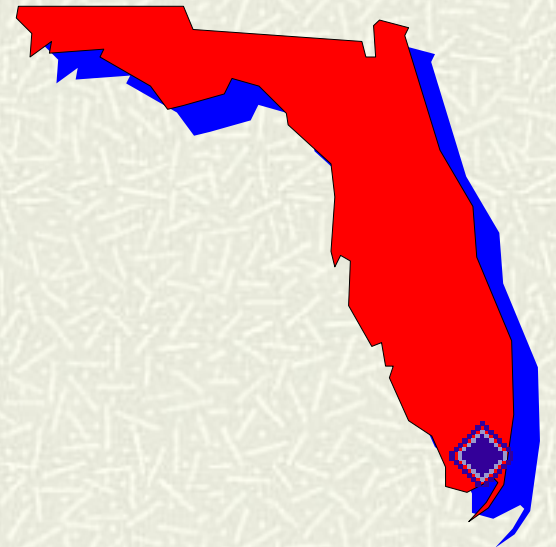


GPS/GIS Inspection and Analysis Tools for Highway Construction

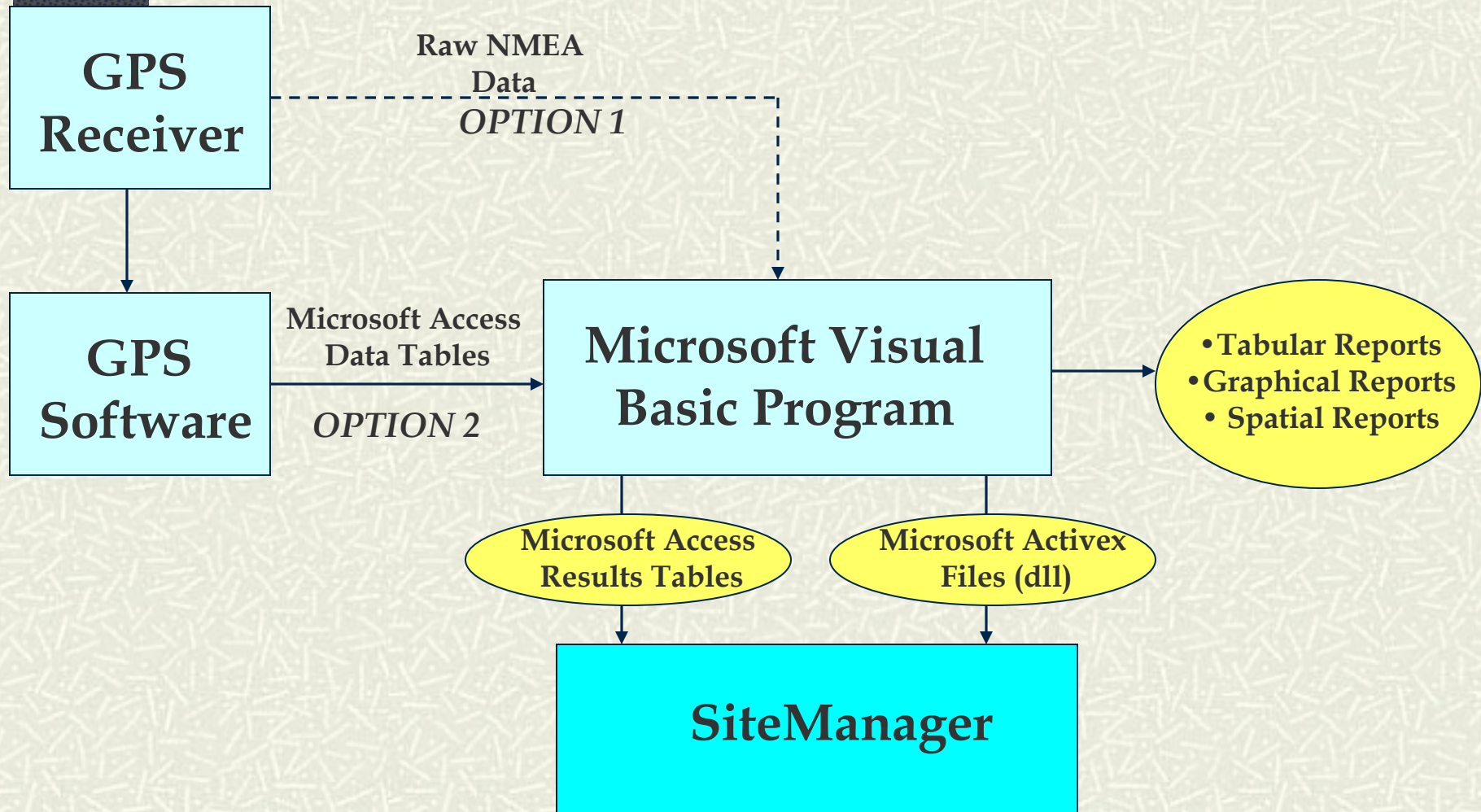
GPS Data Interface with SiteManager



Construction Research



GPS/GIS Inspection and Analysis Tools for Highway Construction: *Overall Framework of Data Transfer*



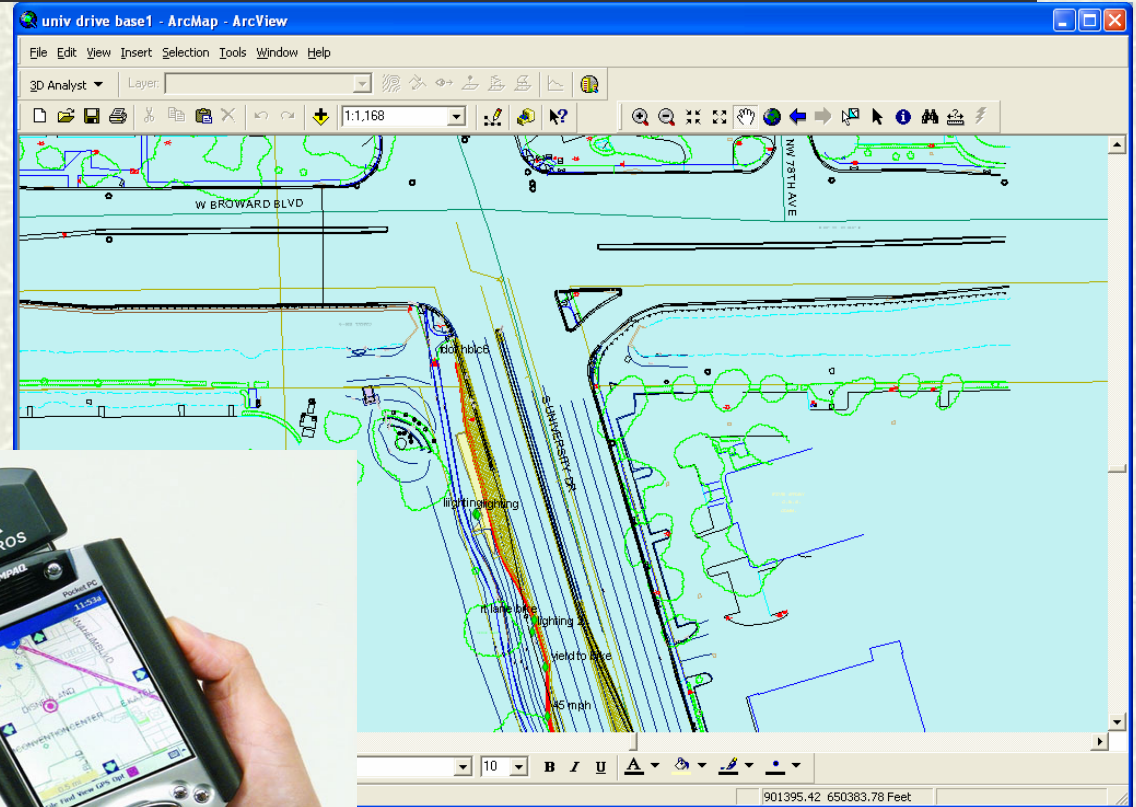
GPS/GIS Inspection and Analysis Tools for Highway Construction: *Receivers and GIS Basemap*



**Trimble GeoXT GPS
Receiver (\$4,000)**



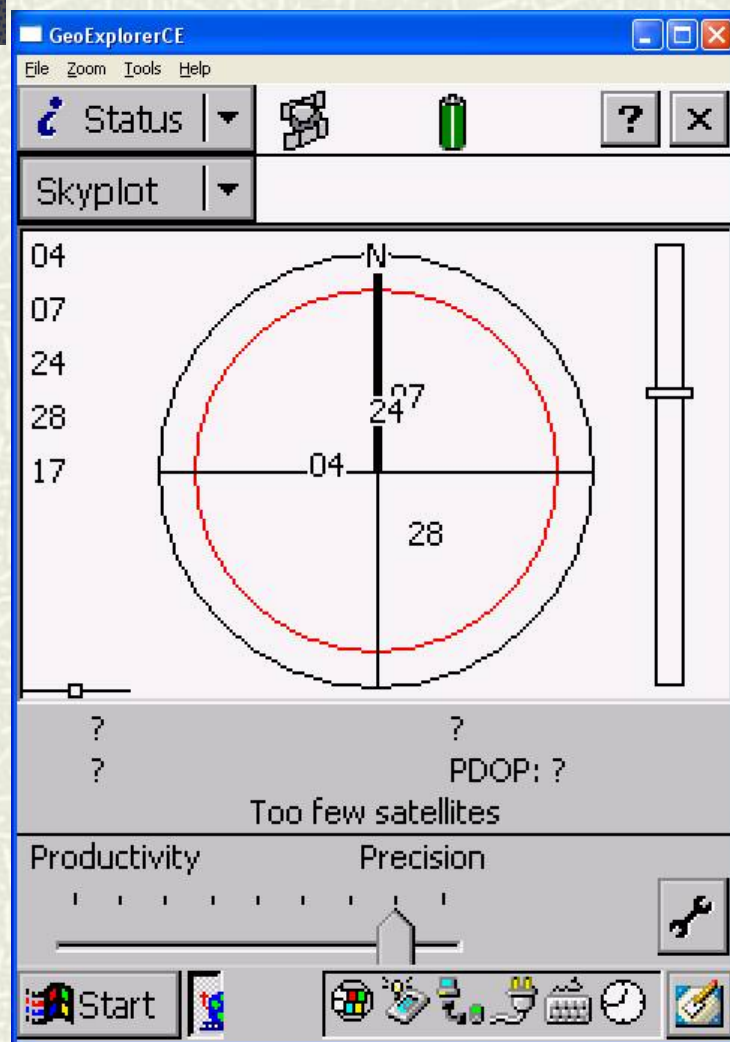
**Compaq Pocket PC (\$300) with
Pharos GPS Receiver (\$150)**



**Project Drawing Converted to
GIS Basemap**

GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS Receiver Data Collection



GeoExplorerCE

File Zoom Tools Help

Data

New Create

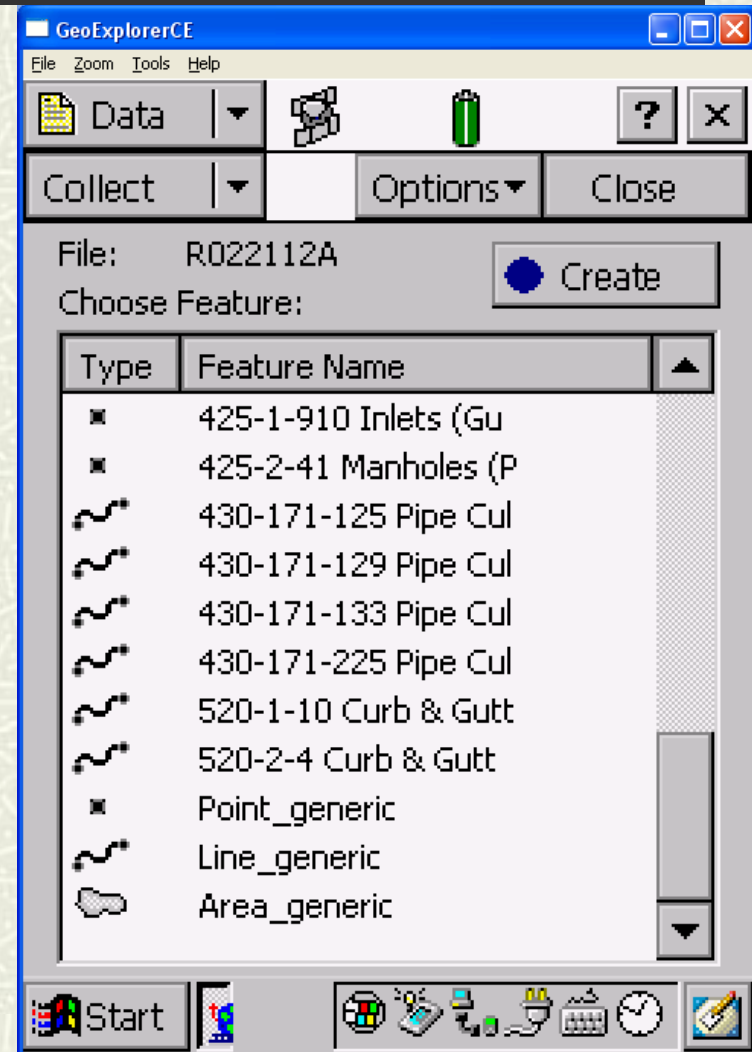
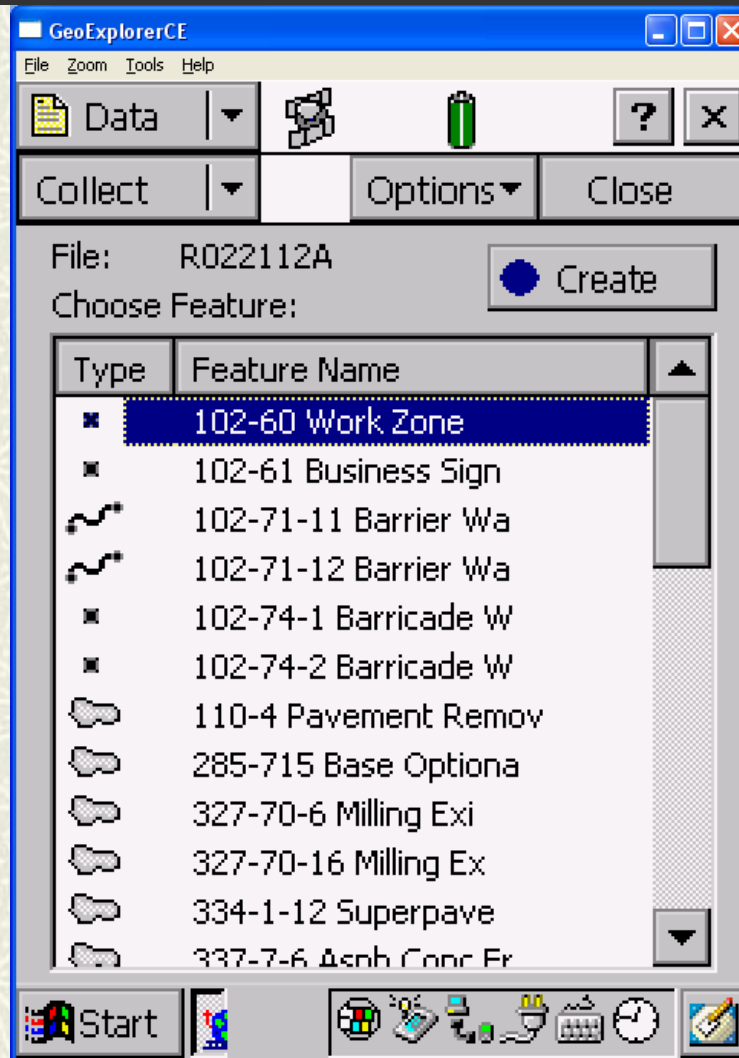
Create New Data File:

File Name: R022112A

Dictionary Name: 5R 817 Univ

Start

GPS/GIS Inspection and Analysis Tools for Highway Construction: *GPS Receiver Data Collection*



GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS Receiver Data Collection

GeoExplorerCE

File Zoom Tools Help

Data | [Icons] | [?] | [X]

Collect | [] | Options | Pause

3 285-715 Base Optiona

[Red Stop] OK Cancel

Location: []

Unit: SY

Estimated Work: 0.00

Measured Work: 0.00

Field Notes:

[]

Date Inspected: 2/21/05

Time Inspected: 12:52:17 pm

Start [Icons]

Detailed description: This screenshot shows the GeoExplorerCE software interface. The title bar reads 'GeoExplorerCE'. The menu bar includes 'File', 'Zoom', 'Tools', and 'Help'. The toolbar contains a 'Data' dropdown, several icons (a globe, a battery, a pencil, a question mark, and a close button), and a 'Collect' dropdown. Below the toolbar, there are 'Options' and 'Pause' buttons. The main area displays '3 285-715 Base Optiona' with a red stop icon, 'OK', and 'Cancel' buttons. A 'Location:' field has a blue dotted selection box. Below are 'Unit:' (SY), 'Estimated Work:' (0.00), and 'Measured Work:' (0.00) fields. A 'Field Notes:' section has a text area. At the bottom, 'Date Inspected:' is 2/21/05 and 'Time Inspected:' is 12:52:17 pm. The taskbar shows the Start button and various system icons.

GeoExplorerCE

File Zoom Tools Help

Data | [Icons] | [?] | [X]

Collect | [] | Options | Pause

7 520-1-10 Curb Gutt

[Red Stop] OK Cancel

Location: []

Unit: LF

Estimated Work: 0.00

Measured Work: 0.00

Filed Notes:

[]

Date Inspected: 2/21/05

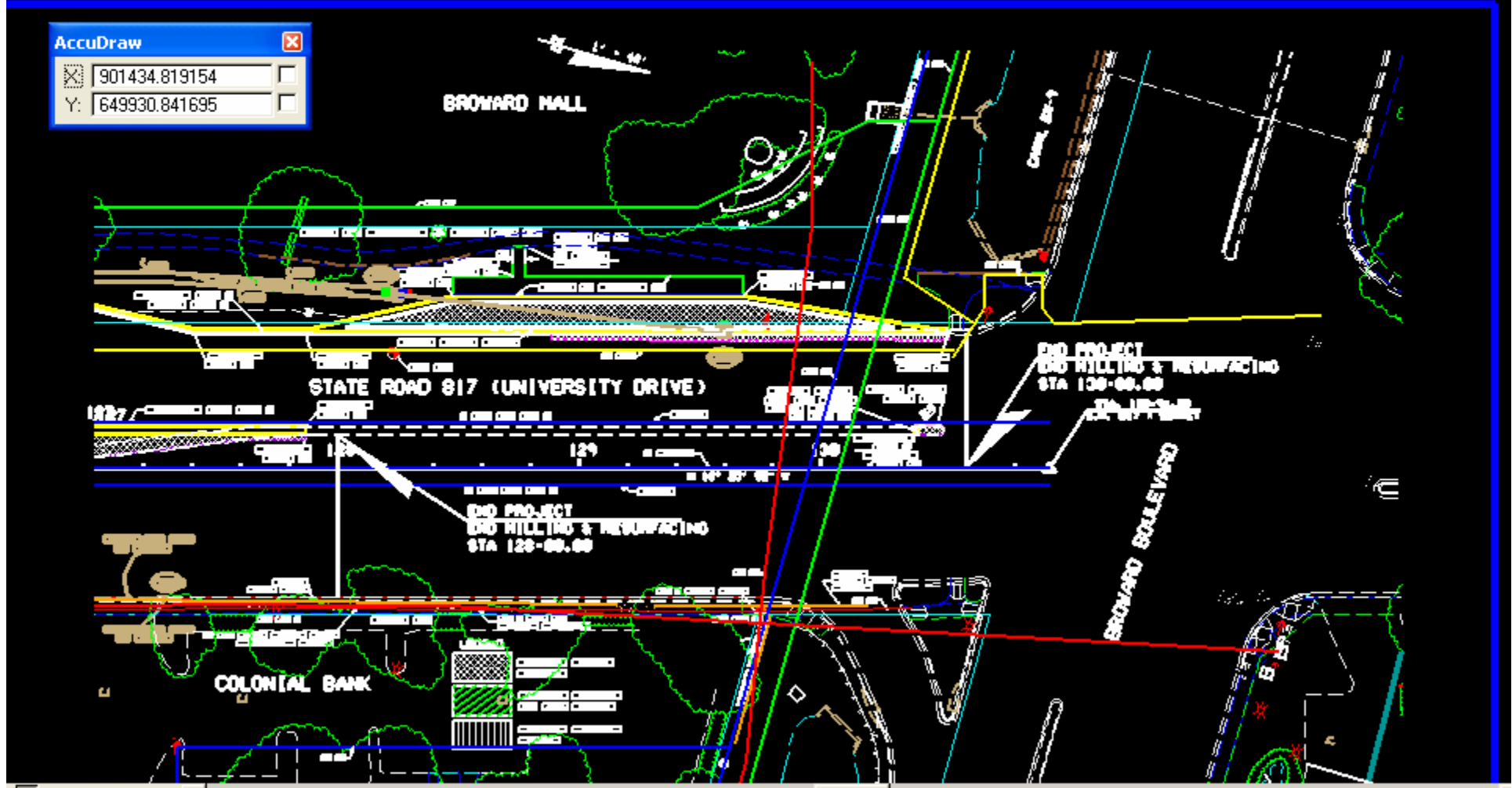
Time Inspected: 12:53:57 pm

Start [Icons]

Detailed description: This screenshot shows the GeoExplorerCE software interface. The title bar reads 'GeoExplorerCE'. The menu bar includes 'File', 'Zoom', 'Tools', and 'Help'. The toolbar contains a 'Data' dropdown, several icons (a globe, a battery, a wavy line, a question mark, and a close button), and a 'Collect' dropdown. Below the toolbar, there are 'Options' and 'Pause' buttons. The main area displays '7 520-1-10 Curb Gutt' with a red stop icon, 'OK', and 'Cancel' buttons. A 'Location:' field has a blue dotted selection box. Below are 'Unit:' (LF), 'Estimated Work:' (0.00), and 'Measured Work:' (0.00) fields. A 'Filed Notes:' section has a text area. At the bottom, 'Date Inspected:' is 2/21/05 and 'Time Inspected:' is 12:53:57 pm. The taskbar shows the Start button and various system icons.

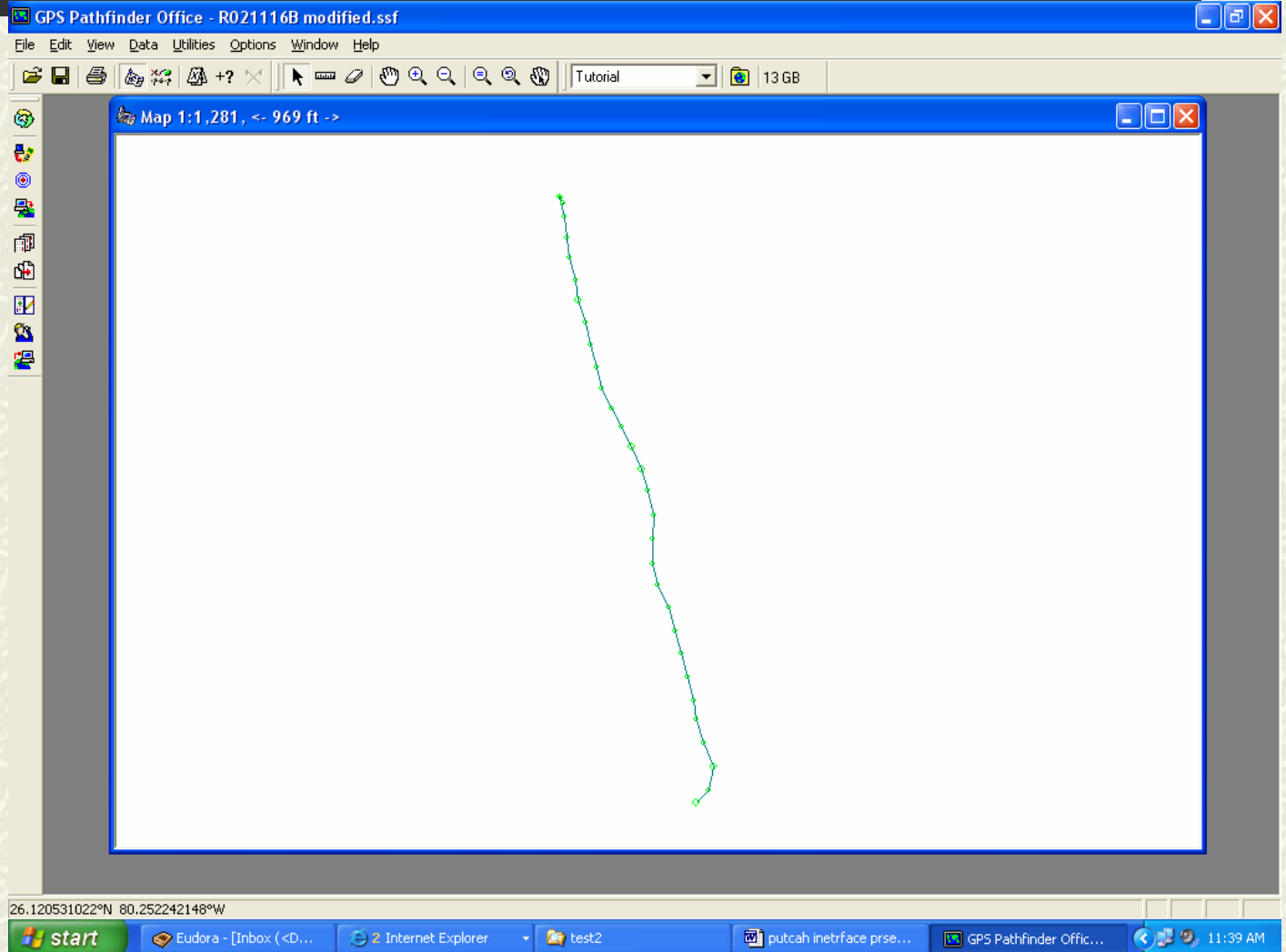
AccuDraw [Close]

X:	901434.819154	<input type="checkbox"/>
Y:	649930.841695	<input type="checkbox"/>



GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS (Curb & Gutter) Data in Trimble Pathfinder Software



GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS (Curb & Gutter) Data in Microsoft Access Table

Microsoft Access - [F520-2-4 Curb & Gutt : Table]

File Edit View Insert Format Records Tools Window Help

Position ID	Easting	Northing	Elevation	Location	Unit	Field Notes	Date Inspected	Time Inspected	GPS Length	GPS 3DLength
1	901418.005	650187.779	-81.184	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
2	901417.223	650188.513	-82.176	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
3	901421.463	650171.653	-74.333	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
4	901423.805	650152.876	-73.634	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
5	901426.045	650134.53	-72.377	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
6	901432.109	650115.504	-71.27	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
7	901434.548	650097.695	-76.964	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
8	901440.994	650077.544	-74.724	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
9	901446.028	650058.014	-74.265	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
10	901451.203	650038.012	-74.382	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
11	901455.765	650018.91	-74.566	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
12	901464.425	650001.042	-73.545	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
13	901473.361	649985.327	-74.565	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
14	901482.601	649966.963	-77.484	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
15	901491.567	649947.638	-77.33	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
16	901497.134	649928.482	-80.999	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
17	901503.04	649906.64	-77.802	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
18	901502.582	649885.318	-80.364	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
19	901502.668	649863.349	-80.294	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
20	901507.226	649844.611	-78.594	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
21	901517.217	649824.67	-66.583	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
22	901522.579	649804.31	-74.358	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
23	901528.78	649784.391	-74.869	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
24	901533.74	649763.454	-76.046	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
25	901539.601	649741.544	-78.999	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
26	901541.852	649725.59	-83.147	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
27	901548.876	649704.808	-81.49	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
28	901557.818	649683.195	-76.573	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
29	901553.626	649663.057	-82.948	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435
30	901543.098	649650.856	-83.934	Beginning Static	LF	broward mall	2/11/2005	4:55:57 PM	566.918379105	577.877101435

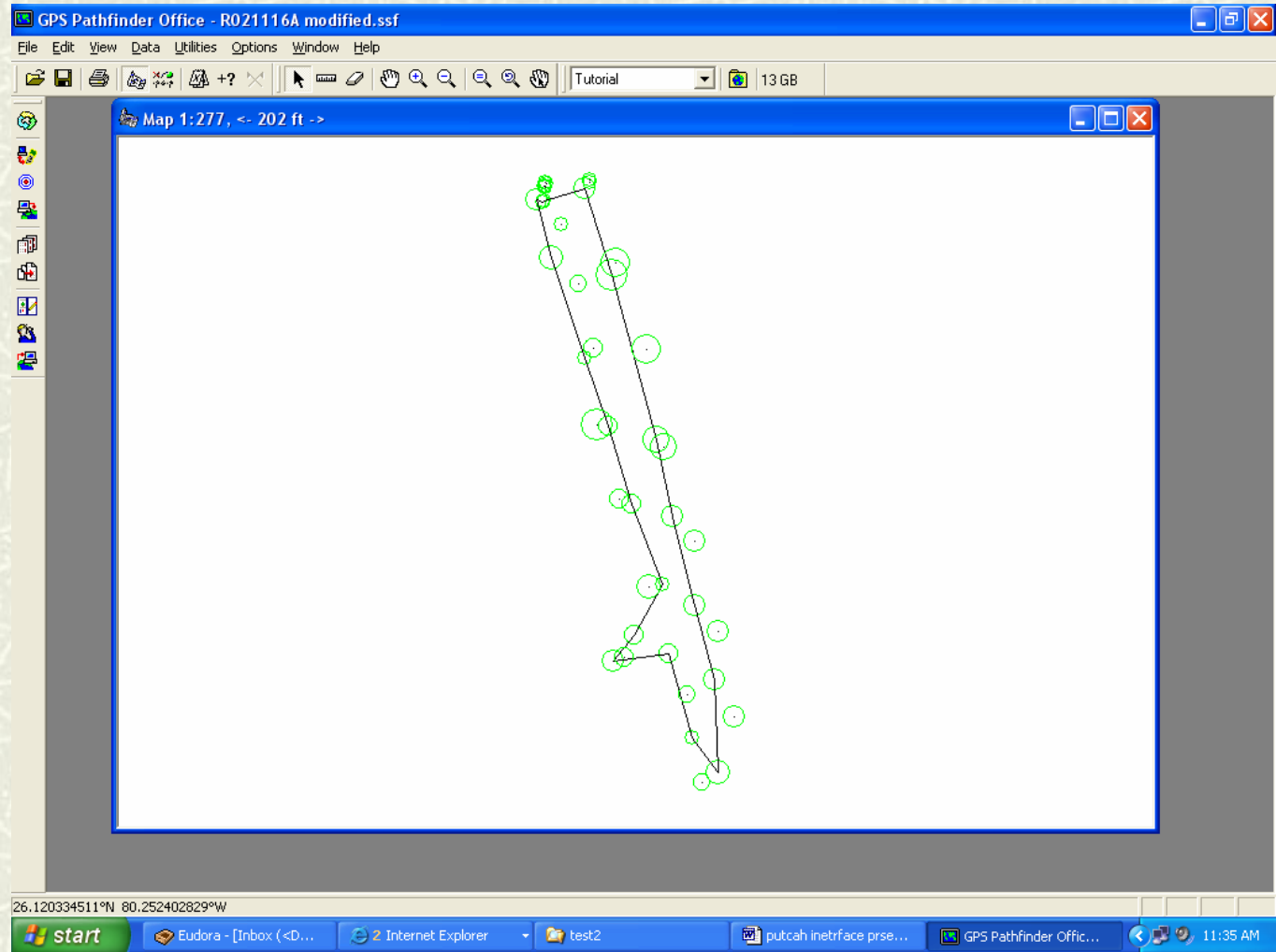
Record: 1 of 30

Datasheet View

start Eudora - [Inbo... Welcome to MS... http://www.liv... test R0211168 modi... F520-2-4 Curb ... 11:21 AM

GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS (Sidewalk) Data in Trimble Pathfinder Software



GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS (Sidewalk) Data in Microsoft Access Table --Lat/Long

Microsoft Access - [Area_generic : Table]

File Edit View Insert Format Records Tools Window Help

Position ID	Longitude	Latitude	Height	Comment	GPS Area	GPS Perimete	GPS 3DPerimete	Avg Vert Prec	Avg Horz Prec	Are
1	-80.252557258	26.12030776	-22.834	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
2	-80.252558224	26.120306916	-22.912	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
3	-80.252561999	26.120308314	-23.218	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
4	-80.252552674	26.120277449	-23.648	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
5	-80.252533391	26.120224449	-23.672	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
6	-80.252519117	26.120187758	-24.11	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
7	-80.252505205	26.120146495	-24.57	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
8	-80.252486965	26.120103506	-23.783	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
9	-80.252503583	26.120076501	-23.901	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
10	-80.252515957	26.12006325	-24.44	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
11	-80.252483365	26.120066846	-24.322	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
12	-80.252469524	26.120022075	-23.274	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
13	-80.252453639	26.120003449	-24.372	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
14	-80.252455768	26.120053011	-23.412	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
15	-80.252468076	26.120092524	-23.703	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
16	-80.252481161	26.120140207	-24.233	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
17	-80.252490304	26.120181043	-23.101	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
18	-80.252517196	26.120268605	-23.414	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
19	-80.252532761	26.120314634	-23.802	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
20	-80.252557258	26.12030776	-22.834	sw repeated	944.467528098	258.860136287	262.5009608201	0.822480341792107	0.574231295532	
*										

Record: 2 of 20

Datasheet View

start Eudora - [I... Welcome to... http://www... test putcah inetr... R021116A :... Area_gener... 11:25 AM

GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS (Sidewalk) Data in Microsoft Access Table -- projected

Microsoft Access - [Area_generic : Table]

File Edit View Insert Format Records Tools Window Help

Position_ID	Easting	Northing	Elevation	Comment	GPS Date	GPS Time	GPS Area	GPS Perimeter	GPS 3DPerimeter
1	901418.086	650121.735	-74.916	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
2	901417.771	650121.427	-75.17	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
3	901416.529	650121.928	-76.175	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
4	901419.654	650110.727	-77.584	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
5	901426.092	650091.498	-77.663	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
6	901430.852	650078.189	-79.1	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
7	901435.503	650063.217	-80.611	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
8	901441.578	650047.626	-78.027	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
9	901436.181	650037.779	-78.414	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
10	901432.149	650032.939	-80.182	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
11	901442.836	650034.307	-79.795	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
12	901447.471	650018.06	-76.358	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
13	901452.722	650011.32	-79.96	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
14	901451.92	650029.33	-76.81	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
15	901447.799	650043.669	-77.767	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
16	901443.406	650060.976	-79.504	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
17	901440.321	650075.802	-75.79	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
18	901431.314	650107.579	-76.816	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
19	901426.11	650124.28	-78.089	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773
20	901418.086	650121.735	-74.916	sw repeated	2/11/2005	3:50:30 PM	944.467528130	258.8601362828	262.500960815773

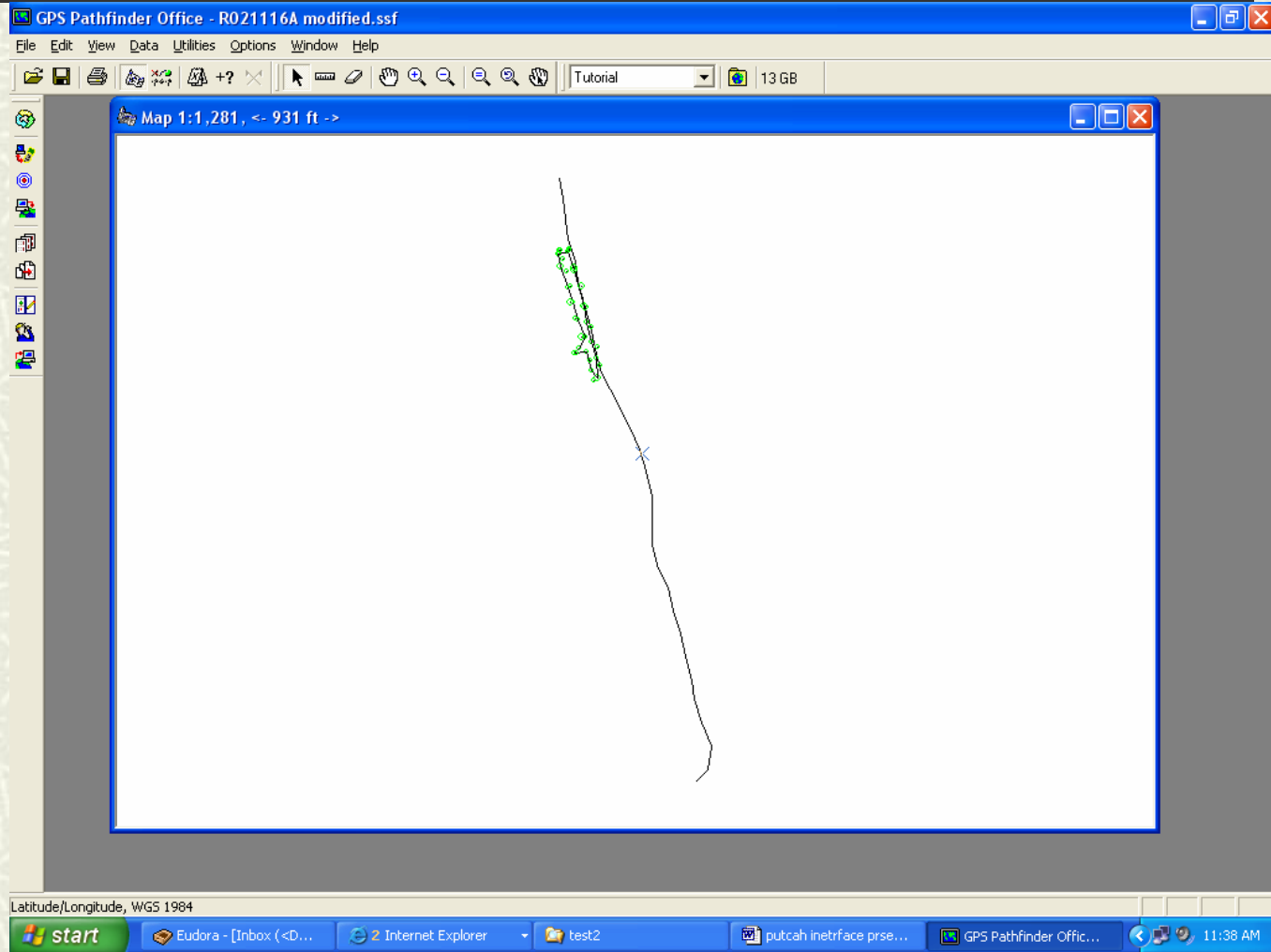
Record: 1 of 20

Datasheet View

start Eudora - [I... 2 Internet... test2 putchah inet... GPS Pathfin... R021116A ... Area_gener... 11:34 AM

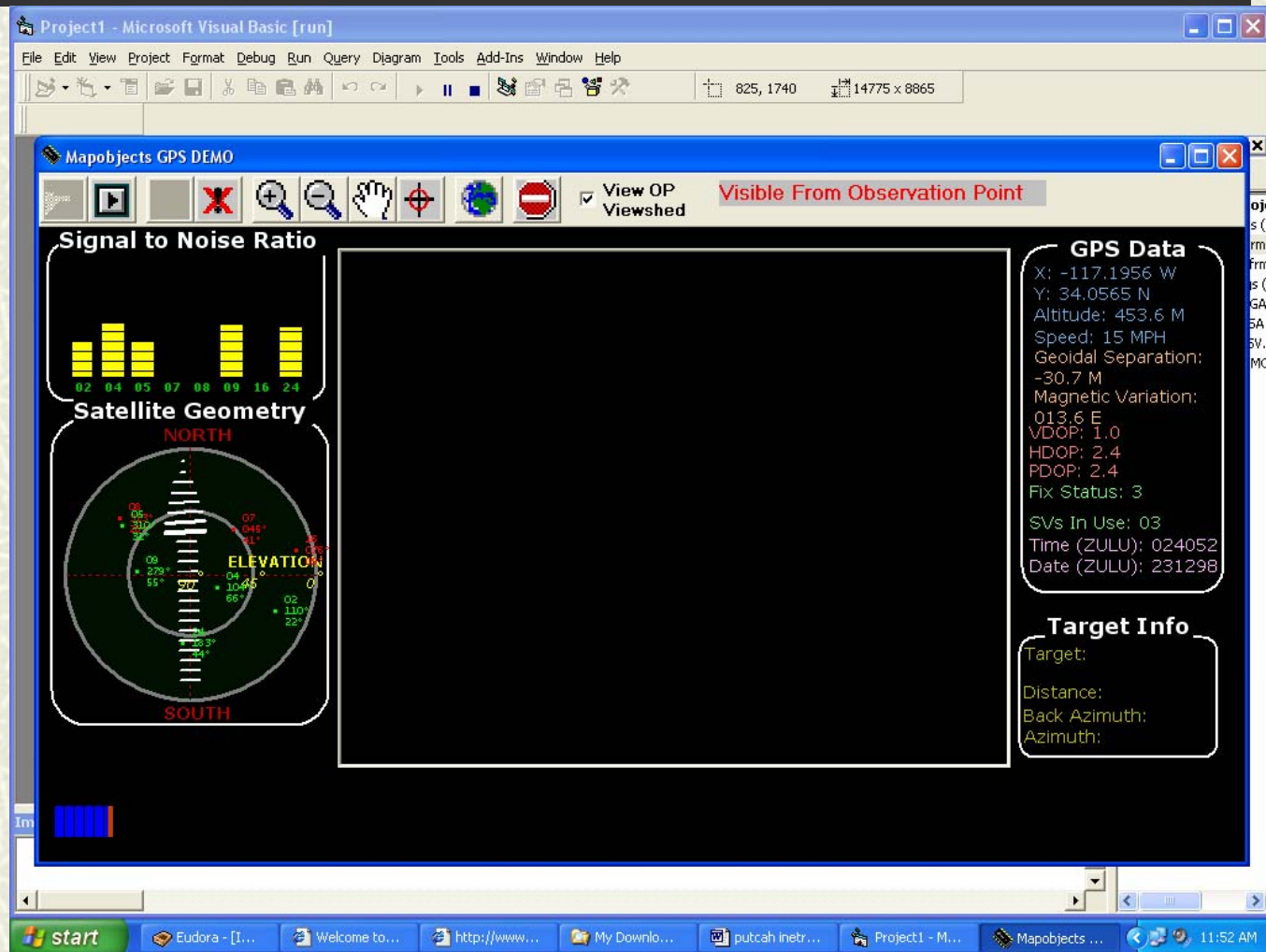
GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS (Sidewalk/ C&G) Data in Trimble Pathfinder Software



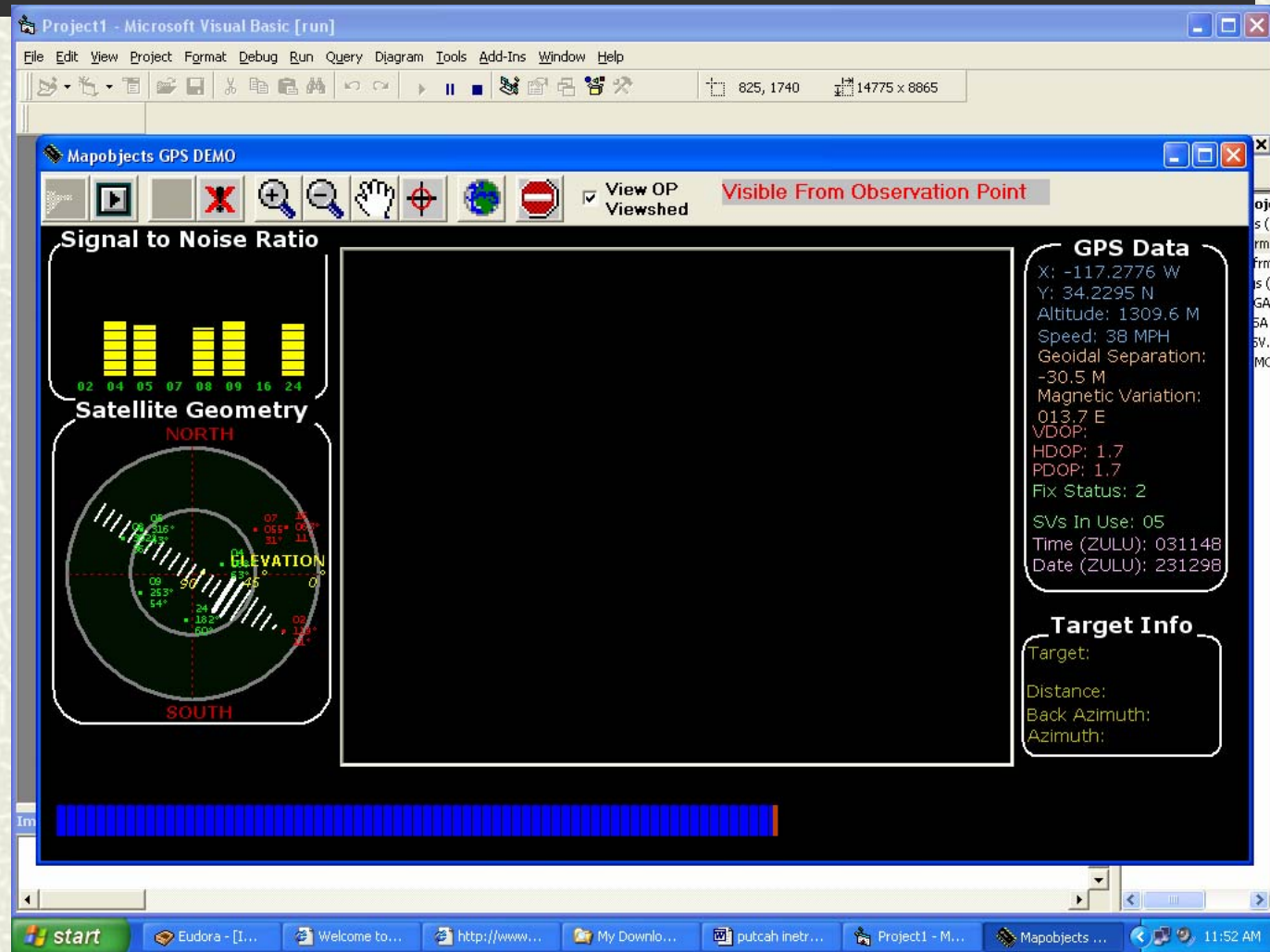
GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS Raw Data Collection (Real-Time or Recorded File)

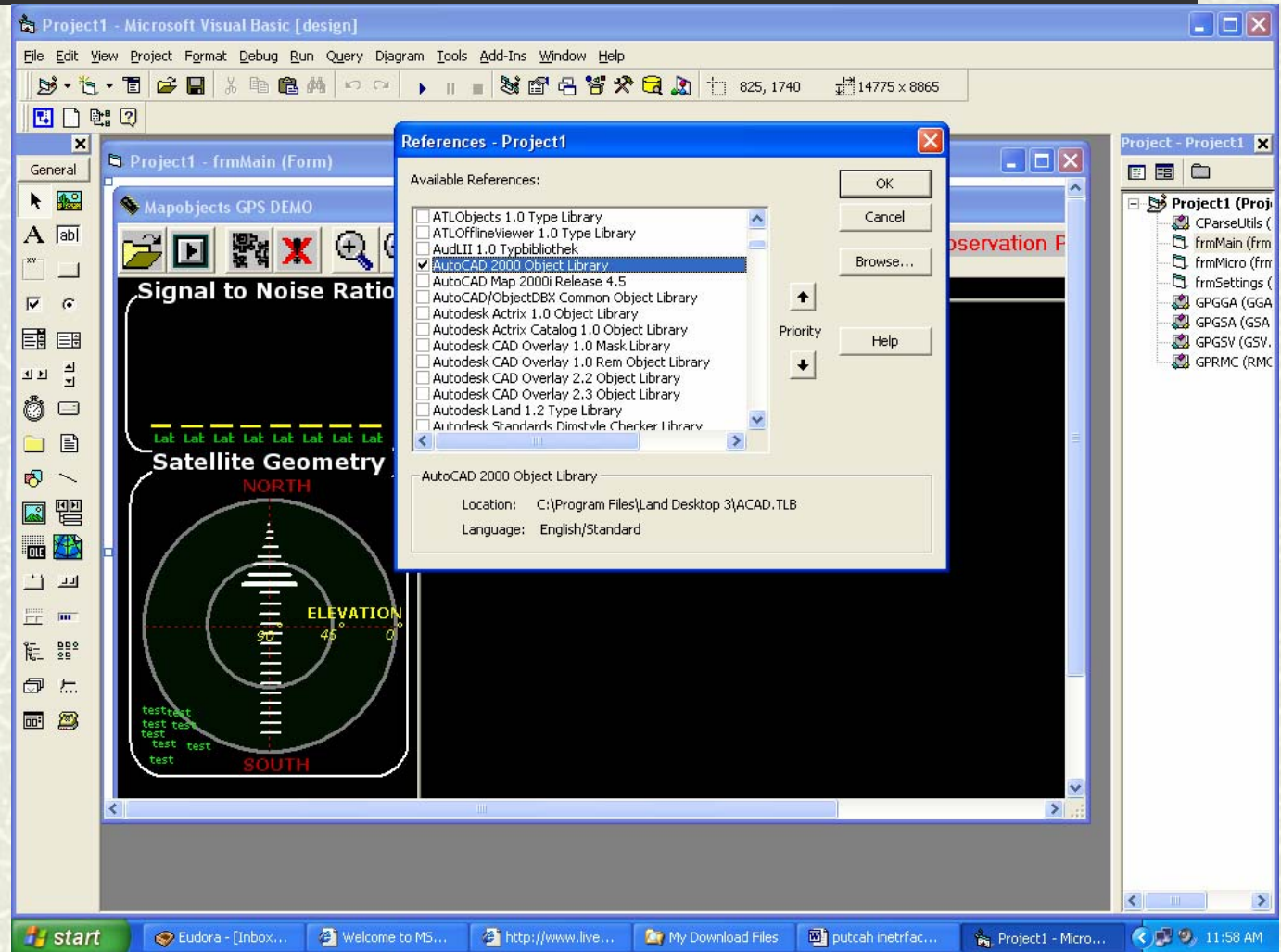


GPS/GIS Inspection and Analysis Tools for Highway Construction:

GPS Raw Data Collection (Real-Time or Recorded File)



GPS/GIS Inspection and Analysis Tools for Highway Construction: *Creating Interface Actives Files for SiteManager*



GPS/GIS Inspection and Analysis Tools for Highway Construction:

Creating Interface Actives Files for SiteManager

