CALIFORNIA INSTITUTE OF TECHNOLOGY

Laser Interferometer Gravitational Wave Observatory (LIGO) Project

To/Mail Code:	Distribution
From/Mail Code:	Albert Lazzarini
Phone/FAX:	1.818.395.8444
Refer to:	LIGO-T970117-A-E
Date:	May 4, 1997

Subject: LIGO Site-to-Site Separation

The baseline distance between LIGO interferometer sites has been calculated using the Ralph M. Parsons survey data for the vertices of the interferometer arms at both LIGO sites. The geodetic information was reduced to Cartesian coordinates using the WGS84 ellipsoidal model of the earth. The information is summarized in Table I below.

Table I: Summary of geodetic data for the LIGO sites

Site	Vertex Data	X Arm Data	Y Arm Data
Vertex, Hanford, WA	**Latitude:** $46°\ 27'\ 18.5"$ N **Longitude:** $119°\ 24'\ 27.1"$ W **Elevation:** $EL_0 = 162.7$ m [Above mean sea level]	**Bearing:** N36.8$°$ W **Elevation @ End Station:** EL_0 - 1.25 m	**Bearing:** S53.2$°$ W **Elevation @ End Station:** EL_0 + 1.23 m
Vertex, Livingston, LA	**Latitude:** $30°\ 33'\ 46.0"$ N **Longitude:** $90°\ 46'\ 27.3"$ W **Elevation:** $EL_0 = 19.4$ m [Above mean sea level]	**Bearing:** S72$°$ W **Elevation @ End Station:** EL_0	**Bearing:** S18$°$ E **Elevation @ End Station:** EL_0 + 1.24 m
WGS84 Datum	Semi-major axis a = 6378137 m	Semi-minor axis b = 6356752.31 m	$1/f = a/(a-b)$ $1/f = 298.257$
Vertex Separation	3001777.42 m		

AL:al

cc:

CIT-Science	Chronological File
MIT-Science	Document Control Center
Engineering	