Cannon ASSOCIATES
ENGINEERS
PLANNERS
SURVEYORS

5 April, 2007

Roark Smith
MACTEC Engineering and Consulting, Inc.
1105 Sanctuary Parkway, Suite 300
Alpharetta, GA 30004

Subject: Certification of locations of seismic testing at Casmalia P&S Landfill

Hello Roark:

This is to provide certification of the land survey services provided by Cannon Associates for this project. The work was performed by Mr. Kyle Huerth, Survey Party Chief on March 6th, 2007, at the Casmalia P&S Landfill in Santa Maria, California.

Kyle used a Thales ZMax RTK GPS System (Spec. sheet attached), with project control based on the 2nd Order Control Stations Point No. 2 and Point No. 3, per field survey performed by Pacific Engineering of the Casmalia Landfill Site on 3-4-2004. The relative precision of the field measurements using this equipment is observed to be +/- 0.02'.

The above locations were performed to meet ACSM Accuracy Standards for location of land features with an observed relative horizontal positional accuracy of no greater than +/-0.07'. This level of positional accuracy exceeds National Mapping Standards for representation of ground based features for GIS and LIS applications.

If I can provide any additional information regarding this project, please do not hesitate to contact me at 805-544-7407, or via Email: lesterc@cannonassociates.us.

Sincerely,

Lester E. Carter Jr., PLS 6148
Director of Surveys
Cannon Associates
My registration expires: 3-31-2008

LICENSED LAND SURVEYOR
L. E. CARTER JR.
Exp. 03-31-08
No. 6148
STATE OF CALIFORNIA

CC: Clay Bradfield
LEC/jj

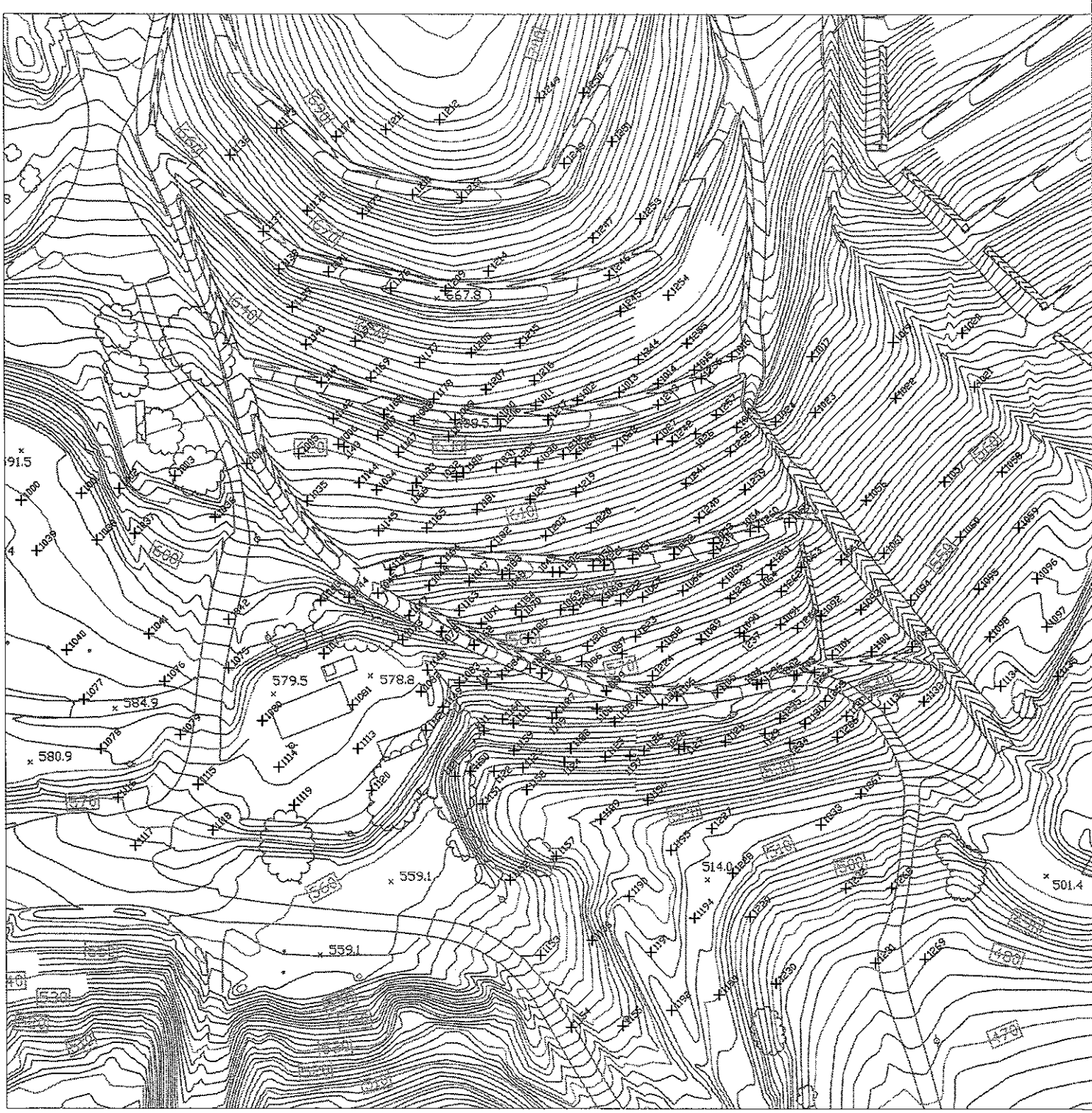
364 Pacific Street
San Luis Obispo, CA 93401
Tel: 805-544-7407
Fax: 805-544-3863

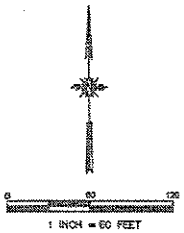
061068\Survey\Project Management\Correspondence\Casmalia Well Locations for MACTEC.doc

CANNON ASSOCIATES 30 YEARS 1976-2006

POINT MAP

SCALE: 1" = 60'





REV. NO

POINT LIST

POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION
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1001	506139.72	1236657.58	592.73	SL-2
1002	506144.61	1236695.22	605.80	SL-2
1003	506155.63	1236749.93	617.02	SL-2
1004	506165.60	1236819.32	618.64	SL-2
1005	506176.33	1236869.60	620.04	SL-2
1006	506187.88	1236908.39	622.37	SL-2
1007	506195.56	1236947.43	625.81	SL-2
1008	506210.95	1236983.09	637.30	SL-2
1009	506212.14	1237023.86	637.41	SL-2
1010	506212.70	1237065.33	635.52	SL-2
1011	506225.93	1237102.62	635.29	SL-2
1012	506230.94	1237143.66	633.52	SL-2
1013	506235.73	1237184.55	631.98	SL-2
1014	506247.15	1237222.66	629.27	SL-2
1015	506250.41	1237258.59	627.20	SL-2
1016	506273.56	1237295.60	625.16	SL-2
1017	506273.88	1237374.06	604.55	SL-2
1019	506287.55	1237453.17	581.87	SL-2
1020	506296.97	1237520.72	579.50	SL-2
1021	506244.38	1237532.63	588.35	SL-1
1022	506233.27	1237455.40	583.65	SL-1
1023	506219.02	1237377.08	595.28	SL-1
1024	506210.35	1237338.65	605.81	SL-1
1025	506204.75	1237300.38	611.20	SL-1
1026	506198.44	1237259.72	614.75	SL-1
1027	506192.83	1237221.81	617.71	SL-1
1028	506186.49	1237182.41	619.66	SL-1
1029	506178.49	1237142.38	621.32	SL-1
1030	506169.97	1237105.11	622.15	SL-1
1031	506165.16	1237064.25	622.73	SL-1
1032	506156.24	1237025.41	621.81	SL-1
1033	506150.13	1236985.58	619.23	SL-1
1034	506143.27	1236948.29	615.98	SL-1
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1037	506100.42	1236719.43	599.47	SL-1
1038	506093.97	1236672.67	591.76	SL-1
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1042	506016.71	1236801.52	594.87	SL-14
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1045	506042.51	1236947.38	598.82	SL-14
1046	506050.05	1236998.15	598.29	SL-14
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1050	506069.85	1237158.91	598.41	SL-14
1051	506075.20	1237197.67	594.63	SL-14
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1062	506075.27	1237401.98	567.48	SL-3
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1218	506178.17	1237129.61	622.37	SL-6
1219	506141.33	1237142.08	612.48	SL-6
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1225	505934.43	1237226.06	563.35	SL-6
1226	505890.97	1237242.24	546.13	SL-6
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1229	505726.37	1237312.23	499.40	SL-6
1230	505661.28	1237337.45	489.09	SL-6
1231	505681.45	1237434.43	480.26	SL-12
1232	505754.50	1237405.85	493.12	SL-12
1233	505816.86	1237381.51	511.02	SL-12
1234	505896.57	1237351.67	537.37	SL-12
1235	505920.73	1237342.32	546.61	SL-12
1236	505955.12	1237324.15	552.16	SL-12
1237	505991.08	1237307.09	564.86	SL-12
1238	506037.84	1237283.64	574.83	SL-12
1239	506081.54	1237276.87	590.58	SL-12
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1243	506226.47	1237222.81	628.36	SL-12
1244	506270.83	1237203.52	636.29	SL-12
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1246	506353.01	1237174.83	659.79	SL-12
1247	506389.30	1237159.03	667.27	SL-12
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1250	506529.85	1237150.13	683.52	SL-13
1251	506482.72	1237177.94	674.31	SL-13
1253	506407.88	1237205.58	661.61	SL-13
1254	506333.46	1237233.04	646.17	SL-13
1255	506286.53	1237251.14	633.12	SL-13
1256	506252.10	1237265.56	625.85	SL-13
1257	506216.64	1237280.08	616.02	SL-13
1258	506180.94	1237294.10	606.15	SL-13
1259	506143.84	1237308.29	595.06	SL-13
1260	506107.28	1237321.74	587.60	SL-13
1261	506070.38	1237333.78	576.99	SL-13
1262	506044.73	1237343.75	570.62	SL-13
1263	506008.70	1237359.43	560.91	SL-13
1264	505965.87	1237375.79	551.55	SL-13
1265	505937.57	1237388.00	544.61	SL-13
1266	505902.35	1237397.86	533.46	SL-13
1267	505847.30	1237420.73	513.75	SL-13
1268	505754.85	1237450.70	496.33	SL-13
1269	505685.31	1237462.52	478.57	SL-13

CONTROL POINT INFORMATION

CONTROL POINTS 2 AND 3 WERE USED AS THE BASIS OF BEARINGS FOR THIS PROJECT.
N85°22'35"W 1,807.75'

CONTROL POINT 3 WAS USED AS THE BENCHMARK FOR THIS PROJECT. ELEVATION = 444.25'

CONTROL POINT 2
NORTHING: 504130.34
EASTING: 1238937.76
ELEVATION: 446.14'

CONTROL POINT 3
NORTHING: 504276.06
EASTING: 1237135.90
ELEVATION: 444.25'

CONTROL POINTS AND TOPO INFORMATION USED PER AERIAL TOPO MAP CREATED BY PACIFIC ENGINEERING OF THE CASMALIA LANDFILL SITE DATED 3-4-2004.

LICENSED LAND SURVEYOR
L. E. CARTER JR
Exp. 03-31-08
No. 6148
STATE OF CALIFORNIA

DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CKD. BY	APRD BY

Cannon ASSOCIATES

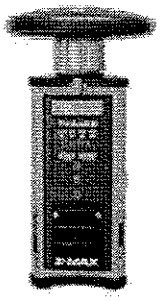
THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND ARE THE PROPERTY OF CANNON ASSOCIATES. ALL DESIGNS AND OTHER INFORMATION ON THESE DRAWINGS ARE FOR THE USE OF THE SPECIFIED PROJECT AND SHALL NOT BE USED OTHERWISE OR REPRODUCED WITHOUT THE EXPRESSED WRITTEN PERMISSION OF CANNON ASSOCIATES.

MACTECH
CASMALIA P&S LANDFILL

SANTA MARIA, CALIFORNIA

DRAWN BY	DATE	CA JOB NO.
KEH	03/06/07	G6106B.03
CHECKED BY	SCALE	SHEET
LEC	1" = 60'	1 OF 1

Z-Max The Total Surveying Solution



The Z-Max® surveying system from Thales offers superior dual frequency (L1-L2) RTK performance, a simple real-world field design and a total software solution, Z-Max delivers survey-grade positioning on demand.

0.005m (0.2inches)+0.5 ppm Static, Rapid Static

0.010m (0.4inches)+1.0 ppm Post-Processed & Real-Time Kinematic

The Z-Max's Z-Tracking technology makes projects fly: RTK Rover recovers from a loss of lock and fix in seconds. The innovative, light weight, cable-less design makes field operation simple.

Superior RTK Performance

Z-Max has a clear advantage over other GPS receivers with the integration of ADAPT-RTK™ technology. This breakthrough technology expands centimeter-accurate coverage by rapidly adapting to current conditions. With ADAPT-RTK, Z-Max ensures exceptional RTK coverage and data confidence with fast acquisition.

Innovative Modular Design: Z-Max features a unique modular design, with interchangeable base and rover receivers, for quick and easy system optimization in the field. The versatile system offers options for power, portability, communications, data collection, downloading and post-processing.

- Wireless Roving: Integrated Bluetooth® advanced wireless system enables a convenient cable-free RTK rover module.
- Long-Range Communication: Long-range modules simply snap into place, allowing you to choose UHF, cellular or a uniquely combined UHF + GSM module.
- Vortex™ UHF Antenna: Innovative UHF receiver technology eliminates all conventional radio antennas and cables.
- On-Board Software: A full range of options is available, including: control, stop and go, RTK setup and data collection – all without the need of an additional field controller.
- Unlimited Memory Expansion: Standard SD Memory Cards are available everywhere.

The Total Surveying Solution

The Z-Max system leverages the latest in surveying technology by integrating field and office software solutions focused on topographic and construction surveying. With this comprehensive suite of software tools, the Z-Max total surveying solution can enhance your surveying capabilities, boost your productivity, improve your data quality, and upgrade your deliverables.

FAST Survey™ software is a powerful graphical field companion to Z-Max that enables feature coding, real-time line work, coordination of system setup, Geodetic Calculation and seamless connectivity to a variety of optical total stations – all available through a simple touch-screen menu.

GNSS Solutions™ software is the Z-Max GPS surveying office manager, intuitively guiding you through the entire GPS data collection process, from planning to professional quality deliverables.

Z-Max Accessories

Complete Base / Rover RTK pairs are available (including soft and hard shell cases) for under $28,900.

There is a wide range of accessories, processing options, radio options (UHF & GSM Cellular). Please call us for assistance

configuring a custom configuration.

Z-Max Manuals and Frequently Asked Questions

Manuals

Z-Max Operation & Application Manual.pdf
Z-Max Pocket Guide for Letter Size.pdf

FAQs

011-European Coordinate Reference Systems.pdf
012-Zmax Datum Grid Geoid.pdf
016-Zmax-Allegro-Save data.pdf
018-Zseries on vehicle.pdf
018-Zseries on vehicle1.pdf
FAQ Z-Max 1.5.pdf
FAST Survey - Log Static Data.pdf
Instant-RTK 122100.pdf
MKG01 Z-Max New GSM Antenna.pdf
Practical GPS Surveying.pdf
Randys Rules for RTK.PDF
Uploading New Z-Max Firmware.pdf
Z Family Technical Reference 630203-01 Rev C1.pdf
Z Max 2004-01.PDF
ZMax antenna in GNSS Studio.PDF
ZMax External GPS Antenna .pdf
ZMax Gsm Connection -b.pdf
Z-Max GSM-RTK.pdf
ZMax I-E DXF files .pdf
ZMax PDL Radio configuration for GMSK.PDF
ZMAX Serial CommandManual.pdf
ZMax_MC00_release notes.pdf

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