GIS & GPS

To Facilitate Property Transfer
Fort McPherson, GA

November 2017

Presented by
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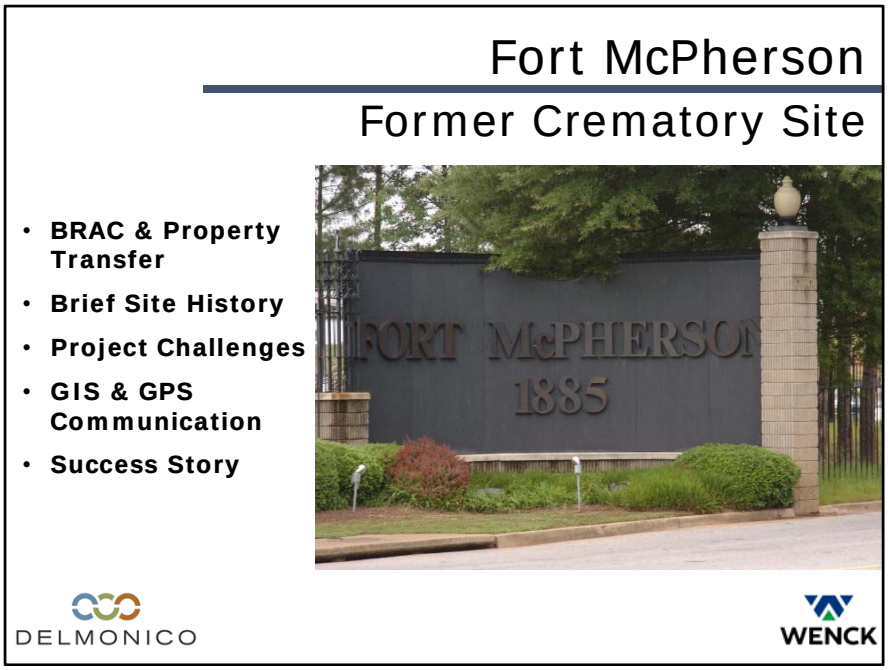


Speaker #1: Introduces herself and gets the audience's attention by telling a short funny story about the challenge of working with Speaker #2.

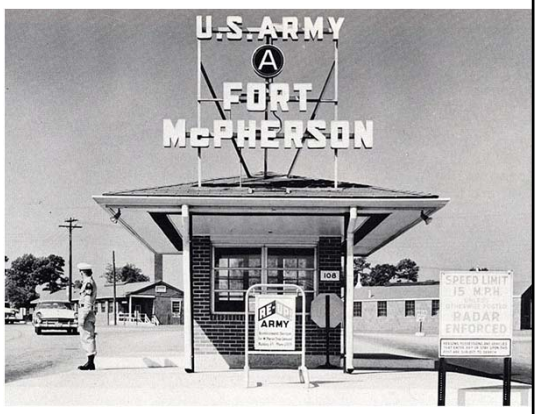
Speaker #1: The objective of this workshop presentation will be to illustrate the use of GIS and GPS technologies and software to facilitate effective communication with the customer to allow timely transfer of property for redevelopment.

Speaker #1: This presentation will present a brief site history, a summary of the scope of the interim removal action, and describe in detail the integral role real-time use of GIS and GPS technology had on the project.

Fort McPherson

Background

- **Est. 1885**
- **BRAC 2007-2011**
- **Installation Parceled**
- **Categorize / Transfer**
- **MILRA**



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Speaker #1: This presentation will demonstrate that real-time information sharing with the Army, Army HQ, MILRA, TPS was critical to determine the extent of unanticipated expanded impacted material boundaries and under structures so transfer of adjoining land could be accomplished.

Speaker #1: This presentation will present a brief site history, a summary of the scope of the interim removal action, and describe in detail the integral role real-time use of GIS and GPS technology had on the project.

Former Crematory Site

Background

- **SI – Extent 1.8 acres (Feb 2015)**
- **IRA – Ash, Debris, Lead Impacts**
- **IRA 2015-2016**
- **Surrounding property transferred during IRA**

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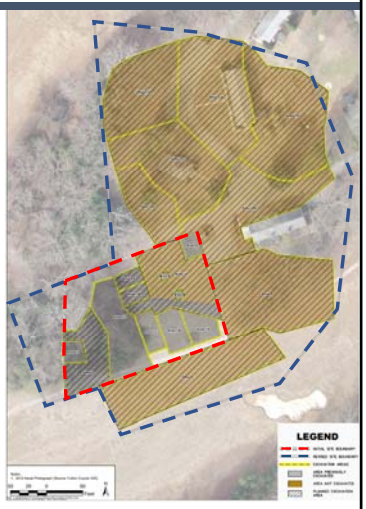
Speaker #1: Previous operations at the Former Medical Crematory Site (approximately 1.8± acre) resulted in buried ash, debris and soil containing elevated lead and dioxins that required removal and off-site disposal under an Interim Removal Action (IRA) prior to transfer to MIRLA.

Speaker #1: However, the property surrounding the Former Crematory Site was determined ready to transfer and was scheduled for re-development activities during the implementation of the IRA.

Speaker #1: Delmonico and Wenck partnered to implement the IRA under contract to the United States Army Corps of Engineers (USACE). Please note that the contract was executed as a firm-fixed price.

Project Challenges

- **Site Expands to over 4 acres**
- **Impacts under buildings**
- **Pending Transfer**
- **Communication to Multiple Parties**
  - **BRAC,**
  - **Army HQ/USACE**
  - **Dev. Authority -MILRA**
  - **End User - TPS**



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Speaker #1: During the IRA, additional impacted materials were discovered, and the site expanded from 1.8 acre to over 4 acres, immediately creating concern for the customer regarding the planned property transfer.

Speaker #1: Introduce Speaker #2.

Speaker #2: Introduces himself and gets the audience's attention by telling a short funny story about the challenge of working with Speaker #1.

Speaker #2:

- Additional Site investigation was conducted with a trackhoe.
- Debris really wreaks havoc with drilling or direct push techniques
- Even though some anomalies were identified during previously conducted electromagnetic surveys, we uncovered large structures that were buried just beneath the surface.
- The electromagnetic surveys showed an enormous amount of debris and I believe the amount of debris and trash present interfered with the definition and extent of the underground structures.
- These structures were either missed or underestimated during previous investigation work.
- This picture shows a brick cistern that was part of the old water system.
- The GIS / GPS allowed us to record real-time location and extent of these structures for future reference

Speaker #2:

- This pictures shows the foundation of old water treatment plant structures, either tanks or buildings.
- The site had been graded and these structures were buried during this site grading.
- It was surprising to see such large structures uncovered during the excavation when drill rigs had previously sampled all over the site.
- GIS/GPS was used again to document the location and extent of these structures and to document accurately the location of samples taken to confirm all contamination had been removed.

Project Challenges

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Speaker #2:

- This is another example of the sorts of structures uncovered that had to be demolished during the course of work.
- Our site investigation showed that contaminated material had to be removed to a certain elevation and these structures had to be removed to that elevation so that site restoration could occur.

Speaker #2:

- The site investigation showed that several feet of clean overburden existing above the contaminated material.
- This picture shows an example of just such an area.
- See the clean soil in this picurte above the stained layer of material.
- The GIS/GPS was used to document and track the location of the clean overburden.
- Allowed us to plan our excavation work and minimize the over-excavation of clean soils resulting in less material being hauled off site for disposal – remember this was a Firm Fixed Price Contract.

Project Challenges

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Speaker #2:

- This picture shows how the contaminated materials extended into areas adjacent to and under buildings on site.
- The GPS was used to record sample location as well as road and utility locations.
- This data was later used to perform planning and site restoration that included utilities put-back.

Speaker #2:

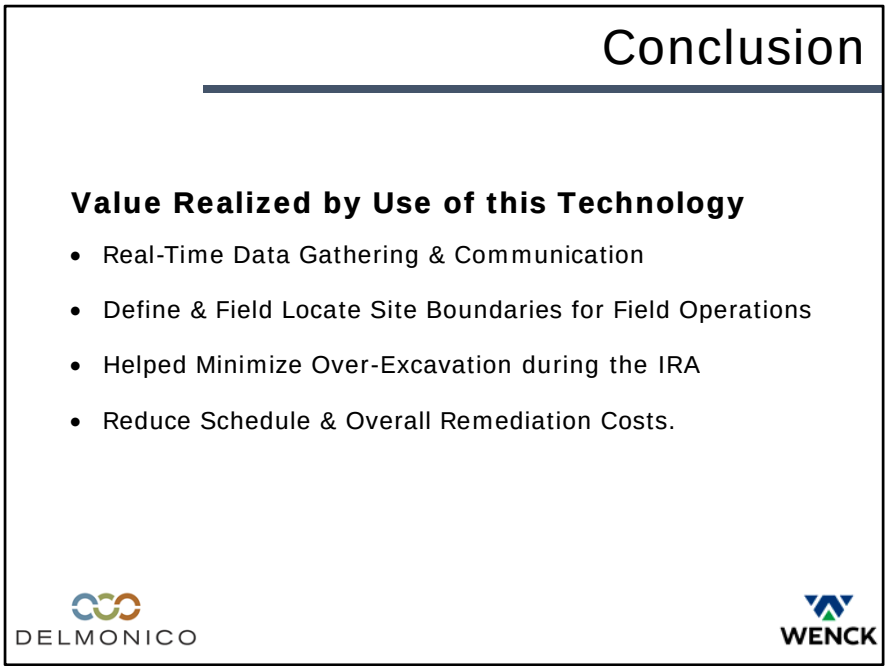
- This picture shows the load out excavated contaminated materials.
- We used a day-pile approach to efficiently handle materials and allow for continuous load out even during bad weather.
- The GPS was used to document the location of our load out area, it changed a few time throughout the project,.
- We recorded where the confirmation samples were obtained and eliminated redundant sampling and analysis.

Speaker #2:

- This is a picture of our temporary haul road during the first phases of the project.
- We made sure we placed this haul route on known contaminated areas so that we did not drag any contaminated materials onto clean areas.
- We used the GPS to accurately location the extent of excavation and then plan our day to day operations and material handing effectively with confidence in our plan
- We minimized any cross contamination with the use of the accurate GPS

Speaker #2:

- This is a picture of our field technician using the GPS and hand held tablet with GIS interface
- Under ideal conditions, smart device technology has a positioning accuracy of 5 to 6 meters, under ideal conditions mind you – cell tower triangulation, data access, etc.
- Using the GPS device that we used, a Trimble R1 GNSS receiver, we increased that accuracy by a factor of 10X, down to a half meter (about 20 inches!!)
- She does not like the inset picture I have included on this slide, but I love it …. it shows a genuine spontaneous reaction to accomplishing a mission with effective and useful tools, and I think it shows an enthusiasm for her work that comes with a job well done.



Speaker #1 or #2: The appropriate use of real-time GIS and GPS, coupled with continuous information sharing with the customer, served to (reiterate points of the slide):

Value Realized by Use of this Technology

- Real-Time Data Gathering & Communication
- Define & Field Locate Site Boundaries for Field Operations
- Helped Minimize Over-Excavation during the IRA
- Reduce Schedule & Overall Remediation Costs.

Speaker #1 or #2: Are there any questions?