

2018 State Damage Prevention Program Grants Progress Report
CFDA Number: 20.720

Award Number: 693JK31840005PSDP

Project Title: State Damage Prevention (SDP) Program Grants - 2018

Date Submitted: June 11, 2019

Submitted by: Rick Pevarski

Specific Objective(s) of the Agreement

Under this grant agreement, the recipient will:

Launch a pilot program exploring ways to add augmented reality images, or “experiences,” to the ticket taking process. Within this pilot program, partnering utilities, excavators, and locators can create augmented reality experiences detailing information about excavation sites. (Elements 1-9)

Workscope

Under the terms of this grant agreement, the Recipient will address the following applicable elements listed in the approved application, pursuant to 49 U.S.C. §60134 (a), (b).

- Element 1 (Effective Communications): Participation by operators, excavators, and other stakeholders in developing and implementing methods for establishing and maintaining effective communications between stakeholders—from receipt of an excavation notification to successful completion of the excavation, as appropriate. (Applicable)
- Element 2 (Comprehensive Stakeholder Support): A process for fostering and ensuring the support and partnership of stakeholders, including excavators, operators, locators, designers, and local government in all phases of the program. (Applicable)
- Element 3 (Operator Internal Performance Measurement): A process for reviewing the adequacy of a pipeline operator’s internal performance measures regarding persons performing locating services and quality assurance programs. (Applicable)
- Element 4 (Effective Employee Training): Participation by operators, excavators, and other stakeholders in developing and implementing effective employee training programs to ensure that operators, the one-call center, the enforcing agency, and the excavators have partnered to design and implement training for the employees of operators, excavators, and locators. (Applicable)
- Element 5 (Public Education): A process for fostering and ensuring active participation by all stakeholders in public education for damage prevention activities. (Applicable)

- Element 6 (Dispute Resolution): A process for resolving disputes that defines the State authority's role as a partner and facilitator to resolve issues. (Applicable)
- Element 7 (Enforcement): Enforcement of State damage prevention laws and regulations for all aspects of the damage prevention process, including public education, and the use of civil penalties for violations assessable by the appropriate State authority. (Applicable)
- Element 8 (Technology): A process for fostering and promoting the use, by all appropriate stakeholders, of improving technologies that may enhance communications, underground pipeline locating capability, and gathering and analyzing information about the accuracy and effectiveness of locating programs. (Applicable)
- Element 9 (Damage Prevention Program Review): A process for review and analysis of the effectiveness of each program element, including a means for implementing improvements identified by such program reviews. (Applicable)

Accomplishments for this period (Item 1 under Article IX, Section 9.01 Progress Report: “A comparison of actual accomplishments to the objectives established for the period.”)

The following is a list of accomplishments thus far:

1. Vendor selected
 - a. Prostar
2. Contracts signed
 - a. Executed Professional Services Agreement with Vendor
3. Completed the Statement/Scope of Work with the vendor
4. Completed the Story Board of the Augmented Reality application
5. In development stage

Quantifiable Metrics/Measures of Effectiveness (Item 2 under Article IX, Section 9.01 Progress Report: “Where the output of the project can be quantified, a computation of the cost per unit of output.”)

The project is currently in the development stage therefore there is no quantifiable measurements currently other than to show the story board and how the development is proceeding: Below you will find the story board of the Augmented Reality application:

1 Purpose

The purpose of this storyboard is to introduce the use of Augmented Reality (AR) to improve the ability of the excavator to communicate the planned excavation details to the Locate Service Provider's onsite locate technicians by enhancing the current Web Ticket Request process.

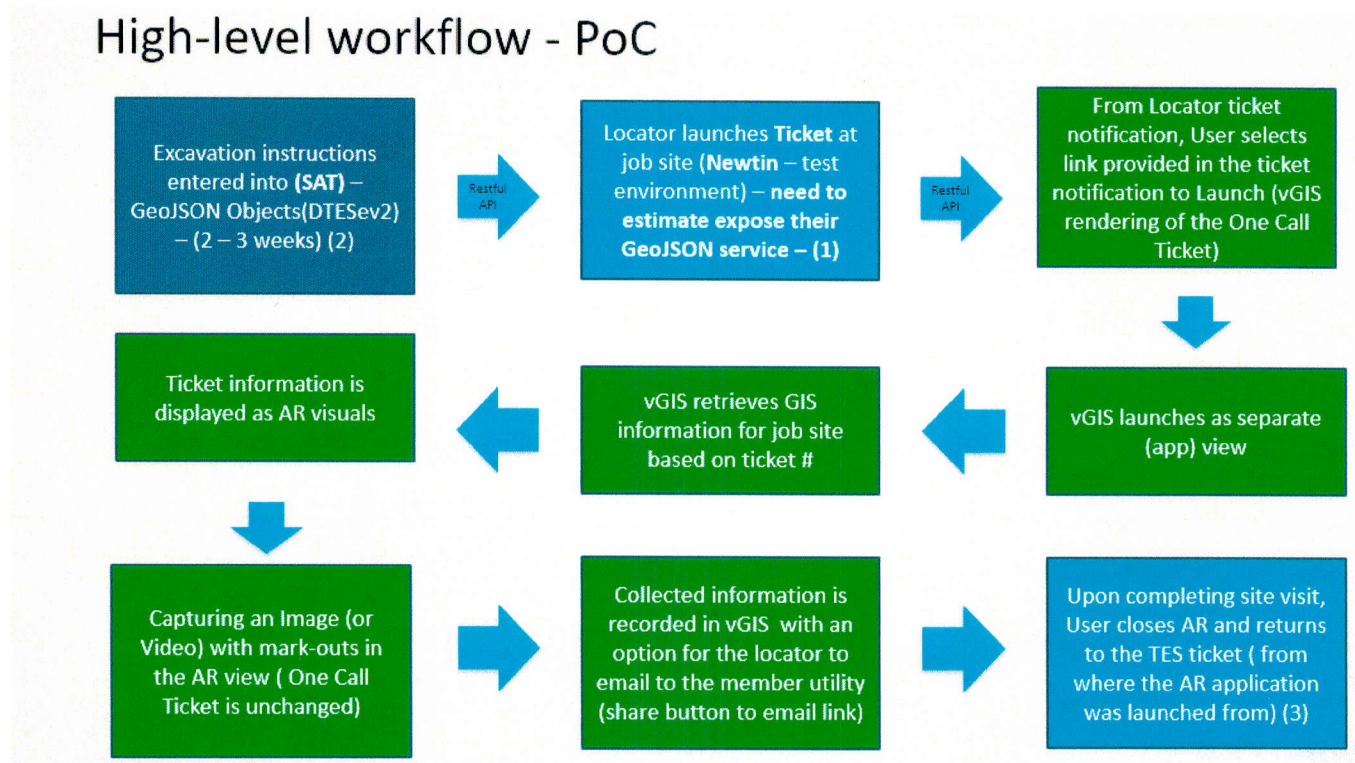
2 Background

The existing VA811 ticket requests have had significant functionality additions that will allow excavators to identify the location and nature of the proposed excavation activity by placing specific features on a map. The icons are geospatial objects such as polygons, lines and point features that are being plotted within the parcel boundaries on Single Address Tickets (SAT) by the excavator. This function lends itself to not only rendering the features in a two-dimensional map display but can be used to provide input for an Augmented Reality experience for the locate

technician responding to the locate request. The business value of this technology is provided by improving communications between the excavator and the Locate Service provider in a damage prevention scenario.

3 Process Flow

The process work flow is as follows:

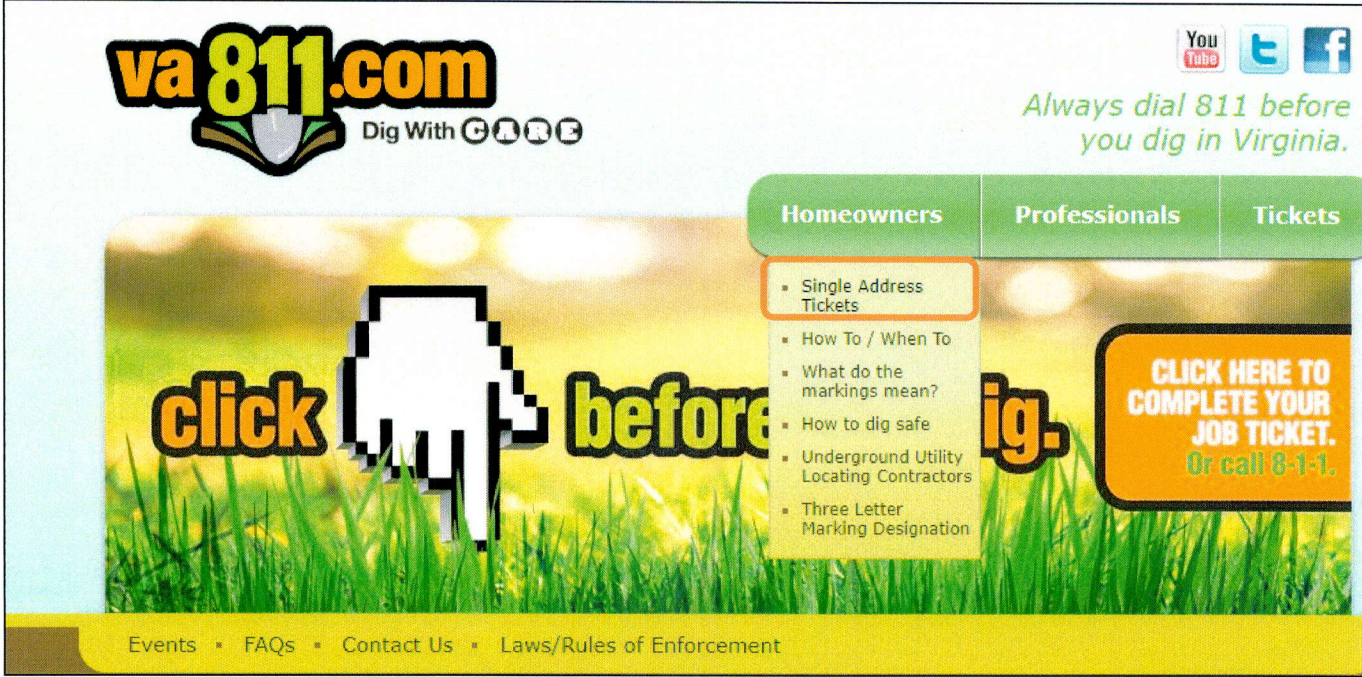


4 Process Steps

The existing Single Address Ticket Request functionality will provide the inputs required to allow the locator to view the proposed work location and the nature of the work in an onscreen display when at the location of the excavation.

4.1 Web Ticket Request provides AR content

The process is initiated by the excavator when they create a Single Address Ticket request that is accessed via the Virginia One Call Center website.



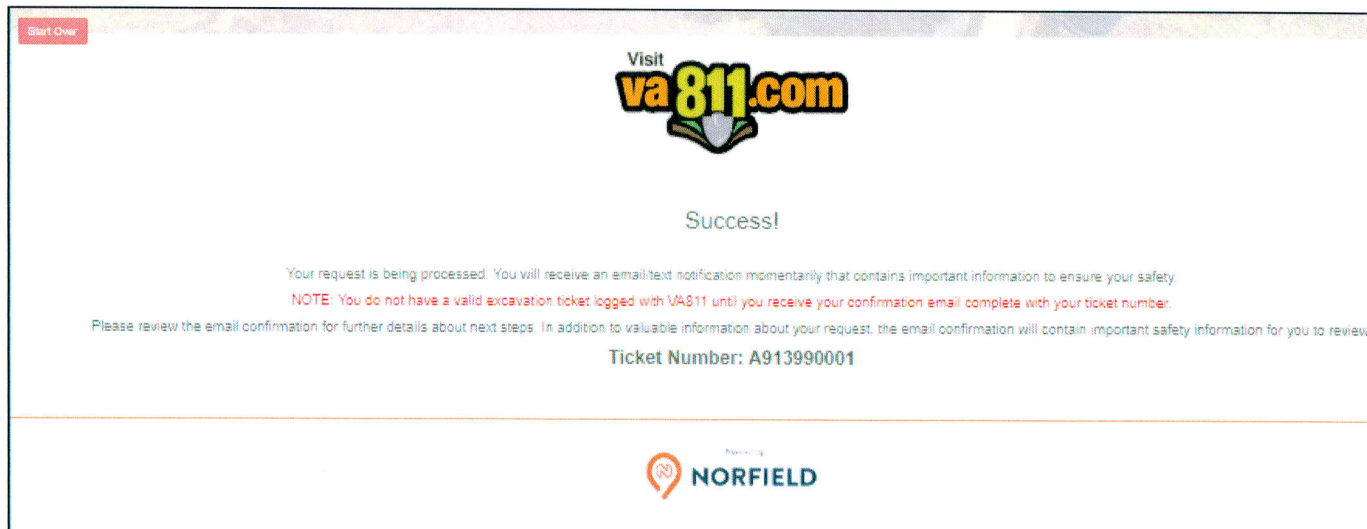
The user is then able to identify whether they are a Homeowner or a Contractor to access the form that is used to capture the details appropriate for them to enter.



Enters the dig site address and using an icon library in the upper right, identifies the nature and location of the work. These icons are mapped to equivalent icons in the Augmented Reality application and their locations are captured and sent along with the icons to the AR application. This provides the excavator a rich visual method to convey the site and nature of the work to the locate technician.

Bar

When the user submits the request, they receive a response with their ticket number identified.



The ticket request containing the GeoJSON objects required by AR are persisted in the database. Both the nature and location of the work items are captured and made available to the Augmented Reality application via an API that is embedded in the ticket notification that is sent via email to the member utility and the locator.

4.2 AR Link provided in Locate Notification email

When the email is generated to the member utility, they will forward that notification to the Locate Service Provider. The locate technician performing the locate will drive to the site, open the Augmented Reality Application on their mobile device by selecting the AR link provided in the email notification. If they are within 75 meters of the identified dig site location, the AR experience will be launched, and they will be able to view the proposed works on the mobile device view screen.

4.3 Render proposed works in AR.

- Provide a visual communication tool from the excavator to better convey the proposed works to the locator.

Value

- Locator is provided a content rich view of the nature and location of proposed work items.

4.4 Capture locate mark-outs in the AR view

- Locator has a method to document the utility mark-outs and show their locations relative to each of the proposed work items identified in the ticket request from the excavator.

Value

- When the locator has completed their mark-out of the utilities, they will then be able to relaunch the AR view and capture an image of their mark-outs with the AR object superimposed to show the relative positioning of the work items and mark-outs.
- The locator will then be able to send the AR enhanced image via email to the member utility or Locate Service Provider for their records.

5 Summary

The use of Augmented Reality (AR) will provide a contextually rich visual communication channel that the excavator can utilize to ensure that the locator is better informed on the location and nature of the proposed work when on the dig site. This ability is provided by leveraging functionality in the existing web ticket request being deployed at Virginia 811 by using information that is already being provided by the excavator and making it available to the Augmented Reality software application. To render the AR experience, the locator is provided with a link in the existing ticket notification that they can select when at the worksite that will launch the AR application that they have installed on their mobile device. This same AR application will allow the locate technician to capture an image of the locate mark-outs at the site with the AR imagery superimposed based on the information provided by the excavator via the web ticket request. This image will then be available to form part of the permanent record for that locate.

Issues, Problems or Challenges (Item 3 under Article IX, Section 9.01 Progress Report: “The reasons for slippage if established objectives were not met. “)

Virginia Utility Protection Service, Inc. discovered utilization of the camera Augmented Reality tools are cost prohibitive. We do anticipate with time that this functionality will go to open source code thus reducing price however, this will occur post-project and will not be included in this proof of concept pilot project.

Mid-term Financial Status Report

Deliverable	Price	Object Class Category
Setup and configuration of the Augmented Reality Prostar Solution	\$25,000	Contractual
Requirements and gathering	\$25,000	Contractual

See Appendix A – Mid-term Financial Status Report for invoices and payments and SF 425.

Plans for Next Period (Remainder of Grant)

Virginia Utility Protection Service plans to continue working with Prostar to complete the development and testing of the Augmented Reality application. Upon completion a pilot program will be performed.

Requests of the AOR and/or PHMSA
No actions requested at this time.

Appendix A – Mid-term Financial Status Report

Federal Financial Report

(Follow form Instructions)

OMB Control Number: 4040-0014

Expiration Date: 2/28/2022

1. Federal Agency and Organizational Element to Which Report is Submitted US Department of Transportation Pipeline and Hazardous Materials Administration		2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment) 693JK31840005PSDP	
3. Recipient Organization (Name and complete address including Zip code) Recipient Organization Name: Virginia Utility Protection Service, Inc. Street1: 1829 Blue Hills Circle NE Street2: City: Roanoke County: State: VA: Virginia Province: Country: USA: UNITED STATES ZIP / Postal Code: 24012-8661			
4a. DUNS Number 146011619	4b. EIN 55-0859075	5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment) 	
6. Report Type <input type="checkbox"/> Quarterly <input type="checkbox"/> Semi-Annual <input type="checkbox"/> Annual <input type="checkbox"/> Final	7. Basis of Accounting <input type="checkbox"/> Cash <input type="checkbox"/> Accrual	8. Project/Grant Period From: 09/28/2018 To: 09/28/2019	9. Reporting Period End Date 06/11/2019
10. Transactions <i>(Use lines a-c for single or multiple grant reporting)</i> Federal Cash (To report multiple grants, also use FFR attachment): a. Cash Receipts 0.00 b. Cash Disbursements 0.00 c. Cash on Hand (line a minus b) 0.00 <i>(Use lines d-o for single grant reporting)</i> Federal Expenditures and Unobligated Balance: d. Total Federal funds authorized 100,000.00 e. Federal share of expenditures 0.00 f. Federal share of unliquidated obligations 0.00 g. Total Federal share (sum of lines e and f) 0.00 h. Unobligated balance of Federal Funds (line d minus g) 100,000.00 Recipient Share: i. Total recipient share required 0.00 j. Recipient share of expenditures 0.00 k. Remaining recipient share to be provided (line i minus j) 0.00 Program Income: l. Total Federal program income earned 0.00 m. Program Income expended in accordance with the deduction alternative 0.00 n. Program Income expended in accordance with the addition alternative 0.00 o. Unexpended program income (line l minus line m or line n) 0.00			Cumulative

11. Indirect Expense						
a. Type	b. Rate	c. Period From	Period To	d. Base	e. Amount Charged	f. Federal Share
<div style="border: 1px solid black; height: 25px;"></div>	<div style="border: 1px solid black; width: 40px; height: 20px;"></div>	<div style="border: 1px solid black; width: 80px; height: 20px;"></div>	<div style="border: 1px solid black; width: 80px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>
<div style="border: 1px solid black; height: 25px;"></div>	<div style="border: 1px solid black; width: 40px; height: 20px;"></div>	<div style="border: 1px solid black; width: 80px; height: 20px;"></div>	<div style="border: 1px solid black; width: 80px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>
g. Totals:				<div style="border: 1px solid black; width: 140px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>	<div style="border: 1px solid black; width: 140px; height: 20px;"></div>
12. Remarks: <i>Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation:</i> <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div> <div style="display: flex; justify-content: flex-end; gap: 10px; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px 5px;">Add Attachment</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: #f0f0f0;">Delete Attachment</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: #f0f0f0;">View Attachment</div> </div>						
13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the Federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).						
a. Name and Title of Authorized Certifying Official <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>Prefix: <div style="border: 1px solid black; padding: 0 10px;">Mr.</div></div> <div>First Name: <div style="border: 1px solid black; padding: 0 20px;">Rick</div></div> <div>Middle Name: <div style="border: 1px solid black; padding: 0 20px;">F</div></div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>Last Name: <div style="border: 1px solid black; padding: 0 20px;">Pevarski</div></div> <div>Suffix: <div style="border: 1px solid black; width: 80px; height: 20px;"></div></div> </div> <div style="margin-top: 5px;">Title: <div style="border: 1px solid black; padding: 0 20px;">President & CEO</div></div>						
b. Signature of Authorized Certifying Official <div style="border: 1px solid black; height: 40px; position: relative; margin-top: 5px;"> </div>				c. Telephone (Area code, number and extension) <div style="border: 1px solid black; padding: 2px; margin-top: 5px;">(540) 283-2520</div>		
d. Email Address <div style="border: 1px solid black; padding: 2px; margin-top: 5px;">rpevarski@va811.com</div>				e. Date Report Submitted <div style="border: 1px solid black; padding: 2px; margin-top: 5px;">06/11/2019</div>		14. Agency use only:



ProStar GeoCorp, Inc.
760 Horizon Drive, Suite 200
Grand Junction, CO 81506
(970) 242-4024

Invoice

BILL TO

Virginia Utility Protection
Service, Inc.
1829 Blue Hills Circle, NE
Roanoke, VA 24012

INVOICE # 1422

DATE 03/12/2019

DUE DATE 03/12/2019

TERMS Due on receipt

DATE	DESCRIPTION	AMOUNT USD
03/12/2019	As per the Professional Services Agreement and SOW February 1, 2019	25,000.00

Phase I: Setup and configuration of the ProStar Solution to meet VA811 requirements

BANKING INFO for direct/electronic depositing:

ProStar GeoCorp, Inc.
routing #107002448
account #2600715166
(Bank of Colorado, 200 Grand Avenue, Grand Junction, CO 81501)

BALANCE DUE

\$25,000.00

Acct # 1301 Dept. IT
Desor Payment 1 of 4 For AR
Software (GRANT)
Amt 25,000.00 Apprv [Signature]
Accounting Use:
Check # _____ Date _____



Virginia Utility Protection Service, Inc.
1829 Blue Hills Circle N.E.
Roanoke, VA 24012

WELLS FARGO BANK, N.A.
www.wellsfargo.com
68-54/514

16086

3/21/2019

PAY TO THE ORDER OF ProStar GeoCorp, Inc.

\$ **25,000.00

Twenty-Five Thousand and 00/100*****

DOLLARS

ProStar GeoCorp, Inc.
760 Horizon Drive, Suite 200
Grand Junction, CO 81506

AUTHORIZED SIGNATURE

MEMO

Inv #1422; Pmt 1 of 4 for AR Software Grant

⑈0000016086⑈ ⑆051400549⑆ 2000015276458⑈

SERVICE, INC. VIRGINIA UTILITY PROTECTION SERVICE INC

16086

Date	Type	Reference	Original Amt	Balance Due	3/21/2019 Discount	Payment
3/12/2019	Bill	1422	25,000.00	25,000.00		25,000.00
				Check Amount		25,000.00

Wells Fargo Checking Inv #1422; Pmt 1 of 4 for AR Software Grant

25,000.00

SERVICE, INC. VIRGINIA UTILITY PROTECTION SERVICE INC

16086

Date	Type	Reference	Original Amt	Balance Due	3/21/2019 Discount	Payment
3/12/2019	Bill	1422	25,000.00	25,000.00		25,000.00
				Check Amount		25,000.00

Wells Fargo Checking Inv #1422; Pmt 1 of 4 for AR Software Grant

25,000.00



ProStar GeoCorp, Inc.
760 Horizon Drive, Suite 200
Grand Junction, CO 81506
(970) 242-4024

Invoice

BILL TO

Virginia Utility Protection
Service, Inc.
1829 Blue Hills Circle, NE
Roanoke, VA 24012

INVOICE # 1427

DATE 03/21/2019

DUE DATE 03/21/2019

TERMS Due on receipt

DATE	DESCRIPTION	AMOUNT USD
03/21/2019	As per the Professional Services Agreement and SOW February 1, 2019	25,000.00

Phase II: Requirements gathering to complete work to date and confirm
VA811 project requirements

BANKING INFO for direct/electronic depositing:

ProStar GeoCorp, Inc.
routing #107002448
account #2600715166
(Bank of Colorado, 200 Grand Avenue, Grand Junction, CO 81501)

BALANCE DUE

\$25,000.00

Acct # 1201 Dept: IS
Descr: PAYMENT 2 of 4 for
AR Software
Amt 25,000.00 APPR [Signature]
Accounting Use:
Check # _____ Date _____



Virginia Utility Protection Service, Inc.
1829 Blue Hills Circle N.E.
Roanoke, VA 24012

WELLS FARGO BANK, N.A.
www.wellsfargo.com
68-54/514

16089

3/21/2019

PAY TO THE ORDER OF ProStar GeoCorp, Inc.

\$ **25,000.00

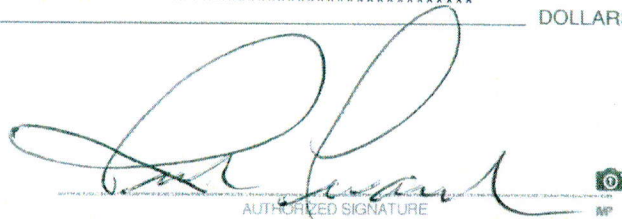
Twenty-Five Thousand and 00/100*****

DOLLARS

ProStar GeoCorp, Inc.
760 Horizon Drive, Suite 200
Grand Junction, CO 81506

MEMO

Inv #1427; Pmt 2 of 4 for AR Software Grant


AUTHORIZED SIGNATURE

⑈0000016089⑈ ⑆051400549⑆ 2000015276458⑈

SERVICE, INC. VIRGINIA UTILITY PROTECTION SERVICE INC

16089

ProStar GeoCorp, Inc.

Date	Type	Reference
3/21/2019	Bill	1427

Original Amt.
25,000.00

Balance Due
25,000.00

3/21/2019

Discount

Check Amount

Payment
25,000.00
25,000.00

Wells Fargo Checking Inv #1427; Pmt 2 of 4 for AR Software Grant

25,000.00

SERVICE, INC. VIRGINIA UTILITY PROTECTION SERVICE INC

16089

ProStar GeoCorp, Inc.

Date	Type	Reference
3/21/2019	Bill	1427

Original Amt.
25,000.00

Balance Due
25,000.00

3/21/2019

Discount

Check Amount

Payment
25,000.00
25,000.00

Wells Fargo Checking Inv #1427; Pmt 2 of 4 for AR Software Grant

25,000.00