



## Genesis Engineering - TopNET RTK in California

Remember the days when we had to go inside to use a landline phone when we wanted to call someone? It wasn't that long ago. Today cellular systems and service providers blanket the world with coverage. Soon it will be the same for GPS positioning instruments. CORS (Continuously Operating Reference Station) networks are being built and expanded on a daily basis. GPS Network's are quickly becoming a part of our communication infrastructure, just like the Internet and cellular phone service. Within these networks, accurate positioning information is available around the clock – night and day.

### **Here are some other benefits:**

- RTK accuracies of 1 centimeter
- Eliminates the need for an individual base station in tandem with a rover
- Reduces the need for benchmarks and monumentation for survey and engineering applications
- Eliminates the need for control points on a project site.

To understand how these systems are being used in business, Topcon at Work interviewed Nick Luther, survey technician with Genesis Engineering in northern California. Genesis has been working off a TopNET RTK CORS network established by Topcon California.

### **TAW: Tell me a little bit about Genesis.**

NL: Genesis is a civil engineering / land surveying firm located in Marysville, California. We have ten employees.

### **TAW: What are your typical jobs?**

NL: We do construction layout for the projects that our civil engineers design – 80 to 130 lot residential subdivision and mini-storage warehouses. We also do topographic surveys.

### **TAW: How long have you been using Topcon's TopNET RTK reference station network?**

NL: We started using it about two months ago. We do a lot of work over in Williams and Arbuckle. We're one of the few firms that will travel that far to work. I was out there today, just turned my rover on, and started to go to work. I was excited about that.

### **TAW: How far away is that site from Marysville?**

NL: About 32 miles away..



### **TAW: What cellular service do you use?**

NL: We're using Verizon and so far we have not had a problem using them as our cellular company. Topcon California just put up two reference base stations - one in Williams and one in Arbuckle. We use Arbuckle when we go from here to there – we just switch base stations. The cellular modem knows which one to use. When we initially fire up the rover, the cellular modem calls Livermore. Based on the rovers position verses any of the network bases, it will choose the closest base station. If we move closer to another base it automatically chooses it.

### **TAW: What other Topcon CORS reference stations are available?**

NL: There's one in Maxwell, Roseville, Marysville, Woodland, West Sacramento, and Fairfield. The network extends west of I-5 and 505 and covers the Rocklin - Citrus Heights – Auburn area

### **TAW: What rover and data collector are you using?**

NL: We have a Topcon HiPer Pro rover and an FC-100 field computer.

**TAW: What type of software are you running?**

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**TAW: What tasks are you using it for?**

NL: Thoroughbred Acres is one of our bigger subdivisions. We're doing it in two phases, with over 200 lots per phase. We did the initial survey and the initial grade staking with it. We also use it to stake utility services.

**TAW: What accuracy are you able to get with it?**

NL: We get plus or minus four-hundredths of a foot.

**TAW: When you're using the HiPer Pro rover on the TopNET CORS network, are you getting satisfactory results?**

NL: Yes, we are. Initially we first set up and found our boundary points, we ran all the initial levels, then we localized to do some checks. We found most of them were within two or three hundredths.

**TAW: What do you like most about it? Do you like the fact that you can just walk out the door and turn it on?**

NL: Exactly! You don't know how much pressure it takes off me. The boss walks in and says, "Nick, this is a new survey. We don't have any points, but the client needs just a rough look to see if he'll have enough property to build a subdivision or a mini-storage." You walk out there, shoot all the fences, a quick road survey, a field survey, shoot all the utilities in the area. In half a day, you've covered 15 acres, and you got the roads, the ditches, and everything else you need. The client is happy. The boss is happy. All the stress is gone. A conventional survey would have taken a day-and-a-half with a two-man crew. On the network, one man can run out there and get it done real quick.

**TAW: What are your experiences with our dealer, Topcon California?**

NL: We started out with Ben Folger. He was awesome – he was great. I trust him – that's why we keep buying Topcon gear. Denis Pelletier is our new sales rep. I deal with him directly now. Denis know a lot about GPS. He made me feel comfortable enough to tell my boss, "Yes, we'll be able to get this system running."

Topcon at Work thanks Nick Luther for providing the interview and photos. Many thanks to Ben Folger, sales manager at Topcon California for providing information for this story.



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