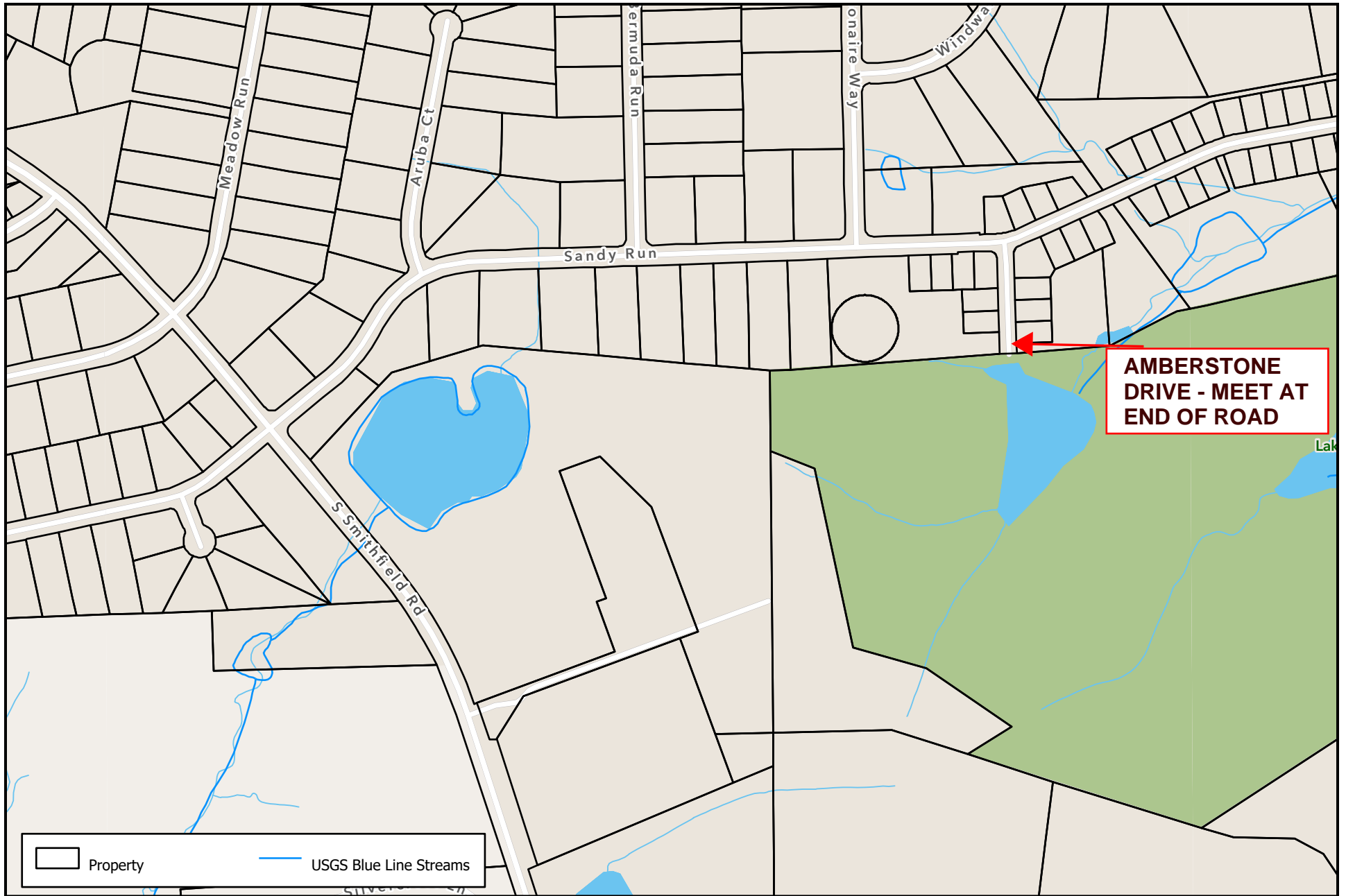


LAKE MYRA WEST

PRE-BID MEETING LOCATION

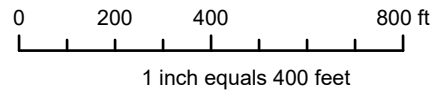


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LAKE MYRA WEST

PRE-BID MEETING LOCATION



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TECHNICAL SPECIFICATIONS

Technical Specifications

LAKE MYRA COUNTY PARK WATER-SUPPLY WELL WENDELL, WAKE COUNTY, NC

Lake Myra County Park Well Site:

Latitude (approx.) = N 35° 45' 36"
Longitude (approx.) = W 78° 26' 24"

GMA Project Number 169801

PREPARED BY:



Groundwater Management Associates, Inc.

4300 Sapphire Court, Suite 100 • Greenville, NC 27834 (Hydrogeology)
2205-A Candun Drive, Apex, NC 27523 (Hydrogeology & Engineering C-0854)

For information concerning this project please contact:

William L. Lyke, P.E., P.G.
Groundwater Management Associates, Inc.
2205-A Candun Drive
Apex, North Carolina 27523
Phone: 919-363-6310
Email: Bill@gma-nc.com
PE Firm No. C-0854



July 16, 2025

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SECTION 02526st

PUBLIC WATER-SUPPLY WELL
NC WATER-SUPPLY WELL AT LAKE MYRA COUNTY PARK,
WENDELL, WAKE COUNTY, NC

This specification has been prepared on behalf of the project OWNER – Wake County (Contact: Eric Staehle PLA, ASLA, Senior Facilities Project Manager, Wake County Facilities Design & Construction, Wake County Office Building, 11th Floor, P.O. Box 550, Raleigh, NC, 919-856-6369 office | 919-83-.0294 mobile | 919-856-6355 fax). The ENGINEER for this project is NV5 (Contact: Michael D. Allen PE, LEED AP, Land Development Group Manager , NV5, 3300 Regency Parkway, Suite 100 | Cary, NC 27518 (P: 919.858.1888, C:919.201.5002), michael.allen@NV5.com). The HYDROGEOLOGIST for this project is Groundwater Management Associates, Inc. (GMA) (Contact: William L. Lyke, 2205A Candun Drive, Apex, NC 27523; phone: 919-363-6310). The CONTRACTOR shall be an N.C. licensed Drilling Services firm that meets the qualifications described below.

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Drilling and testing for Production Wells.
 - 2. Water testing and certification.

1.2 REFERENCES

- A. Groundwater and Wells, 2nd edition, Fletcher Driscoll, 1986.
- B. North Carolina Administrative Code (NCAC) Title 15A Department of Environmental Quality (NCDEQ) Subchapter 2C Section .0100 “Well Construction Standards Criteria and Standards Applicable to Water Supply and Certain Other Wells” September 1, 2019, Environmental Management Commission, Raleigh, North Carolina.
- C. North Carolina Administrative Code (NCAC) Title 15A Department of Environment and Natural Resources (NCDENR) Subchapter 18C “Rules Governing Public Water Supply” July 1, 2019, Public Water Supply Section, Raleigh, North Carolina.
- D. American Petroleum Institute:

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API 10A - Specification for Cements and Materials for Well Cementing.

- E. American Society for Testing and Materials:
1. ASTM A53/A53M-07 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 2. ASTM A312 / A312M - 13a Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
 3. ASTM A530/A530M-04a Standard Specification for General Requirements for Specialized Carbon and Alloy Steel Pipe.
 4. ASTM A589/A589-06 Standard Specification for Seamless and Welded Carbon Steel Water-Well Pipe.
 5. ASTM A999 / A999M – 13 Standard Specification for General Requirements for Alloy and Stainless Steel Pipe
 6. ASTM C150 - Standard Specification for Portland Cement.
 7. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
- F. American Water Works Association:
1. AWWA A100-20 - Standard for Water Wells.
 2. AWWA C654 – Disinfection of Wells.

1.3 SYSTEM DESCRIPTION

- A. Well site location:
1. Lake Myra County Park Well Site: located west of Myra Lake between Sandy Run Road to the north and King Farm Lane to the south. The entrance to the park is on Amberstone Drive about 400 feet south of the intersection with Sandy Run Road. Potential well locations A and B are identified in the attached figures. The approximate latitude and longitude of Well A is N35⁰ 45' 38"; W78⁰ 26' 12". The approximate latitude and longitude of Well B is N35⁰ 45' 36"; W78⁰ 26' 24". It is the intent of the Owner to construct only one well at proposed well location B. A well at location A would be constructed **only** if the yield at location B is not satisfactory. Both wells are being requested to be permitted. The well will be a Production Well with open-hole construction. See Figures 1 and 2 for site locations, current well site conditions, site boundaries, and possible site access location.
- B. Construct one water-supply well at Well Location B shown in Figure 2. Well Location A would only be drilled if the yield of Well Location B is not satisfactory as determined by the Engineer
- C. Open-hole construction:

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1. As shown in Figure 3.
2. Production Wells completed as “open hole” with 8-inch casing installed to depths shown on Figure 3. The initial boring below the casing will be drilled to a nominal 6-inch diameter, with the option of reaming (i.e., enlarging) the boring to 8-inch diameter at the discretion of the OWNER. Total depth of well will be 300 feet below land surface (bls).

1.4 PERFORMANCE REQUIREMENTS

- A. Perform Work in accordance with North Carolina Administrative Code (NCAC) Title 15A Department of Environmental Quality (NCDEQ) Subchapter 2C Section .0100 “Well Construction Standards Criteria and Standards Applicable to Water Supply and Certain Other Wells” September 1, 2019, Environmental Management Commission, Raleigh, North Carolina.
- B. Perform work in accordance with Well Construction Permits.

1.5 SUBMITTALS

- A. Product Data: Include data indicating rated capacities, weights, accessories, etc.
- B. Manufacturer's Installation Instructions: Indicate rigging, assembly, and installation instructions.

1.6 CLOSEOUT SUBMITTALS

- A. Production Wells – sampling of drill cuttings:
 1. Take two sets of samples of sub-strata formation at ten-foot intervals and at changes in formation throughout the entire depth of the well. Carefully preserve samples at the site in containers properly labeled for identification with the date, location, well number, interval, characteristics, driller, etc. Samples shall be retained by the CONTRACTOR until delivery instructions are received from the NC Department of Environmental Quality (NCDEQ), or for a period of at least 60 days after submission of the well record form (GW-1) that indicates that said samples are available.
- B. Provide ENGINEER five copies each of the following information for record purposes:
 1. Driller's log - formation log indicating strata encountered, drilling speed, the depth of water producing zones, and estimates of yield for each zone.
 2. Caliper and Video logs of the boring.

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3. Casing records - diameter, thickness, weight per foot of length, depth below grade.
 4. Pumping tests: Provide results of a 6 hour step-drawdown test in the water-supply well, and a 24 hour constant-rate aquifer test.
CONTRACTOR is to supply all equipment necessary to satisfy testing protocols established by the ENGINEER and HYDROGEOLOGIST.
 5. Alignment - certification that well is aligned and plumb within specified tolerances (if requested by ENGINEER).
- C. Well Construction Records - Complete current version of NCDEQ form GW-1, Well Construction Record. Submit original to NCDEQ Division of Water Resources and submit five copies to ENGINEER.
- D. Provide water quality analyses by a certified laboratory approved by the N.C. Division of Environmental Quality for the following:
1. Bacteriological Coliform testing and report results for either multi-tube fermentation technique (MTF), Colilert (MMO-MUG), or membrane filter technique. Provide bacteriological analysis of water from the finished well after disinfection.
 2. New Well Series Water Quality Analyses required for new Public Water-Supply Wells. This must also include analyses for Uranium, Gross Alpha & Gross Beta, and Radon.
- E. Project Data: Submit all information in a bound and tabbed manual.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with AWWA Standard A100-20.
- B. Obtain required permits from authorities. GMA has applied for the well construction permit from Wake County and will provide that to the well contractor when received.
- C. Perform Work in accordance with OWNER standard.
- D. Perform Work in accordance with 15A NCAC 2C and 15A NCAC 18C.
- E. Maintain one copy of each document.

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1.8 QUALIFICATIONS

- A. Drilling Firm: Shall be a Company (CONTRACTOR) specializing in performing Work of this section with a minimum of 5 years of experience in North Carolina.
- B. The CONTRACTOR shall have an experienced foreman or driller, with a minimum five years of experience in similar well construction, who must be constantly in control of the well sites and be one who has authority to take action when required by ENGINEER and, upon request, furnish well drilling information desired by the ENGINEER.
- C. A North Carolina Certified Well Contractor with Level A Certification must be present at all times when the well contractor activities are being conducted. "Well contractor activities" means the construction, installation, repair, alteration or abandonment of any well. At all times when performing well contractor activities, the Well Contractor's certification number shall be carried by the Well Contractor on a card issued by the Commission.
- D. CONTRACTOR's equipment and materials shall be appropriate and in good working order and shall be capable of performing the required tasks with minimal risk of equipment failure, downtime, injury, or failure to meet project goals. The OWNER may require the CONTRACTOR to provide alternative drilling equipment and material to satisfactorily perform the job activities at no additional cost to the OWNER.

1.9 QUALITY CONTROL

- A. Protecting Water Quality
 - 1. Take precautions to prevent contaminated water, or water having undesirable physical or chemical characteristics, gasoline, etc., from entering stratum from which well is to draw its supply or from entering the well either through opening or by seepage through the ground surface.
 - 2. If well becomes contaminated, or water having undesirable physical or chemical characteristics enters well due to neglect, then the CONTRACTOR shall provide casings, seals, sterilizing agents or other materials to eliminate contamination or shut off undesirable water. Provide remedial work at no cost to the OWNER.
 - 3. Exercise care in performance of work to prevent breakdown or cave in of strata overlying that from which water is to be drawn. Protect work to prevent either tampering with well or entrance of foreign matter. Upon completion, provide temporary well cap. Store well casing off the ground to prevent contamination and keep site clean.

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1.10 SEQUENCING

- A. Coordinate schedule with ENGINEER and HYDROGEOLOGIST.
- B. Coordinate Work with OWNER.

1.11 ACCEPTANCE

- A. Acceptance of the well work will not be made until all work is completed, completed well construction record report forms acceptable to the NCDEQ are provided, and all other well construction records have been satisfactorily provided to the ENGINEER. The certified record of completion for each well shall be submitted within a period of thirty days after completion.

1.12 WARRANTY PERIOD

- A. The warranty period for each well shall begin upon acceptance by the OWNER of the completed well work. The warranty shall be for two (2) years following notification that the well work has been completed. The warranty shall include, but not be limited to: construction materials, and integrity of casing and grout seals.

PART 2 PRODUCTS

2.1 MATERIALS

- A. It is the intent of the plans and specifications to denote the quality standard of products desired and not to restrict bidders to a specific brand, make, manufacturer or specific name. Any manufacturers and products listed are used only to set forth and convey to bidders the general style, type, character, and quality of product desired. Substitution of equivalent products will be acceptable.
- B. Well construction diameters and depths as shown on Figure 3.
- C. Casing Material:
 - 1. Well Casing (Nominal 8-inch Casing for Production Wells):
Well casing material shall be new steel, either black steel or galvanized. Welded casing or threaded casing may be used. The casing, threads and couplings (if used) shall meet or exceed the specifications of ASTM A-530/A-530M-04a. The wall thickness of the well casing shall equal or exceed 0.250 inches. Casing material shall be as shown in Figure 3 and

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shall meet the following requirements:

- a. the casing shall be new;
 - b. the casing, threads and couplings shall conform in specifications to the general requirements in ASTM A-530/A-530M-04a and also shall conform to the specific requirements in the ASTM standard that best describes the chemical makeup of the steel casing that is intended for use in the construction of the Well
- D. Drilling Fluid Additives: Potable water may be used as an additive to aid recovery of drill cuttings as approved by ENGINEER. CONTRACTOR must provide water.
- E. Grout:
1. Well Casings: Grout to land surface using a neat cement-based grout.
 2. Only potable water shall be used to mix the grout.
 - a. "Neat cement grout" means a mixture of not more than six gallons of clear, potable water to one 94-pound bag of Portland cement. Up to five percent, by weight, of bentonite clay may be used to improve flow and reduce shrinkage.
 - b. No additives that will accelerate the process of hydration shall be used in grout for thermoplastic well casing.
- F. Centering Guides (Centralizers):
1. Steel centering guides shall be placed above the bottom of the well casing and at regular intervals to the ground surface as shown in the Figure 3. A drive shoe shall be used on the bottom of the well casing.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions are capable of supporting equipment for performing drilling operations and testing.

3.2 PREPARATION/SITE CONTROL

- A. The CONTRACTOR shall visit the site and establish the route for equipment to enter the site, and determine the working area needed around the future well head. The CONTRACTOR shall contact the OWNER for approval of the entry route and working area.

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- B. The CONTRACTOR shall flag trees they anticipate will need to be removed, and install tree protection fencing once the OWNER verifies and accepts the path needed for trucks to gain access to the well site.
- C. The CONTRACTOR shall coordinate with the OWNER for approval of tree removal prior to conducting any clearing.
- D. The CONTRACTOR shall protect site features and structures near well from damage.
- E. The CONTRACTOR shall clear the site as required for access of CONTRACTOR's equipment.
- F. The CONTRACTOR shall include the following erosion and sediment controls: the total disturbance on site shall be kept below 1 acre; temporary matting shall be used, if required, for trucks to gain access to the well site; and a double row of silt sock shall be installed around the downstream perimeter of the well site.
- G. The CONTRACTOR shall ensure that water and any drilling fluids created during construction of the well do not cause damage to any on-site or off-site feature or utility and shall comply with the appropriate erosion control regulations.

3.3 DRILLING

- A. Production Well Casings:
 - 1. Drill hole and install well casing as shown on Figure 3. The casing shall be set a minimum of 5 feet into competent rock or 50 feet, whichever is greater. Casing depth will be determined by the driller and the HYDROGEOLOGIST on site during drilling. The drilling method for the well casing and production zones shall be air hammer.
 - 2. Drill diameters as shown on Figure 3. Drill hole to depths specified on Figure 3.
 - 3. Casing shall be either black steel or galvanized steel.
 - 4. Grout casing as specified in 15A NCAC 2C and as shown on Figure 3.
 - 5. Grout shall be allowed to cure for a minimum of 24 hours prior to initiating additional drilling activities.
 - 6. CONTRACTOR shall provide any containment necessary to prevent sediments, drilling fluids, etc., from moving off-site.
- B. Pilot Hole, Drill Cuttings Sample Collection, and Driller's Log for Production Well: Drill a pilot hole to specified depth and collect samples of formations. The pilot hole will be nominal 6" in diameter. Take samples of strata at 10-foot

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intervals and at significant changes in formations throughout entire depth of the well. The CONTRACTOR will record the depth of changes in formation, water bearing zones, and estimate the yield of each zone. Carefully preserve two sets of drill cuttings samples at site in sample containers properly labeled for identification of sample depth and job name. The CONTRACTOR shall retain samples until delivery instructions are received from the NCDEQ, or for a period of at least 60 days after submission of the well record form (GW-1) that indicates that said samples are available. Prepare driller's log utilizing samples thus obtained.

- C. Provide driller's logs to ENGINEER along with a set of cuttings samples. Meet with HYDROGEOLOGIST at the site to review data and to determine depth of production well and depth of open-hole interval. As witnessed by the HYDROGEOLOGIST, perform an estimation of yield from the pilot hole. Yield estimation from the pilot hole will require blowing the well with air and observing the flow of water exiting the well casing. The CONTRACTOR shall direct the flow from the well into a trench and make provisions to generally measure the volume of water flowing through the trench. Volume measurements can be made via a weir, pipe, bucket, or other acceptable standard method of estimating flow volume from a trench. At that time, ENGINEER and HYDROGEOLOGIST will determine whether this site can provide a viable production well that will meet OWNER's needs. The design flow rate is 50 gpm. The boring will be abandoned if it is deemed not viable. If it is viable, then a Production Well will be constructed as described below.
- D. Production Well Open Hole: If the ENGINEER determines that a Production Well is viable, enlarge the pilot hole by advancing a nominal 8-inch diameter boring with air hammer drilling method to the depth specified on Figure 4, or as adjusted by the ENGINEER based upon pilot hole results. The completed well shall be constructed round, plumb, and true to line. The drill stem shall include a drill collar (or stabilizer) to maintain a plumb borehole. The CONTRACTOR shall manage drilling operations to maintain a plumb and aligned open borehole and to prevent walking of the bit. Any casing failure, warping, collapse, etc. is the sole responsibility of the CONTRACTOR and will be replaced at no cost to the OWNER.
- E. Production Well Geophysical Logs:
 - 1. Perform geophysical log testing to include:
 - a. 3-Arm Caliper of the enlarged production well boring and

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- b. a downhole video log of the final boring. Video log shall include down-hole (AKA fisheye) view and side view logs of the entire borehole and casing.
 2. Use same “zero point” elevation for each log, and “zero point” shall correspond to the land surface of each site.
 3. Verify accuracy of depth counter prior to logging. This should include extending 100 feet of cable on the ground and comparing the depth counter with a steel tape measure. Measurement error of the depth counter shall not exceed 0.25 feet/100 feet. Clean cable after verification test and before running geophysical log on the borehole.
- F. Well Development of Production Well Open Hole:
 1. The well shall be developed by air-lift pumping for a minimum of 2 hours immediately upon drilling to the desired depth.
 2. CONTRACTOR shall provide any containment necessary to prevent sediments from moving off-site during development of the well.
 3. Well development shall continue in a manner that does not cause settlement and disturbance of strata above water bearing formation nor disturb the seal around the well casings, reducing sanitary protection otherwise afforded by such seal.
 4. Continue developing well until the well is clear. Development shall include removal of formation materials, drilling fluids and additives such that development water is clear and free from sand or rock fragments.
 5. The well shall be considered properly developed when water samples, collected during the pumping test, contain no more than 5 milliliters per liter of settleable solids, nor more than 10 NTUs of turbidity as suspended solids, and no more than 5 parts per million (PPM) sand as measured with a Rossum Sand Content Tester (verify specification of Rossum Sand Tester with ENGINEER). “Settleable solids” means the volume of solid particles in a well-mixed one liter sample that will settle out of suspension, in the bottom of an Imhoff Cone, after one hour. CONTRACTOR shall provide testing at no expense to OWNER, and CONTRACTOR shall provide all testing equipment.
 6. Additional development by air-lift pumping will be performed until the criteria cited above are met. Alternate development methods may be employed to meet development standards, if the proposed development methods are first approved by the ENGINEER.
- G. Production Well Aquifer Testing
 1. General:

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- a. After the well has been constructed, developed, cleaned out and the depth of the well accurately measured, assist in conducting preliminary and constant rate aquifer tests. After the test pump and auxiliary equipment have been installed by the CONTRACTOR, pumping tests shall be performed. A water-level drop tube (minimum 1" diameter) shall be installed between the pump and the borehole so that water levels can be measured without entanglement with column pipe or pump cable.
- b. Provide necessary discharge piping for pumping unit to conduct water to a point of disposal so as to avoid a nuisance, avoid recharge to the local cone of influence of the well (minimum 50 feet), avoid undermining the well site or utilities, or prevent endangerment of adjacent property. CONTRACTOR shall provide any containment, energy dissipaters, and sediment traps necessary to prevent sediments from moving off-site during production well aquifer testing.
- c. Provide labor, source of power, and other necessary materials, equipment and supplies required to operate pumping unit.
- d. Provide and maintain equipment of adequate size and type for measuring flow of water with an orifice weir or calibrated flow meter. Flow rate must be measured with an accuracy of plus or minus three percent. The orifice weir shall be consistent in design to that shown on Figure 16.1 of "Groundwater and Wells", Second Edition by Fletcher Driscoll, 1986. The diameter of the orifice shall be less than 80% of the inside diameter of the discharge pipe. Submit calibration data and specifications for flow meters and orifice weirs to ENGINEER prior to tests. Calibration of flow meter must have occurred within one year preceding the aquifer test. Prior to scheduling aquifer tests, verify with the ENGINEER the proper installation of the flow meter so that flow measurements will be accurate.
- e. Measure depth to water level in well. Provide one (1) electric tape to measure level in production well. Electric tape shall be graduated to 0.01 feet, and all measurements shall be recorded to the nearest 0.01 feet. Submit information to the ENGINEER regarding the make and model of electric tape to be used prior to conducting pumping tests. Sonic meters will not be accepted for use on this project.
- f. After completion of aquifer pumping tests, remove by bailing, sand pumping, or other methods, sand, stones or other foreign materials that may become deposited in well.

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2. Step Drawdown Aquifer Pumping Test:
 - a. Allow a minimum of twenty-four hours for water levels in the well to stabilize after completion of development and prior to beginning test.
 - b. Determine static water level of the stabilized production well, then perform a step drawdown test at rates of 75%, 100%, and 125% of the design capacity (50 gpm or alternate rate determined by ENGINEER based upon drilling operations) for 2 hours per step. These pumping test data will be used to determine the pumping rate to be utilized for the final constant rate aquifer pumping test. The HYDROGEOLOGIST shall specify the maximum pumping water level based upon the fracture depths determined during drilling and from the Caliper logs.
 - c. Water levels in the pumping well shall be measured and recorded at various intervals (provided by the ENGINEER) during this test to determine the pumping rate to drawdown relationship.
 - d. Upon completion of the test, allow a minimum of twenty-four hours of well recovery time before proceeding with further testing.
 - e. At the end of each of the three pumping steps, analyze water for settleable solids, suspended solids, and sand content as described herein.
 - f. The HYDROGEOLOGIST will not be present on site during step drawdown testing activities. All pumping rate and water-level measurements shall be provided to the HYDROGEOLOGIST for evaluation and selection of the pumping rate to be used in the constant rate aquifer pumping test.
3. Constant Rate Aquifer Pumping Test
 - a. Based upon information obtained from the step-drawdown test, a constant rate aquifer pumping test shall be performed by the CONTRACTOR for a minimum pumping duration of 24-hours, followed by a 2-hour recovery time after pumping ceases. The duration of the test shall be determined by the HYDROGEOLOGIST.
 - b. After recording the static water level in the production well, begin pumping at the highest sustainable pumping rate determined from the step-drawdown test (as approved by the HYDROGEOLOGIST).
 - c. The CONTRACTOR shall be responsible for operating and maintaining the pumping and measurement equipment during the test. The pump shall be equipped with sufficient throttling devices

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- to reduce the discharge rate to approximately 25 percent of the maximum capacity of the pump.
- d. The pump discharge shall be set at a constant rate that can be maintained throughout the testing period. Pumping time shall continue for a minimum of 24 hours without interruption and shall be continued for a period of at least four hours after the pumping water level stabilizes (ceases to decline more than 3 inches in a four hour period), or until the CONTRACTOR is advised by HYDROGEOLOGIST to discontinue pumping.
 - e. The pump discharge rate shall be measured by an orifice weir or calibrated flow meter as described above in Section 3.3 G 1(d).
 - f. The CONTRACTOR is required to monitor and record water levels and flow rates at intervals prescribed by the HYDROGEOLOGIST for the duration of the pumping test. The HYDROGEOLOGIST will deploy pressure transducers/data loggers to provide supplemental water-level monitoring throughout the test. The CONTRACTOR shall provide access to the interior of the well so that HYDROGEOLOGIST can install a pressure transducer. HYDROGEOLOGIST will work with CONTRACTOR during the start-up and end of each pumping test to ensure proper monitoring procedures are established for the testing.
- 4. HYDROGEOLOGIST will record water levels during recovery for at least 2 hours before CONTRACTOR will be permitted to remove pumping equipment.
 - 5. The HYDROGEOLOGIST will be onsite prior to the start of the test to install a transducer in the well, and the HYDROGEOLOGIST will be present for the first few hours of the test. The HYDROGEOLOGIST will return a few hours before the completion of the test to monitor water levels near the end of the test and during recovery, and to retrieve the transducer and data upon completion of the test.
- H. Testing for Production Well Plumbness and Alignment: The CONTRACTOR may be required to test the well for plumbness and alignment. If required, the CONTRACTOR shall perform test as described in American Water Works Association Standard ANSI/AWWA A100-20. The plumbness and alignment must be satisfactory for the successful installation and operation of the permanent pumping equipment as determined by ENGINEER.
 - I. Testing for Well Water Quality from the Production Well

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Lake Myra County Park, Wendell, Wake County, NC

1. CONTRACTOR will collect all water samples at the end of the constant rate aquifer pumping test for determination of compliance with minimum water quality requirements.
 2. CONTRACTOR shall submit water-quality samples for laboratory analyses to an approved NC drinking water certified lab. Samples will be analyzed for the suite of analyses required for new Public Water-Supply Wells, including, but not limited to, the following: the New Well Series Inorganics, VOCs, SOCs, Total Organic Carbon, Radiologicals, and Coliform Bacteria. Trihalomethane Formation Potential and Haloacetic Acid Formation Potential should also be determined. Testing must also include Uranium, Gross Alpha & Gross Beta, and Radium 226 and 228. Test results shall be forwarded directly to the ENGINEER from the testing laboratory.
- J. Disinfection of Production Well: Disinfect well in accordance with 15A NCAC 2C .0111 and AWWA Standard for Disinfection of Wells (ANSI/AWWA C654 current edition) given in Section 3.5. CONTRACTOR shall obtain a bacteriological sample after disinfecting the well and deliver to approved laboratory for testing. Test results shall be forwarded directly to the ENGINEER from the testing laboratory.

3.4 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: In accordance with AWWA A100-20.
- B. Maximum Offset From Indicated Position: 1 inch.

3.5 DISINFECTION PROCEDURE

- A. Dispose of the chlorinated water in conformance with all Federal, State and Municipal laws, ordinances, rules, and regulations. To prevent potential damage to the environment, a neutralizing chemical shall be applied to the chlorinated water to neutralize thoroughly the chlorine residual remaining in the water. CONTRACTOR must use a DPD chlorine residual test kit and ensure that the free chlorine residual has been neutralized. CONTRACTOR must notify the ENGINEER and OWNER at least 48 hours in advance of blow-off of chlorinated water from the well so that a representative can be present to witness the testing of the chlorine residual.
- B. From Disinfection of Water Supply Wells (15A NCAC 2C .0111, ANSI/AWWA C654).

PUBLIC WATER SUPPLY WELL

Section 02526st - Page 15

Wake County, NC

Lake Myra County Park, Wendell, Wake County, NC

Any person disinfecting a well shall perform disinfection in accordance with the following procedures:

(1) Chlorination.

(A) Hypochlorite shall be placed in the well in sufficient quantities to produce a chlorine residual of at least 100 parts per million (ppm) in the well. Stabilized chlorine tablets or hypochlorite products containing fungicides, algaecides, or other disinfectants shall not be used. Chlorine test strips or other quantitative test methods shall be used to confirm the concentration of the chlorine residual.

[Note: About three ounces of hypochlorite containing 65 percent to 75percent available chlorine is needed per 100 gallons of water for at least a 100 ppm chlorine residual. As an example, a well having a diameter of six inches, has a volume of about 1.5 gallons per foot. If the well has 200 feet of water, the minimum amount of hypochlorite required would be 9 ounces. (1.5 gallons/foot x 200 feet = 300 gallons at 3 ounces per 100 gallons; 3 ounces x 3 = 9 ounces.)]

(B) The hypochlorite shall be placed in the well by one of the following or equivalent methods:

(i) Granular hypochlorite may be dropped in the top of the well and allowed to settle to the bottom; or

(ii) Hypochlorite solutions shall be placed in the bottom of the well by using a bailer or by pouring the solution through the drill rod, hose, or pipe placed in the bottom of the well. The solution shall be flushed out of the drill rod, hose, or pipe by using water or air.

(C) The water in the well shall be agitated or circulated to ensure thorough dispersion of the chlorine.

(D) The well casing, pump column and any other equipment above the water level in the well shall be rinsed with the chlorine solution as a part of the disinfection process.

(E) The chlorine solution shall stand in the well for a period of at least 24 hours.

(F) The well shall be pumped until there is no detectable total chlorine residual in water pumped from the well before the well is placed in use.

(2) Other materials and methods of disinfection, at least as effective as those in Subparagraph (1) of this Paragraph, may be used upon prior approval by the Department.

History Note: Authority G.S. 87-87; 87-88; Eff. February 1, 1976; Amended Eff. September 1, 2009, April 1, 2001; December 1, 1992; July 1, 1988; September 1, 1984

3.6 IDENTIFICATION PLATES

- A. An identification plate, showing the drilling CONTRACTOR and certification number and the following information shall be permanently mounted by mechanical means on the well within 72 hours after completion of the drilling:
1. Drilling CONTRACTOR name and certification number.
 2. Date well completed.
 3. Total depth of well.
 4. Casing depth (ft.) and inside diameter (inches).
 5. Specific capacity in gallons per minute per foot of drawdown after 24 hours of pumping.
 6. Static water level and date measured.

3.7 SITE RESTORATION

- A. Prior to leaving the site, CONTRACTOR shall restore it to its original conditions including the removal of all debris from clearing and construction operations. The CONTRACTOR shall remove all construction material.

3.8 ABANDONMENT OF DRILLING







- A. If it becomes necessary to abandon drilling operations before completion of well, follow state regulations for abandonment of wells (15A NCAC 2C .0113 "Abandonment of Wells").
- B. Should abandonment of drilling be necessary due to poor workmanship or negligence on part of CONTRACTOR, no compensation will be allowed.

3.9 THE FOLLOWING DOCUMENTS ARE ATTACHED TO AND INCORPORATED IN THIS SPECIFICATION:

- A. Figure 1 – Site Location Map: Lake Myra County Park Well Site.
- B. Figure 2 – Proposed Well Location Map.
- C. Figure 3 – Well Schematic: Lake Myra County Park Well Site.

END OF SECTION

LEGEND

-  SITE PARCEL
-  COUNTY OWNED PARCEL
-  DIABASE DIKES (1978)
-  DIABASE DIKES (2004)
-  STREAMS
-  ROADS

DIABASE DIKES FROM:
 DIABASE DIKES OF THE EASTERN
 PIEDMONT OF NORTH CAROLINA,
 1978. NCGS INFORMATION CIRCULAR 23.
 PRELIMINARY BEDROCK GEOLOGIC
 MAP OF THE RALEIGH 30' X 60'
 QUADRANGLE, NORTH CAROLINA,
 2004. NCGS OFR 2004-02.

PROJECT: 169801
 FILE: DRAWINGS/169801/
 LOCATION_MAP

SITE LOCATION MAP

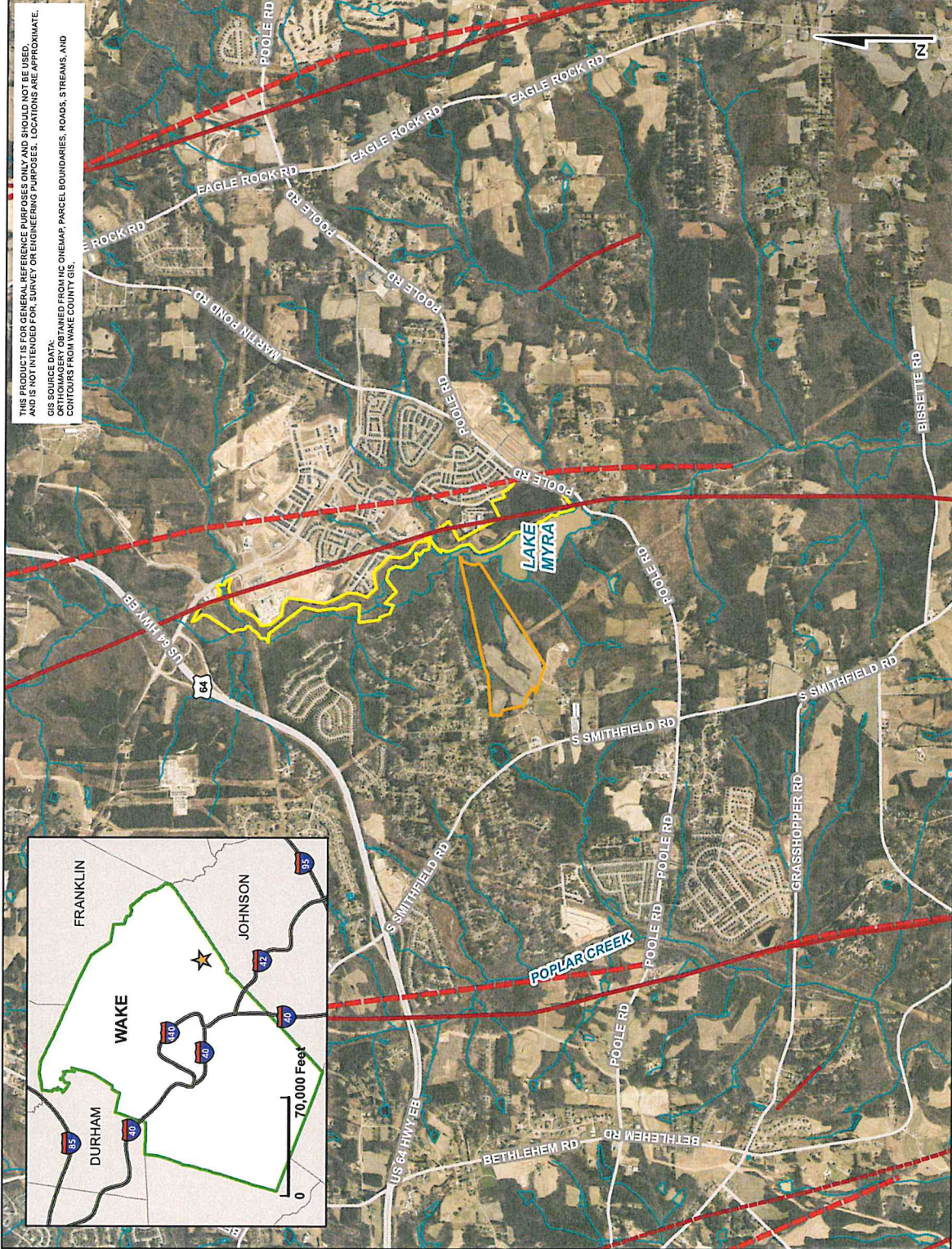
FIGURE 1 DATE 11/15/2024

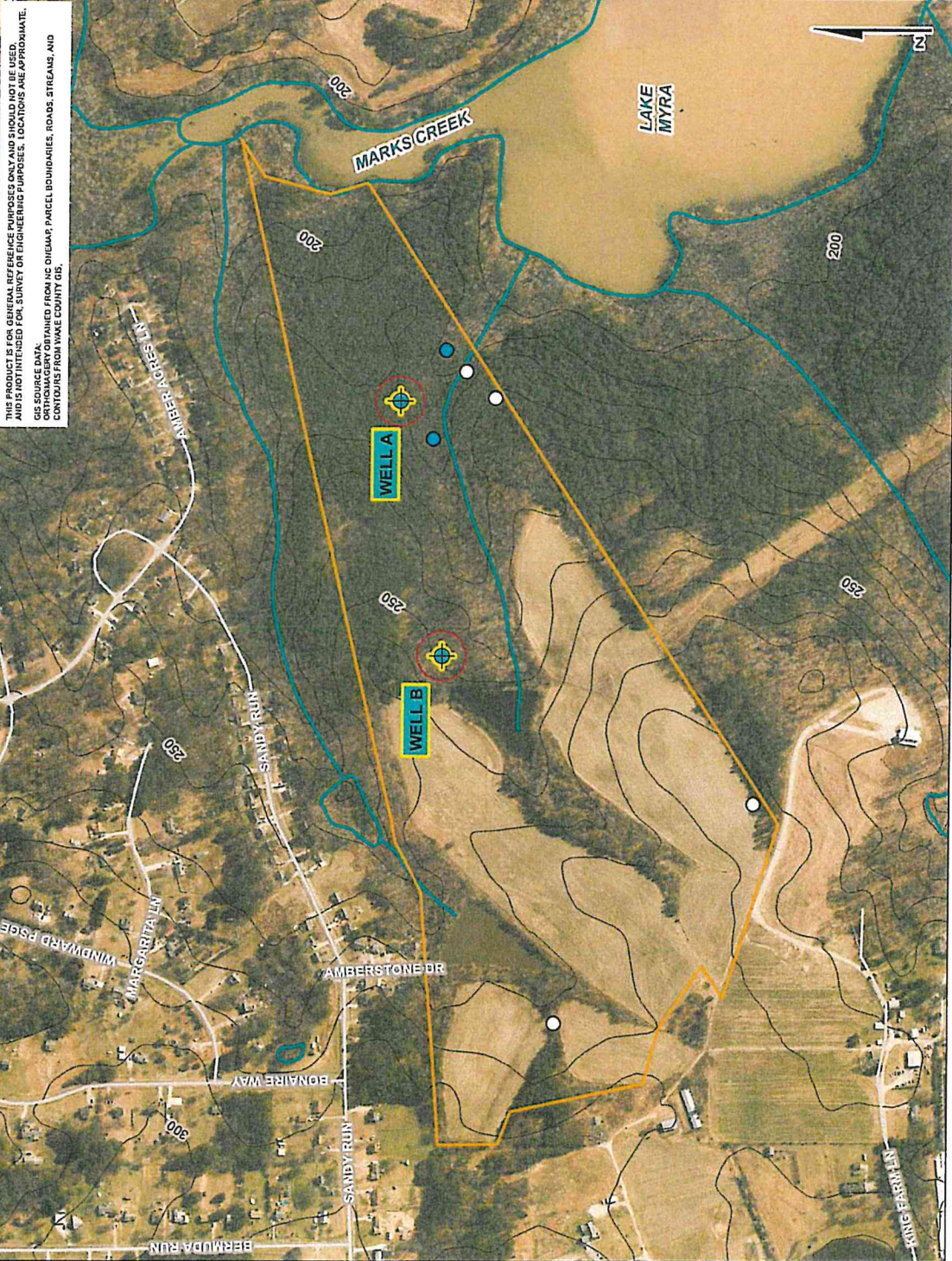


LAKE MYRA COUNTY PARK,
 WENDELL,
 WAKE COUNTY, NC



THIS PRODUCT IS FOR GENERAL REFERENCE PURPOSES ONLY AND SHOULD NOT BE USED.
 AND IS NOT INTENDED FOR, SUITABLE FOR ENGINEERING PURPOSES. LOCATIONS ARE APPROXIMATE.
 GIS SOURCE DATA: GIS DATA PROVIDED FROM GIS ONEMAP, PARCEL BOUNDARIES, ROADS, STREAMS, AND
 CONTOURS FROM WAKE COUNTY GIS.





LEGEND

- PROPOSED WELL LOCATION
- 100 FT RADIUS
- SITE PARCEL
- STREAMS
- STREETS
- TOPO CONTOUR
- FIELD OBSERVATIONS**
- Granite Float
- Stream Headout

PROJECT: 169801
 FILE: DRAWINGS/169801/
 WELL LOCATION

**SITE MAP WITH
 PROPOSED WELL LOCATIONS**

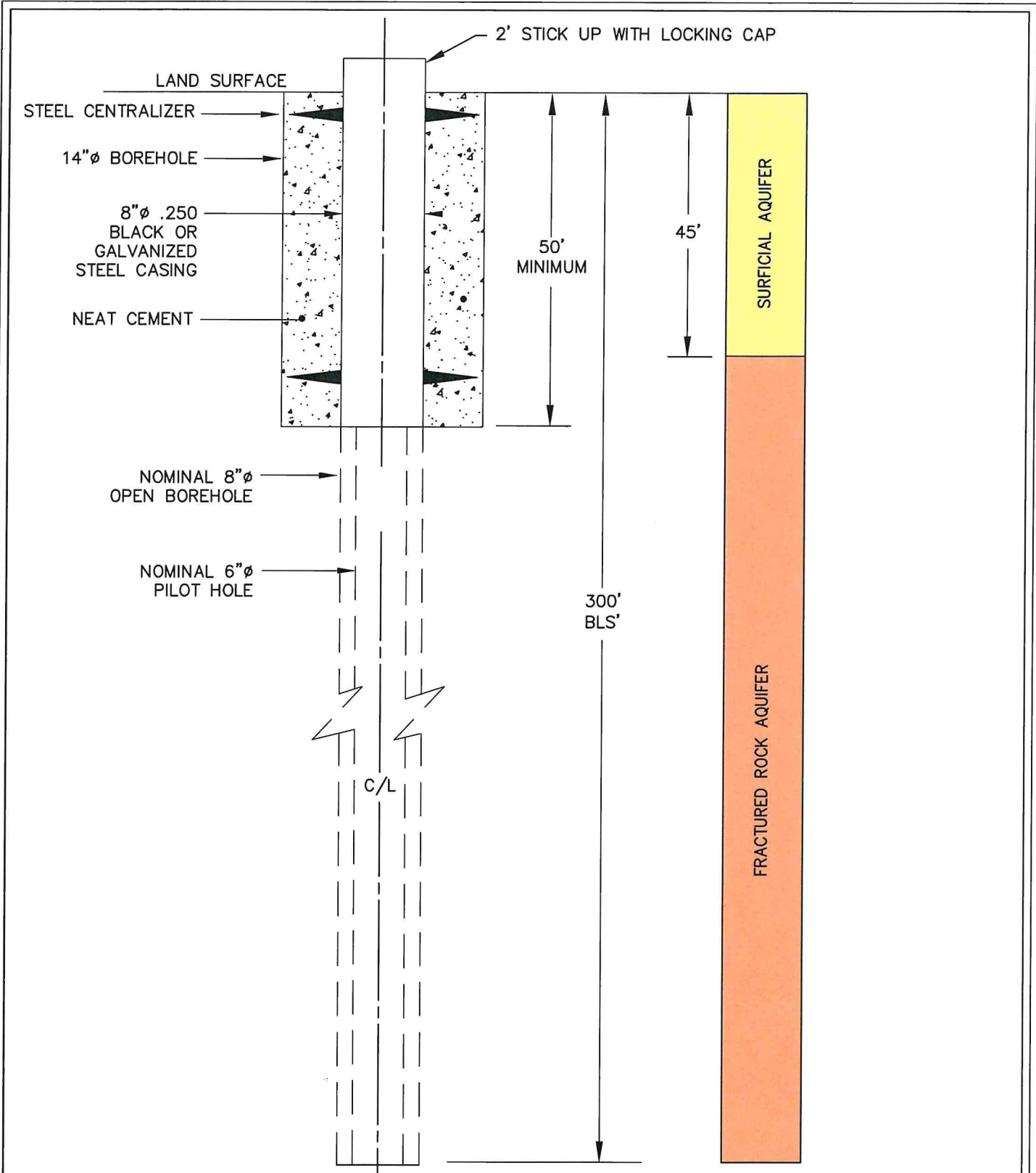
FIGURE 2 DATE 10/24/2024




LAKE MYRA COUNTY PARK,
 WENDELL,
 WAKE COUNTY, NC



x:\1600's\169801\fig 3_proposed well schematic_169801.dwg



LEGEND BLS = BELOW LAND SURFACE PIT CASING EXTEND A MINIMUM OF 50 FEET BELOW LAND SURFACE AND A MINIMUM OF 5 FEET INTO COMPETENT BEDROCK		NOT TO SCALE	
File: J:\1600's\168901\FIG 3	PROPOSED WELL CONSTRUCTION		Date: 6/5/25
Project No. 168901	LAKE MYRA COUNTY PARK, WAKE COUNTY, NC		Figure 3

WAKE COUNTY WELL PERMITS

WAKE COUNTY DEPARTMENT OF HEALTH & HUMAN SERVICES WELL PERMIT

PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/OR IF SITE IS ALTERED OR INTENDED USE CHANGED

WELL CONSTRUCTION AUTHORIZATION

PERMIT #: GW-151739-2025

APPLICATION DATE: 07/21/2025

SITE INFORMATION:

PIN: 1763519788

SITE ADDRESS: 0 S SMITHFIELD RD
KNIGHTDALE, NC 27545

SUBDIVISION: PROP POOR BOY FARMS **LOT:** 2 **ACRES:** 92

TOWNSHIP: 10 - Marks Creek **JURISDICTION:** R-40 **ZONING:** R-40

APPLICANT: William L Lyke **PHONE NUMBER:** (919) 363-6301

OWNER:

PROPOSED USE:

EXISTING USE:

PERMIT CONDITIONS & COMMENTS:

A review of GIS datasets revealed one or more buildings built between the years 1948 and 1987 within 150 feet of the subject parcel. Additional testing of this well for Pesticides will be required for final approval of this water supply.

Due to the underlying geology at this site, Wake County requires testing of this well for Gross Alpha* activity to screen for radiological contaminants. In addition, Wake County recommends a test for radon in water.

*GROSS ALPHA TESTING NOTE: Please allow 8 to 12 weeks for gross alpha testing. Initial gross alpha testing takes 3 to 4 weeks. If the initial test exceeds drinking water standards (which happens in approximately 1 in 5 cases), installation of treatment is required along with confirmation testing of the treated water, requiring an additional 3 to 4 weeks for the confirmation test. If the initial treatment system installed is insufficient, additional corrective action and testing will be required.

Well area A setbacks:

1. 168' from north property line.
2. 154' from south property line.
3. 458' from east property line.

* Well driller must verify all distance requirements before drilling.

OTHER CONDITIONS:

SCOPE: **SATISFIED?:**

COMMENTS:
.....

See attached site plan for well location and wastewater system design. If changes are necessary, prior approval by Wake County Health & Human Services is required before installation. The testing required under this permit does not include all possible contaminants. Private wells are not routinely monitored by a utility or other agency. Continued monitoring of private wells and testing for contaminants other than those required for the certificate of completion or certificate of occupancy is the responsibility of the well owner. Neither Wake County nor the Environmental Health Specialist warrants the quantity or quality of water produced by this well

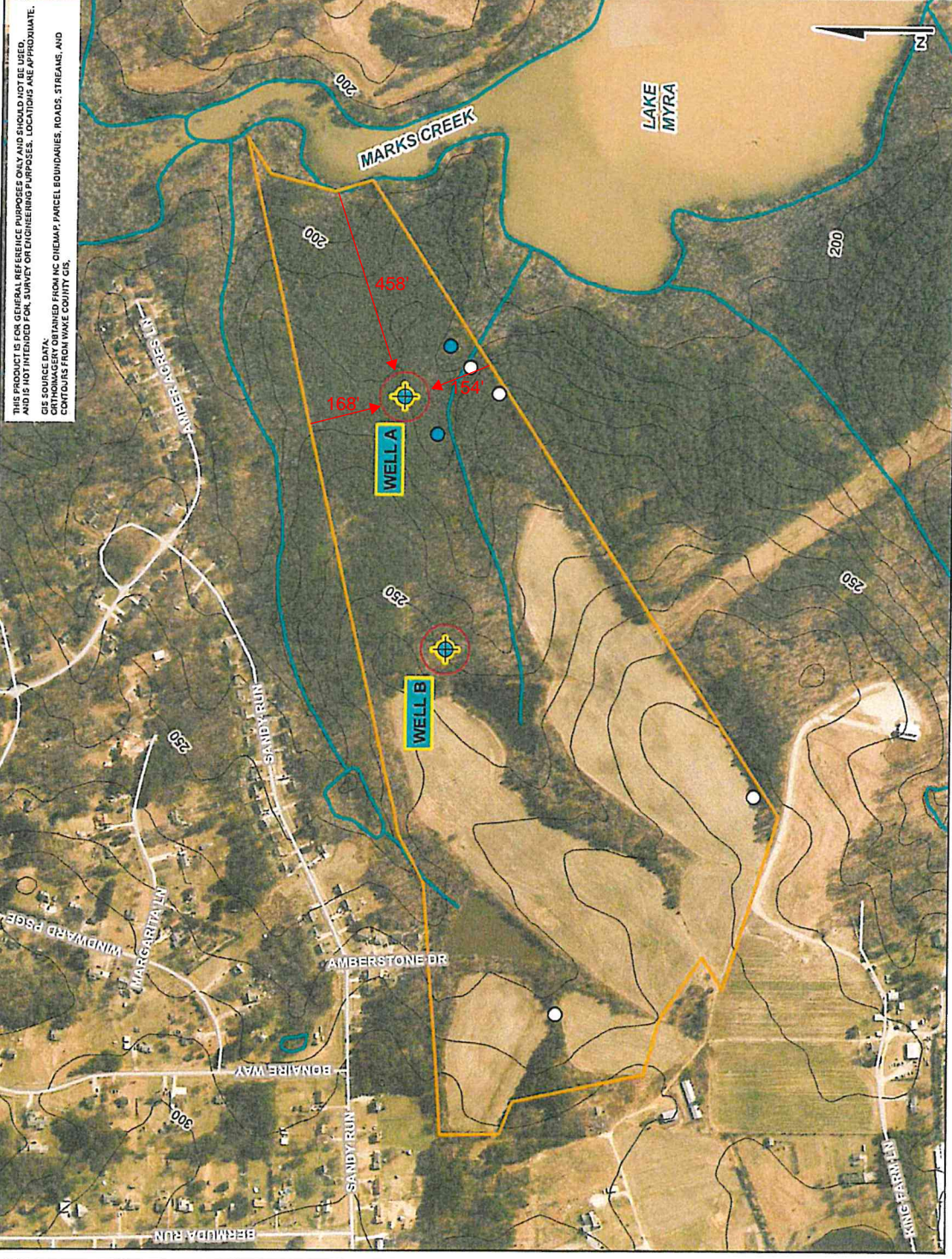
This construction authorization permit expires on 07/30/2030.

PERMIT ISSUED: 07/31/2025

ISSUED BY: Glen Shoemaker

SIGNATURE:

Glen C. Shoemaker



THIS PRODUCT IS FOR GENERAL REFERENCE PURPOSES ONLY AND SHOULD NOT BE USED AND IS NOT INTENDED FOR SURVEY OR ENGINEERING PURPOSES. LOCATIONS ARE APPROXIMATE. GIS SOURCE DATA: ORTHOMOGRAPHY OBTAINED FROM NC DIGMAP, PARCEL BOUNDARIES, ROADS, STREAMS, AND CONTOURS FROM WAKE COUNTY GIS.

LEGEND

- PROPOSED WELL LOCATION
- 100 FT RADIUS
- SITE PARCEL
- STREAMS
- STREETS
- TOPO CONTOUR
- FIELD OBSERVATIONS**
- Granite Float
- Stream Headcut

PROJECT: 169801
 FILE: DRAWINGS/169801/
 WELL LOCATION

**SITE MAP WITH
 PROPOSED WELL LOCATIONS**

FIGURE 2 DATE 10/24/2024



LAKE MYRA COUNTY PARK,
 WENDELL,
 WAKE COUNTY, NC



Well area A setbacks:
 1. 168' from north property line.
 2. 154' from south property line.
 3. 458' from east property line.
 * Well driller must verify all distance requirements before drilling.

WAKE COUNTY DEPARTMENT OF HEALTH & HUMAN SERVICES WELL PERMIT

PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/OR IF SITE IS ALTERED OR INTENDED USE CHANGED

WELL CONSTRUCTION AUTHORIZATION

PERMIT #: GW-151737-2025

APPLICATION DATE: 07/21/2025

SITE INFORMATION:

PIN: 1763519788

SITE ADDRESS: 0 S SMITHFIELD RD
KNIGHTDALE, NC 27545

SUBDIVISION: PROP POOR BOY FARMS **LOT:** 2 **ACRES:** 92

TOWNSHIP: 10 - Marks Creek **JURISDICTION:** R-40 **ZONING:** R-40

APPLICANT: William L Lyke **PHONE NUMBER:** (919) 363-6301

OWNER:

PROPOSED USE:

EXISTING USE:

PERMIT CONDITIONS & COMMENTS:

A review of GIS datasets revealed one or more buildings built between the years 1948 and 1987 within 150 feet of the subject parcel. Additional testing of this well for Pesticides will be required for final approval of this water supply.

Due to the underlying geology at this site, Wake County requires testing of this well for Gross Alpha* activity to screen for radiological contaminants. In addition, Wake County recommends a test for radon in water.

*GROSS ALPHA TESTING NOTE: Please allow 8 to 12 weeks for gross alpha testing. Initial gross alpha testing takes 3 to 4 weeks. If the initial test exceeds drinking water standards (which happens in approximately 1 in 5 cases), installation of treatment is required along with confirmation testing of the treated water, requiring an additional 3 to 4 weeks for the confirmation test. If the initial treatment system installed is insufficient, additional corrective action and testing will be required.

Well area B setbacks:

1. 143' from north property line.
2. 400' from south property line.
3. 1,074' from east property line.

* Well driller must verify all distance requirements before drilling.

OTHER CONDITIONS:

SCOPE: **SATISFIED?:**

COMMENTS:
.....

See attached site plan for well location and wastewater system design. If changes are necessary, prior approval by Wake County Health & Human Services is required before installation. The testing required under this permit does not include all possible contaminants. Private wells are not routinely monitored by a utility or other agency. Continued monitoring of private wells and testing for contaminants other than those required for the certificate of completion or certificate of occupancy is the responsibility of the well owner. Neither Wake County nor the Environmental Health Specialist warrants the quantity or quality of water produced by this well

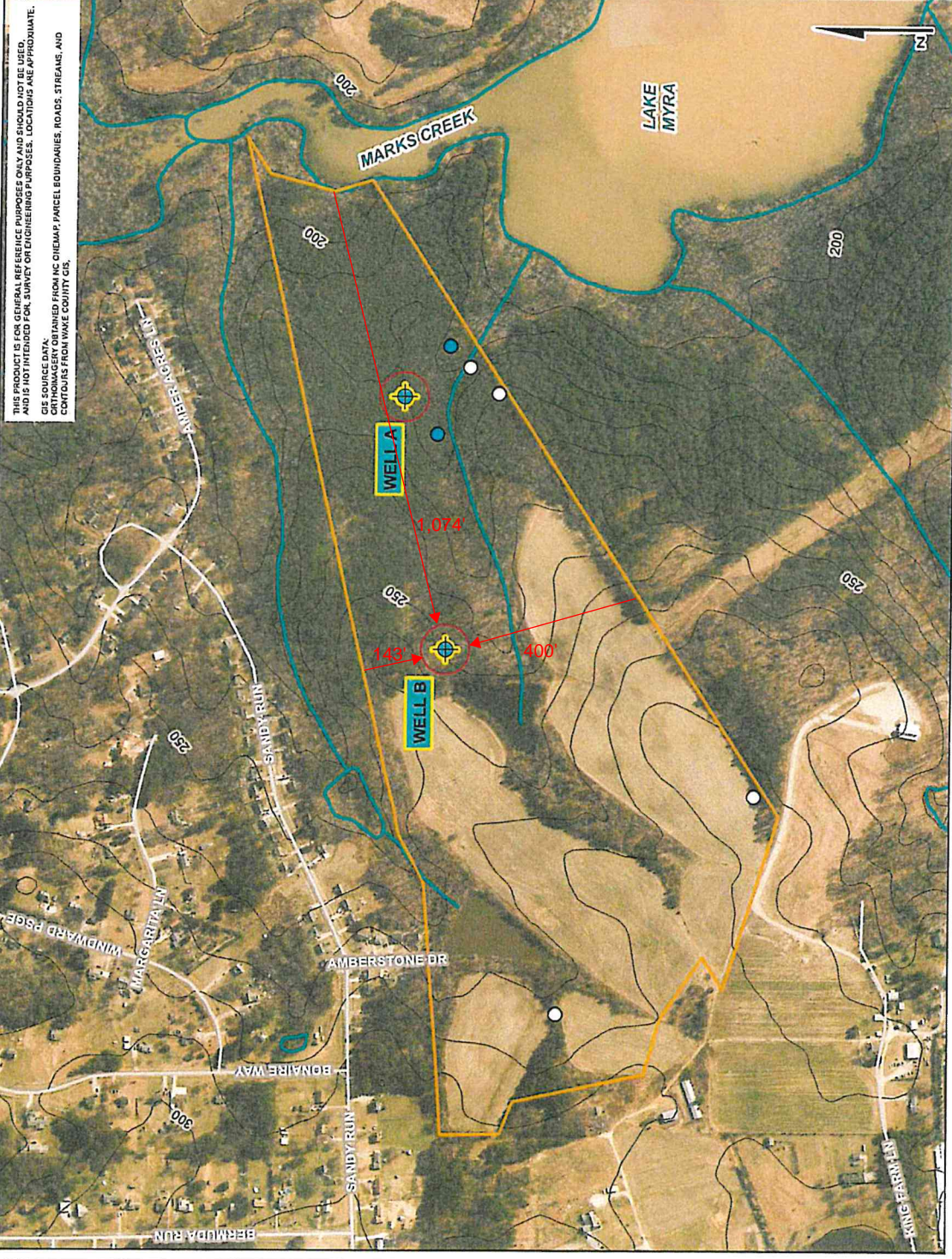
This construction authorization permit expires on 07/30/2030.

PERMIT ISSUED: 07/31/2025

ISSUED BY: Glen Shoemaker

SIGNATURE:

Glen C. Shoemaker



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LEGEND

- PROPOSED WELL LOCATION
- 100 FT RADIUS
- SITE PARCEL
- STREAMS
- STREETS
- TOPO CONTOUR
- FIELD OBSERVATIONS**
- Granite Float
- Stream Headcut

PROJECT: 169801
 FILE: DRAWINGS/169801/
 WELL LOCATION

**SITE MAP WITH
 PROPOSED WELL LOCATIONS**

FIGURE 2 DATE 10/24/2024



LAKE MYRA COUNTY PARK,
 WENDELL,
 WAKE COUNTY, NC



Well area B setbacks:
 1. 143' from north property line.
 2. 400' from south property line.
 3. 1,074' from east property line.
 * Well driller must verify all distance requirements before drilling.