

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

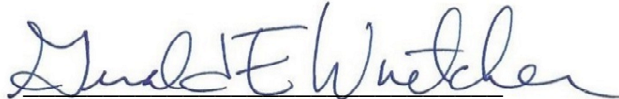
<b>LOGAN TELEPHONE COOPERATIVE, INC.</b>	)	
	)	
<b>COMPLAINANT</b>	)	
	)	
<b>v.</b>	)	<b>CASE NO. 2021-00248</b>
	)	
<b>EAST LOGAN WATER DISTRICT</b>	)	
	)	
<b>DEFENDANT</b>	)	

**EAST LOGAN WATER DISTRICT'S RESPONSE TO  
LOGAN TELEPHONE COOPERATIVE, INC.'S FIRST REQUEST FOR  
INFORMATION**

East Logan Water District submits its Response to Logan Telephone Cooperative, Inc.'s  
First Request for Information.

Dated: December 30, 2022

Respectfully submitted,



Gerald E. Wuetcher  
Stoll Keenon Ogden PLLC  
300 West Vine Street, Suite 2100  
Lexington, Kentucky 40507-1801  
Telephone: (859) 231-3017  
Fax: (859) 259-3517  
gerald.wuetcher@skofirm.com

*Counsel for East Logan Water District*

## **CERTIFICATE OF SERVICE**

In accordance with 807 KAR 5:001, Section 8, I certify that this document was submitted electronically to the Public Service Commission on December 30, 2022 and that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding.

  
*Counsel for East Logan Water District*





## **EAST LOGAN WATER DISTRICT**

### **Response to Logan Telephone Cooperative's First Request for Information Case No. 2021-00248**

Question No. 1

Responding Witness: Ethan Hudson

**Q-1. Since January 1, 2019, identify each locate request that East Logan did not provide permanent or temporary markings of its facilities in total and broken out into the types of locate requests contained in KRS 367.4909(5).**

A-1. As previously stated in its Motion for Extension of Time, East Logan Water District only has accessible locate records for the period beginning February 1, 2022. For the period from February 1, 2022 to December 15, 2022, it provided permanent or temporary markings of its facilities for all 444 locate requests. All locate requests involved normal locate requests.

For the period prior to February 1, 2022, East Logan Water District cannot provide specific information but states that it did not provide permanent or temporary markings in response to numerous locate requests for facilities that were unmapped or untonable. East Logan Water District now marks such facilities considered unmapped or untonable as accurately as possible and also advises the requesting party of any inability to accurately locate the facility.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 2

Responding Witness: Ethan Hudson

- Q-2. Since January 1, 2022, identify the number of locate requests East Logan received in total and broken out into the types of locate requests contained in KRS 367.4909(5).**
- A-2. For the reasons set forth in its Motion for Extension of Time to Respond to Request for Information, East Logan Water District only has accessible locate records for the period beginning February 1, 2022. For the period from February 1, 2022 to December 15, 2022, East Logan Water District had a total of 444 normal locate requests.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 3

Responding Witness: Ethan Hudson

- Q-3. Since January 1, 2022, identify the number of second or subsequent requests for the same locate requests East Logan received in total and broken out into the types of locate requests contained in KRS 367.4909(5).**
- A-3. For the reasons set forth in its Motion for Extension of Time to Respond to Request for Information, East Logan Water District only has accessible locate records for the period beginning February 1, 2022. For the period from February 1, 2022 to December 15, 2022, East Logan Water District is unable to determine the exact number of second or subsequent requests. In each instance in which a request for the same location was made, East Logan Water District had responded to the earlier request in the required statutory period either confirming no conflict with its existing facilities or having marked its facilities in the vicinity of the request.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 4

Responding Witness: Ethan Hudson

- Q-4. Since January 1, 2022, identify the length of time East Logan took to respond to each requestor/excavator in total and broken out into the types of locate requests contained in KRS 367.4909(5). Also, provide information showing whether underground facilities were marked within the statutory window, and the average time it takes to respond to a locate request.**
- A-4. For the reasons set forth in its Motion for Extension of Time to Respond to Request for Information, East Logan Water District only has accessible locate records for the period beginning February 1, 2022.

East Logan Water District's records lack sufficient information to respond to the specific request. These records, however, indicate that East Logan Water District has responded to all locate requests for the period beginning February 1, 2022 within the required statutory time period. All requests during this period were normal locate requests.



**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 5

Responding Witness: Ethan Hudson

- Q-5. Since January 1, 2022, identify the number of times East Logan reached an agreement with an excavator outside of the statutory time limits required by KRS 367.4909, with the aggregate numbers and broken out into the types of locate requests contained in KRS 367.4909(5).**
- A-5. East Logan Water District has not entered into any agreement with an excavator to perform locates outside the statutory time limits required by KRS 367.4909 for the period beginning January 1, 2022.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 6

Responding Witness: Ethan Hudson

- Q-6. Since January 1, 2022, identify whether locate requests East Logan received have been performed by East Logan personnel or by a third-party contractor. If the answer is both, provide the number of locate requests performed by East Logan personnel and third-party contractors, respectively.**
- A-6. All locate requests that East Logan Water District has received since January 1, 2022, have been performed by East Logan Water District personnel.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 7

Responding Witness: Ethan Hudson

**Q-7. State whether East Logan keeps records and statistics for the number of underground facilities located accurately versus inaccurately. Provide all records and statistics compiled since January 1, 2016.**

A-7. As previously stated in its Motion for Extension of Time, East Logan Water District only has accessible locate records for the period beginning February 1, 2022. It therefore cannot provide the number of accurate versus inaccurate locates since January 1, 2016.

Based upon its criteria that a locate is accurate if no damage results from the excavation after a locate has been performed, since February 1, 2022, East Logan Water District performed 443 accurate locates and one inaccurate locate.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 8

Responding Witness: Ethan Hudson

**Q-8. Explain the method East Logan uses to determine whether an underground facility has been located accurately versus inaccurately.**

A-8. East Logan Water District assumes an inaccurate locate is made if an excavator strikes or otherwise damages its facilities after the locations have been marked or discovers a facility outside the marked zone. If neither of these events occurs, then the located is assumed to be accurate.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 9

Responding Witness: Ethan Hudson

- Q-9. State what policies and procedures East Logan has implemented to reduce the number of inaccurately located facilities. Provide a copy of any such documented policies and procedures information detailing the efficacy of those procedures for reducing the number of inaccurately located underground facilities.**
- A-9. East Logan Water District recently adopted the attached written procedures regarding the location of underground facilities.

## **PROCEDURES FOR LOCATING UNDERGROUND FACILITIES**

1. Determine the location of the proposed excavation and, using field maps or the District's electronic mapping system, determine whether East Logan Water District underground facilities are in the vicinity of location. If no facilities are located in the vicinity, advise requestor that excavation is clear.
2. If East Logan Water District facilities are in the vicinity, travel to the location of excavation.
3. Determine whether East Logan Water District facilities can be located with the line locator. If facilities can be located, proceed to locate and mark the facilities with paint, chalk, flags, stakes, or any combination thereof. Color of markers should be safety precaution blue. The marked area should be a strip of land at least four (4) feet wide but not wider than the width of the underground facility plus two (2) feet on either side of the outer limits of the facility.
4. If the underground facility cannot be located using the line locator, examine the surrounding area for indicators of the water line's location. Search for Meters, Valves, Air Release Valves, and Ditch lines. Examine the overall topography for a change in topography that suggests a water line is located below. When findings such changes, probe the area for water line until locating the line.
5. Proceed to locate and mark the facilities with paint, chalk, flags, stakes, or any combination thereof. Color of markers should be safety precaution blue. The marked area should be a strip of land at least four (4) feet wide but not wider than the width of the underground facility plus two (2) feet on either side of the outer limits of the facility.
6. Once determining the location is correct and marking the location, shoot the GPS coordinates of the line.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 10

Responding Witness: Legal Counsel

**Q-10. Identify East Logan's basis for denying Paragraph 31 of the Complaint that KRS Chapter 278 imposes an obligation upon a public utility to locate its facilities in response to a locate request from a utility contractor.**

A-10. KRS Chapter 278 addresses the rates and service of utilities. It contains no express requirement that a public utility must locate its facilities in response to a locate request from a contractor. It does not refer to such requests. The Public Service Commission has promulgated no regulations pursuant to KRS Chapter 278 to establish such an obligation. East Logan Water District is not aware of any order of the Public Service Commission holding that a utility has an obligation pursuant to KRS Chapter 278 to respond to such requests. Locating utility facilities does not involve "the purity, pressure, and quantity of water, and in general the quality, quantity, and pressure of any commodity or product used or to be used for or in connection with the business of any utility" and, therefore, does not meet the statutory definition of "service."

East Logan Water District does not deny the existence of a statutory obligation created pursuant to KRS 367.4901-.4917 for a utility meeting the definition of "operator" to respond to locate requests from an excavator.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 11

Responding Witness: Legal Counsel/Ethan Hudson

**Q-11. Identify the response time(s) that East Logan believes is required (pursuant to KRS 367.4909(5)(e)) for a locate request of unmapped or untonable facilities.**

A-11. With two working days of receiving the request, an operator must notify the excavator that the excavation area has been determined to be an unmapped or untonable project. The operator must provide a positive response within five working days of the request, if a normal locate request, and within eight working days for a large project request from the later of receiving notification from an excavator or prior to the scheduled excavation start date if agreed upon as provided in KRS 367.4917(7).



**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 12

Responding Witness: Ethan Hudson

- Q-12. Identify East Logan's basis for failing to provide permanent or temporary markings for the facilities it identified in response to Q-4 of the Commission Staff's First Requests for Information.**
- A-12. Because of the lack of metallic tracer wire in most of its underground facilities, members of East Logan Water District's Board of Commissioners previously interpreted KRS 367.4901-.4917 as limiting the District's obligation to providing a location of the facility based upon field location records and advising that the District lacked the ability to accurately locate the facility. East Logan Water District no longer follows this interpretation and interprets the present version of KRS 367.4909 as requiring that its facilities be marked to the best of its ability.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 13

Responding Witness: Ethan Hudson

**Q-13. Identify the obligations that East Logan believes is required of it (pursuant to KRS 367.4909(7)) when it receives a locate request for unmapped or untonable facilities.**

A-13. As an operator, East Logan Water District must inform the excavator of the facilities' approximate location and description of any of its underground facilities that may be damaged or pose a safety concern because of the excavation; provide temporary markings to inform the excavator of the ownership and approximate location of the underground facility; and provide a positive response to the requesting party. Providing an approximate location for an unmapped or untonable facility means providing a location as accurately as possible from field location records and notifying the requesting party of East Logan Water District's inability to accurately locate.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 14

Responding Witness: Ethan Hudson

- Q-14. To the extent East Logan denies that KRS 367.4909(7)(b) imposes an obligation on East Logan to provide permanent or temporary markings of its facilities to inform the excavator of the approximate location of the facility, explain its basis for that denial.**
- A-14. Not applicable. See response to Question 13. East Logan Water District does not deny that KRS 367.4909(7)(b) imposes an obligation on East Logan to provide permanent or temporary markings of its facilities to inform the excavator of the approximate location of the facility.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 15

Responding Witness: Ethan Hudson

**Q-15. Identify East Logan's policy for marking its unmapped or untonable facilities as accurately as possible from field location records pursuant to KRS 367.4909(7)(b) and KRS 367.4903(11)(b).**

A-15. See responses to Questions 9, 11-13, 23 and 27.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 16

Responding Witness: Legal Counsel

- Q-16. Identify all replacements or repairs made to East Logan's facilities from 2012 through present. Your answer should include: (i) the location of the facility, (ii) a description of the replacement or repair, (iii) the specific product used for the replacement or repair, (iv) whether the repair or replacement included installing a metallic tracer wire, and (v) whether East Logan updated its records or maps in connection with or following the replacement or repair.**
- A-16. East Logan Water District objects to the request as overly burdensome. It requires manual review of approximately 14,000 work orders and is not designed to produce evidence relevant to East Logan Water District's alleged refusal to properly mark its underground facilities. Please note that KRS 367.4909(12) exempts the repair of existing facilities from the requirement that facilities installed after January 1, 2013 include a means to accurately identify and locate the underground facilities from the surface.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 17

Responding Witnesses: Legal Counsel

**Q-17. Produce East Logan's design blueprints, as-built construction plans, field locate records, and any other document it uses to identify its facilities.**

A-17. East Logan Water District's design blueprints, as-built construction plans are available for inspection at its office and will make these documents available for inspection to Logan Telephone Cooperative's representatives during its normal business hours. East Logan Water District will separately deliver to Logan Telephone Cooperative's counsel an electronic copy of these documents on a flash drive.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 18

Responding Witness: Ethan Hudson

**Q-18. Describe the issues and reasons why the metallic tracer wire you identified in response to Q-2 of the Commission Staff's First Request for Information is in "poor condition" and identify any efforts East Logan has made or will make to remedy this issue.**

A-18. Tracer wire failures occur and prevent the location of underground facilities for some of the following reasons: (1) Dead ends were not properly grounded; (2) Same size ground rods were not used at all dead ends; (3) Tracer wire lacked proper protection, resulting in the deterioration of the tracer wire.

To avoid these incidents from occurring in the future, East Logan Water District is more closely reviewing construction specifications to ensure that the best quality materials are used and that proper construction practices are employed.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 19

Responding Witness: Ethan Hudson

**Q-19. Identify the percentage of facilities not identified in the design blueprints and as building (sic) construction plan you described in response to Q-2 of the Commission Staff's First Request for Information.**

A-19. East Logan Water District is unable to provide an estimate of the facilities not identified in the design blueprints and as-built construction plans. Mr. Stephen Taylor, who was the responsible witness for the response to the Commission Staff inquiry, is no longer employed with East Logan Water District. Current employees have too limited experience and familiarity with East Logan Water District's distribution system to provide a response.



## EAST LOGAN WATER DISTRICT

### Response to Logan Telephone Cooperative's First Request for Information Case No. 2021-00248

Question No. 20

Responding Witness: Ethan Hudson

**Q-20. From 2016 till present day, identify and produce all requests for proposal, proposals, quotes, invoices, estimates, bids, offers, or any other documents sent or received by East Logan in connection improving the mapping and locating of its facilities.**

A-20. Between 2016 and 2019, former East Logan Water District employee Daniel Brown constructed an electronic map of East Logan District's system from as-built construction plans. While useful, this map could not be updated to reflect new construction or correct errors. In September 2022, East Logan Water District acquired an annual subscription to ArcGIS Online software and ArcGIS Mobile Worker to permit the mapping of all District facilities and to allow its field workers to access and input data while in the field. East Logan Water District requested and obtained the assistance of the Kentucky Rural Water Association to populate the system map created with this software with the GPS coordinates of its facilities and with information from the District's prior system map.

On March 3, 2022, East Logan Water District purchased a locating device and associated equipment.

East Logan Water District has obtained a price quote for the purchase of ground penetrating radar. The device's vendor demonstrated the device to East Logan Water District's staff and the members of its Board of Commissioners. East Logan Water District Board of Commissioners will formally consider purchasing such device at its January 2023 meeting.

All related documents are attached.

**Wuetcher, Gerald**

---

**From:** Ethan Hudson <ethan@eastloganwater.com>  
**Sent:** Monday, December 19, 2022 4:00 PM  
**To:** Wuetcher, Gerald  
**Subject:** Fwd: Esri - Order Confirmation (Reference ID #551723395361)

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

---

Sent from my iPhone

Begin forwarded message:

**From:** Ethan Hudson <ethan@eastloganwater.com>  
**Date:** September 9, 2022 at 9:20:06 AM CDT  
**To:** j.wyatt@krwa.org  
**Subject:** Fwd: Esri - Order Confirmation (Reference ID #551723395361)

----- Forwarded message -----

From: **Esri** <[donotreply@esri.com](mailto:donotreply@esri.com)>  
Date: Fri, Sep 9, 2022 at 9:15 AM  
Subject: Esri - Order Confirmation (Reference ID #551723395361)  
To: <[ethan@eastloganwater.com](mailto:ethan@eastloganwater.com)>



Dear Ethan, Thank you for your order. Below is a summary of your purchase.

**Billing Information**

East Logan Water District (New)

Ethan Hudson

333 S Franklin St

Russellville, KY 42276-2002

2707721106

[ethan@eastloganwater.com](mailto:ethan@eastloganwater.com)

**Reference ID: 551723395361**

### Product(s) Purchased

License Description	Unit Price	Qty.	Total
ArcGIS Online Creator Online User Subscription	\$500.00	1	\$500.00
ArcGIS Online Mobile Worker Online User Subscription	\$350.00	1	\$350.00
	Order Subtotal		\$850.00
	Total Tax		\$0.00
	<b>Order Total</b>		<b>\$850.00</b>

### Order Information

Reference ID: 551723395361

Order Date: September 9, 2022

### Next Steps



## Check your email

You will receive a separate email notification when your order has processed. This is not an invoice. You will receive an invoice once final billing is complete.

## How was your ordering experience?

Please consider taking our brief survey. We'd love to get feedback from you about this email and your Esri ordering experience.

[Feedback Survey](#)

Sincerely,  
Esri Customer Service

*Please note: This email message was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.*

**Questions about your order?** Email us at [service@esri.com](mailto:service@esri.com)



FROM  
 Jason Myers  
 Tracer Electronics LLC  
 6981 Eastgate Blvd.  
 Lebanon, TN 37090  
[www.tracerelectronicsllc.com](http://www.tracerelectronicsllc.com)

FOR  
 East Logan Water District

TO  
 Stephen Taylor

EMAIL  
[stephent3171@gmail.com](mailto:stephent3171@gmail.com)

PHONE  
 270-772-0846

QUOTE NUMBER  
 6261

DATE  
 March 3, 2022

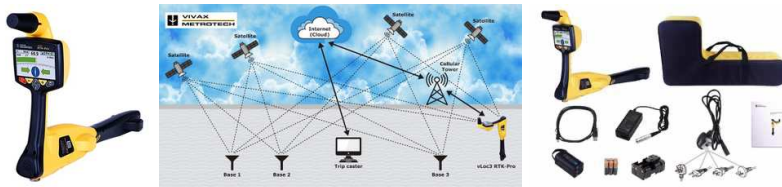
VALID UNTIL  
 May 2, 2022 at 2:00 PM

## Vivax-Metrotech vLoc3-RTK-Pro

1.226.01.00006  
**vLoc3-RTK-Pro Receiver (a)**

Vivax-Metrotech vLoc3-RTK-Pro Receiver (standard) - RTK Network subscription & AT&T cellular network nano SIM card setup is needed for operation.

[Online information](#)



[vLoc3-RTK-Pro-Sales-Sheet-VXMT-Eng-V1.0-8.5X11inch-2020407](#)





[vLoc3 RTK-Pro Technical Specifications Sheet \(English\)\\_V1.0](#)

[RTK-Pro Features and Benefits V1.0 20200608\\_1.0](#)

[Tracer-RTK-Instructions](#)

[VM-Sole Source Letter-2022](#)

8,400.00  
 x 1  
 (as chosen)  
 8,400.00

<p><input checked="" type="checkbox"/> IOT SIM CARD-2YR  <b>IOT Sim Card-2YR, RTK Pro</b></p> <p>AT&amp;T IOT Sim Card for RTK Pro (AT&amp;T) - includes: (p/n: SIMCARDATT) - IOT SIM card (\$5.25) and (P/N: 2YEARPLAN-ATT) 2-Year Data Plan - (\$240.00) - No Discounts.</p> <p><a href="#">Online information</a></p> 	<p>245.25  x 1  (as chosen)  245.25</p>
<p><input checked="" type="checkbox"/> 1.219.05.00003  <b>Loc3-5Tx Transmitter (5-Watt)</b></p> <p>Vivax-Metrotech Loc3-5Tx Transmitter (5-Watt) - (Box Dimensions: 16"x13"x9" - 15 lbs.)</p>  <p><a href="#">Loc3-5Tx-Sale-sheet-brochure-Eng-VMXT-V1.0-20181129</a></p> <p><a href="#">Loc3-5Tx-Technical-Specification-VMXT-Eng-V1.0-Publish-20181124</a></p>	<p>1,355.00  x 1  (as chosen)  1,355.00</p>
<p><input checked="" type="checkbox"/> 2.219.02.00011  <b>Bag, Loc3-Tx</b></p> <p>Vivax-Metrotech Carry bag (Loc3 Transmitters)</p> 	<p>65.00  x 1  (as chosen)  65.00</p>
<p><input type="checkbox"/> 2.219.02.00024  <b>Rechargeable Battery Tray, Loc3-xxTx Transmitter</b></p> <p>Vivax-Metrotech Rechargeable Battery Tray, Loc3-5Tx &amp; Loc3-10Tx Transmitter</p> 	<p>404.00  x 1  404.00  Not selected</p>

2.110.01.00020

**Battery Charger, Loc3-xxTx Transmitter & MX**

Vivax-Metrotech Battery Charger, Loc3-5Tx/Loc3-10Tx Transmitter & MX



124.00  
x 1  
124.00  
Not selected

**Shipping - Freight charges will be added to the final invoice**

UPS Ground from Lebanon, TN to destination (pre-paid & add to invoice).

 [Tracer-Freight document](#)

Options selected

**Total**

4 of 6

**\$10,065.25**

**Ordering Information**

**FOB Origin, Freight Prepaid** Lebanon, TN (Freight charges will be added to final invoice)

**STATE SALES TAX:** If applicable AL/CO/FL/GA/IN/KY/NC/OH/OK/SC/TN sales tax may be added to the invoice unless proof of tax-exempt status is provided.

**TERMS OF PAYMENT:** a). Cash In Advance, b). Credit Card, c). Net 30-day, subject to credit approval.

**PRICE VALIDITY:** Prices valid 60 days from date of quote.

**DELIVERY:** Normal delivery for stock items 1-2 days. 1-2 weeks if not in stock.

**ON-SITE TRAINING** Only available for the USA states listed: AL/KY/FL/GA/NC/SC/TN.

**ORDERING:** Call (615) 285-3952 or Email us at sales@tracerllc.com or Fax at (615) 285-3970

**MAILING ADDRESS:** TRACER ELECTRONICS LLC - 6981 Eastgate Blvd., Lebanon, TN 37090

If you have any questions, please contact us.

Regards,

**Jason Myers**

**AREA SALES MANAGER - KY / TN**

(615) 613-6645

jmyers@tracerllc.com

**Vivax-Metrotech vLoc3-RTK-Pro**

Total \$10,065.25 (4 of 6 options selected)

Additional comments

Order/reference number

PO Verbal Stephen Taylor

Accepted on behalf of Stephen Taylor by Jason Myers on March 9, 2022 at 2:32 PM





FROM  
 Jason Myers  
 Tracer Electronics LLC  
 6981 Eastgate Blvd.  
 Lebanon, TN 37090  
[www.tracerelectronicsllc.com](http://www.tracerelectronicsllc.com)

FOR  
 East Logan Water District  
 TO  
 Ethan Hudson  
 EMAIL  
[Ethan@eastloganwater.com](mailto:Ethan@eastloganwater.com)  
 ADDRESS  
 333 South Franklin street  
 Russellville  
 KY 42276  
 PHONE  
 270-772-1106

QUOTE NUMBER  
 7974  
 DATE  
 December 19, 2022  
 VALID UNTIL  
 February 17, 2023 at 10:00 AM

## Impulse Radar - PinPointR GPR Cart

PINPOINTR  
**PinPointR GPR Cart (Impulse Radar)**

Impulse Radar - PinPointR, Dual-frequency (400/800 MHz) GPR Cart w/RTS (DQ00401, CQ00102) w/Large wheels, composite weather cover, Li-Ion battery & charger DQ00090, DQ0079), Ram tablet mount & Android acquisition software application (DQ0040) (2-Year Warranty). THE BID SPECS ARE BELOW. [Online information](#)



- [Press-Release-PinPointR-Feb2020](#)
- [ImpulseRadar PinPointR User manual v1.5.1](#)
- [Comparison - PinPointR](#)
- [Bid-Specs - PINPOINTR \(v3 December 2020\)](#)
- [PinPointR - Tracer 2021](#)
- [Tracer-SoleSource-2022](#)

15,500.00  
 x 1  
 15,500.00

SAM932Q  
**Galaxy Tab Active Pro 10.1" (Samsung)**

Samsung "Galaxy Tab Active Pro" Ruggedized Tablet (for PinPointR) - 10.1"/TFT, 64GB Black - WiFi, MIL-STD-81DG and IP68-rated. Android 9 (Pie), Qualcomm SDM670CPU, 2-Ghz, Octa-Core Processor (1-yr Manufacturer Warranty) - ViewPoint Acquisition/control software application.



TAB-GALAXYTABACTIVEPRODSHT-OCT19T-Final-10-30-19

ViewPoint-Brochure

ViewPoint-PDF-file-example

791.00  
 x 1  
 791.00

SUNSHADE-S  
**Sun Shade - Samsung Tablet 10.2/10.5 Inch**

Tablet "Sun Shade" for Samsung Galaxy Tab Active Pro. Fits 10.2-10.5 Inch display



25.00  
 x 1  
 25.00  
 Not selected

PEL1085  
**Tablet Hard Carrying Case (Pelican)**

Pelican "Hard Carrying Case" for Ruggedized Tablet (for PinPointR/Samsung - oversized)




150.00  
 x 1  
 150.00  
 Not selected

DQ00041  
**CrossPoint Software (Impulse Radar)**


Impulse Radar "CrossPoint Software" (Full Featured Windows PC visualization software)




1,971.00  
 x 1  
 1,971.00  
 Not selected


<p><input type="checkbox"/> PQ00001  <b>Battery Kit-Spare (Impulse Radar)</b></p> <p>Impulse Radar "Battery Kit" for PinPointR GPR Cart (11.1V/8.7Ah/96.57Wh Li-Ion Rechargeable Battery DQ00090 &amp; 120VAC Charger DE00079)</p> 	<p>428.00  x 1  <b>428.00</b>  Not selected</p>
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<p><input type="checkbox"/> PQ00203  <b>GPS Mounting Kit (Impulse Radar)</b></p> <p>Impulse Radar "GPS Mounting Kit" for PinPointR GPR Cart (includes: Mounting clamps, joints, poles, A100048_2m external GPS cable, &amp; *GPS Mount Block. *If needed) - Note: Trimble users would need a Lemo to DB9F female to 7-pin cable from Trimble.</p> 	<p>803.00  x 1  <b>803.00</b>  Not selected</p>
---	---

<p><input type="checkbox"/> REACH-RS2-1  <b>GNSS-RTK Receiver (EMLID)</b></p> <p>EMLID "GNSS-RTK Receiver"(used on PinPointR) - Includes: (1) RCH203 - REACH RS-2 GNSS, (1) CBL103 - RS2 Cable &amp; (1) AI00048_2 - PinPointR External GPS Cable</p>  <p><a href="#">Datasheet RS2</a></p> <p><a href="#">Connecting Emlid RS+,RS2 With NTRIP VRS Network</a></p>	<p>2,970.00  x 1  <b>2,970.00</b>  Not selected</p>
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<p><input type="checkbox"/> REACH-RS2 SURVEY  <b>GNSS-RTK Survey Kit (EMLID)</b></p> <p>EMLID "GNSS-RTK Survey Kit" -Includes: (2) RCH203 - REACH RS-2 GNSS, (1) CBL103 - RS2 Cable, (1) AI00048_2 - PinPointR External GPS Cable &amp; (1) EXT015 - RS2 Extension Pole</p>  <p><a href="#">Datasheet RS2</a></p> <p><a href="#">Connecting Emlid RS+,RS2 With NTRIP VRS Network</a></p>	<p>5,765.00  x 1  <b>5,765.00</b>  Not selected</p>
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<p><input type="checkbox"/> RIS-45616-CTG-4024-WI  <b>HD SKB Transport Case (Impulse Radar)</b></p> <p>Impulse Radar "HD SKB Heavy Duty Transport Case" for PinPointR GPR Cart (Rotomolded Mil-Standard LLDPE Polyethylene shell Storage Case w/Edge Caster Wheel Kit installed). Features: MIL-STD-648C, MIL-STD-810F, ATA300 Category 1 Rating and IP67 and custom foam cushion insert to fit the PinPointR perfectly. Accepts TSA approved padlocks. 43.75"x28"x20.50" - 51.5 lbs. Made In USA. (Additional \$75 shipping required for case) Recommended for domestic and international travel or any application requiring the best possible storage solution.</p> 	<p>1,725.00 x 1 1,725.00 Not selected</p>
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<p><input type="checkbox"/> DU00021  <b>LD Transport Case (Impulse Radar)</b></p> <p>Impulse Radar Light-Duty "Transport Case" w/wheels for PinPointR GPR Cart (Resin molded Storage Case) - 34.64" x 25.98" x 19.01" - 34 lbs.(Additional \$75 shipping required for case) Recommended for standard storage applications.</p> 	<p>833.00 x 1 833.00 Not selected</p>
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<p><input type="checkbox"/> J3162.0  <b>Flagshooter w/Spray Can Feature</b></p> <p>Flagshooter w/Spray Can Feature - Marking Flag Insertion Tool (MSRP: \$329.00 - PROMOTIONAL PRICE - Limited time offer (\$312.00))</p>  	<p>312.00 x 1 312.00 Not selected</p>
---	---

<p><b>Shipping (PinPointR Cart) - optional accessories may not be included. (Per Cart)</b></p> <p>UPS Ground from Lebanon, TN to destination (pre-paid &amp; add to invoice).</p>	<p>275.00 x 1 275.00</p>
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<p>Options selected <b>Total</b></p>	<p>2 of 12 <b>\$16,566.00</b></p>
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## Ordering Information

**FOB Origin, Freight Prepaid Lebanon, TN:** (Freight charges will be added to the final invoice).

**CUSTOMER PICK-UP:** No shipping charges for orders picked up at our Lebanon, TN warehouse.

**STATE SALES TAX:** AL/CO/FL/GA/IN/KY/NC/OH/OK/SC/TN sales tax may be added to the invoice unless proof of tax-exempt status is provided.

**TERMS OF PAYMENT:** a). Cash In Advance, b). Credit Card, c). Net 30-day, subject to credit approval.

**PRICE VALIDITY:** Prices valid 60 days from the date of quote.

**DELIVERY:** Normal delivery for stock items 1-2 days. 1-2 weeks if not in stock.

**ON-SITE TRAINING:** Only available for the USA states listed: AL/KY/FL/GA/NC/SC/TN.

**ORDERING:** Call (615) 285-3952 or Email us at sales@tracerllc.com or Fax at (615) 285-3970

**MAILING ADDRESS:** TRACER ELECTRONICS LLC - 6981 Eastgate Blvd., Lebanon, TN 37090

If you have any questions, please contact us.

Regards,

**Jason Myers**

**AREA SALES MANAGER - KY / TN**

(615) 613-6645

jmyers@tracerllc.com



ImpulseRadar  
USA4000 Faber place Dr. Suite  
300Charleston, SC 29405,  
USA Tel: +1(843) 412-0502  
E-mail: [matthew.wolf@impulseradar.se](mailto:matthew.wolf@impulseradar.se)  
Home Page: ImpulseRadar.se

January 1, 2022

To whom it may concern:

Impulse RADAR is a manufacturer of Ground Penetrating Radar Systems based in Sweden and the United States. This letter is to confirm that the company below is our Sole Source/Authorized Distributor in the following states; Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina and Tennessee.

Your Authorized Distributor:

Tracer Electronics  
LLC6981 Eastgate  
Blvd.  
Lebanon, TN 37 090  
Phone: 615-285-3952 Fax: 615-285-3970  
[sales@tracerelectronicsllc.com](mailto:sales@tracerelectronicsllc.com)

Tracer Electronics LLC provides sales, customer support, training, and repair for customers throughout their assigned territory. All products sold by Tracer Electronics LLC are fully warrantied under the ImpulseRadar warranty program for all products.

Document valid for January 1, 2022 to December 31, 2022.

Yours truly,

A handwritten signature in blue ink that reads "Matthew J. Wolf". The signature is written in a cursive style with a large, stylized "M" and "W".

Matthew J.  
WolfPresident

# Bid Specifications

## PinPointR Utility GPR & ViewPoint Software & Tablet

GPR CART	PINPOINTR & VIEWPOINT
<b>Android Tablet Operating System</b>	Flexibility in choice of Android device. We recommend the Samsung Tab Active Pro
<b>RTS - Real Time Signal Sampling Technology</b>	Fast data collection. 1,000x faster than conventional GPR systems.
<b>Scans per second</b>	>800
<b>Wireless Data from Antenna to Android Tablet</b>	No cables to be lost or broken which improves reliability and reduces cost of ownership.
<b>Dual Channel / Dual Frequency - 400MHz (LF) and 800MHz (HF)</b>	Dual frequencies provides enhanced bandwidth and resolution that is beyond single channel systems.
<b>Channel Activation Selection</b>	Users can view 400MHz (LF), or 800MHz (HF) or view both screens simultaneously.
<b>Signal to Noise Ration (SNR)</b>	>100 db
<b>16 or 32 bit data acquisition and storage</b>	Provides flexibility for data resolution and support for external third-party software.
<b>Survey Speeds up to 80 MPH at 2" trace interval</b>	No survey speed limitation maximizes in-field productivity.
<b>Internal GPS Standard (Recreational grade)</b>	Geo-referenced data as standard. Accuracies depend on local GPS coverage.
<b>EXTERNAL GPS/GNSS (NMEA 0183 Protocol) RTK compatible</b>	Compatible with DGPS or RTRK-GNSS for higher accuracy geo-referencing for survey mapping.
<b>Power Supply 12 VDC Li-Ion Rechargeable Battery</b>	High-energy density and low self-discharge rate with no maintenance requirements.
<b>Continuous Operation Time 7-Hours</b>	Low power consumption maximizes in-field productivity and minimizes downtime.
<b>Weight 45 lbs. (complete with battery and tablet)</b>	Light-weight, folded-cart design provides flexibility and makes storing and transportation much easier.
<b>Real-time Google Mapping of marked utilities with moving map</b>	The internal GPS with Google Map integration provides real-time map along side of GPR data.
<b>Export KML/KMZ markers</b>	Automatic generation of KML/KMZ files with survey routes, marker information and radargrams.
<b>Automatic Utility Field Report Generation</b>	Automatic PDF summary reports provides Map view, GPR data, APWA color markers, platitude, longitude and depth for all tagged points.
<b>Dual View Profile Scanning</b>	View both the GPR data and Google Map data simultaneously.
<b>Regulatory certification</b>	CE, FCC & IC Approved
<b>Warranty</b>	2-Year
<b>Manufacturer</b>	Impulse Radar - Sweden
<b>USA Service Center</b>	Tracer Electronics LLC - Tennessee USA

# Bid Specifications

## Samsung Galaxy Tab Active Pro Table

TABLET	SAMSUNG GALAXY TAB ACTIVE PRO
Operating System	Android 9 (Pie)
CPU / Processor	Qualcomm SDM670 (Snapdragon) / 2 GHz, Octa-Core
Memory (RAM, Speed)	64GB (4GB speed) - internal / MicroSD (Up to 512GB) - external
Display / Type	Screen size 10.1" / TFT
Display Resolution	UUXGA (1920 x 1200)
Brightness	550 nits (Outdoor Conditions Only)
Interaction	Wet touch & Enhanced Touch and glove capabilities function with thin gloves.
Wi-Fi	802.11 a/b/g/n/ac 2.4G+5GHz, VHT80
Signal to Noise Ration (SNR)	>100 db
Battery Capacity	7,600 mAh, User-Replaceable Battery
Battery Type	Li-Polymer
Battery Life Internet Usage Time	Up to 15 Hours
Charging Time	200 Minutes
Security	Facial Recognition and Fingerprint Reader
Ruggedness	IP68 (water resistant in up to 5 feet of water for 30 minutes). Anti-Shock (drop from 1.2m height with Cover)
Certification	This device passed military specification (MIL-STD-810G) & IP68
Dimensions	6.7" x 9.6" x 0.4"
Weight	1.4 lbs.
Warranty	1-Year Warranty directly through Samsung
Manufacturer	Samsung - South Korea
<b>REQUIRED Feature &amp; Modes</b>	<b>Bid Description/Details - "MUST HAVE"</b>
True Dual Frequency	Two (2) separate antenna array for 400MHz & 800MHz
Real-time Sampling (RTS)	>800 scans per second performance
Fast Survey Speed	Up to 80 MPH speed for collecting scans
Automatic Field Report Generation	Generate Field Reports in the field from the Tablet and email capability
Utility Mapping Capability	Mapping w/Google Earth Support and display on screen while in field.
Utility Marker Assignment	Mark utility on screen with proper APWA uniform color code marker
Light Weight Design	Cart weigh only 45 lbs.
Folding Design	Cart folds up for storage
Li-Ion Rechargeable Battery	Provides up to 7-hours of use
Wireless Design	Fully WIRELESS design. Only (1) cable, i.e., odometer
Antenna Cover	Built-In composite cover protect antenna and battery from the elements
External GPS Support	Supports RTK GNSS receiver
2-Year Warranty	2-Year Warranty on PINPOINTR (1-Year on Samsung tablet)



# GPR Comparison

## PinPointR vs Other

(RTS) Real-time Sampling Faster scanning, tens of thousands of data stacking, lowering system noise, providing better performance, deeper targets	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Dual Frequency Antenna Provides better penetration even in tough soil conditions - 800MHz & 400MHz	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Wireless Data Acquisition No cables to be lost or fail, reducing service costs and improving overall cost ownership	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Android App (ViewPoint) Provides flexibility, improves customer costs, and provides FREE easy to use over-the-air updates and features	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
ViewPoint - Mapping Integration Provides AWWA markers, Google Map & Google Earth support, generates KMZ files, PDF Reports and Displayed on screen	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Compact folding cart Lightweight (44 lbs) and foldable. This design makes transporting, storage and set-up on job sites fast and easy	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Composite Protective Cover Composite antenna shell provides ultimate weather protection and safety for the antenna system	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Li-Ion Battery Provides 7-hour battery life on the job site	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
Ruggedized Display/Tablet If purchased will provide Samsung's latest screen and processor technologies and meets Mil-Spec. STD-81DG and IP68 rating	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
2-Year Warranty Impulse Radar provides a 2-Year Warranty on the Antenna and Cart Assy.	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a
USA Repair Center Tracer Electronics LLC is the USA Authorized Service and Repair Partner for Impulse Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/> n/a



# PinPointR



## Content

About this manual .....	4
<b>Hardware overview</b> .....	<b>5</b>
GPR unit.....	5
Connector panel .....	6
Battery .....	6
Push-cart.....	7
GPR unit removal procedure .....	9
Odometer (wheel encoder) .....	9
GPS mounting kit .....	10
<b>Software overview</b> .....	<b>11</b>
Wi-Fi and connectivity.....	11
Avoiding Wi-Fi and connectivity issues .....	12
GPR unit Wi-Fi lock .....	12
Multiple Devices .....	13
Multiple GPR units.....	13
Key Wi-Fi actions .....	13
ViewPoint Installation .....	13
Security note .....	13
Wi-Fi pairing and password initialization .....	14
Using ViewPoint .....	15
Switching between different GPR units .....	15
Preferences and Settings.....	15
Description of GPR unit settings:.....	16
Description of user preferences: .....	17
Projects.....	17
Running a single line project and associated functionality .....	18
GPS-symbols and function.....	19
Wheels.....	20
Data viewing and adjustment .....	20
Markers .....	22
Generate PDF Summery and KMZ file .....	23
Restoring missed traces .....	23
Multi-line project.....	23
GPS-projects .....	27
Viewing files .....	27

Note on survey speed and settings .....	27
Appendix A – Specifications .....	29
Appendix B – File-formats .....	30
Appendix C – GPS .....	33
Appendix D – Regulatory notices .....	34

## About this manual

The ImpulseRadar PinPointR is a state-of-the-art, self-contained Ultra-Wide Band (UWB) Ground Penetrating Radar (GPR) system. The dual frequencies and mechanical design combined with the various accessories like the GPS mounting kit make the system suitable for different kind of locating and mapping applications.

For information on other applications and/ or configurations, please contact your local ImpulseRadar representative, or contact our sales team at [sales@impulseradar.se](mailto:sales@impulseradar.se)

This manual is structured as follows:

- Section 1 – Hardware systems and accessories
- Section 2 – Software data acquisition and control
- Section 3 – Appendices additional notes and technical information

We welcome your feedback concerning this manual and its content. Please send your comments or suggestions to us at [info@impulseradar.se](mailto:info@impulseradar.se)

## Hardware overview

The ImpulseRadar PinPointR is a dual-channel GPR system based on a modern real-time sampling (RTS) technology platform, offering state-of-the-art data acquisition capabilities. The PinPointR system incorporates two separate GPR-channels, co-located at the same mid-point, as well as an in-built GPS as standard.

<u>GPR unit</u>	<u>Centre Frequency</u>
• PinPointR	400 MHz and 800 MHz

The PinPointR is a push-cart system supported by several accessories, as shown in **Figure 1** below.



*Figure 1 System overview*

Data collection is managed over an Ethernet Wi-Fi link and a suitable Android device running the ImpulseRadar ViewPoint App (ViewPoint). With ViewPoint, the operator may collect single line data, albeit with two frequencies, or a few different types of multi-line projects. Whether a single line of project-based data has been collected, datasets may be directly imported into the ImpulseRadar CrossPoint software (CrossPoint) for processing and evaluation in a Windows environment.

For information on other applications or configurations, please contact your local ImpulseRadar representative, or contact our sales team at [sales@impulseradar.se](mailto:sales@impulseradar.se)

## GPR unit

The GPR unit has a field-rugged design equipped with both a low and high-frequency channel, making it possible to detect shallow and deep utilities simultaneously. Power is supplied via a removable and

rechargeable Li-ion battery, which is conveniently located on the top of the unit. **Figure 2** shows the location of the on/off button and the connector sockets for odometer and external GPS.

The unit also includes a high-quality differential GPS receiver. There is no external connection to this component, although markings on the housing indicate the approximate internal location.

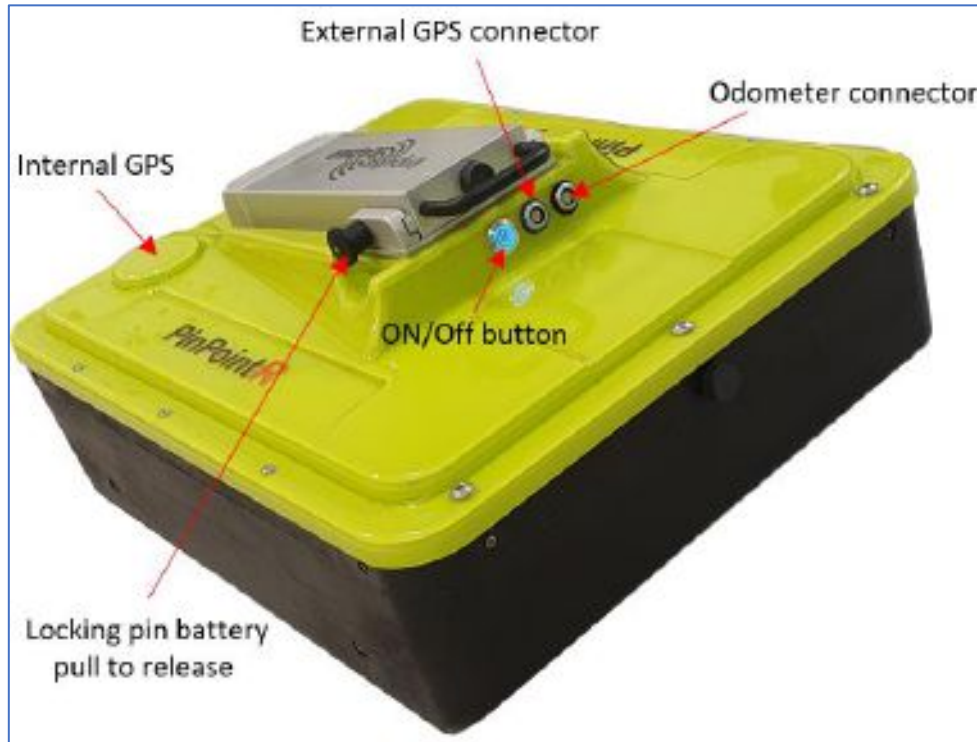


Figure 2 PinPointR GPR unit with a battery attached

### Connector panel

Refer to the arrangement shown in **Figure 2**:

- **Silver** – On/off button. Press and hold the button for approximately two seconds to switch on the unit. Once on, the button glows blue. A subsequent press will switch off the GPR unit.
- **Blue** – External GPS. It allows the connection of an external GPS to provide higher precision positioning. Communication is via a serial RS232 link using the NMEA 0183, V2 protocol, and GGA data string.
- **Black** – Measuring Wheel. It allows the connection of the odometer cable (wheel encoder) from the push-cart.

All cable connectors are of high-quality from Yamaichi. To insert or remove a cable connector, hold the connector sleeve then gently push or pull the connector straight without turning. Each connector has a key slot to prevent damage if incorrectly connected into the wrong socket.

### Battery

The PinPointR is powered via a removable and rechargeable Li-ion battery, which is a nominal 8.7 Ah/ 96.57 Wh, providing approximately 7-hours of continuous operation.

**Note:** *ImpulseRadar Li-ion batteries are approved according to UN38.3 and can, therefore, be safely hand-carried on passenger aircraft or shipped by air cargo.*

The battery fits securely to the top of the GPR unit. To insert, position it on the mounting plate and slide it gently into place until you hear the locking pin engage (click). To remove, pull the locking pin out, then gently slide the battery out and off from the mounting plate, as shown below in **Figure 3**.



*Figure 3 Exchange the battery*

### Push-cart

The PinPointR push-cart allows the GPR unit to be manoeuvred easily over a range of surfaces. It incorporates several useful features including a height-adjustable tray for the GPR unit itself, as well as a foldable handle assembly, and a foot brake.

The GPR unit is mounted in a tray that is suspended under the push-cart hood by adjustable support straps, as shown in **Figure 4** below. This arrangement allows the unit to be positioned on or very close to the ground's surface and 'float' freely vertically while following the contour of the ground, but also move over bumps and other small obstacles. When you receive the PinPointR system, the GPR unit will already be fitted into the tray, but it is possible to remove it. However, this should only be necessary should the tray become worn through prolonged and direct contact with the ground, or in the rare instance that the GPR unit fails. Should this be necessary, follow the removal procedure outlined below in conjunction with **Figure 6**.



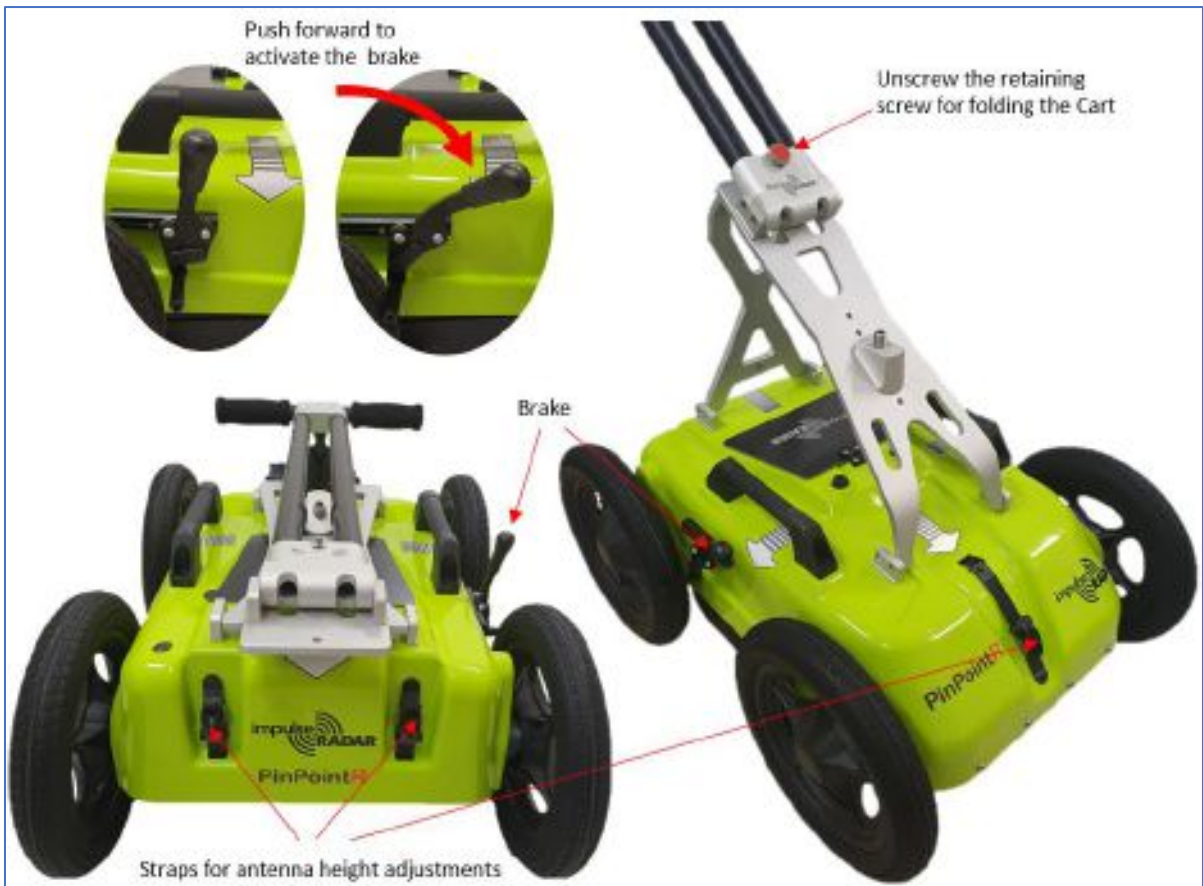


Figure 4 PinPointR push-cart features

The PinPointR push-cart incorporates a foldable handle assembly, so when the system is not in use, it can be folded for easier storage and transportation, as shown above in **Figure 4**. When unfolded for use, the handle assembly is fixed in place using a retaining screw. Depending on the model you have, this screw may be a threaded steel bolt that is fully removable, or on newer models, the screw is held in place within the handle assembly by a spring mechanism, as shown in **Figure 5**.

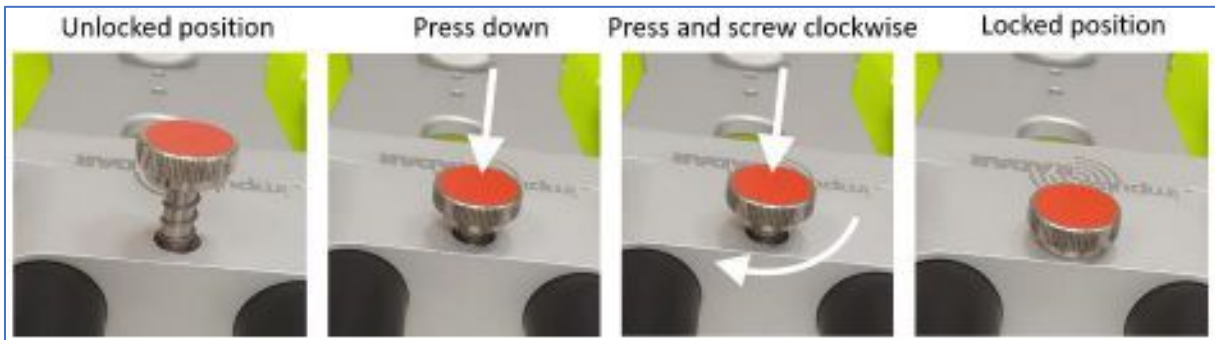


Figure 5 Retaining screw adjustment

**Note:** To ensure the proper operation of the spring-loaded retaining screw; you are advised to periodically lubricate the retaining screw and the threaded insert into which it screws. How often will depend on environmental factors, but should form part of general preventative maintenance for all mechanical parts of the push-cart.

The push-cart also incorporates a simple brake mechanism on the rear-right wheel, which is easily engaged or disengaged using your foot.

**Note:** for safety, you are advised to engage the wheel brake any time the system is not under your direct control, especially when working on a gradient.

#### GPR unit removal procedure

The following sequence is illustrated below in **Figure 6**.

1. Grip the wheel encoder connector as the picture shows and pull it out.
2. Remove the two rear and the front straps from the snap connectors and lift the cart-hood.
3. Disconnect the M5 screws that hold the GPR unit to the tray and slide the GPR unit out from the skid tray.
4. Close the push-cart hood and refit the rear and front straps into the snap connectors.
5. Adjust the front and back straps to obtain the desired height.
6. Connect the odometer cable again to the socket with the black bezel.

**Note:** before lifting the push-cart hood, remember to disconnect the odometer cable first. Also, it is essential to loosen the front strap to avoid tension on the strap connection point.



**Figure 6** GPR unit fitting and height adjustments

#### Odometer (wheel encoder)

When the push-cart is moved over the survey area, the distance travelled is measured using an odometer (wheel encoder), via a connection to the rear-right wheel. This odometer is also used to trigger the GPR measurement process. Depending on the model you have, the odometer mechanism may be via a belt drive (o-ring) or direct-drive. Older models use the belt-drive, where the odometer is located above the centre of the wheel shaft and connected to it via a rubber o-ring. For newer models using the direct drive, the odometer is mounted centrally and directly to the wheel axel, so no o-ring is necessary.

If necessary, the o-ring can be replaced for belt-driven models by removing the wheel, as shown in **Figure 7**. For this purpose, a spare o-ring is cable-tied to the encoder cable under the push-cart hood.

**Note:** when refitting the wheel, use blue Loctite or equivalent to help secure the M6 retaining screw.

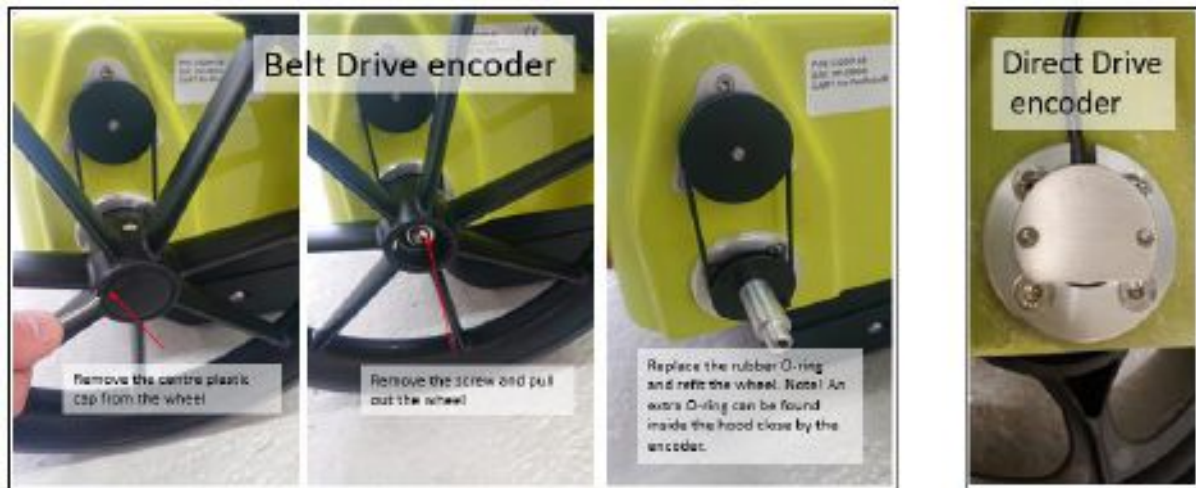


Figure 7 Belt or Direct Drive encoder and wheel assembly

### GPS mounting kit

An optional GPS mounting kit is available for the push-cart to support the connection of external GPS receivers, as shown in **Figure 8** (GPS receiver not included). This kit contains extension poles, support arms, and an RS232 serial cable to facilitate the connection between the GPR unit and an external GPS receiver.

The GPS cable plugs into the GPR unit via the external GPS socket (blue bezel), while the other end is terminated with a standard 9-pin D-sub connector (male). When connecting an external GPS receiver, it must have an RS232 serial output via a wired connection. The GPS receiver should have its own RS232 serial cable that plugs into it, while the other end is terminated with a standard 9-pin D-sub connector (female).

With the male and female D-sub connectors are joined, a wired RS232 serial link is established between the external GPS receiver and the GPR unit.

Refer to Appendix C – GPS for a description of the external GPS cable and pin-outs.

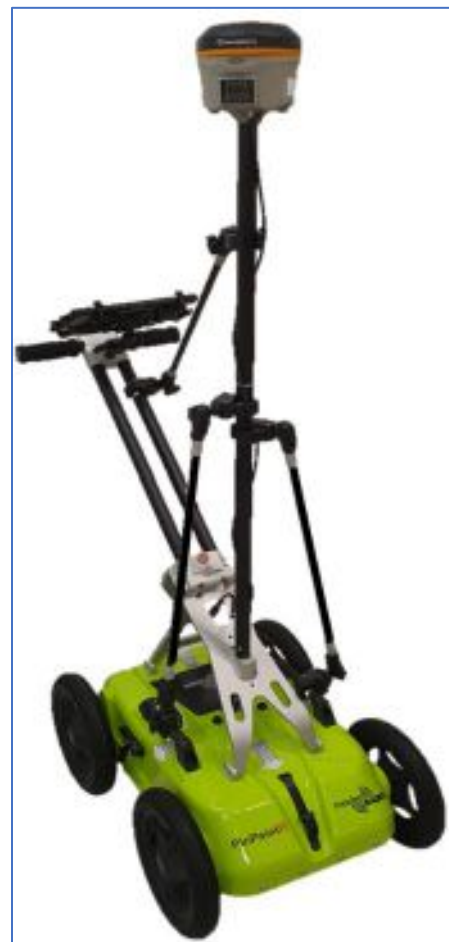


Figure 8 GPS mounting kit assembly

## Software overview

The PinPointR is set-up and controlled wirelessly via the ImpulseRadar ViewPoint App once installed on a suitable Android Tablet (“Device”). While it is feasible to operate the PinPointR using an Android Smartphone, it is not recommended due to the small screen size, which will affect your ability to identify and mark targets in the field. Refer to **Appendix A – Specifications** for a list of specification requirements.

An Android device that meets or exceeds the minimum specification requirements will generally offer better performance in terms of data recovery and on-screen functionality. That said, low-end Android-based smartphones can provide a quick and simple means of collecting radar profiles, or as a back-up in an emergency. Nevertheless, performance may be compromised if the specification is less than that stated above.

Since there is less standardization among Android Devices than say PC’s, there may be variations in the way software is installed and operated on and between different Devices. Consequently, you may notice subtle differences between your Device and the notes that follow. If you require clarification or need further support, please contact us at our headquarters, or contact your local ImpulseRadar reseller; you may also email us at [support@impulseradar.se](mailto:support@impulseradar.se)

**Note:** the screenshots and following sequences are based on a Samsung Galaxy Tab Active Pro.

### Wi-Fi and connectivity

The GPR unit incorporates a built-in Wi-Fi module that acts as a wireless access point (WAP) to which a Device can connect. The GPR unit’s network name or SSID (Service Set Identifier) comprises the GPR unit serial number to help identify it amongst others, as shown below in **Figure 9**.



**Figure 9** Example of GPR unit SSID and Wi-Fi network connection

After the first successful connection of a Device to a GPR unit, the Device connection settings will default to ‘auto-reconnect’, and it will automatically try to connect to that GPR unit whenever it’s within Wi-Fi range. This setting will remain as the default unless the ‘auto-reconnect’ function is disabled, or you tell the Device to ‘Forget’ the GPR unit Wi-Fi SSID, as per the options shown below in **Figure 10**.



Figure 10 Device connection settings

### Avoiding Wi-Fi and connectivity issues

Unless using the GPR unit in a remote area, it is highly likely that other wireless networks will be active and visible to the Device. If the Device has previously connected to another wireless network within the vicinity of use, then it is likely that it too will be set to 'auto-connect'. Therefore, it is vital that the **'AUTO-CONNECT'** setting for all other wireless networks is **DISABLED**. To do this, you need to access the main 'Settings' menu on your Device and follow the sequence until you reach the 'Manage networks' sub-menu, as shown below in **Figure 11**.

Menu sequence: Settings > Connections > Wi-Fi > Advanced > Manage Networks

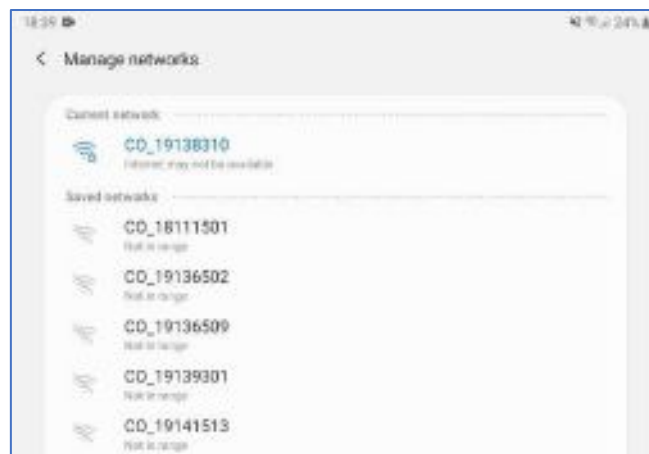


Figure 11 Manage networks

### GPR unit Wi-Fi lock

When the Device has established a Wi-Fi connection with the GPR unit, and the ViewPoint App is active, then the Device is prevented from connecting to other wireless networks. However, if the Wi-Fi connection to the GPR unit is disconnected (not just a poor signal), then the Device's Wi-Fi function will be unlocked, and it will be able to connect to other wireless networks again. Should you be in the vicinity of a previously saved network that has the 'auto-connect' setting enabled, then the Device will attempt to connect to that wireless network instead of the GPR unit. Hence the importance of deactivating 'auto-connect' on saved networks.

ViewPoint monitors the Wi-Fi connection between the Device and the GPR unit to which it is connected; should the Wi-Fi connection be lost during measurement, then a warning will be presented. You will be prompted to wait for the Wi-Fi to reconnect or stop the measurement and save all the files. However, if the Device manages to connect to another wireless network when this occurs, then ViewPoint won't be able to reconnect to the GPR unit.

### Multiple Devices

Nowadays, you are likely to have more than one Device in your possession, or within the vicinity of the GPR unit during measurement. You may also have more than one Device set-up to collect data from a particular GPR unit. Such situations raise concerns about which Device will connect and stay connected to the GPR unit if more than one is within range. Since only one Device can be connected at any one time, then multiple Devices attempting to connect simultaneously could lead to interruptions in data acquisition. The GPR unit Wi-Fi lock generally takes care of this; however, it's possible to force a connection if it is necessary to change a device.

In some instances, it may be possible for a GPR unit to connect to more than one Device at the same time, although not consistently. The resulting connection will be unstable as the GPR unit tries to connect then disconnects to each Device repeatedly. Under such circumstances, there will be blatant interference in the data in the form of many missed traces, and at the start screen, buttons will blink. This blinking effect is a warning, and you should investigate the connection settings to fix the problem.

### Multiple GPR units

If you have more than one GPR unit, we recommend allocating one primary data acquisition Device to each, to avoid the potential issues described above. Furthermore, once the Device is connected, you should disable the settings for any other GPR units on that Device.

### Key Wi-Fi actions

- Allocate a primary Device for each GPR unit.
- Disable the "auto reconnect" option for all Wi-Fi except the Wi-Fi of the GPR unit in use.

If you have another Device nearby when measuring, e.g. an Android Smartphone in your pocket, then you must disable Wi-Fi on this or any other nearby Devices in your possession.

## ViewPoint Installation

### Security note

As part of the Android operating system, there is a security restriction that prevents the installation of applications from outside the Google Play Store. Since ViewPoint is not available on the Google Play Store, you will need to make some adjustments to your device system settings to proceed with the installation, as follows:

1. Navigate to Settings > Personal > Lock screen and security
2. Check the option "Unknown sources"
3. At the message prompt, select "OK"

You may now proceed with the installation of ViewPoint.

If your Device has an internet connection, you can download the ViewPoint installation file directly from the Resource area of the ImpulseRadar website at <https://impulseradargpr.com/resources>. Alternatively, if your Device incorporates a USB-A port, you can install ViewPoint directly by connecting

the USB-A thumb drive supplied with the PinPointR system. Another method is to save the ViewPoint installation file to a PC first, by downloading it from the ImpulseRadar website or transferring from the USB thumb drive supplied. Then, using the USB cable provided with your Device, connect it to the PC. Use the PC's file explorer menu to transfer the installation file to the Device's 'download' folder, or 'installation file' folder.

Whichever method you chose, the installation process is as follows:

1. Locate the installation file <ViewPoint-X.XXX.apk><sup>1</sup> and start it to initiate the installation
2. The recommended file system for this App is "ES File Explorer"
3. When prompted, allow permission for ViewPoint to access photos, media, and files on your Device, so that radargrams can be saved and opened. Also, grant permission for ViewPoint to access your Device's location. This permission allows ViewPoint to manage Wi-Fi and Bluetooth communication, which is necessary for ViewPoint to be able to connect correctly to the PinPointR system. ViewPoint will keep asking for the permissions until all the permissions asked for are granted. If you deny the consent and check the "never ask again" option, then ViewPoint will not operate correctly and will exit back to the home screen of the Device.

<sup>1</sup>X.XXX will be numerical according to the latest software release.

## Wi-Fi pairing and password initialization

Follow the process below to connect your Android device to a PinPointR system. Refer to **Figure 12** for supporting screenshots.

1. Switch on the PinPointR system
2. On your Device, navigate to Settings > Wi-Fi > and look for the PinPointR system ID, which will appear as 'CO\_XXXXXXXX' (where XXXXXXXX is the serial number of the system)
3. Select this Wireless Access Point (WAP), and you will be prompted to enter the **password**, which is '**impulseradar**'
4. Press 'Connect' to complete the process

Once connected, a 'no-internet' warning may appear, which can be disregarded. If the warning dialogue permits, authorize the network and do not show the warning again.

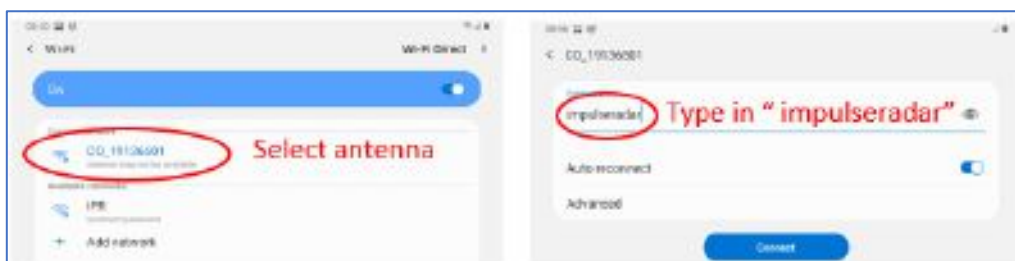


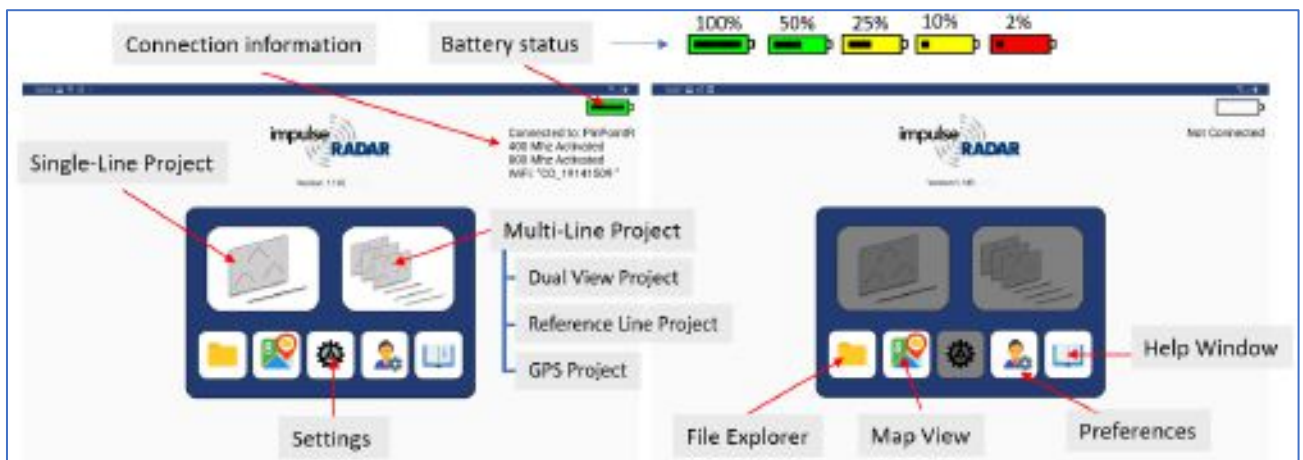
Figure 12 Pairing a PinPointR system to a Device

## Using ViewPoint

From the home screen of your Device, press the ViewPoint icon to enter the application's start screen. The start screen, as shown below in **Figure 13**, provides access to the various functions of ViewPoint.

From **Figure 13**, the left-hand image shows an example of Device connection with all functions available. This screen includes the system battery status, which can be monitored from within ViewPoint as shown. The right-hand image shows the limited functionality available when ViewPoint is disconnected from the PinPointR system.

**Note:** Generally, the ViewPoint version number can be found on the start screen below the ImpulseRadar logo, as shown in Figure 13. However, this may also appear to the right of the logo, depending on the Device or its screen orientation.



**Figure 13** PinPointR start screen when Device connected (L), Device not connected (R)

## Switching between different GPR units

ViewPoint will detect if connecting to a GPR unit that is not the same as the previous GPR unit it was connected to and will prompt you to restart ViewPoint.

## Preferences and Settings

The preference and settings menu, as shown below in **Figure 14** and **Figure 15**, contain the parameters needed to control the PinPointR system during data acquisition. Once set, these parameters remain unchanged for all subsequent data acquisition. The menu for settings can be displayed in a basic version but also a more advanced mode. ViewPoint starts in basic mode, but you can activate the advanced settings with the slide bar.



Description of GPR unit settings:

- **Trig Source** – defines how data collection is controlled. By default, this will be ‘wheel’ using the direct-drive wheel encoder. Make alternative selections from the wheel option menu. Time or Manual triggering is also available. In Manual mode, you must tap the on-screen trig button for every A-scan.
- **Distance Interval** – defines the distance between every A-scan<sup>1</sup>, when Trig Source is set to wheel, or Manual (sometimes also called point distance).
- **Time Interval** – defines the time between every A-scan<sup>1</sup> when Trig source is set to time.
- **Soil Velocity** – defines the velocity used to calculate the depth scale.
- **Number of Samples** – defines the time window or maximum penetration depth, and the adjacent Max Depth for the two channels is calculated based on the Soil Velocity.



Figure 14 Settings parameters

- **Data Mode** – defines how many bits are used while storing the resulting radar data. The default is 16-bits, and this is also what we recommend. 32-bits can be selected, but it is only for unique occasions that it is useful to save data in 32-bit format. The precise number of useful bits depends on the point distance, survey speed, and GPR unit centre frequency. Note that using 32-bits during surveys requiring high speed only increases the risk of dropping data in Ethernet-link, use 16-bits and not unnecessary long time-windows to reduce the load on data transmission in these cases.
- **GPS** – defines whether to use the internal module or an externally connected system. If External is selected, you must adjust for the correct baud-rate, which can be obtained from the user manual for the GPS system used. EXT + TP is intended for use with an external while gathering precise time-stamping on each A-scan with the help of the internal GPS. If no external GPS is present, when this option is selected, a time-sync file will still be created. See also later paragraph on GPS-symbols.
- **Wheels** – defines the type of wheel connected to the system for distance measurement. The standard wheel is the Direct Drive Cart. PinPointR users that have the older Belt Drive Cart need to select that type of wheel encoder manually.
- **Antenna info** – Hardware type and menu through which upgrade of FPGA / firmware may be done, see later paragraph.
- **Restore factory settings** – If internal settings have been corrupted or after a firmware upgrade, it's advisable to restore to factory settings, all essential system parameters will be reset to the initial state.

**Note:** The wheel type will be Direct Drive Cart as default. If a Belt Drive push-cart is used, this needs to be changed manually by the operator.

Description of user preferences:

- **Default Project Name (Single Line)** – By default, the name is the serial number of the GPR unit. The operator can edit/delete and change the name as they wish.
- **Measurement System** – Defines whether metric or Imperial values are used. When set to Imperial, the units will be in feet (ft.) and 10ths of ft.
- **Vertical scale** – Set time or depth for the vertical scale.
- **Operator Name** – Info will be stored in the PDF report.
- **Company Name** – Info will be stored in the PDF report.
- **Corporate Logo** - Display any \*.png logo in the PDF Field Summary.
- **Marker Table Grouping** – Select if markers will be sorted by its type or by id in the PDF Field summary.
- **Map View** – When activated a background map is viewed together with the radargram during a survey.
- **Markers** – Select available marker standards (APWA, AS5488, JUPEM, or Custom).
- **Auto-zoom** – If auto-zoom is activated, the vertical scale is adjusted to fit the data area on the screen every time a new survey is started.
- **Language** – Select language – English, Swedish, or French.
- **Restore User Preferences** – Set the user preferences to factory default.



Figure 15 user preferences

## Projects

From the start screen, you may select either a 'Single-Line Project' or 'Multi-Line Project.' As the names imply, this gives the option of collecting radar profiles in either single or multi-line profiles.

Single-line projects for individual profiles or multi-line projects if you want to record several profiles within the same project. In multi-line mode, the operator can select between Dual-View, Reference Line, or GPS projects, as shown in **Figure 16**. Regardless of the project type, you must select a project folder to which the

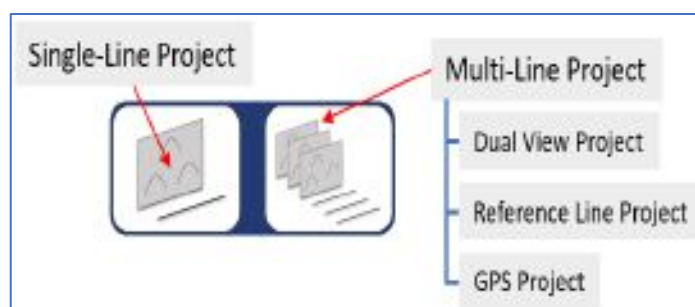


Figure 16 Project modes

data will be saved. **Figure 17** below shows the three options available.



*Figure 17 Create new, resume latest or resume old projects*

During the initial installation of ViewPoint on a Device, it creates a folder on the Device's internal storage called 'XOver Data', under which ViewPoint project folders and files are saved and organized.

After a survey, it is possible to zip a project directly ViewPoint's file explorer, which offers a quick and easy way to compress data for transfer. Navigate to the desired project folder then press and hold the folder icon until the zip dialogue opens. Select 'zip project', and a confirmation window will open, giving you the option to include a field summary report, and to generate a KMZ file. Select your preference and confirm. The zip file will appear under the parent folder of the relevant data folder.

Running a single line project and associated functionality

**Figure 18** illustrates and describes the functions within the header toolbar for controlling data acquisition.



*Figure 18 Measurement toolbar controls*

**Figure 19** below describes additional functionality available during and after a survey, even if ViewPoint is disconnected from the GPR unit. When ViewPoint is used in standalone, all functions except the back-up cursor and crosshair lock are available.

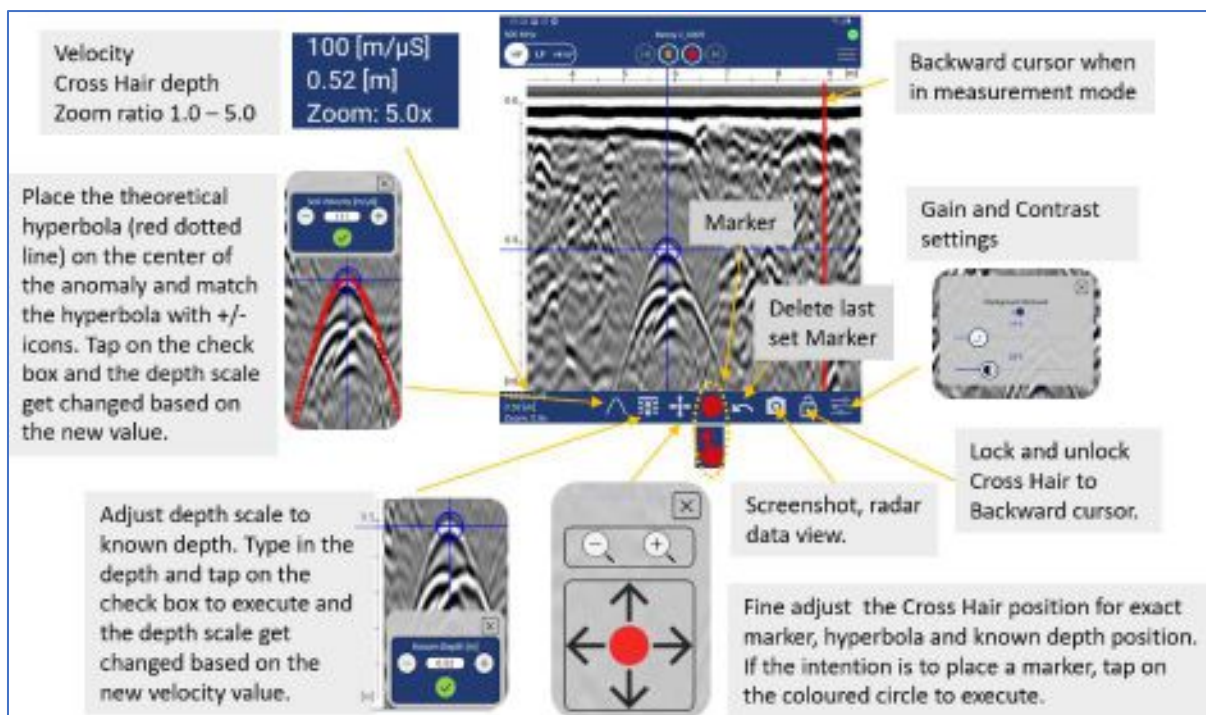


Figure 19 Footer toolbar functions

When using the internal GPS or an external GPS receiver, a background map can be activated and viewed alongside the radargram to show the georeferenced position of profile tracks and assigned markers. The map view is enabled via a checkbox under the user preferences menu. In order for ViewPoint to display a background map in the map view, the Device must first be connected to the internet to load and cache a Google Map of the survey area. From the ViewPoint start screen, press the Google Map icon to enter the Project Overview mode. Here you will see a map of your current location. Pan, scroll and zoom the map until it covers the target survey area. Exit back to the start screen and that map view is now cached; this view will be displayed together with the radargram for the next survey. Repeat this process for each new area to be surveyed. If you forget, or you exceed the boundaries of the cached map, no background map will be displayed in map view, although you will still be able to see profile tracks and marker placements.

#### GPS-symbols and function

Regardless of project type, a \*.cor file (GPS coordinates) will be saved alongside the GPR data if the internal GPS or an external GPS receiver can lock onto a suitable number of satellites. The GPS symbol will change colour and style according to GPS status, as defined below in **Figure 20**. By pressing the GPS-symbol you can see a static view of the current satellites and coordinates.

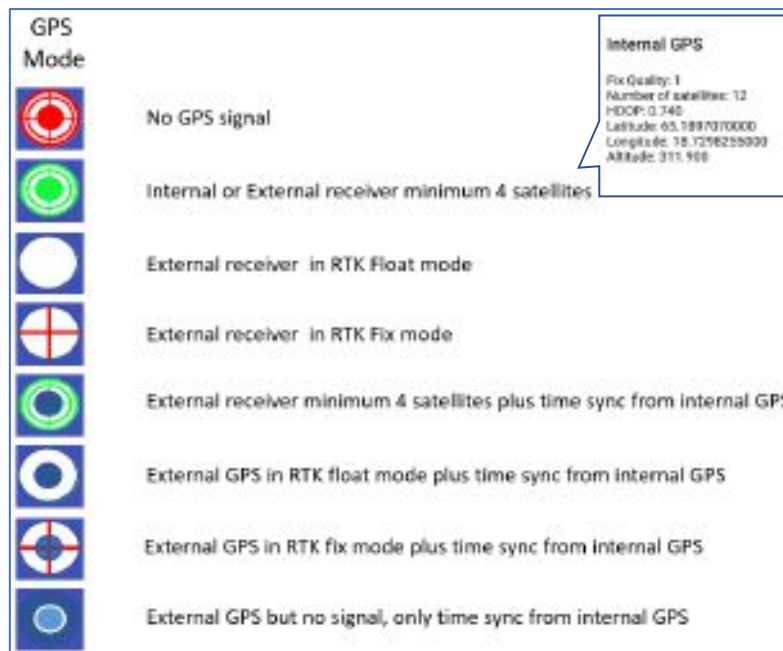



Figure 20 GPS symbols and their meaning

When connecting an external RTK-GPS, the internal GPS can be utilized to log the GPS time for each GPR trace collected. In doing so, the positing file generated is adjusted for any time lag from the RTK-GPS, and no manipulation of the positioning data is required. A \*.time file is recorded and can be used if the RTK-GPS is run separately from the GPR unit; for example, in a multi-sensor set-up.

### Wheels

The push-cart wheel is the default selection for the PinPointR system. Any other use of the system will require a new wheel calibration.

### Data viewing and adjustment

The screen and system functionality differ depending on the project type. It is possible to use the marker and velocity analyzing functionality for One-Line projects as well as a Reference line and GPS projects. During data acquisition independent of project type, the screen view can be set to show either the high-frequency channel only, low-frequency channel only, or both high and low-frequency channels together, as shown below in **Figure 21**. Tap on the icon in  the upper left corner of the screen to change to wanted view. Note that markers can only be set when one of the two channels are viewed on the screen. When both high and low frequencies are viewed the marker and velocity analyzing icons are not available on the toolbar at the bottom of the screen. Only screenshots and filter adjusting function will work in dual view.

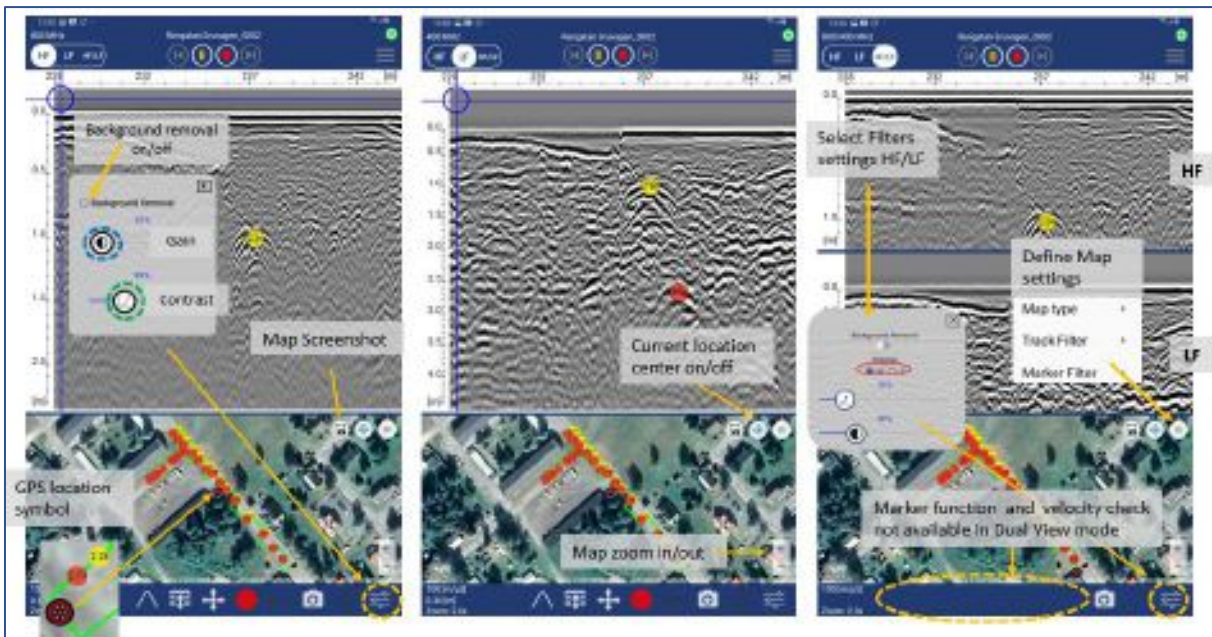


Figure 21 Screen views during data acquisition

The filter window will pop up when the filter-icon is pressed (circled in orange in **Figure 21**). The gain and contrast of the radargram can be adjusted in any mode, but when in dual-mode, you must select the channel to adjust. In **Figure 21** above, the contrast scrollbar is circled in green, while the scrollbar for gain is circled in blue. To change gain and contrast, hold your finger on the icon and move the scrollbar to the desired position. It is always better to keep the gain and contrast settings to the lowest value that will allow you to interpret the radargram. Higher gain and contrast levels can make the radargram more challenging to understand. The close button will shut the filter window, as will any screen press outside the filter window. It is also possible to move the position of the filter window on screen – simply press inside the window and drag it to the desired location.

ViewPoint remembers which channel you viewed last, as well as contrast and gain settings, and these become the default for any subsequent measurements, until the next time they are changed. If auto-zoom is active, the zoom will automatically adjust to fit the radargram every time a new measurement is started. However, anytime ViewPoint is closed and restarted, then these settings are reset to the standard defaults.

Adjustment of the time-zero position can be made when in single-channel view. Simply press and drag the vertical scale to the desired position. Once set, time-zero is saved and will be used for all subsequent profiles. Therefore, it makes sense to do this early on in any survey; it will also save time in managing any data exported for processing and interpretation in the CrossPoint visualization software.

Before starting data collection, or after stopping a line, you can access the settings and user preferences via the menu button located in the top-right corner of the header toolbar, as shown in **Figure 22**.



Figure 22 Access the settings menu

Radar data can be zoomed in or out from 1.0x to 5.0x, using standard Android screen gestures. To zoom in, pinch and expand two fingers; pinch and close two fingers to zoom back out. The current zoom level can be seen in the bottom-left corner of the footer

toolbar. If the radargram does not fit on the screen when data is zoomed in, scrolling may be done by dragging one finger up and down on the screen.

Other buttons provide functionality for controlling the collection of data, including Start, Pause/Resume, and Stop. Press the Pause button to halt the data collection without fully stopping the profile. Press the same button again, to resume data collection.

## Markers

Under user preferences, chose your preferred marker standard from the presets available, or define a custom code with your text and colour symbols. This selection must be made before the start of a project because once started, the selection is locked.

Marker assignment or editing can only be done when observing data in a single-channel view (LF or HF). The marker icon is located centrally in the footer toolbar. The marker icon is shown as a solid coloured dot, but can be toggled to quick mode in which case the icon changes to show a finger pressing a smaller dot. The colour of the icon matches the marker colour. Toggle between the two modes by pressing the icon, which will change accordingly (👉👉). Regardless of the selection, a marker palette offers colour choices according to the defined marker standard, as shown in **Figure 23**.

When the quick marker mode is active, every tap on the radar data will result in the assignment of a marker. Ordinarily, the arrow icon 📍 is used to fine-tune the position of a marker in respect of a target in the radargram. Touch the screen to move the crosshairs to the desired location, then use the arrow icon to fine-tune the final position. Tap the coloured ring in the centre of the arrow icon to assign the marker, which will simultaneously appear in the map view (if that option is active). Designated markers are semi-transparent so the radar data can be viewed below. Markers are referenced with numbers according to the radar profile and their sequence for a given marker type. Double-tap a marker in the radar data or map view to see a pop-up containing marker details.

**Note:** It's not possible to click a marker when "quick marker mode" is active. Markers can be deleted when the Marker info window is open by simply tapping the trash icon. When a marker is assigned, an automatic screenshot of the radar data with the marker assignment is saved for use in the PDF Field Summary report and KMZ file.

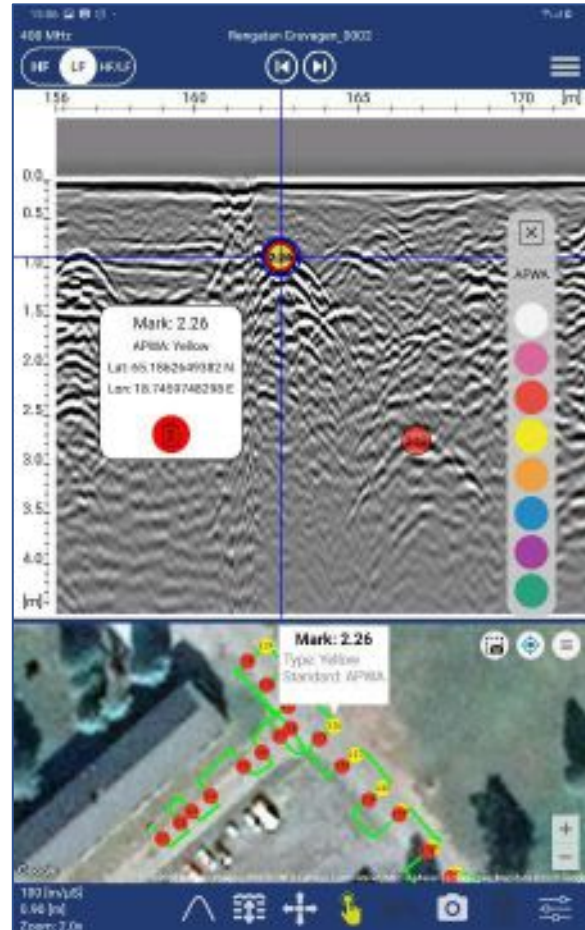


Figure 23 Marker functionality

## Generate PDF Summary and KMZ file

Independent of whether you are in file reading mode or a measurement mode when leaving the current project, you will be prompted to generate a PDF Field Summary report and a KMZ file, as shown in **Figure 24**. If either of these files already exist for the current project, the old data will be overwritten.

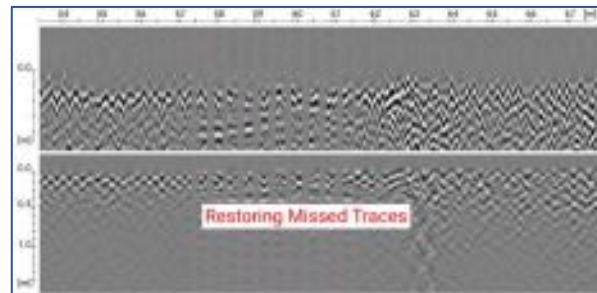


**Figure 24** Generate PDF Summary and KMZ file

## Restoring missed traces

During data acquisition and the transfer of radar data from the GPR unit to the Device, some of the radar traces may be missing. This effect is typically due to a weak or interrupted Wi-Fi signal. For example, in areas of high RF disturbance, or when the Device is moved away from the GPR unit.

However, since all radar data is saved to the GPR unit's internal memory (microSD card), any missing traces can be restored. When a profile is stopped, a checksum is performed to confirm the data in both the GPR unit and Device. If traces are missing, they are quickly restored, at which time you may note the momentary display of a message stating 'restoring missed traces', as shown in **Figure 25**.



**Figure 25** Data recovery when the acquisition is stopped

**Note:** If ViewPoint enters sleep-mode (minimized) during data acquisition, the ongoing survey will stop, and the data will be saved; however, any missed traces may not be restored. Furthermore, it is essential that the data acquisition unit and the system are near to each other during this process. Otherwise, the restoration process could take considerably longer.

## Multi-line project

Three types of multi-line projects are available as follows:

- Reference Line (RL)
- Dual View (DV)
- GPS

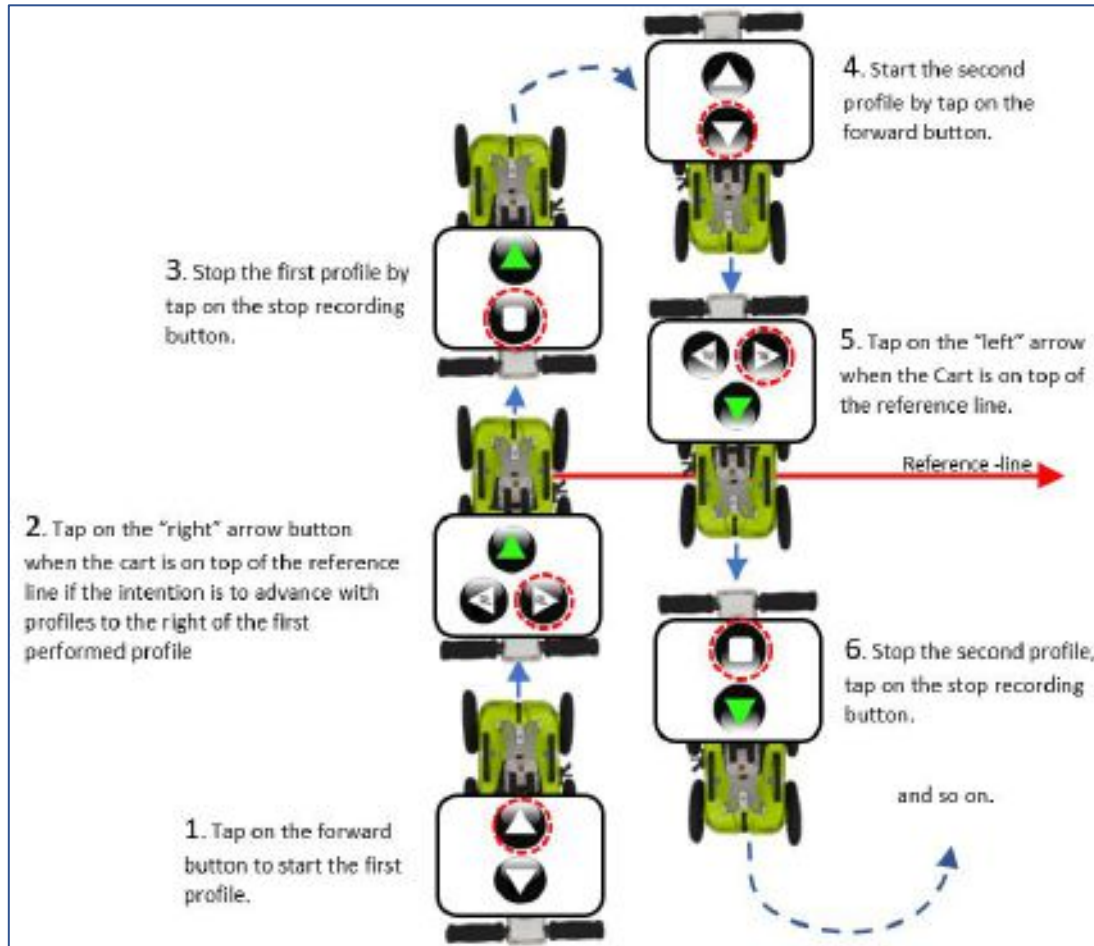
From the project start screen, as shown in **Figure 26**, you will be prompted to enter a project name and the distance between each profile. Once registered, press the 'Start the Project' button to continue.





Once the project has started, the data collection screen will appear with directional control buttons, as shown in **Figure 28** below

**Note:** during data collection, you can still view either the single-channel (low or high frequency) or dual-channel (low and high frequency) data, just as in the 'single-line project' mode.



**Figure 28** Controls during reference-line projects, forward survey, and profiles to the right of the first profile

Select the direction of the collection (forward/ backwards) and press the appropriate button to start the profile. Note the example in **Figure 28** illustrates a forward motion of the push-cart for all profiles in the Reference Line project and requires a 180° turn at the end of each profile.

Instead of turning the push-cart 180° at the end of each profile, you can also reverse the push-cart - just activate the recording using the reverse arrow on the screen. The selected button will be highlighted in green to indicate the chosen direction, and additional buttons (left/right) will become available. These buttons are used for the placement of the reference marker, by indicating the position of the start point to the direction of travel when crossing the reference-line.

Referring to, the first profile is collected by moving away from position **1**. Upon reaching the reference-line at point **2**, a reference marker is placed in the data by pressing the 'right' or "left" arrow button. If the decision is to move to the "right" with the upcoming profiles, from now on, all profiles in the project must be moved to the "right" of the first profile. Make sure that the push-cart is stopped on top of the Reference line, arrows on the Cart hood must match the Reference line. The profile continues to be collected until reaching point **3**, at which the stop button is pressed.

The system is then moved to the start point of the second profile (point 4). It's essential to maintain the distance in-between the profiles as decided during set-up. Press the forward button to start the measurement when the push-cart is in position for the second profile. Upon reaching point 5, a reference marker is again placed into the data. This time the left marker button is selected because the next profile will be to the left of the present one.

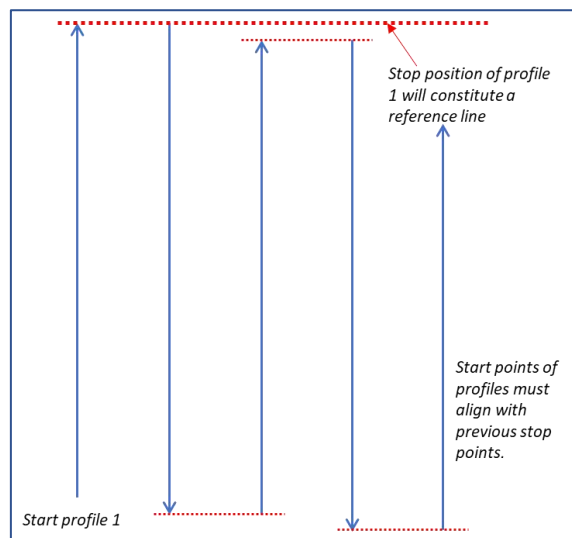
After the last profile has been stopped, just return to the main menu on the standard Android way.

If data is correctly gathered, all profiles will be correctly aligned and orientated with the reference-line and each other when opening the project in the CrossPoint software.

#### *Dual View (DV)*

This project type is intended to aid in on-site interpretation, rather than in post-processing. It is particularly useful for identifying features/objects that are relatively linear across a survey area, e.g., foundation walls, tree roots or utility lines.

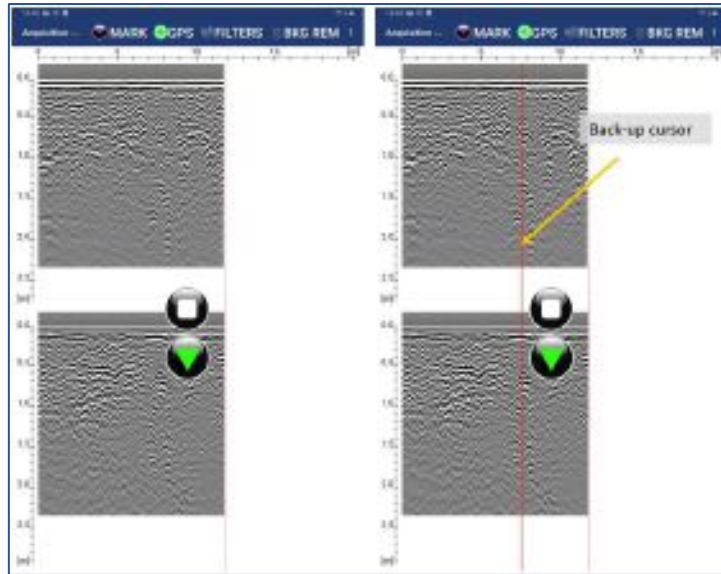
When collecting and viewing a single GPR profile, it is difficult to judge whether a reflector is a genuine point of interest, or simply a reflection from debris or a random object. Consequently, it is useful to view one or more parallel profiles to assist in their interpretation. This is the basis for the DV-project, which allows the current profile being collected to be displayed alongside the previous one, thereby making it easier to see if reflectors line up in similar positions across them. For this to work, the start position of each profile must be aligned with the stop position of the previous profile, as shown below in **Figure 29**.



**Figure 29** Layout of Dual View-project

When the stop button is pressed at the end of a profile, the radargram is automatically reversed, so that the next profile start point is aligned correctly. As the new profile is collected, it's data can be compared with the previous line. Furthermore, the back-up cursor (red line) covers both profiles making it even easier to see how closely reflectors align, as shown in **Figure 30** below.

It is possible to import a DV-project into Crosspoint. However, there should be equidistant spacing between all profiles and profiles should be parallel as required for an RL-project. On import, the end of profile 1 constitutes an artificial reference line. If considered before a survey, a DV-project may be used for post-processing and interpretation just as an RL-project.



*Figure 30 Dual-View project showing two parallel profiles with a back-up cursor*

### GPS-projects

As the name suggests, this project type requires GPS for positioning. For accurate mapping, to survey or map grade, RTK-GPS is required. That said, it is possible to run a GPS-project using the PinPointR's internal GPS, but this will lack the precision necessary for accurate interpretation. GPS projects using the internal GPS can be used for a field sketch with the Google Mapping capability and accuracy will vary depending upon the location and time of day of the survey.

When using GPS, everything is arranged according to the accuracy of the GPS, so no special survey procedures are required. Start and stop profiles as needed or take a single long profile while zig-zagging across the survey area. However, the former makes for much easier data interpretation when using post-processing software like ImpulseRadar CrossPoint, since several profiles can be viewed simultaneously. Regardless, CrossPoint will correctly load maps and data.

### Viewing files

ViewPoint is not intended for data analysis; however, saved files may be viewed to assist in making decisions on-site, including QA/QC of collected data. There is no special view for project-based data, but individual profiles are accessible. When viewing saved files, you may zoom and adjust gain/contrast just as you would during data collection. However, an additional function is provided to scroll along with profiles, which is controlled using one finger-swipe horizontally.

Within a project that includes several profiles, you can use the left and right buttons in the header toolbar to scroll in-between the profiles. Alternatively, if profiles have been collected with GPS, simply tap on the desired profile within the Map View. The marker editor allows previously saved markers to be deleted, or new ones added post data acquisition. To ensure any changes are saved within a previously collected profile, ensure the PDF/ KMZ options are activated when exiting the project.

### Note on survey speed and settings

The PinPointR system can produce very large amounts of data. The bottleneck in survey speed is mostly related to the Wi-Fi Ethernet-link.

At high survey speeds and short point intervals, the system will rarely be able to go beyond 16-bits; therefore, the load on the Wi-Fi data link may be reduced by choosing to collect 16-bit data, instead of 32-bit data.

Choosing an unnecessarily long time-window (number of samples) also increases the demand for data transfer, so selecting a suitable time-window for each project is highly recommended.

Finally, the PinPointR, like all GPR systems, will lose lateral-resolution at depth. This decreases the demand on the point interval, so no need to collect data any denser than necessary, concerning the targets you want to resolve. Thus, increasing the point interval also takes the load off the Wi-Fi data-link. By default, the minimum point interval is set to 1 cm.

## Appendix A – Specifications

*ImpulseRadar products are under continuous development, and we reserve the right to change specifications at any time and without prior notice. You may verify product specifications at any time by contacting our headquarters at; [support@impulseradar.se](mailto:support@impulseradar.se)*

### PinPointR

GPR UNIT	
<b>Technology</b>	ImpulseRadar real-time sampling
<b>Antenna type</b>	PinPointR dual-channel
<b>Centre frequency</b>	CH-1: 400 MHz / CH-2: 800 MHz
<b>Signal to noise ratio (SNR)</b>	>100 dB
<b>Significant/useful number of bits</b>	>16 bit
<b>Scans/second</b>	>800
<b>Survey speed</b>	> 130 km/h @ 5 cm point interval
<b>Time window</b>	400 ns
<b>Bandwidth</b>	>120%, fractional, -10 dB
<b>Acquisition mode</b>	Wheel, time or manual
<b>Positioning</b>	Wheel encoder, internal DGPS, external GPS (NMEA 0183 protocol)
<b>Power supply</b>	12 V Li-Ion rechargeable battery, or ext. 12 V DC source
<b>Power consumption</b>	1.26 A
<b>Operating time</b>	7 hours
<b>Dimensions</b>	444 x 355 x 194 mm
<b>Weight</b>	6.35 kg (including battery)
<b>Operating temperature</b>	-20° to +50°C
<b>Environmental</b>	IP65
<b>Regulatory certification</b>	CE, FCC, and IC Approved
CART	
<b>Dimensions (folded for transport)</b>	870 x 540 x 370 mm
<b>Dimensions (when in use)</b>	1010 x 540 x 1030 mm
<b>Wheels</b>	4 x Ø315 mm
<b>Weight</b>	12.8 kg (Push-cart only) <sup>1</sup> , 20 kg (Push-cart, GPR unit & Device) <sup>2</sup>
USER INTERFACE	
<b>Display</b>	720 x 1280 pixel or better
<b>Operating system</b>	Android™ >ver. 6.0 (Marshmallow) or later
<b>Memory</b>	2.7 GB SDRAM or better
<b>Processor</b>	Intel Atom x5-Z8550, Quad-core 2.3 GHz Krait 400 or better
<b>Recommendation</b>	<i>Samsung Galaxy Tab Active Pro, or equivalent</i>

<sup>1</sup> Push-cart, skid plate and Tablet holder

<sup>2</sup> Push-cart, skid plate, GPR unit, Tablet holder and Android Device

## Appendix B – File-formats

## Files stored in the project directory

<project name> - current project name (project data directory has the same name)

<project name>\_Combined - combined files are saved in the subdirectory

File Type	Description	Naming Convention	Explanation
*.IPRB	Profile Data File	<project name>_XXX_AYY.iprb	Where YY is profile (channel) running number (counting from 1) and XXX is a profile running number (counting from 1) <sup>1</sup>
*.COR	Positions from GPS	<project name>_XXX.cor	where XXX is a profile running number. <sup>1</sup>
*.mlproj	Multi Line Project Data File	<project name>_XXX.mlproj	Where YY is profile (channel) running number (counting from 1) and XXX is a profile running number (counting from 1) <sup>1</sup>

*Table 1 ImpulseRadar file types and descriptions*

<sup>1</sup> file names are padded with zeros to replace 'X', e.g., <project name>\_001\_AYY.iprb

## Files/information stored in the system

## Profile Header File (text file)

Example of the Header File	Explanations
<b>HEADER VERSION: 20</b>	Version number
<b>DATA VERSION: 16</b>	16b data format
<b>DATE: 2017-06-12</b>	Measurement date
<b>START TIME: 14:48:13</b>	Measurement start time
<b>STOP TIME: 14:48:38</b>	Measurement stop time
<b>ANTENNA: 800 MHz</b>	Antenna frequency
<b>ANTENNA SEPARATION: 0.090</b>	Antenna separation in meters
<b>SAMPLES: 500</b>	Number of samples in a trace
<b>SIGNAL POSITION: 6</b>	Signal position
<b>CLIPPED SAMPLES: 0</b>	Clipped samples (not in use now)
<b>RUNS: 64</b>	Number of runs
<b>MAX STACKS: 512</b>	Maximum number of stacks
<b>AUTOSTACKS: 1</b>	Autostacks (1 = ON)
<b>FREQUENCY: 10240</b>	Sampling Frequency
<b>TIMEWINDOW: 48.828</b>	Time Window in nS
<b>LAST TRACE: 1741</b>	Number of traces in the Profile
<b>TRIG SOURCE: wheel</b>	Trig Source – time or wheel
<b>TIME INTERVAL: 0.010</b>	Trig Interval if the trig source is time (sec)
<b>DISTANCE INTERVAL: 0.009778</b>	Trig interval if the trig source is wheel (m)
<b>USER DISTANCE INTERVAL: 0.010000</b>	Distance interval for interface
<b>STOP POSITION: 17.024</b>	Stop Position in meters
<b>WHEEL NAME: cart</b>	Wheel name (max 20 chars)

<b>WHEEL CALIBRATION: 306.799877930</b>	Wheel calibration (ticks per meter)
<b>ZERO LEVEL: 58</b>	Zero Level
<b>SOIL VELOCITY: 100</b>	Soil Velocity (m/uS)
<b>PREPROCESSING: Unknown Preprocessing</b>	Pre-processing information
<b>OPERATOR COMMENT: Android SDK: 28 (9) Device: Sony H8324</b>	Android Version and Device Name
<b>ANTENNA F/W: 49000072</b>	Receiver Firmware Version
<b>ANTENNA H/W: F1702</b>	Not in use now
<b>ANTENNA FPGA: D085</b>	Receiver FPGA Version
<b>ANTENNA SERIAL: CO_117755</b>	Receiver serial number
<b>SOFTWARE VERSION: CO 1.163</b>	Software version
<b>POSITIONING: 0</b>	Positioning: (0-NO; 1-TS; 2-GPS)
<b>CHANNELS: 2</b>	Number of channels used
<b>CHANNEL CONFIGURATION: 1</b>	This channel configuration
<b>CH_X_OFFSET: 0.000</b>	Channel Position relative to ext. positioning
<b>CH_Y_OFFSET: 0.000</b>	Channel Position relative to ext. positioning
<b>MEASUREMENT DIRECTION: -1</b>	Forward or backward
<b>RELATIVE DIRECTION: 90</b>	Direction to RL start (clockwise 360°)
<b>RELATIVE DISTANCE: 1.000</b>	Distance from RL start to cross-section
<b>RELATIVE START: 0.000</b>	Distance from profile start to cross-section

*Table 2 Profile header file information*

### Profile Data File

This is a binary file. PinPointR can create data files with a 16-bit or 32-bit data format (see the field "DATA VERSION" in the header file). Samples are stored as signed 16-bit or 32-bit integers. The traces are stored sequentially.

### Positions from GPS

This is a text file. The file format is simply a parsed version of the NMEA string written with tab separators as follows:

Trace number <tab> date <tab> time <tab> latitude <tab> "N" <tab> longitude <tab> "E" <tab> height above MSL <tab> "M" <tab> Fix quality (4 – RTK)\*

Trace number is counted from 1 (not from 0). Trace number is connected to positions exactly using time from internal GPS.

Example:

1	2017-03-15	10:12:19:60165.18991723150	N	18.72870853800	E	317.289	M	4
2	2017-03-15	10:12:19:79665.18991695317	N	18.72870772433	E	317.527	M	4
5	2017-03-15	10:12:20:00065.18991630983	N	18.72870888283	E	317.528	M	4
8	2017-03-15	10:12:20:20365.18991530700	N	18.72871088067	E	317.525	M	4
12	2017-03-15	10:12:20:39865.18991406333	N	18.72871390350	E	317.562	M	4
17	2017-03-15	10:12:20:60165.18991227283	N	18.72871711767	E	317.588	M	4
23	2017-03-15	10:12:20:79665.18991046267	N	18.72872101300	E	317.557	M	4
33	2017-03-15	10:12:21:00065.18990848683	N	18.72872542550	E	317.557	M	4

\* Fix quality field:

0 = invalid  
 1 = GPS fix (SPS)  
 2 = DGPS fix



3 = PPS fix  
 4 = Real Time Kinematic  
 5 = Float RTK  
 6 = estimated (dead reckoning) (2.3 feature)  
 7 = Manual input mode  
 8 = Simulation mode

### **Multi-Line Project Header (.mlproj), text file**

#### **Dual-view proj type 1**

```
ML_PROJECT_TYPE: REF_LINE
<profiles>
2ch dual nr2_001_0
2ch dual nr2_001_1
2ch dual nr2_002_0
2ch dual nr2_002_1
2ch dual nr2_003_0
2ch dual nr2_003_1
</profiles>
TYPE: 1
SEPARATION: 0.25
```

#### **Ref line proj type 2**

```
ML_PROJECT_TYPE: REF_LINE
<profiles>
2ch refile nr2_001_0
2ch refile nr2_001_1
2ch refile nr2_002_0
2ch refile nr2_002_1
</profiles>
TYPE: 2
SEPARATION: 0.25
```

#### **ML proj GPS 3**

```
ML_PROJECT_TYPE: GPS
<profiles>
1.201 extern gps ml outside_001_0
1.201 extern gps ml outside_001_1
1.201 extern gps ml outside_002_0
1.201 extern gps ml outside_002_1
1.201 extern gps ml outside_003_0
1.201 extern gps ml outside_003_1
</profiles>
TYPE: 3
SEPARATION: 0.25
```

## Appendix C – GPS

### How RTK Works

RTK involves a stationary base station and one or more mobile GPS receivers, also known as rovers. Provided that the base station has continuous line-of-sight to each rover, it transmits GPS corrections to each in real-time using radio waves. If a sufficient number of satellites are visible, RTK can provide a fixed position within a fraction of an inch. If insufficient satellites are visible, RTK can provide only a float solution, with a precision of a few inches.

### Fixed RTK

RTK uses a complicated mathematical formula or algorithm to calculate the exact number of radio wavelengths between the satellites and the base station system -- a process known as ambiguity resolution -- and yield either a fixed or float solution. In a fixed solution, the number of wavelengths is a whole number or integer, and the algorithm is constrained to yield a whole number. A low number of visible satellites, poor satellite constellation geometry, and a weak radio link between the base station and the rover may prevent a fixed solution.

### Float RTK

In a float solution, the algorithm does not yield an acceptable fixed solution, so the ambiguity is allowed to be a decimal or floating-point number. According to Tripod Data Systems, a float solution typically generates precise coordinates to between 4 and 18 inches over a known distance between two points of just over half a mile. If a float solution is the only solution available, it may be possible to reinitialize an RTK system, or wait, for a more precise fixed solution. However, if poor satellite visibility is to blame, a fixed solution may be unavailable.

### Considerations

The precision of RTK data collection depends on the distance between the base station and the rovers, so it's desirable to keep the distance between them to less than 6 miles. RTK systems are available in single and dual-frequency versions; dual-frequency versions are typically faster, more precise and operate over longer distances than single frequency versions, but they are correspondingly more expensive.

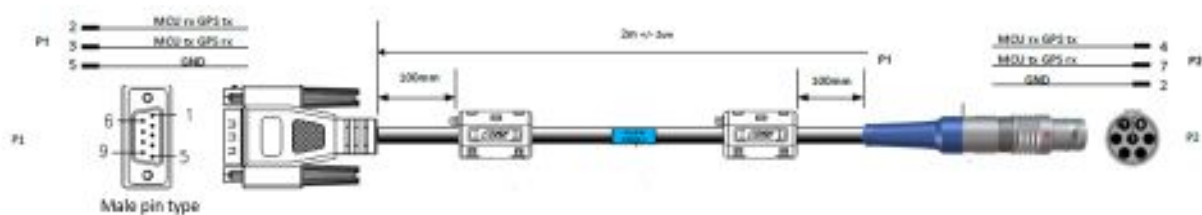


Figure 31 External GPS diagram and wiring arrangements

## Appendix D – Regulatory notices

The operation of GPR instruments is governed by various regulatory bodies and legislation depending on geographic location as follows:

- Europe            ETSI EN 302 066-1&2 V1.2.1
- US                FCC, Part 15.F
- Canada           IC RSS-220 limits

*The CrossOver-systems meets the legislation requirements for each of these regulatory bodies.*

A common requirement of these regulations is that GPR equipment should only be used by professionals and those who adhere to the following rules of operation:

- UWB-transmitters should always be used near the ground or the material under investigation
- When not in use, the data collection should be stopped, and the unit/s switched off
- The transmitters should not be directed upwards, only towards the investigation body

### **Additional notes for users in Canada and the US**

The operation of this Device is restricted to law enforcement, fire and rescue officials, scientific research institutes, commercial mining companies, and construction companies. Operation by any other party is a violation of 47U.S.C.301 and the operator may be subject to legal penalties.

Operation is subject to the following conditions: (1) this Device may not cause harmful interference and (2) this Device must accept any interference received, including interference that may cause undesired operation of the Device.

The operation of this Device shall only occur when in contact with or within 1 m of the ground.

RSS 220:

Ce dispositif radar à pénétration du sol ne doit être utilisé qu'en contact avec le sol ou à au plus 1 m du sol.

Ce dispositif radar à pénétration du sol ne doit être utilisé que par des organismes d'application de la loi, des établissements de recherche scientifique, des sociétés minières commerciales, des entreprises de construction, et des organismes d'intervention d'urgence ou de lutte contre les incendies.

RSS GEN :

This Device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

(1) This Device may not cause interference.

(2) This Device must accept any interference, including interference that may cause undesired operation of the Device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### **GPR Use Coordination (USA)**

FCC regulation requires users of GPR equipment to coordinate the use of their GPR equipment as described below:

#### **§15.525 Coordination requirements.**

(a) UWB imaging systems require coordination through the FCC before the equipment may be used. The operator shall comply with any constraints on equipment usage resulting from this coordination.

(b) The users of UWB imaging devices shall supply operational areas to the FCC Office of Engineering and Technology, which shall coordinate this information with the Federal Government through the National Telecommunications and Information Administration. The information provided by the UWB operator shall include the name, address and other pertinent contact information of the user, the desired geographical area(s) of operation, and the FCC ID number and other nomenclature of the UWB device. If the imaging device is intended to be used for mobile applications, the geographical area(s) of operation may be the state(s) or county(ies) in which the equipment will be operated. The operator of an imaging system used for fixed operation shall supply a specific geographical location or the address at which the equipment will be operated. This material shall be submitted to Frequency Coordination Branch, OET, Federal Communications Commission, 445 12th Street, SW, Washington, D.C. 20554, Attn: UWB Coordination.

(c) The manufacturers, or their authorized sales agents, must inform purchasers and users of their systems of the requirement to undertake detailed coordination of operational areas with the FCC prior to the equipment being operated.

For your convenience, the information required by the FCC is indicated on the next page, please print and fill in the information and put the letter in the mail. FCC will respond with confirmation of coordination.

Date: \_\_\_\_\_

**To:**  
Frequency Coordination Branch., OET  
Federal Communications Commission  
445 12th Street, SW  
Washington, D.C. 20554  
ATTN: UWB Coordination  
Fax: 202-418-1944

**RE: FCC GROUND PENETRATING RADAR COORDINATION NOTICE**

**COMPANY NAME:**

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**PRIMARY ADDRESS:**

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---

**CONTACT INFORMATION [CONTACT NAME AND PHONE NUMBER]:**

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**AREA OF OPERATION [COUNTIES, STATES OR LARGER AREAS]:**

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**FCC ID (tic the box)**

CrossOver 4080: 2ALZQ-CO4080

# Tracer

Electronics LLC



## New Product Release - Feb/2020

# PinPointR

Fully Featured, Dual Frequency GPR



- Dual Antenna - 400MHz / 800MHz
- RTS - Real-Time Sampling
- Ruggedized Android Tablet (IP68)
- Compact Design (only 44 lbs.)
- 7 Hour Battery (Li-Ion)
- 2-Year Warranty



Visit [tracerelectronicsllc.com](http://tracerelectronicsllc.com) for details



## Repair & Calibration Announcement



January 28th, 2020

**Tracer Electronics LLC has agreed to become the USA Warranty and Repair & Calibration Center for Impulse Radar.** Impulse Radar of Malå Sweden has announced a repair and calibration partnership with Tracer Electronics LLC of Lebanon, Tennessee, USA. Tracer Electronics LLC will assume the support role of providing factory warranty and repair services to its fast growing list of Impulse Radar customers. Tracer Electronics LLC reputation for providing quality and affordable repairs to the underground utility locating industry has made this partnership the perfect choice for Impulse Radar's "Best-In-Class" service strategy. Impulse Radar is dedicated to manufacturing the industries best GPR system and this partnership provide its customers the same level of after sale support.

*"We at Tracer Electronics believe in lowering the cost of ownership of all products that we sell. It is refreshing to know that Impulse Radar is completely behind our commitment to our customers, so much so that they are also offering a 2-year warranty on every PinPointR GPR Cart."*

*-Patrick O'Harold - VP Sales & Marketing  
Tracer Electronics LLC*

**impulse**  
**RADAR**



**USA Warranty Repair & Calibration Center**

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 21

Responding Witness: Earn Brown

- Q-21. Identify the amount budgeted and spent by East Logan, since January 1, 2019, to update the "poor quality" maps and records identified in response to Q-2 of the Commission Staff's First Request for Information. Produce all records and documents supporting your answer to this Request.**
- A-21. East Logan Water District's records do not indicate any expenditures on mapping between January 1, 2019 and September 9, 2022. On September 9, 2022, East Logan Water District ordered an annual subscription to ArcGIS Online software and ArcGIS Mobile Worker at a total cost of \$850. A copy of the purchase order is attached.



**Wuetcher, Gerald**

---

**From:** Ethan Hudson <ethan@eastloganwater.com>  
**Sent:** Monday, December 19, 2022 4:00 PM  
**To:** Wuetcher, Gerald  
**Subject:** Fwd: Esri - Order Confirmation (Reference ID #551723395361)

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Sent from my iPhone

Begin forwarded message:

**From:** Ethan Hudson <ethan@eastloganwater.com>  
**Date:** September 9, 2022 at 9:20:06 AM CDT  
**To:** j.wyatt@krwa.org  
**Subject:** Fwd: Esri - Order Confirmation (Reference ID #551723395361)

----- Forwarded message -----

From: **Esri** <[donotreply@esri.com](mailto:donotreply@esri.com)>  
Date: Fri, Sep 9, 2022 at 9:15 AM  
Subject: Esri - Order Confirmation (Reference ID #551723395361)  
To: <[ethan@eastloganwater.com](mailto:ethan@eastloganwater.com)>



Dear Ethan, Thank you for your order. Below is a summary of your purchase.

**Billing Information**

East Logan Water District (New)

Ethan Hudson

333 S Franklin St

Russellville, KY 42276-2002

2707721106

[ethan@eastloganwater.com](mailto:ethan@eastloganwater.com)

**Reference ID: 551723395361**

**Product(s) Purchased**

License Description	Unit Price	Qty.	Total
ArcGIS Online Creator Online User Subscription	\$500.00	1	\$500.00
ArcGIS Online Mobile Worker Online User Subscription	\$350.00	1	\$350.00
	Order Subtotal		\$850.00
	Total Tax		\$0.00
	<b>Order Total</b>		<b>\$850.00</b>

**Order Information**

Reference ID: 551723395361  
 Order Date: September 9, 2022

**Next Steps**



### Check your email

You will receive a separate email notification when your order has processed. This is not an invoice. You will receive an invoice once final billing is complete.

### How was your ordering experience?

Please consider taking our brief survey. We'd love to get feedback from you about this email and your Esri ordering experience.

[Feedback Survey](#)

Sincerely,  
Esri Customer Service

*Please note: This email message was sent from a notification-only address that cannot accept incoming email. Please do not reply to this message.*

**Questions about your order?** Email us at [service@esri.com](mailto:service@esri.com)

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 22

Responding Witness: Ethan Hudson

- Q-22. **State whether East Logan's maps and records are in compliance with Section 23 of 807 KAR 5:006 regarding identifying the location and size of its transmission lines, distribution lines, and service connections. To the extent, East Logan believes that its maps are in compliance with this Section, identify its basis for that belief.**
- A-22. East Logan Water District's maps are in compliance with 807 KAR 5:006, Section 23. On September 11, 2019, Public Service Commission Staff inspected East Logan Water District for compliance with Public Service Commission regulations. As part of this inspection, Public Service Commission Staff reviewed East Logan Water District's maps and found them in compliance with 807 KAR 5:006, Section 23. Public Service Commission Staff conducted a subsequent inspection on October 19, 2020 and did not report any deficiencies related to East Logan Water District's system maps. A copy of the report of each inspection is attached.

# Kentucky Public Service Commission

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## Periodic Compliance Inspection

Utility: East Logan Water District

Utility location: 333 South Franklin Street Russellville, KY 42276

Investigator: Roy Gray

Date(s) of inspection: September 11, 2019

Date(s) of last inspection: April 26, 2017

Deficiencies noted during last inspection: 1

Have deficiencies been corrected since last inspection:            Yes             No             N/A

Primary utility representative(s) involved with inspection:

Name: Linda Alexander

Title: Manager

Name: Carroll Browning

Title: Commissioner

**Who with the utility should receive the inspection report cover letter from the commission?**

Name: Harris Dockins

Title: Chairperson

Mailing address: 333 South Franklin Street Russellville, KY 42276

Email address: linda@eastloganwater.com

Phone number: (270) 717-0991

# Kentucky Public Service Commission

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## Periodic Compliance Inspection

### General Questions

#### Treatment Facility

Source Water: N/A

Plant Capacity: N/A

Avg. Amount Produced: N/A

#### Distribution Facility

Source Water: Utility receives all of its water for its distribution system from Logan Todd Regional Water Commission.

Area of Operation: Utility covers eastern Logan County.

Miles of Water Line: Utility stated it has approximately 300 miles of water distribution lines.

Avg. Amount Purchased: According to the 2018 Annual Report the utility purchased 695,885 gallons per day.

Water sold at wholesale rate to other water systems: N/A

#### Utility Information

Number of Employees: 5 + 1 co-op student

Number of Office Employees: 2

Number of Certified Water Treatment Employees: N/A

Number of Certified Distribution Employees: 1

Number of Certified Meter Testers: 0

Utility Chairperson/President: Harris Dockins

#### Metering System:

Number of Customers: 3,200

# Kentucky Public Service Commission

## Periodic Compliance Inspection

Meter Reading:

AMR

AMI

Other

Manual

Type of meter used for customers: Sensus, Kamstrup

**Contractor(s):** C. I. Thornburg (meter testing)

### Review Current Emergency Response Plan (ERP):

Has the utility made any revisions to the ERP in the past 24 months?

Yes

No

N/A

Updated contacts in 2019.

When was the last year construction was performed? 2015

What did the construction project consist of? Extension of approximately 1,725 feet of 3" distribution line.

## 807 KAR 5:006 (General Rules)

### Section 4: Reports

Has the utility filed its gross annual operating revenue report?

Yes

No

N/A

Does the utility file Quarterly Meter Reports (QMR) indicating meter tested, number of customers, and amount of refunds?

Yes

No

N/A

### Section 7: Billings, Meter Readings, and Information

Does each bill for utility service, issued periodically by a utility, clearly show the following?

The date the bill was issued:

Yes

No

N/A

Class of service:

Yes

No

N/A

Present and last preceding meter readings:

Yes

No

N/A

Date of the present reading:

Yes

No

N/A

Number of units consumed:

Yes

No

N/A

## Kentucky Public Service Commission

### Periodic Compliance Inspection

Meter constant, if applicable:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Net amount for service rendered:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
All taxes:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Adjustments, if applicable:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
The gross amount of the bill:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
The date after which a penalty may apply to the gross amount:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
If the bill is estimated or calculated:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is the rate schedule under which the bill is computed posted on the utility's Web site (if it maintains a Web site)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Also furnished by one (1) of the following methods, by:			
Printing it on the bill:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Publishing it in a newspaper of general circulation once each year:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Mailing it to each customer once each year; or:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Provide a place on each bill for a customer to indicate the customer's desire for a copy of the applicable rates:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Does the utility (except if prevented by reasons beyond its control) read customer meters at least quarterly?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is each customer-read meter read manually, at least once during each calendar year?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Does the utility maintain the information required by this subsection, and is it available to the commission and any customer requesting this information?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
If, due to reasons beyond its control, a utility is unable to read a meter in accordance with this subsection, does the utility record the date and time the attempt was made, if applicable, and the reason the utility was unable to read the meter?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

#### Section 9: Non-recurring Charges

Is a charge assessed if a customer requests the meter be tested pursuant to Section 19 of this administrative regulation and the tests show the as-found meter accuracy is within the limits established by 807 KAR 5:066, Section 15(2)(a)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
--	---	-----------------------------	------------------------------

#### Section 10: Customer Complaints to the Utility



# Kentucky Public Service Commission

## Periodic Compliance Inspection

Upon complaint to a utility by a customer at the utility's office, by telephone or in writing, does the utility make a prompt and complete investigation and advise the customer of the utility's findings?

Yes  No  N/A

Does the utility keep a record of all written complaints concerning the utility's service?

Yes  No  N/A

Does the record include the following?

The customer's name and address:

Yes  No  N/A

The date and nature of the complaint:

Yes  No  N/A

The disposition of the complaint:

Yes  No  N/A

Does the utility maintain these records for two (2) years from the date of resolution of the complaint?

Yes  No  N/A

If a written complaint or a complaint made in person at the utility's office is not resolved, does the utility provide written notice to the customer of his or her right to file a complaint with the commission?

Yes  No  N/A

Does the utility provide the customer with the mailing address, Web site address, and telephone number of the commission?

Yes  No  N/A

If a telephonic complaint is not resolved, does the utility provide at least oral notice to the customer of his or her right to file a complaint with the commission?

Yes  No  N/A

### Section 11: Bill Adjustment

Does the utility monitor a customer's usage at least quarterly? Yes  No  N/A

Are the utility's procedures designed to draw the utility's attention to unusual deviations in a customer's usage? Yes  No  N/A

If a customer's usage is unduly high and the deviation is not otherwise explained, will the utility test the customer's meter? Yes  No  N/A

If a utility's procedure for monitoring usage indicates that an investigation of a customer's usage is necessary, does the utility notify the customer in writing? Yes  No  N/A

If knowledge of a serious situation requires more expeditious notice, does the utility notify the customer by the most expedient means available? Yes  No  N/A

If the meter shows an average meter error greater than two (2) percent fast or slow, does the utility maintain the meter in question at a secure location under the utility's control, for a period of six (6) months from the date the customer is notified of the finding of the investigation and the time frame the meter will be secured by the utility or if the customer has filed a formal complaint?

# Kentucky Public Service Commission

## Periodic Compliance Inspection

Yes  No  N/A

### Section 14: Utility Customer Relations

Does the utility post and maintain regular business hours and provide representatives available to assist its customers and to respond to inquiries from the commission regarding customer complaints?

Yes  No  N/A

Does the utility designate at least one (1) representative to be available to answer customer questions, resolve disputes, and negotiate partial payment plans at the utility's office?

Yes  No  N/A

If the utility has annual operating revenues of \$250,000 or more does it make a designated representative available during the utility's established working hours not fewer than seven (7) hours per day, five (5) days per week excluding legal holidays?

Yes  No  N/A

If the utility has annual operating revenues of less than \$250,000 does it make a designated representative available during the utility's established working hours not fewer than seven (7) hours per day, one (1) days per week?

Yes  No  N/A

Does the utility provide the following?

Maintain a telephone: Yes  No  N/A

Publish the telephone number in all service areas: Yes  No  N/A

Permit all customers to contact the utility's designated representative without charge: Yes  No  N/A

Does the utility prominently display in each office open to the public for customer service (and shall post on its Web site, if it maintains a Web site) a summary, prepared and provided by the commission, of the customer's rights pursuant to this section and Section 16 of this administrative regulation?

Yes  No  N/A

Does the utility inspect the condition of its meter and service connections before making service connections to a new customer so that prior or fraudulent use of the facilities shall not be attributed to the new customer?

Yes  No  N/A

### Section 17: Meter Testing

Does the utility maintain meter standards and test facilities, as more specifically established in 807 KAR 5:066?

Yes  No  N/A

Before being installed for use by a customer, are all meters tested and in good working order (and adjusted as close to the optimum operating tolerance as possible) as more specifically established in 807 KAR 5:066, Section 15(2)(a)-(b)?

Yes  No  N/A

## Kentucky Public Service Commission

### Periodic Compliance Inspection

Does the utility have all or part of its testing of meters performed by another utility or agency?  
 Yes  No  N/A

Does the utility or agency doing meter testing for a utility have in its employ meter testers certified by the commission?  
 Yes  No  N/A

Does the utility or agency employ apprentices in training for certification as meter testers?  
 Yes  No  N/A

Are all tests performed during this period by an apprentice witnessed by a certified meter tester?  
 Yes  No  N/A

#### Section 18: Meter Test Records

Does the utility maintain a complete record of all meter tests and adjustments and data sufficient to allow checking of test calculations?  
 Yes  No  N/A

Do the records include the following?

Information to identify the unit and its location: Yes  No  N/A

Date of tests: Yes  No  N/A

Reason for the tests: Yes  No  N/A

Readings before and after test: Yes  No  N/A

Statement of "as found" and "as left" accuracies sufficiently complete to permit checking of calculations employed: Yes  No  N/A

Statement of repairs made, if any: Yes  No  N/A

Identifying number of the meter: Yes  No  N/A

Type and capacity of the meter: Yes  No  N/A

Does the utility maintain a complete record of tests of each meter continuous for at least two (2) periodic test periods and shall in no case be less than two (2) years? Yes  No  N/A

Does the utility maintain numerically arranged and properly classified records for each meter that it owns, uses, and inventories? Yes  No  N/A

Do these records include the following?

Identification number: Yes  No  N/A

Date of purchase: Yes  No  N/A

Name of manufacturer: Yes  No  N/A

## Kentucky Public Service Commission

### Periodic Compliance Inspection

Serial number: Yes  No  N/A

Type: Yes  No  N/A

Name and address of each customer on whose premises the meter has been in service with date of installation and removal: Yes  No  N/A

Do these records contain condensed information concerning all tests and adjustments including dates and general results of the adjustments? Yes  No  N/A

Do these records reflect the date of the last test and indicate the proper date for the next periodic test? Yes  No  N/A

#### Section 19: Request Tests

Does the utility make a test of a meter upon written request of a customer if the request is not made more frequently than once each twelve (12) months? Yes  No  N/A

Does the utility afford the customer the opportunity to be present at the requested test? Yes  No  N/A

If the tests show the as-found meter accuracy is within the limits allowed by 807 KAR 5:066, Section 15(2)(a), does the utility may make a reasonable charge for the test?

Yes  No  N/A

Has the utility filed a tariff (commission approved) establishing a meter test charge? Yes  No  N/A

#### Section 20: Access to Property

Do employees of the utility (whose duties require him to enter the customer's premises) wear a distinguishing uniform or other insignia, identifying them as an employee of the utility, and show a badge or other identification that shall identify them as an employee of the utility?

Yes  No  N/A

#### Section 23: System Maps and Records

Does the utility have on file at its principal office located within the state and shall file upon request with the commission a map or maps of suitable scale of the general territory it serves or holds itself ready to serve? Yes  No  N/A

Is the map or maps available in electronic format as a PDF file or as a digital geographic database? Yes  No  N/A

Is following data available on the map or maps?

Operating districts: Yes  No  N/A

Rate districts: Yes  No  N/A

## Kentucky Public Service Commission

### Periodic Compliance Inspection

Communities served: Yes  No  N/A

Location and size of distribution lines, and service connections:  
Yes  No  N/A

#### Section 24: Location of Records

Are all records required by 807 KAR Chapter 5 kept in the office of the utility and made available to representatives, agents, or staff of the commission upon reasonable notice at all reasonable hours?  
Yes  No  N/A

#### Section 25: Safety Program

Has the utility adopted and executed a safety program, appropriate to the size and type of its operations?  
Yes  No  N/A

At a minimum, does the safety program include the following?

A safety manual with written guidelines for safe working practices and procedures to be followed by utility employees: Yes  No  N/A

Instruct employees in safe methods of performing their work? Yes  No  N/A

Instruct employees who, in the course of their work, are subject to the hazard of electrical shock, asphyxiation, or drowning, in accepted methods of artificial respiration:  
Yes  No  N/A

#### Section 26: Inspection of Systems

Has the utility adopted inspection procedures to assure safe and adequate operation of the utility's facilities and compliance with KRS Chapter 278 and 807 KAR Chapter 5?  
Yes  No  N/A

Have these inspection procedures been filed with the commission for review?  
Yes  No  N/A

Upon receipt of a report of a potentially hazardous condition at a utility facility, does the utility inspect all portions of the system that are the subject of the report? Yes  No  N/A

Are appropriate records kept by a utility to identify the inspection made, the date and time of inspection, the person conducting the inspection, deficiencies found, and action taken to correct the deficiencies?  
Yes  No  N/A

Water utility inspections. Each water utility shall make systematic inspections of its system as established in paragraphs (a) through (c) of 807 KAR 5:006 Section 26(6) to insure that the commission's safety requirements are being met. These inspections shall be made as often as necessary but not less

## Kentucky Public Service Commission

### Periodic Compliance Inspection

frequently than as established in paragraphs (a) through (c) of 807 KAR 5:006 Section 26(6) for various classes of facilities and types of inspection.

The utility shall annually inspect all structures pertaining to source of supply for their safety and physical and structural integrity.

Does the utility inspect the structures listed below?

Dams	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Intakes	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Traveling screen	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>

Does the utility semiannually inspect the structures listed below?

Wells	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Well motors and structures	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Electric power wiring and controls	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

The utility shall annually inspect all structures pertaining to purification for their safety, physical and structural integrity, and for leaks.

Does the utility annually inspect the structures listed below?

Sedimentation basins	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Filters	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Clear Wells	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Chemical feed equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Pumping equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Water storage facilities	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Hydrants	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Mains	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Meters	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Meter settings	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Valves	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

Does the utility monthly inspect the equipment listed below for defects, wear, operational hazards, lubrication, and safety features?

# Kentucky Public Service Commission

## Periodic Compliance Inspection

Construction equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Vehicles	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

**Section 27: Reporting of Accidents, Property Damage, or Loss of Service**

Within two (2) hours following discovery does the utility notify the commission by telephone or electronic mail of a utility related accident that results in the following:

Death or shock or burn requiring medical treatment at a hospital or similar medical facility, or any accident requiring inpatient overnight hospitalization:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Actual or potential property damage of \$25,000 or more:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Loss of service for four (4) or more hours to ten (10) percent or 500 or more of the utility's customers, whichever is less:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Are summary written reports submitted by the utility to the commission within seven (7) calendar days of the utility related accident?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>

**Section 28: Deviations from Administrative Regulation:**

Has the utility been permitted by the commission to deviate from these administrative regulations?  
 Yes  No  N/A

### 807 KAR 5:011 (Tariffs)

**Section 12: Posting tariffs, Administrative Regulations, and Statutes**

Does the utility display a suitable placard, in large type, that states that the utility's tariff and statutes are available for public inspection?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Does the utility provide a suitable table or desk in its office or place of business on which the public may view all effective tariffs?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

**Section 13: Special Contracts**

Does the utility have any special contracts that establish rates, charges, or conditions of service not contained in its tariff?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
If yes has the utility filed, the special contracts with the PSC?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>

### 807 KAR 5:066 (Water)

**Section 2: Information Available to Customers:**

# Kentucky Public Service Commission

## Periodic Compliance Inspection

Does the utility provide the information listed below to any customer upon request?

A description in writing of chemical constitutes and bacteriological standards of the treated water as required by the Division of Water      Yes       No       N/A

Schedule of rates for water service      Yes       No       N/A

Method of reading meters      Yes       No       N/A

Past readings of a customer's meter for a period of two (2) years      Yes       No       N/A

### Section 3: Quality of Water

Is the utility in compliance with the Division of Water?      Yes       No       N/A

### Section 4: Continuity of Service

Does the utility immediately notify the fire chief if an emergency interruption of service affects service to any public fire protection device?      Yes       No       N/A

If the utility schedules an interruption of service are all customers notified that are affected by the interruption?      Yes       No       N/A

Does the utility have standby pumps capable of providing the maximum daily pumping demand?      Yes       No       N/A

Does the utility's minimum storage capacity equal the average daily consumption?      Yes       No       N/A

Does the utility keep a record of all interruption?      Yes       No       N/A

Does the record contain the information listed below?

Cause of interruption      Yes       No       N/A

Date      Yes       No       N/A

Time      Yes       No       N/A

Duration      Yes       No       N/A



# Kentucky Public Service Commission

## Periodic Compliance Inspection

Remedy and steps taken to prevent recurrence Yes  No  N/A

### Section 5: Pressure

Does the customer's service pipe under normal conditions fall below thirty (30) psig or static pressure exceed 150 psig? Yes  No  N/A

Does the utility have one (1) or more recording pressure gauges to make pressure surveys? Yes  No  N/A

Is the utility maintaining one (1) or more of these recording pressure gauges at some representative point on the utility's mains at a minimum of one (1) week per month in continuous service? Yes  No  N/A

Is the utility, at least once annually, making a survey of pressures in its distribution system? Yes  No  N/A

### Section 6: Water Supply Measurement

Has the utility installed a measuring device at each source of supply? Yes  No  N/A

### Section 7: Standards of Construction

Is the utility failing to operate its facilities so as to provide adequate and safe service to its customers due to water loss exceeding 15 percent? Yes  No  N/A

### Section 8: Distribution Mains

Are dead ends provided with a hydrant, flushing hydrant, or blowoff for flushing purpose? Yes  No  N/A

### Section 9: Service Lines

Does the utility inspect the customer's service line? Yes  No  N/A

Does the utility substitute its inspection for the proof of an inspection done by the appropriate state or local plumbing inspector? Yes  No  N/A

### Section 13: Measurement of Service

Does the utility meter all water sold? Yes  No  N/A

Does the utility have any flat water rates? Yes  No  N/A

Has the utility adopted a standard method of installing meters and service lines? Yes  No  N/A

# Kentucky Public Service Commission

## Periodic Compliance Inspection

**Section 15: Accuracy requirement of Water Meters**

Are all new meters, and any meter removed from service for any cause tested for accuracy prior to being placed into service?

Yes       No       N/A

Do the meters tested register within the accuracy limits specified in 807 KAR 5:066, Section 15 (2)(a)?

Yes       No       N/A

**Section 16: Periodic Tests**

Is the utility testing all water meters so that no meter remains in service without testing for a period longer than specified by the table in 807 KAR, Section 16 (1)?

Yes       No       N/A

**Section 17: Water Shortage Response Plan**

Has the utility submitted a copy of its Water Shortage Response Plan with the Commission?

Yes       No       N/A

**Section 18: Deviations from Administrative Regulation:**

Has the utility been permitted by the commission to deviate from these administrative regulations?

Yes       No       N/A

### 807 KAR 5:095 (Fire Protection Service for Water Utilities)

**Section 9**

Does the utility allow a utility to withdraw water from its distribution system for fire protection and training purposes at no charge?

Yes       No       N/A

Does the utility require a fire department to submit quarterly reports demonstrating its water usage?

Yes       No       N/A

Does the utility's tariff state the penalty to be assessed for failure to submit water usage reports?

Yes       No       N/A

# Kentucky Public Service Commission

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## Periodic Compliance Inspection

### Review of Facilities:

1.

**Tank: Dennis Tank**

**Capacity: 220,000 gallons**

**Condition: Lower half of exterior needs cleaned.**

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2.

**Tank: Cemetery Road**

**Capacity: 587,000 gallons**

**Condition: No visual issues.**

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3.

**Pump Station: Duncan Chapel Road**

**Condition: No visual issues.**

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# Kentucky Public Service Commission

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## Periodic Compliance Inspection

### Deficiency(ies)

Utility is failing to operate its facilities so as to provide adequate and safe service to its customers as required by 807 KAR 5:066, Section 7, due to water loss exceeding 15 percent.

### Additional Inspector Comments

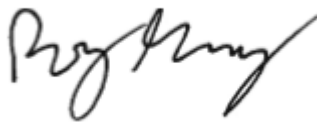
Utility is currently involved in a formal complaint case(Case No 2019-00295) due to pressure falling below 30 psi. Utility stated they discovered a valve only partially open that controls flow to the affected area of the complaint. The utility stated that the pressure stays above 30 psi under normal conditions after fully opening the valve. Pressure recordings at time of inspection showed pressure not falling below 30 psi.

Utility stated they have had three different certified distribution operators since 2015.

Comment: During this periodic regulatory compliance inspection, it was not possible to review/discuss every record relating to all Commission requirements. Therefore, in some instances the results contained in this report are indicative of those items inspected and reviewed on a sample basis.

Report by:

Date: October 22, 2019



Roy Gray

Utility Regulatory & Safety Investigator

Kentucky Public Service Commission

# Kentucky Public Service Commission

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## Periodic Compliance Inspection

Attachment(s): A.) Water Storage Tanks, Pump Stations, Master Meters, Water Loss Percent

B.) Pictures

# Kentucky Public Service Commission

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## Periodic Compliance Inspection

Attachment A

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# Kentucky Public Service Commission

## Periodic Compliance Inspection

### East Logan Water District

Water Storage Tanks	Capacity	Last Interior Insp	Last Exterior Insp
Cemetery Road	587,000	March, 2019	2019
Dennis	220,000	March, 2019	2019
Beech Land	320,000	March, 2019	2019
Total	1,127,000		

Pump Stations	# of Pumps	GPM
Duncan Chapel Road	2	150

Master Meters	Size	Last Tested
79 North	6"	May-19
Dennis	6"	May-19
Cemetery Road	6"	May-19
South Union	6"	May-19

	2018	2017	2016	2015	2014
Water Loss Percent	25.9	23.2	22.5	19.1	17.4

# Kentucky Public Service Commission

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## Periodic Compliance Inspection

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### Attachment B

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# Kentucky Public Service Commission

## Periodic Compliance Inspection



# Kentucky Public Service Commission

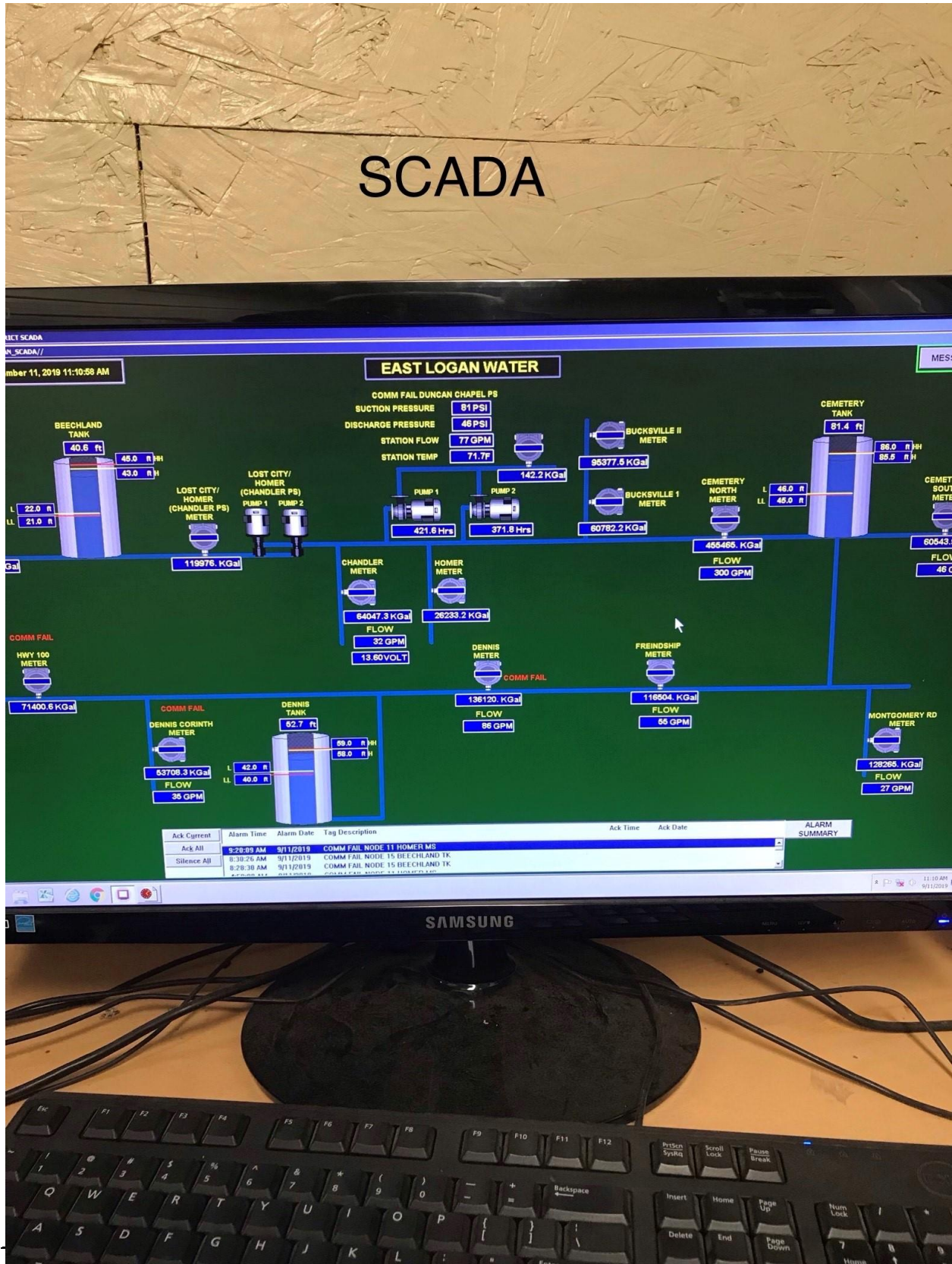
## Periodic Compliance Inspection



# Kentucky Public Service Commission

## Periodic Compliance Inspection

# SCADA



# Kentucky Public Service Commission

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## Periodic Compliance Inspection

**KENTUCKY PUBLIC SERVICE COMMISSION YEARLY COMPLIANCE INSPECTION**

**UTILITY:** EAST LOGAN WATER DISTRICT

**UTILITY LOCATION:** 333 SOUTH FRANKLIN STREET RUSSELLVILLE, KY 42276

**INVESTIGATOR:** ERIN DONGES

**DATE OF INSPECTION:** OCTOBER 19, 2020

**DATE OF LAST INSPECTION:** SEPTEMBER 11, 2019

**DEFICIENCIES NOTED DURING LAST INSPECTION:**

1. EAST LOGAN WATER DISTRICT IS FAILING TO OPERATE ITS FACILITIES SO AS TO PROVIDE ADEQUATE AND SAFE SERVICE TO ITS CUSTOMERS AS REQUIRED IN 807 KAR 5:066, SECTION 7, DUE TO WATER LOSS EXCEEDING 15 PERCENT. (2018-25.9%)

**UTILITY CONTACT:** LINDA ALEXANDER (MANAGER)

**EMAIL ADDRESS:** LINDA@EASTLOGANWATER.COM

**PHONE NUMBER:** (270) 717-0991

**CHAIRMAN:** HARRIS DOCKINS

**SOURCE WATER:** UTILITY PURCHASES ALL WATER NEEDED FOR ITS DISTRIBUTION SYSTEM.

**DISTRIBUTION SOURCE WATER:** UTILITIES DISTRIBUTION SYSTEM IS PROVIDED WITH WATER FROM LOGAN TODD REGIONAL WATER COMMISSION.

**AREA OF OPERATION:** LOGAN

**AVERAGE AMOUNT PURCHASED:** ACCORDING TO THE 2019 ANNUAL REPORT THE UTILITY PURCHASED 758,471 GALLONS OF WATER PER DAY.

**CUSTOMERS:** 3,186

**(COVID-19) INSPECTIONS CHECK LIST**

1. **CUSTOMER COMPLAINTS (5)**
2. **METER TEST BENCH CERTIFICATION (IF APPLICABLE)**
3. **MASTER METER TESTING**
4. **SAFETY MEETINGS AND CPR CERTIFICATION (CPR EXP 2021)**
5. **INSPECTION RECORDS (TANKS, PUMP STATIONS, WATER TREATMENT PLANT, VEHICLES, CONSTRUCTION EQUIPMENT, VALVES, METERS, WELLS)**
6. **PRESSURE CHARTS**
7. **LEAK LOG**
8. **MONTHLY WATER LOSS REPORTS (2020) (WATER LOSS 2019- 29.17%)**
9. **FLUSHING RECORDS(2020)**
10. **FIRE DEPARTMENT USAGE REPORTS (2020)**
11. **LIST OF WATER STORAGE TANKS, PUMP STATIONS, WELLS, MASTER METERS**
12. **WATER PURCHASE/WHOLESALE CONTRACTS**
13. **CURRENT CUSTOMER AND WHOLESALE RATE SHEET**
14. **LIST OF COMMISSIONERS (WATER BOARD), BACKGROUND, TERM EXPIRATION, HOW MANY YEARS ON BOARD**
15. **LAST CASE FILED WITH THE COMMISSION (2020-00220 PWA)**
16. **LAST RATE CASE FILED WITH THE COMMISSION (2008-00201)**
17. **QUARTERLY METER REPORTS (2020)**
18. **A LIST OF POTENTIAL CASES IN THE NEXT YEAR (NONE)**
19. **IF I HAVE CONTACTED YOU ABOUT SITE VISIT ADDRESSES THEN DISREGARD. IF NOT PLEASE LIST PHYSICAL ADDRESSES TO PUMP STATIONS AND WATER STORAGE TANKS**

**DEFICIENCY NOTED AT TIME OF INSPECTION:**

1. **EAST LOGAN IS FAILING TO OPERATE ITS FACILITIES SO AS TO PROVIDE ADEQUATE AND SAFE SERVICE TO ITS CUSTOMERS AS REQUIRED BY 807 KAR 5:066, SECTION 7, DUE TO WATER LOSS EXCEEDING 15 PERCENT. (2019-29.17%)**
2. **UTILITY HAS CUSTOMERS WITH ONE INCH AND SMALLER METERS THAT HAVE BEEN IN SERVICE FOR 10 YEARS WITHOUT BEING TESTED AS REQUIRED IN 807 KAR 5:066, SECTION 16(1) (1649 METERS)**

**REPORT BY:**

ERIN DONGES

**ERIN DONGES**

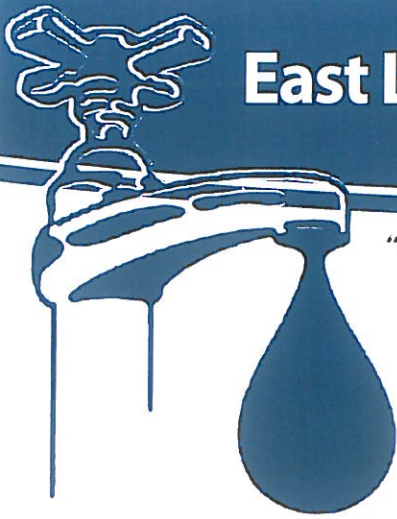
**UTILITY REGULATORY AND SAFETY INVESTIGATOR**

**KENTUCKY PUBLIC SERVICE COMMISSION**



**333 S. Franklin Street**  
**Russellville, KY 42276**  
**Office: 270-717-0991**  
**Fax: 270-717-0958**

# East Logan Water District



*"We Stand Behind Every Drop"*

TTY: (800) 648-6056

## COMMISSIONERS OF EAST LOGAN WATER DISTRICT

<u>Position</u>	<u>Name</u>	<u>Initial Appt.</u>	<u>Term Expires</u>	<u>Years on Bd.</u>
Chairman	Harris Dockins	1/13/2015	11/14/2021	6
Treasurer	Carroll Browning	02/1985	3/13/2022	35
Secretary	Loyd Houchens	5/24/2011	1/08/2022	9

*Equal Opportunity Provider and Employer*

15. ELWD's last case filed with the PSC was the Purchase Water Adjustment, Case 2020-00220
16. ELWD's last rate case filed with the PSC, I believe, would be 2008-00201.
18. A list of any potential cases in the next year. - None that I know of.

East Logan Water District has three glass lined storage tanks.

Cemetery Tank – located on Basham Lane off Cemetery Rd. in Auburn.

Dennis Tank – located on Dennis Corinth Rd in Auburn.

Beechland Tank is located on Beechland Rd. in Lewisburg

## WATER PURCHASE CONTRACT

This contract for the sale and purchase of water is entered into as of the 27<sup>th</sup> day of March, 2000, between the Logan Todd Regional Water Commission, 116 Southwest Park Square, Russellville, Kentucky 42276, hereinafter referred to as the "Seller," and the East Logan Water District, 399 East Main Street, Auburn, Kentucky 42206, hereinafter referred to as the "Purchaser."

### WITNESSETH:

Whereas, the Purchaser is a Water District, organized and established under the provisions of the Kentucky Revised Statutes, which operates a water supply distribution system serving water users within the District service area, and to accomplish this purpose, the Purchaser requires a supply of treated water, and;

Whereas, the Seller is organized under the provisions of KRS 74.420 to 74.520 and intends to construct and operate a water supply treatment and distribution system with a capacity sufficient to provide water service to the Purchaser, as well as other potential purchasers as may be or become members of the Logan Todd Regional Water Commission, and;

Whereas, by resolution No. — enacted on the 27<sup>th</sup> day of April, 2000 by the Seller, the sale of water to the Purchaser in accordance with the provisions of the said resolution was approved, and the execution of this contract carrying out the said resolution by the Chairman and attestation by the Secretary was duly authorized, and;

Whereas, by resolution No. — 1 of the Board of Commissioners of the Purchaser, enacted on the 27<sup>th</sup> day of March, 2000, the purchase of water from the Seller in accordance with the terms set forth in the said contract was approved, and the execution of this contract by the Chairman, and attestation by the Secretary was duly authorized;

Now therefore, in consideration of the foregoing and the mutual agreements hereinafter set forth,

#### A. The Seller Agrees:

1. (Quality and Quantity) To furnish the purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting the applicable purity standards of the Drinking Water Branch of the Division of Water, Department for Environmental Protection, Natural Resources and Environmental Protection Cabinet of the State of Kentucky in such quantity as may be required by the Purchaser, but not to exceed an amount which when combined with the usage of other customers of the Seller would exceed the Seller's water production capacity.

2. (Point of Delivery) That water will be furnished at a controlled pressure and flow rate sufficient to maintain the current normal operating pressure in the existing distribution system of the Purchaser. The water will be delivered to a point or points within the existing distribution system of the purchaser as may be required to achieve satisfactory hydraulic performance of both the Purchaser's and Seller's systems. If a greater pressure than that now required for normal operation of the Purchaser's system is required to correct deficiencies, or to accommodate future or extraordinary demands, the cost of providing such additional pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) To furnish, install, own, operate and maintain at its own expense the necessary metering equipment, including one or more meter enclosures and the required devices for properly and reliably measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment at least once every three years, or whenever requested by the Purchaser, but not more frequently than once every twelve months. A meter registering not more than 2% above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the six month period previous to the test, billings for the period shall be re-figured and the Purchaser's account credited or charged accordingly. If any meter fails to register for any period, the amount of water furnished during such period shall be estimated by any reasonable means agreeable to both the Purchaser and Seller. The metering equipment shall be read on the 25<sup>th</sup> day of each month. An appropriate official of the Purchaser shall have access to the meter at any reasonable time for the purpose of verifying its readings.

4. (Billing Procedure) To furnish the Purchaser at the above address not later than the first day of each month, an itemized statement of the amount of water furnished the Purchaser during the preceding month.

5. **(Establishment of Rates)** That pursuant to KRS 74.480(2), the Seller agrees to establish rates and charges for water supplied to the Purchaser and other entities represented by the Seller, sufficient at all times:

- (a) to pay the principal of and interest on any revenue bonds issued by the Seller pursuant to the provisions of KRS 74.420 to 74.520;
- (b) to pay the cost of operation and maintenance of the sources of supply of water (as defined in KRS 74.420); and
- (c) to provide an adequate fund for renewals, replacement and reserves.

**B. The Purchaser Agrees:**

1. **(Rates and Payment Date)** To pay the seller, not later than the 10<sup>th</sup> day of each month, for water delivered in accordance with the following table of rates:

- a. \$29,704.50 for the first 12,915,000 gallons, which rate shall be the minimum rate per month, and
- b. \$2.30 per 1,000 gallons for all water in excess of 12,915,000 gallons.

2. **(Connection Fee)** No connection fee will be charged to the Purchaser.

**C. It is further mutually agreed between the Seller and the Purchaser as follows:**

1. **(Delivery of Water)** That the Seller will give the Purchaser 30 days written notice of the estimated date of initial delivery of water, and at least 48 hours written notice of the time when water will be available for delivery to the Purchaser.

2. **(Term of Contract)** That this contract shall extend for a term of 50 years from the earlier of the date of initial availability of water for delivery by the Seller to the Purchaser or January 1, 2003, and, thereafter may be renewed or extended for such term or terms as may be agreed upon by the Seller and Purchaser.

3. **(Failure to Deliver)** That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required by the Purchaser. Temporary or partial failures to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or if the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to the Purchaser shall be reduced or diminished in the same proportion as the supply to the Seller's other customers is reduced or diminished. The Purchaser also agrees to take such steps as may be necessary to curtail water usage within its system in response to a shortage of water. Payments due Seller under this Contract shall continue to be due and payable by Purchaser for 6 months after a failure of Seller to deliver water to Purchaser. Seller agrees to use its best efforts to obtain business interruption insurance as part of its general property and liability insurance package, to cover the payments due hereunder for a period of 6 months following a failure by Seller to deliver water to Purchaser.

4. **(Nonpayment)** That in the event the Purchaser or any purchaser of water from the Seller shall fail to make any payment to Seller for the purchase of water and such failure results in a default by Seller under any of the provisions of the documentation relating to the issuance of indebtedness by the Seller, including any required debt service coverage ratio, then the Seller shall increase the rates charged hereunder and to all purchasers of water from the Seller, on a pro-rata basis, in an amount necessary, in the written opinion of a certified public accountant, to allow the Seller to meet its financial covenants under such documentation.

5. **(Modification of Contract)** That the provisions of this contract pertaining to the schedule of rates to be paid by the purchaser for water are subject to modification at the time of initiation of service, and at the end of every one year period thereafter, or at such time as mutually agreed to by the Purchaser and the Seller. Any increase or decrease in rates shall be based upon a demonstrable increase or decrease in the costs of performance hereunder, and such increase or decrease in rates shall be passed uniformly to all customers of the Seller. Other provisions of the contract may be modified or altered by mutual agreement.

6. **(Regulatory Agencies)** That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in the State of Kentucky and the Seller and Purchaser will collaborate in obtaining such permits, certifications or the like as may be required to comply therewith.

7. **(End-User Quality)** It is the intent of both the Purchaser and the Seller to deliver water to the ultimate consumer meeting all regulatory requirements for potable water. In the event of non-compliance with end-user quality standards, and if correction of the non-compliance can be most

feasibly and economically achieved through the actions of the Seller, the Seller shall undertake such changes in facilities, operations or other means as may be required to correct the non-compliance in a timely manner.

8. (Miscellaneous) That the construction of the water supply facilities by the Seller is being financed in part by a loan made or insured by, and/or a grant from the Rural Development agency of the US Department of Agriculture, and the provisions hereof pertaining to the undertakings of the Seller are conditioned upon the approval, in writing, of the Kentucky State Director of Rural Development.

9. (Successors) That in the event of any occurrence rendering either party to this contract incapable of performing its duties under this contract, any successor, whether the result of legal process, assignment or otherwise, shall succeed to the rights hereunder.

10. (Pledge) That this Contract and the revenues generated hereunder are pledged on a parity basis to (i) the United States of America acting through the Rural Development agency of the US Department of Agriculture, as part of the security for and to the extent of a loan from the United States of America; (ii) any holders of bonds or other indebtedness issued by the Seller to finance the costs of the Project; and (iii) any insurance company providing an insurance policy which insures the payment of principal and interest on any indebtedness issued by the Seller.

11. (Resale of Water) The Purchaser may not resale water to any other water system or water seller, nor may the Purchaser add any customer to its system that would increase average daily water demand or peak water demand within purchaser's system by over 25% without prior written approval of the Seller.

In witness whereof, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in two counterparts, each of which shall constitute an original.

Seller:  
Logan Todd Regional Water Commission

Purchaser:  
East Logan Water District

George W. Arnold, Chairman  
George W. Arnold, Chairman

Bill Stokes 3-27  
Bill Stokes, Chairman

Attest:

Attest:

Dwight French, Secretary  
Dwight French, Secretary

Rudy Shelton, Secretary  
Rudy Shelton, Secretary

STATE OF KENTUCKY  
COUNTY OF LOGAN

I, Blenda Allen a Notary Public in and for the State of Kentucky, do hereby certify that on this day personally appeared before me George W. Arnold and Bill Stokes, and acknowledged the signing hereof to be their voluntary act for the purposes and uses set forth.

Witness my hand this 17th day of May, 2000.

Blenda Allen  
Notary Public

My Commission Expires in COMMISSION EXPIRES

This contract is approved on behalf of USDA - Rural Development this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

By: \_\_\_\_\_

Title: \_\_\_\_\_

FOR Logan County, Kentucky  
Community, Town or City

P.S.C. KY. NO. 2

2nd revised SHEET NO. 4

East Logan Water District  
(Name of Utility)

CANCELLING P.S.C. KY. NO. 2

1st revised SHEET NO. 4

**RATES AND CHARGES**

Meter Size 5/8x3/4 Inch:

First	<u>2,000</u>	Gallons @	<u>\$ 21.67</u>	Minimum
Next	<u>2,000</u>	Gallons @	<u>\$ 10.28</u>	per 1,000 Gallons
Next	<u>2,000</u>	Gallons @	<u>\$ 9.85</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 8.63</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons

(R)  
↓

Meter Size 1-Inch :

First	<u>4,000</u>	Gallons @	<u>\$ 42.23</u>	Minimum
Next	<u>2,000</u>	Gallons @	<u>\$ 9.85</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 8.63</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons

(R)  
↓

Meter Size 1 1/2-Inch :

First	<u>6,000</u>	Gallons @	<u>\$ 61.93</u>	Minimum
Next	<u>4,000</u>	Gallons @	<u>\$ 8.63</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons

(R)  
↓

Meter Size 2-Inch :

First	<u>10,000</u>	Gallons @	<u>\$ 96.45</u>	Minimum
All Over	<u>10,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons

(R)  
↓

DATE OF ISSUE \_\_\_\_\_  
Month / Date / Year

DATE EFFECTIVE August 1, 2020  
Month / Date / Year

ISSUED BY [Signature]  
(Signature of Officer)

TITLE Chairman

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISSION  
IN CASE NO. 2020-00220 DATED 7/30/2020

<b>KENTUCKY</b> <b>PUBLIC SERVICE COMMISSION</b>
<b>Kent A. Chandler</b> Acting Executive Director 
EFFECTIVE <b>8/1/2020</b> PURSUANT TO 807 KAR 5.011 SECTION 9 (1)

FOR Logan County, Kentucky  
Community, Town or City

P.S.C. KY. NO. 2

Original SHEET NO. 4.1

East Logan Water District  
(Name of Utility)

CANCELLING P.S.C. KY. NO. \_\_\_\_\_

SHEET NO. \_\_\_\_\_

**RATES AND CHARGES**

Meter Size <u>3-Inch</u> :					(R)
First	<u>30,000</u>	Gallons @	<u>\$ 221.05</u>	Minimum	↓
All Over	<u>30,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons	↓
Meter Size <u>4-Inch</u> :					(R)
First	<u>50,000</u>	Gallons @	<u>\$ 345.65</u>	Minimum	↓
All Over	<u>50,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons	↓
Meter Size <u>6-Inch</u> :					(R)
First	<u>100,000</u>	Gallons @	<u>\$ 657.15</u>	Minimum	↓
All Over	<u>100,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons	↓
Meter Size <u>8-Inch</u> :					(R)
First	<u>150,000</u>	Gallons @	<u>\$ 968.65</u>	Minimum	↓
All Over	<u>150,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons	↓
Leak Adjustment			<u>\$3.33</u>	per 1,000 gallons	(R)

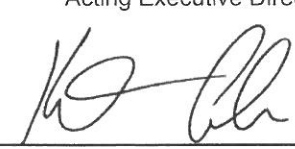
DATE OF ISSUE \_\_\_\_\_  
Month / Date / Year

DATE EFFECTIVE August 1, 2020  
Month / Date / Year

ISSUED BY *Hair Dorian*  
(Signature of Officer)

TITLE \_\_\_\_\_  
Chairman

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISSION  
IN CASE NO. 2020-00220 DATED 7/30/2020

<b>KENTUCKY</b> <b>PUBLIC SERVICE COMMISSION</b>
<b>Kent A. Chandler</b> Acting Executive Director 
EFFECTIVE <b>8/1/2020</b> PURSUANT TO 807 KAR 5:011 SECTION 9 (1)



## EAST LOGAN WATER DISTRICT

### Response to Logan Telephone Cooperative's First Request for Information Case No. 2021-00248

Question No. 23

Responding Witness: Ethan Hudson

**Q-23. Identify East Logan's current "position" regarding the marking of its facilities. Your answer should include whether East Logan's position has changed since its August 25, 2020 meeting of its Board of Commissioners in which it agreed that East Logan "should not put marking on the ground if 'guessing' where the line is, which would be the situation for [East Logan's] water lines."**

A-23. East Logan Water District's present policy is to respond and provide a positive response to a normal excavation locate request, within two (2) working days after receiving notification from an excavator. A positive response includes advising the excavator that East Logan District has no facilities in the area or to mark the area with temporary underground facility markers.

If the request involves an unmapped or untonable facility request, East Logan Water District will notify the excavator that the excavation area has been determined to be an unmapped or untonable project. It will provide a positive response within five working days of the request, if a normal locate request, and within eight working days for a large project request from the later of receiving notification from an excavator or prior to the scheduled excavation start date if agreed upon as provided in KRS 367.4917(7). A positive response will involve marking the area with temporary underground facility markers. East Logan Water District will locate the unmapped or untonable facility as accurately as possible from field location records and other available locating methods and will advise the excavator of any inability to provide a precise location.

With regard to locating underground facilities for large projects, such as Logan Telephone Cooperative's FTTH deployments, East Logan Water District believes that a pre-construction conference sufficiently in advance of the start of such deployments will improve the District's ability to provide accurate and timely locates. It will allow the District to map in greater detail the areas where excavating contractors will be installing fiber cable and to plan the use of its resources in manner to reasonably meet the locate requests arising from the requesting party's schedule. East Logan Water District further believes that identifying specific persons who are available to discuss locate problems, address locate questions, and have the authority to act to resolve any disputes will improve communication between the persons performing the locate and excavation work and avoid potential conflicts.

East Logan Water District acknowledges that, with the exception of its position on the need for advanced preconstruction conferences, this position may differ somewhat from its

earlier positions before amendments to the Underground Facility Damage Prevention Act became effective on January 1, 2022.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 24

Responding Witness: Earn Brown

**Q-24. Produce any and all internal communications between East Logan employees, agents, commissioners, and/or officials from January 1, 2019 to the present regarding the marking of its facilities in response to locate requests.**

A-24. A search of East Logan Water District's records did not locate any of the requested documents.

**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 25

Responding Witness: Earn Brown

- Q-25. Produce any and all internal communications between East Logan employees, agents, commissioners, or officials from January 1, 2019 to the present regarding Logan Telephone, North Central Service, Inc., Finley Engineering Company, Inc., or any other known agent, employee, or contractor for Logan Telephone.**
- A-25. See attached e-mail messages.

## Wuetcher, Gerald

---

**From:** Earn Brown <earn@eastloganwater.com>  
**Sent:** Wednesday, December 28, 2022 3:32 PM  
**To:** Wuetcher, Gerald  
**Subject:** Fwd: Statue  
**Attachments:** statute.pdf

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

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## Email to Courtney

----- Forwarded message -----

From: **Susan Urbanec** <[northcentralservice@yahoo.com](mailto:northcentralservice@yahoo.com)>  
Date: Thu, Sep 17, 2020 at 8:21 AM  
Subject: Statue  
To: Courtney Saunders <[courtney@eastloganwater.com](mailto:courtney@eastloganwater.com)>, Thadd Kistler <[tkistler@loganphone.com](mailto:tkistler@loganphone.com)>

Dear Courtney Sanders:

Please find attached statue367.4909, a portion of which you stated in your locate response to our locate requests.

This statue identifies the difference between a design locate and a normal locate. Our tickets are **normal** locate tickets **NOT design** locate tickets.

As indicated in the statue, with a normal locate request you have two full working days to mark your lines as requested. Section 6 a-d highlight what marking your lines entails.

Daryl Holter  
North Central Service

--  
**Earn Brown**  
**Office Manager**  
**270-893-1045**



**Wuetcher, Gerald**

---

**From:** Earn Brown <earn@eastloganwater.com>  
**Sent:** Wednesday, December 28, 2022 3:32 PM  
**To:** Wuetcher, Gerald  
**Subject:** Fwd: Statue

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

---

Email from Courtney

----- Forwarded message -----

From: **Courtney Saunders** <[courtney@eastloganwater.com](mailto:courtney@eastloganwater.com)>  
Date: Thu, Sep 17, 2020 at 9:56 AM  
Subject: Re: Statue  
To: Susan Urbanec <[northcentralservice@yahoo.com](mailto:northcentralservice@yahoo.com)>  
Cc: Thadd Kistler <[tkistler@loganphone.com](mailto:tkistler@loganphone.com)>

**Dear Daryl Holter & Thadd Kistler,**

**ELWD lines were installed before 2013, meaning that we do not have a way to accurately locate our lines from the surface. ELWD purchased an easement for all of our lines. It is my understanding that you are not allowed to lay any other utility in our easement, and that it must be laid minimum of 5 foot away, per the deeds that have this notation on them. ELWD has tried to comply the best that we can with all requests, but if we cannot accurately locate our lines from the surface, we are not required to dig to uncover any lines. Tim Vaughn from KY 811 also offered to have a meeting with both LTC Connect and ELWD to go over all of this information with everyone, to which LTC Connect did not respond.**

**367.4909 Operator to provide protection notification center access to excavators -- Kentucky Contact Center -- Report of excavation damage -- Rejection of design information request -- Color coding for temporary underground facility markers -- Operator's inability to comply due to extraordinary circumstances - - Underground facilities installed after January 1, 2013.**

(11) All underground facilities installed after January 1, 2013, shall include a means to accurately identify and locate the underground facilities from the surface. This subsection does not apply to the repair of existing facilities.

As used in KRS 367.4903 to 367.4917:

(11) "Approximate location," when referring to an underground facility, means: (a) For underground metallic facilities and underground nonmetallic facilities with metallic tracer wire, a distance not to

exceed the combined width of the underground facility plus eighteen (18) inches measured from the outer edge of each side of the underground facility; or (b) For nonmetallic facilities without metallic tracer wire, the underground facility shall be located as accurately as possible from field location records and shall require notification from the operator of the inability to accurately locate the facility;

On Thu, Sep 17, 2020 at 8:21 AM Susan Urbanec <[northcentralservice@yahoo.com](mailto:northcentralservice@yahoo.com)> wrote:

Dear Courtney Sanders:

Please find attached statue367.4909, a portion of which you stated in your locate response to our locate requests.

This statue identifies the difference between a design locate and a normal locate. Our tickets are **normal** locate tickets **NOT design** locate tickets.

As indicated in the statue, with a normal locate request you have two full working days to mark your lines as requested. Section 6 a-d highlight what marking your lines entails.

Daryl Holter  
North Central Service

--

**Courtney B. Saunders**



--

**Earn Brown**  
**Office Manager**  
**270-893-1045**



**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 26

Responding Witness: Ethan Hudson

**Q-26. Identify all facility-locate training (whether by Kentucky 811 or any other entity) that East Logan has undertaken since 2017 and provide any materials provided to East Logan in connection with same.**

A-26. East Logan Water District has no records of facility locate training provide to its field personnel prior to 2022. Its current field employees received locate training in Summer 2022 from its locating equipment vendor.



**EAST LOGAN WATER DISTRICT**

**Response to Logan Telephone Cooperative's First Request for Information  
Case No. 2021-00248**

Question No. 27

Responding Witness: Ethan Hudson

**Q-27. Please explain how East Logan believes a “tolerance zone” (as defined at KRS 367.4903(25)) can be identified if facilities are not marked by the owner of the facility.**

A-27. East Logan Water District does not take the position that a tolerance zone can be identified if facilities are not marked by the owner. It agrees that the owner of underground facilities must mark the location of its facilities. If the underground facilities in question are unmapped or untonable facilities, they must be located as accurately as possible from field location records and the excavator must be notified of the inability of the owner of the facility to accurately locate the facility.