

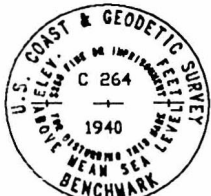


DEPARTMENT OF TRANSPORTATION -- STATE OF COLORADO
CONTROL SURVEY DIAGRAM

Project NH 0403--031
SH 40 MP 236.9 to MP 239.4
ROOSEVELT NATIONAL FOREST
GRAND COUNTY, COLORADO

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of N 20°47'40" E from US-40 CH-MP 237.0 to US-40 CH-MP 237.2 as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARND).

BASIS OF ELEVATIONS: Project is based on a U.S. Coast and Geodetic Survey (USCGS) benchmark C 264 1940 a 9 centimeter brass cap set on top of boulder with an NAVD '88 elevation of 2966.905m, C 264 1940 is part of Colorado Line 72, a first order second class line leveled in 1940. C 264 1940 is stamped as shown below.



NOT TO SCALE

COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA)

POINT NAME	GEODETIC COORDINATES NAD-83(92) (CHARND)		ELEVATION NAVD '88m	MAPPING ANGLE	SCALE	NAD 83(92) ZONE		PROJECT COORDINATES		ELV	DESCRIPTION
	LATITUDE(N)	LONGITUDE(W)				NORTHING (m)	EASTING (m)	N	E		
US 40 CH-MP 237.0 GPS PROJECT STATION	39°49'49.42851"	105°45'35.54788"	2981.238	-0°09'50.040"	1.000016895	526530.397	892154.999	526775.770	892570.760	2993.500	CDOT Type II Control Monument
US 40 CH-MP 237.2 GPS PROJECT STATION	39°50'01.88295"	105°45'29.46598"	3006.213	-0°09'46.204"	1.000017667	526914.110	892300.715	527139.662	892716.544	3018.482	CDOT Type II Control Monument
US 40 CH-MP 237.4 GPS PROJECT STATION	39°50'11.41374"	105°45'28.56430"	3023.134	-0°09'45.635"	1.000018260	527208.003	892322.990	527433.692	892738.829	3035.408	CDOT Type II Control Monument
US 40 CH-MP 237.6 GPS PROJECT STATION	39°50'21.81060"	105°45'28.13403"	3043.244	-0°09'45.364"	1.000018909	527528.639	892334.130	527774.477	892749.974	3053.519	CDOT Type II Control Monument
US 40 CH-MP 237.8 GPS PROJECT STATION	39°50'33.36360"	105°45'23.24637"	3066.379	-0°09'42.281"	1.000019633	527884.635	892451.347	528130.639	892867.246	3078.665	CDOT Type II Control Monument
US 40 CH-MP 238.0 GPS PROJECT STATION	39°50'41.11646"	105°45'25.46037"	3078.613	-0°09'43.678"	1.000020121	528123.902	892399.385	528370.018	892815.260	3090.907	CDOT Type II Control Monument
US 40 CH-MP 238.2 GPS PROJECT STATION	39°50'32.09698"	105°45'25.30373"	3086.209	-0°09'43.580"	1.000019554	527845.707	892402.275	528031.693	892818.151	3098.494	CDOT Type II Control Monument
US 40 CH-MP 238.3 GPS PROJECT STATION	39°50'26.47232"	105°45'29.62500"	3096.453	-0°09'46.304"	1.000019201	527672.519	892299.089	527918.424	892714.917	3108.748	CDOT Type II Control Monument
US 40 CH-MP 238.5 GPS PROJECT STATION	39°50'20.73247"	105°45'33.71014"	3103.431	-0°09'48.881"	1.000018842	527495.764	892201.456	527741.587	892617.239	3117.720	CDOT Type II Control Monument
US 40 CH-MP 238.7 GPS PROJECT STATION	39°50'09.80731"	105°45'36.64615"	3123.002	-0°09'50.732"	1.000018160	527159.004	892130.683	527404.670	892546.433	3135.286	CDOT Type II Control Monument
US 40 CH-MP 238.8 GPS PROJECT STATION	39°50'01.44365"	105°45'41.60261"	3139.840	-0°09'53.859"	1.000017640	526901.387	892012.089	527146.933	892427.782	3152.150	CDOT Type II Control Monument
US 40 CH-MP 239.1 GPS PROJECT STATION	39°49'53.95166"	105°45'48.34006"	3152.075	-0°09'58.108"	1.000017175	526670.778	891851.213	526916.816	892266.832	3164.385	CDOT Type II Control Monument
US 40 CH-MP 239.3								526739.400	892022.425	3178.700	CDOT Type II Control Monument

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- 1). This Survey Control Diagram represents the Division established horizontal and vertical control for the project. It is possible that some of the survey control monuments listed have been disturbed or obliterated. It is the Contractor's responsibility to verify the existence and stability of the control monuments before submitting a bid price.
- 2). All Type 1 and Type 2 monuments shall be set flush with the ground. Witness posts shall be installed 1 foot from and facing all Type 1 and Type 2 monuments, or as directed by the Project Engineer.
- 3). Installation of Type 3 and Type 3-A monuments shall be completed in the same day that installation is commenced. Under no circumstances shall holes in the roadway be left open overnight.
- 4). When installing Type 3-A monuments, the aluminum access cover shall be positively secured to the PVC pipe with screws or glue. The access cover shall be caulked with asphalt caulking between the cover and the edges of the roadway surface to provide a positive moisture barrier around the access cover.
- 5). Control survey procedures, statistical analysis, and accuracy obtained for horizontal and vertical control shall be documented in the field book.
- 6). Legible copies of the field books shall be submitted to the Project Engineer for review on a monthly basis.
- 7). It is ultimately the Prime Contractors responsibility to insure that these requirements, as well as any contained in the CDOT specifications, project special provisions, and CDOT Survey Manual are fulfilled under this contract.
- 8). The minimum staking intervals for each item are described on the plans or in the CDOT Survey Manual. If the contractor wishes to reduce the minimum intervals, a Contract Modification Order must be negotiated and the cost of the item reduced accordingly.

COORDINATE DATUM: Coordinates are modified colorado state plane central zone NAD '83 coordinates. State plane coordinates were modified to a mean project elevation of 3087.439m. The combined elevation/scale correction factor used to modify the coordinates was 0.999534198. The CHARN is based on the VGS '84 (92) datum.

NOTE: Refer to M-629-1 SURVEY MONUMENTS of the STANDARD PLANS, COLORADO DEPARTMENT OF TRANSPORTATION, M & S STANDARDS NOVEMBER 1992 for survey monument descriptions. Refer to M-100-1 STANDARD SYMBOLS of the STANDARD PLANS, COLORADO DEPARTMENT OF TRANSPORTATION, M & S STANDARDS NOVEMBER 1992 for standard symbol definitions.

NOTE: This control survey is for the use of Colorado Department of Transportation personnel. The survey is not a complete boundary survey. Title policy, title commitment, and title research were not part of this control survey, therefore, easements, rights, and restrictions of record are not shown. The verification of the physical evidence with relation to easements, rights of way, property boundaries, and restrictions, as described in the instruments of record, were not included in this control survey.

NOTE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the statement shown.

SURVEYORS STATEMENT: I, Joseph P. Conway, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my supervision this _____ day of _____, from a field survey performed under my supervision from April 23, 1993 to February 9, 1996, and checking for and on behalf of the Department of Transportation, State of Colorado, and is not a Land Survey Plat or Right-of-Way Survey Plat and to the best of my knowledge and belief this control survey, as shown, meets the minimum horizontal control tolerances of a Type B Survey and this topographic survey, as shown, meets the minimum horizontal control tolerances of a Type D Survey as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 4/29/92).

Joseph P. Conway L.S. 25618

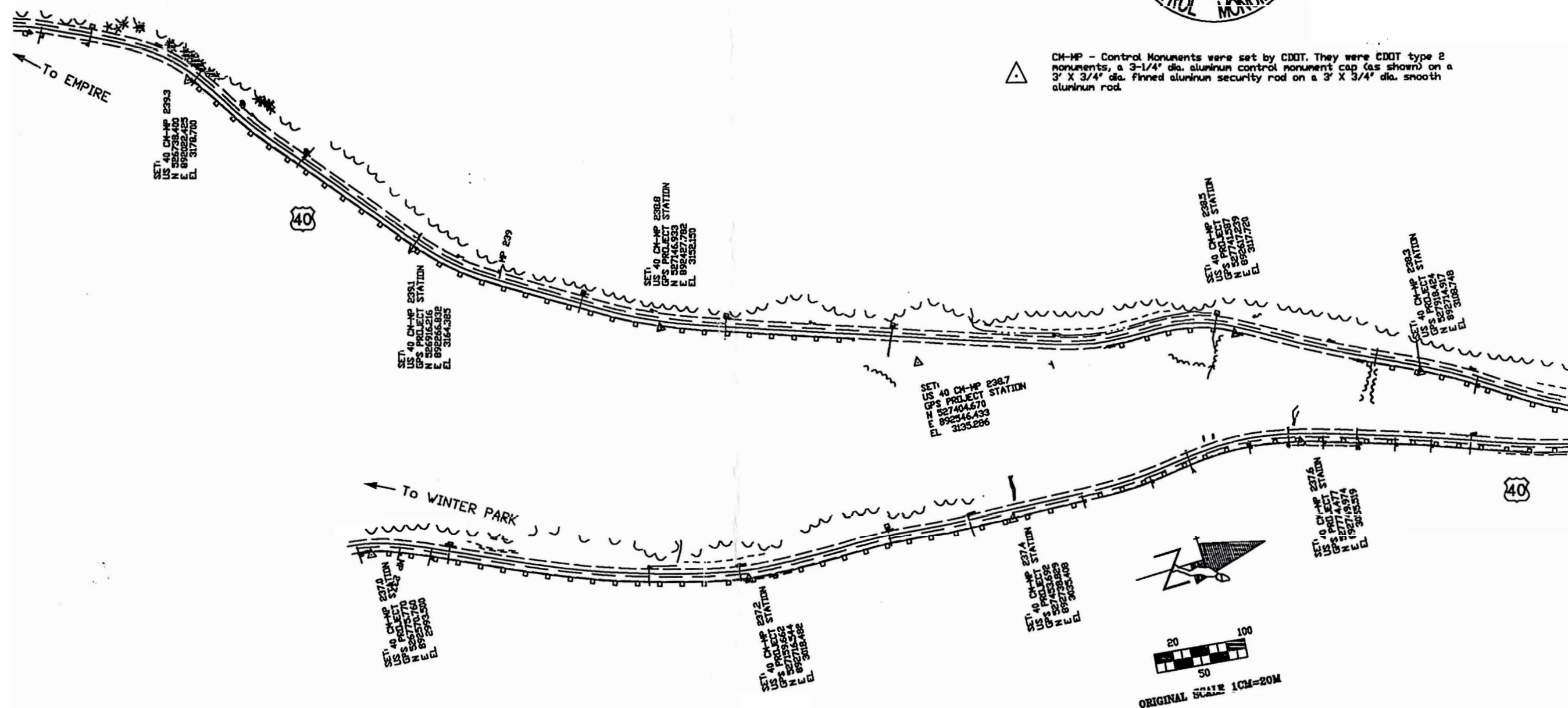
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Last Modification Date:		4/21/98		Initials:		KAW						Revised:		SH 40 West of Barthoud Pass Phase 4				12154			
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CM-MP - Control Monuments were set by CDOT. They were CDOT type 2 monuments, a 3-1/4" dia. aluminum control monument cap (as shown) on a 3' X 3/4" dia. finned aluminum security rod on a 3' X 3/4" dia. smooth aluminum rod.



Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		SURVEY CONTROL DIAGRAM				Project NH 0403-031	
Creation Date: 5/13/98 Initials: LJ								 Region 1 Construction 18500 E Saffix Avenue Aurora, Colorado 80011 Phone: 303-757-8744 FAX: 303-757-8748				No Revisions:		SH 40 West of Barthoud Pass Phase 4				SH 40 West of Barthoud Pass Phase 4	
Last Modification Date: 4/21/98 Initials: KAW														12154					
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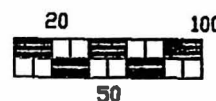
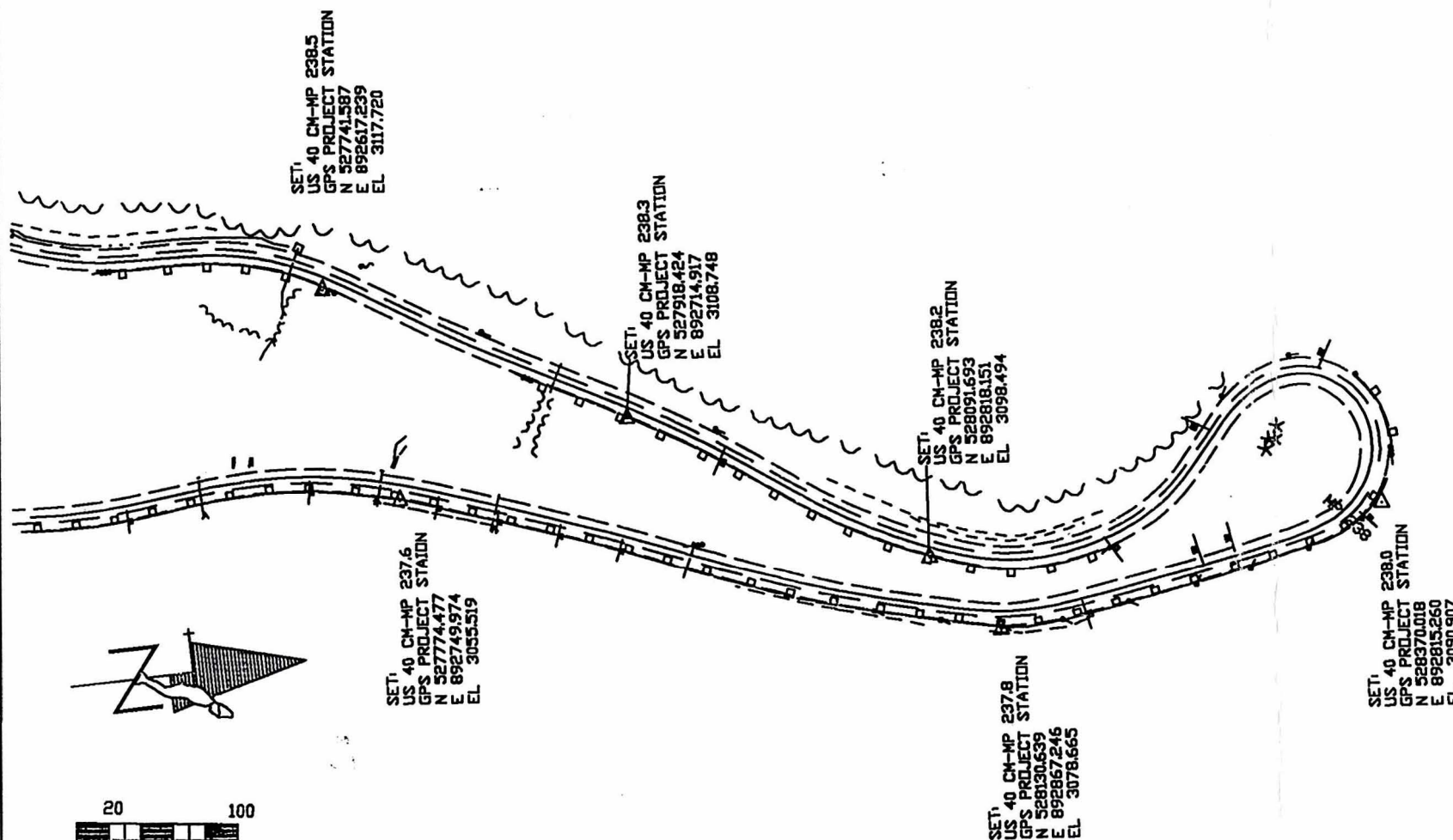


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CH-MP - Control Monuments were set by CDDT. They were CDDT type 2 monuments, a 3-1/4" dia. aluminum control monument cap (as shown) on a 3' X 3/4" dia. finned aluminum security rod on a 3' X 3/4" dia. smooth aluminum rod.



ORIGINAL SCALE 1CM=20M

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Drawing File Name:	12154.DWG													
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Colorado Department of Transportation						Region 1 Construction			18500 E Colfax Avenue			Aurora, Colorado 80011		
Survey Coordinator						JPC			303-757-8744 FAX: 303-757-8748			Sheet Subject: Survey		
												Sheet Number - 47		