GEOD CORPORATION
AERIAL MAPPING · LAND SURVEYING · UTILITY MARKOUTS
A CERTIFIED SMALL BUSINESS ENTERPRISE

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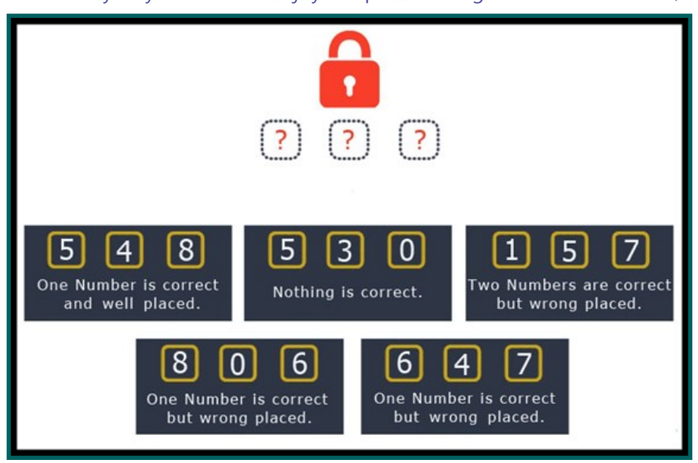
Spring Stumper

So for the Spring 2018 brain teaser, we decided to go with a logic puzzle. **Using a process of elimination based on the information from the five clues, what is the combination to the padlock?** Email your answer to **marketing@geodcorp.com** by midnight Friday, April 13, 2018, unless of course you're superstitious! A random winner will be drawn from all of the correct entries received and will win a $200 Best Buy gift card. Of course, if you are precluded from accepting such a prize, we will be delighted to donate a check for $200 to the charity of your choice. Enjoy the puzzle and good luck! Of course, the decision of the judges is final!



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SPRING 2018

INNOVATOR

In This Issue:

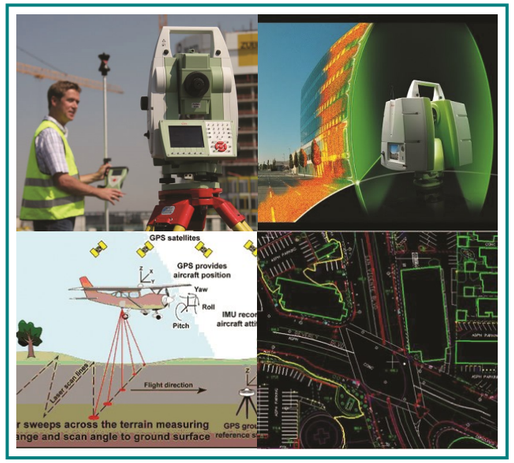
GEOD Provides:

- Photogrammetric Mapping
- Land & Engineering Surveying
- LIDAR Mapping
- Construction Surveys
- GIS Base Mapping
- Laser Scanning
- Subsurface Utility Mark-outs

SPRING FLYING

GEOD Project Managers are gearing up for Spring Flying Season. To get optimal photographic coverage, arrange to have your project flown just before the foliage begins to appear. Typically, the best time to schedule your flight is from mid-March to mid-April, when the trees have not yet begun to bloom and most of the snow has melted. As always, if need be, you can "fly now, map later" depending on your specific job and its budget! Just outline your needs and let GEOD suggest possibilities. ***Call GEOD Project Managers now to assist in your project planning and aerial mapping needs, (973) 697-2122.***

THE CONVERGENCE OF SURVEYING AND MAPPING DISCIPLINES AND TOOLS



At GEOD Corporation we have been witness to a "blurring of the lines" between what comprised the traditional separate internal disciplines within a Surveying and Mapping Company. In the past, a photogrammetry department would utilize photo control provided by a survey department to prepare basemapping from aerial imagery that is then turned over to the survey department for field editing and finalizing. Today, thanks to advances in each separate technology, there is a surprising amount of overlap in the deliverables that each discipline is able to produce, and therefore we see a similar overlap of the skill sets employed by technicians from these different departments.

The convergence is most evident in the use of LiDAR data, or point clouds from various sources such as terrestrial laser scanners, and Aerial LiDAR and from UAV (Drone) imagery. Some projects will require the use of multiple data collection technologies to deliver a comprehensive survey plan. In 2017 GEOD performed a surveying & mapping project that brought together several disciplines including aerial photogrammetric basemapping, aerial LiDAR for DTM and contour mapping in swamp areas, bathymetric survey of the Rahway River, and terrestrial laser scanning to obtain information below the existing bridge decks. Survey technicians used conventional survey observations to provide field edit of these data sources, and to supplement this information with other data such as wetlands flags and soil boring locations and utility locations identified through the use of ground penetrating radar (GPR) and electromagnetic scope (EM-Scope).

Data collected utilizing the various data collection technologies were integrated into one cohesive set of topographic base maps, as photogrammetric and survey technicians collaborated successfully to pool their experience and techniques for processing the numerous data sets to collectively develop an effective and efficient solution to the various challenges faced in providing accurate and comprehensive site mapping in an era of tightening budgets and abbreviated schedules.

FROM THE FIELD

Recent Contract Awards

NY Power Authority On Call Land Surveying Services – 5 years

GEOD was awarded a 5 year On Call Land Surveying contract to provide surveying on an as needed basis to the NY Power Authority. Services under this contract include, but are not limited to: map preparation for routine acquisition and conveyance of property, topographic, line and grade, cross sections, and related types of surveys connected with design, engineering studies, and construction work, long term deformation and/or settlement surveys of civil engineering works (transmission lines, dikes, dams, etc.), control surveys in support of photogrammetric projects or GIS implementation, hydrographic surveys, underground utility location surveys including utility record research, m-scoping and test holes as necessary.

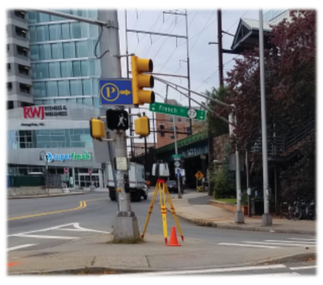
NJTPA – FY 2016-2017 Local Safety Engineering Assistance Program

GEOD was contracted to perform topographic base mapping and provide a DTM to support the safety improvement projects at multiple intersections under three separate contracts. GEOD combined aerial photogrammetric mapping, supplemented by field surveys, to complete the base plans. The primary control, survey base lines and photo control were established to satisfy the accuracy required for the digital topographic mapping. GEOD is establishing the ROW in accordance with the NJ Map Filing Law for ROW Mapping and preparation of ROW Acquisition Mapping including ETM, GPPM's and IPPM's with parcel descriptions. We also investigated, marked out and located the subsurface utilities in each area utilizing ground penetrating radar (GPR) and electromagnetic scoping. All survey and mapping was delivered at 1"=20' in a digital format compatible with MicroStation software in compliance with NJDOT standards and specifications to meet or exceed National Map Accuracy Standards (NMAS).

Photogrammetric Mapping for the PATH Waldo & D Yards in Journal Square, Jersey City, NJ

GEOD was contracted to provide topographic mapping of two rail yards totaling approximately 45 acres. GEOD obtained new low level digital aerial photography and performed the photo control survey. Mapping was compiled at 1"=10' with 0.2ft contours. All visible features were shown. Break lines and spot elevations were digitized and combined with the ground level plan to create a DTM in AutoCAD Civil 3D. All mapping was prepared in accordance with Port Authority CADD Specs and a Control Report was prepared.

Intersection/Traffic Signal Design – Easton Avenue, French Street, Albany Street, Hamilton Street, Somerset Street and Proposed Spring Street Connection New Brunswick, Middlesex County, NJ



GEOD was contracted to provide surveying and utility mark-out services to support preliminary and final design of modifications and upgrades at multiple intersections including traffic signals and the proposed Spring Street connection in New Brunswick. GEOD utilized a combination of laser scanning and conventional surveying methods to provide the base mapping. Survey tasks included establishment of survey control utilizing GPS, establishment of benchmarks and general field locations including, but not limited to: top & bottom of curb, curb cuts and depressions, pavement crown; driveways, utilities, valves, shut-offs, drainage structures (inlets, grates, pipe size & type and inverts) etc., sidewalk and walkways with additional detail required at corner areas for ADA design compliance. GEOD also performed baseline stakeout as well as subsurface utility mark-outs and test pits. An AutoCAD Civil 3D existing conditions base map depicting existing planimetric and topographic features suitable to support complete roadway and intersection redesign with drainage and slope needs was provided.

FROM THE FIELD

NYS Thruway Term Agreement for Statewide Aerial Photography and Mapping Services

GEOD was recently awarded a contract by the New York State Thruway Authority under it's on call photogrammetry contract to prepare low altitude mapping of 43 interchanges along the Thruway, ranging from Int 16 in Orange County north and west to Int. 49 in Erie County, and including the I-90 Berkshire Spur from Albany east to the Massachusetts border. The purpose of the mapping is to support the design to convert all of the traditional toll plazas to "Automated Electronic Tolling" (AET) whereby traffic no longer has to stop to pay tolls.

This project was broken into two phases. The first task consisted of setting and surveying permanent control and benchmarks at each interchange, and then painting 450 pre -flight targets. Low level digital aerial imagery was then captured; 1000 photographs over 52 flight lines with an UltraCAM digital sensor. The second portion of the project, which is now getting underway, involves doing the aero triangulation and then photogrammetrically producing high accuracy 20 scale mapping with ½ft contours in NYDSOT spec MicroStation V8i with a SelectCAD digital terrain model (DTM). During this 2nd phase, GEOD field crews will again visit each interchange to use RTK GPS to locate all of the 1/10 mile milepost markers to include in the base mapping. This is a critical project for the Thruway Authority and GEOD has assigned multiple photogrammetric technicians to adhere to the Thruways schedule.

Subsurface Utility Mark-outs

Recent assignments under GEOD's On-Call Contracts include:

Ocean County College, NJ

GEOD provided utility mark-out services to support a building demolition and new addition project at the college.

Suffolk County Community College, NY

GEOD provided utility mark-out services at the Grant campus.

Utility Mark-out Services for Metro North Railroad Beacon Rail Line, Putnam and Dutchess County, NY

GEOD was contracted to provide subsurface utility mark-out services along a 22 mile rail road corridor to locate fiber optic duct bank to support the design and construction of a bikeway/ recreation trail. Utilizing a combination of electromagnetic (EM) locators and ground penetrating radar (GPR) GEOD's certified technicians will detect and mark-out the locations of subsurface utilities, conduits, anomalies or structures and obstructions. All detected utilities will be marked on the ground with color-coded marker paint and/or flags. GPS equipment will be utilized to locate said mark-outs. The side rail closest to the duct bank will also be painted at +/-500' intervals.

Ongoing Assignments

Hurricane Sandy Residential Community Recovery, Queens & Brooklyn NY

GEOD continues to provide full property boundary surveys with metes and bounds to support the NYC Build It Back program dedicated to helping New Yorkers living in communities affected by Hurricane Sandy rebuild their homes. GEOD has conducted over 500 surveys in Queens and Brooklyn NY to date.

2018 Tax Map Maintenance with Morris Twp., Florham Park and Millburn, NJ

Work conducted under these contracts consists of the review of all property transaction records for each transaction that occurred within each municipality. These records include filed maps, vesting deeds, easement records, subdivision and lot consolidation records for review by GEOD. New prints of the impacted maps are made and submitted to the assessor on a monthly basis, with a full set of tax maps submitted at the end of each calendar year.

NYC Transit Project Assignments

GEOD continues to provide property boundary surveys, topographic surveys, easement and ROW surveys under our NYC Transit On-Call Survey Services Agreement. **Recent assignments include: boundary & topographic mapping for a new substation on Canal Street; boundary survey for a new substation project on 28th Street and boundary survey to support a pump room project in Brooklyn.**