

LEVANTAMIENTO TOPOGRÁFICO, BATIMETRÍA Y LOCALIZACIÓN DE USUARIOS  
DE LA VEREDA AGUA BONITA, ZONA RURAL DEL MUNICIPIO DE SAN JOSÉ DEL  
GUAVIARE.

GOBERNACIÓN DEL GUAVIARE



CONTRATO DE CONSULTORÍA N° 574 DE 2011 CUYO OBJETO ES  
“ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN DEL SISTEMA DE  
ACUEDUCTO DE LA VEREDA AGUA BONITA EN EL MUNICIPIO DE SAN JOSÉ DEL  
GUAVIARE, GUAVIARE.”

MAYO DE 2024

INFORME TOPOGRÁFICO

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## 1. INTRODUCCIÓN.

El Levantamiento topográfico es el conjunto de operaciones que se necesita realizar y obtener una correcta representación gráfica y planimetría, o plano, de una extensión cualquiera de terreno, sin dejar de considerar las diferencias de cotas o desniveles que presente dicha extensión. Este plano es esencial para emplazar correctamente cualquier obra que se desee llevar a cabo, así como lo es para elaborar cualquier proyecto.

A continuación, se describirá la forma como se realizó el levantamiento topográfico a la vereda agua bonita, zona rural del Municipio de San José del Guaviare.

## 2. OBJETIVOS Y ALCANCE DEL ESTUDIO

### 2.1 OBJETIVO

Hacer el levantamiento topográfico, batimetría al punto de captación y localización de usuarios en la vereda agua bonita, zona rural del Municipio de San José del Guaviare.

### 2.2 ALCANCE DE LOS TRABAJOS TOPOGRÁFICOS

El alcance de este trabajo consiste en levantar información detallada de cada uno de los puntos existentes en la vía y el punto de construcción del tanque elevado para la distribución del agua con estación total mediante una poligonal abierta amarrada al sistema de coordenadas MAGNA SIRGAS para el posterior diseño y ejecución de la obra, la batimetría al punto de captación y la respectiva localización de usuarios pertenecientes a la vereda agua bonita.

## 2.3. LOCALIZACIÓN

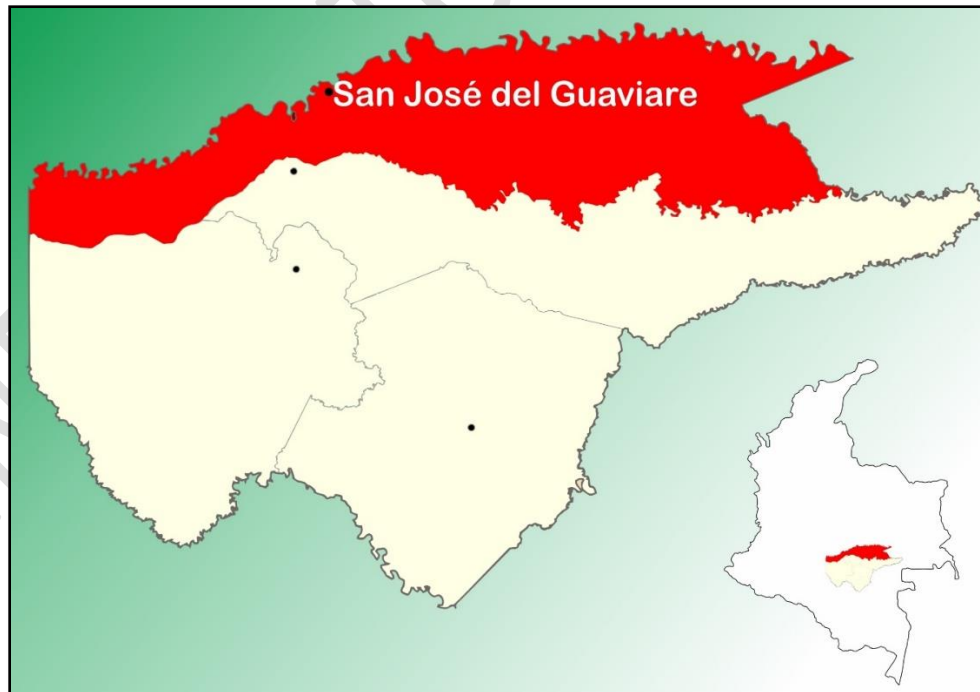
El proyecto “Estudios Y Diseños Para La Construcción Del Sistema De Acueducto De La Vereda Agua Bonita En El Municipio De San José Del Guaviare, Guaviare.”, pretende la construcción de un sistema de acueducto para la vereda de Agua Bonita del municipio de San José del Guaviare, sistema que beneficiaría a 189 usuarios.

El terreno de la zona de estudio se encuentra en una topografía plana dada sus pendientes longitudinales menores al 3%.

COORDENADAS GEOGRAFICAS DEL MUNICIPIO DE SAN JOSÉ DEL GUAVIARE	
LATITUD	LONGITUD
2° 33' 55" N	72° 38' 19" W

COORDENADAS GEOGRAFICAS DE LA VEREDA AGUA BONITA	
LATITUD	LONGITUD
2° 31' 26,52" N	72° 37' 05,82"

**Ilustración 1.** Ubicación geográfica del departamento del Guaviare y el municipio de San José del Guaviare.



Fuente: Plan de Desarrollo Municipal 2020-2023 “Oportunidad y progreso para todos”, Alcaldía municipal de San José del Guaviare.

## INFORME TOPOGRÁFICO

### 3. METODOLOGÍA

- Visita a campo y reconocimiento del proyecto.
- Distribución de puntos de amarre (DELTAS).
- Levantamiento de puntos específicos y estratégicos para su posterior diseño.
- Dibujo en AutoCAD.
- Cálculo de cartera de campo e informe.

### 4. DESCRIPCIÓN DE LOS TRABAJOS

#### 4.1 LOCALIZACIÓN DE COORDENADAS

Para la localización de las coordenadas planas se utilizó un GPS doble frecuencia para el respectivo amarre a las placas certificadas por el IGAC, utilizado en los puntos D1 y REF., para luego hacer el respectivo cálculo de coordenadas en el sistema de referencia MAGNA SIRGAS origen ESTE CENTRAL por medio de un levantamiento topográfico con una Estación total. *(Anexo informe traslado de placas certificadas por el IGAC)*

#### 4.2 LEVANTAMIENTO Y DISTRIBUCIÓN DE LA POLIGONAL

El levantamiento y distribución que se hizo fue por medio de una poligonal abierta, en donde se estableció una red de DELTAS o PUNTOS DE AMARRE (REF, D1), se utilizó una Estación total CYGNUS KS-102 con el fin de mitigar en lo máximo algún tipo de error topográfico.

Se tomaron puntos de interés e igualmente cualquier otro detalle que fuera relevante para el diseño.

## 5. REFERENCIACION

Los puntos de referencia (REF Y DELTAS) usados para el levantamiento, topográfico fueron ubicados estratégicamente en partes donde sean fáciles de identificar y además que perduren hasta el final de la obra ya que pueden utilizarse como puntos de amarre existentes y con coordenadas reales ya asignadas.

### DELTA 1

OBSERVADOS				
INFORMACION DE PUNTO DE CONTROL			EPOCA DE REFERENCIA	2018.0
NOMBRE DEL PUNTO	GPS-PC-01		ONDULACION GEOIDAL	19.8
SISTEMA DE COORDENADAS	LATITUD		LONGITUD	ALTURA
	GAUUS KRUGER	770533.915	1162918.913	206.117
	GEOGRAFICAS	2°31'12,84040"N	72°36'45,84593"W	225.917
	GEOCENTRICAS	1904206.5437	-6081066.7456	278594.8709

### REFERENCIA

OBSERVADOS				
INFORMACION DE PUNTO DE CONTROL			EPOCA DE REFERENCIA	2018.0
NOMBRE DEL PUNTO	SAZ-PC-01		ONDULACION GEOIDAL	19.8
SISTEMA DE COORDENADAS	LATITUD		LONGITUD	ALTURA
	GAUUS KRUGER	770508.652	1162960.306	206.836
	GEOGRAFICAS	2°31'12,01668"N	72°36'44,50738"W	226.636
	GEOCENTRICAS	1904246.5537	-6081056.1356	278569.6249

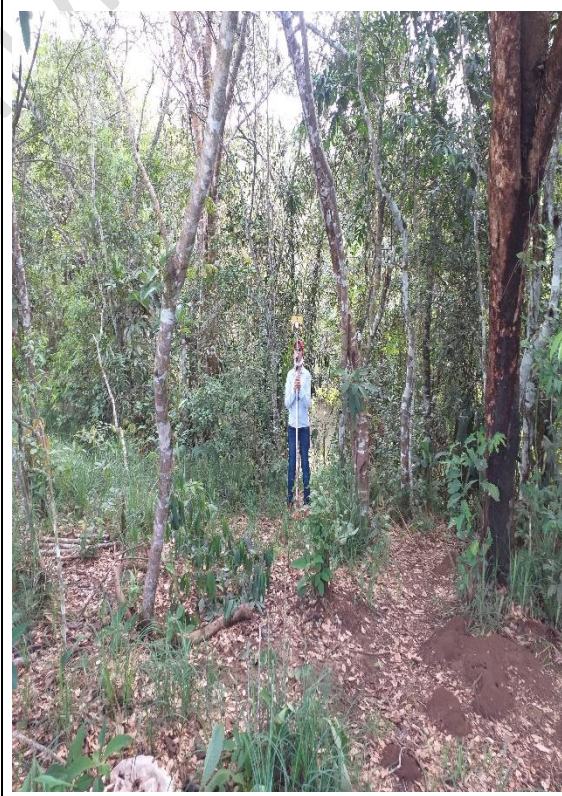
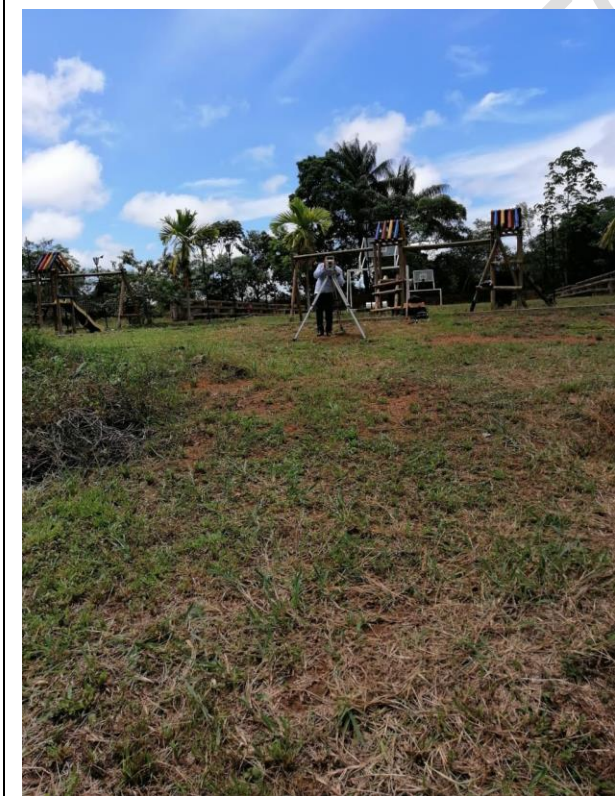
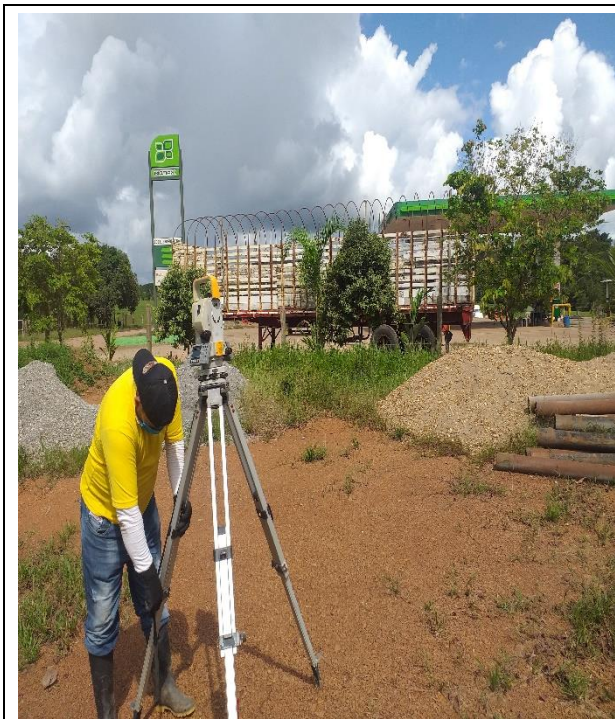
## 6. EQUIPOS Y HERRAMIENTOS UTILIZADOS

- Vehículo de transporte.
- Estación total CYGNUS KS-102.
- Jalones.
- Prismas.
- Maseta.
- Estacas.
- Puntillas.
- Pintura.
- Flexómetro.
- Computador.
- Cinta métrica.
- Software de computación.

# INFORME TOPOGRÁFICO

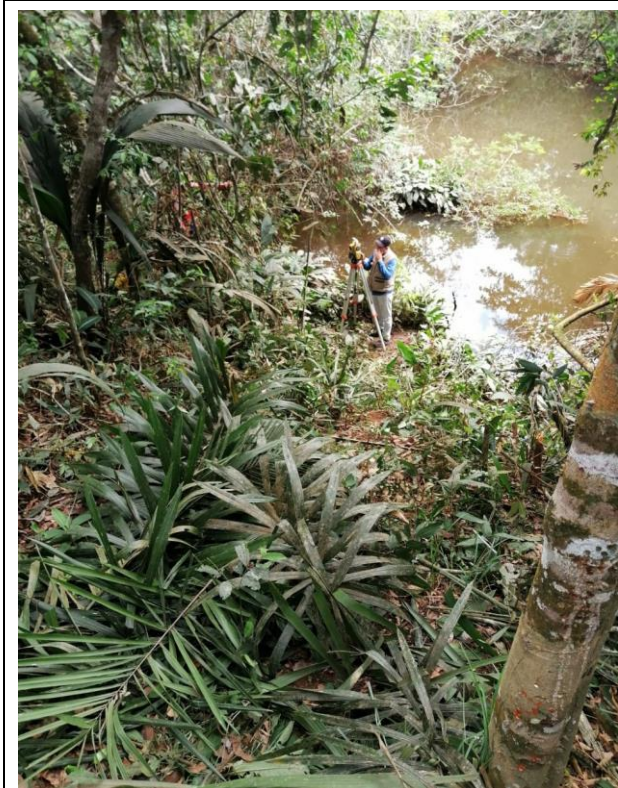


## 7. REGISTRO FOTOGRÁFICO.



INFORME TOPOGRÁFICO





## INFORME TOPOGRÁFICO



## 8. CARTERA DE CAMPO.

Name	Ground Easting (m)	Ground Northing (m)	Elevation (m)	Code
D1	1162918,913	770533,915	206,117	DELTA
REF1	1162960,334	770508,635	206,837	DELTA
D2	1162826,691	770494,023	203,409	DELTA
1	1162873,13	770504,055	205,414	PLACA
2	1162877,839	770499,788	205,445	PLACA
3	1162890,938	770518,637	205,457	PLACA
4	1162894,739	770514,858	205,524	PLACA
5	1162895,876	770510,779	205,942	ANDEN
6	1162903,737	770518,615	205,94	ANDEN
7	1162904,733	770519,074	205,872	CAJA INSP
8	1162905,386	770518,421	205,858	CAJA INSP
9	1162904,723	770517,771	205,887	CAJA INSP
10	1162908,325	770513,907	206,015	ANDEN
11	1162901,428	770516,419	205,944	CAJA INSP
12	1162900,794	770517,152	205,92	CAJA INSP
13	1162900,045	770516,523	205,936	CAJA INSP
14	1162899,116	770515,372	205,885	CAJA INSP
15	1162898,671	770514,917	205,887	CAJA INSP
16	1162899,124	770514,474	205,882	CAJA INSP
17	1162892,017	770523,828	205,045	POST
18	1162871,151	770521,276	204,315	COSNT
19	1162867,715	770524,893	204,145	COSNT
20	1162879,545	770529,096	204,363	COSNT
21	1162915,578	770528,005	206,415	PAQUE
22	1162921,95	770521,601	206,428	PAQUE
23	1162932,053	770544,441	206,42	PAQUE
24	1162926,902	770544,11	205,638	CERK
25	1162924,363	770541,664	205,715	CERK
26	1162917,772	770548,702	204,834	CERK
27	1162910,705	770556,056	204,507	CERK
28	1162901,579	770566,113	203,95	CERK
29	1162894,391	770559,869	203,725	CERK
30	1162888,437	770554,519	203,793	CERK
31	1162881,851	770548,103	203,657	CERK
32	1162873,771	770540,919	203,818	CERK
33	1162859,463	770527,99	203,726	CERK
34	1162870,642	770514,643	204,733	ARB
35	1162875,961	770523,416	204,468	ARB

## INFORME TOPOGRÁFICO

36	1162879,876	770520,763	204,64	PT
37	1162882,689	770516,609	205,085	PT
38	1162886,639	770525,682	204,798	ARB
39	1162888,054	770529,069	204,664	PT
40	1162894,444	770530,585	204,731	ARB
41	1162889,536	770534,856	204,539	ARB
42	1162883,504	770534,708	204,405	ARB
43	1162886,304	770536,616	204,348	PT
44	1162890,306	770539,126	204,216	ARB
45	1162895,485	770536,918	204,63	ARB
46	1162899,051	770540,956	204,573	PT
47	1162904,089	770545,236	204,542	PT
48	1162906,533	770552,012	204,389	ARB
49	1162913,665	770545,009	204,935	PT
50	1162908,817	770540,446	204,905	PT
51	1162915,411	770535,012	205,751	PT
52	1162919,878	770538,248	205,926	PT
53	1162905,32	770530,752	205,044	PT
54	1162908,469	770525,963	205,47	PT
55	1162908,229	770520,429	205,958	CAJA INSP
56	1162907,529	770519,724	205,947	CAJA INSP
57	1162908,177	770519,141	205,967	CAJA INSP
58	1162894,154	770546,232	204,005	PT
59	1162904,243	770558,367	204,116	PT
60	1162898,882	770549,358	204,23	PT
61	1162925,211	770522,829	206,391	AUX
62	1162863,338	770493,284	204,997	PARAM
63	1162851,008	770481,904	204,934	PARAM
64	1162868,854	770491,363	205,342	CAJA INSP
65	1162869,51	770491,479	205,348	CAJA INSP
66	1162860,578	770515,31	204,261	ARB
D1	1162918,913	770533,915	206,117	DELTA
R1	1162969,376	770501,212	209,443	REF
D2	1162826,975	770493,394	203,403	DELTA
AUX	1162925,284	770522,878	206,391	AUX
R2	1162960,51	770508,923	206,836	REF
D3	1162671,717	770641,126	199,643	DELTA
1	1162831,042	770496,227	203,429	CERK
2	1162828,352	770499,062	203,306	CERK
3	1162833,72	770504,003	203,363	CERK
4	1162841,225	770510,845	203,389	CERK

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5	1162848,275	770517,276	204,162	CERK
6	1162852,759	770512,665	203,994	PT
7	1162856,444	770507,625	204,477	PT
8	1162867,852	770505,054	204,752	ARB
9	1162861,958	770501,679	204,631	PT
10	1162858,12	770498,85	204,529	PARAM
11	1162851,432	770500,878	204,414	ARB
12	1162848,255	770504,01	203,892	PT
13	1162844,904	770507,363	203,761	PT
14	1162838,754	770502,171	203,714	PT
15	1162841,176	770498,548	203,765	PT
16	1162844,243	770493,352	204,034	PT
17	1162845,862	770487,402	204,941	PARAM
18	1162842,059	770485,557	204,285	CERK
19	1162833,737	770493,796	203,492	CERK
20	1162841,57	770457,354	204,825	CERK
21	1162845,549	770463,186	204,187	BV
22	1162849,925	770468,204	204,188	BV
23	1162837,625	770481,901	203,874	SARDINEL
24	1162838,598	770482,769	203,877	ANDEN
25	1162839,872	770484,123	203,916	ANDEN
26	1162842,09	770484,752	204,261	POST
27	1162831,976	770491,868	203,527	ANDEN
28	1162830,677	770490,483	203,501	ANDEN
29	1162829,838	770489,513	203,555	SARDINEL
30	1162833,695	770490,227	203,592	ANDEN
31	1162834,886	770491,856	203,64	ANDEN
32	1162833,608	770493,412	203,65	ANDEN
33	1162828,78	770487,903	203,401	BV
34	1162824,396	770484,43	203,396	BV
35	1162816,56	770481,483	203,481	CERK
36	1162815,002	770511,788	202,865	CERK
37	1162809,986	770506,552	203,019	BV
38	1162805,831	770502,231	202,962	BV
39	1162800,64	770496,562	203,32	CERK
40	1162780,948	770515,216	202,43	CERK
41	1162787,434	770520,397	202,551	BV
42	1162791,931	770525,05	202,466	BV
43	1162796,474	770529,331	202,24	CERK
44	1162786,958	770538,509	201,999	CERK
45	1162783,391	770534,307	202,29	BV

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46	1162778,244	770529,706	202,367	BV
47	1162767,915	770527,588	202,026	CERK
48	1162754,834	770540,08	202,023	CERK
49	1162761,259	770546,174	202,139	BV
50	1162766,255	770551,242	202,108	BV
51	1162768,849	770555,769	201,952	CERK
52	1162751,125	770566,164	201,881	BV
53	1162745,84	770561,682	201,828	BV
54	1162739,283	770554,715	202,39	CERK
55	1162723,134	770570,072	202,413	CERK
56	1162730,6	770577,246	201,414	BV
57	1162734,523	770580,903	201,491	BV
58	1162714,821	770598,977	200,916	BV
59	1162710,108	770594,079	200,7	BV
60	1162692,267	770609,996	200,215	BV
61	1162697,675	770614,825	200,365	BV
62	1162842,126	770484,791	204,219	POSTE
63	1162831,427	770497,905	203,523	CEIBA
D4	1162478,884	770827,042	195,449	DELTA
64	1162706,878	770585,271	202,059	CERCA
65	1162722,536	770599,509	202,025	CERCA
66	1162714,047	770607,645	201,306	CERCA
67	1162706,263	770615,186	201,071	CERCA
68	1162707,719	770620,96	201,336	CERCA
69	1162692,339	770634,996	199,989	CERCA
70	1162684,856	770627,632	199,978	BV
71	1162678,712	770623,162	199,867	BV
72	1162672,554	770617,754	199,648	CERCA
73	1162660,663	770628,979	199,069	CERCA
74	1162666,18	770636,892	199,473	BV
75	1162670,274	770642,123	199,493	BV
76	1162677,225	770648,766	199,58	CERCA
77	1162667,057	770646,868	199,133	BOX
78	1162666,024	770647,922	199,141	BOX
79	1162658,73	770640,86	198,937	BOX
80	1162659,819	770639,744	198,879	BOX
81	1162640,971	770647,868	198,098	CERCA
82	1162647,991	770653,873	199,013	BV
83	1162652,457	770658,634	199,093	BV
84	1162659,185	770665,592	199,692	CERCA
85	1162640,812	770682,511	199,244	CERCA

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86	1162634,743	770675,525	198,583	BV
87	1162629,924	770669,82	198,479	BV
88	1162624,395	770663,922	198,464	CERCA
89	1162602,535	770684,699	198,597	CERCA
90	1162608,812	770690,471	197,86	BV
91	1162614,555	770694,401	198,04	BV
92	1162620,933	770700,876	198,886	CERCA
93	1162600,771	770719,507	198,205	CERCA
94	1162594,606	770713,782	197,304	BV
95	1162589,652	770708,294	197,217	BV
96	1162584,778	770701,76	198,006	CERCA
97	1162569,734	770727,17	196,66	BV
98	1162575,068	770733,094	196,854	BV
99	1162580,55	770738,109	197,558	CERCA
100	1162560,335	770756,722	196,439	CERCA
101	1162557,188	770749,556	196,389	BV
102	1162550,805	770742,943	196,08	BV
103	1162544,074	770740,584	196,092	CERCA
104	1162524,213	770759,498	195,057	CERCA
105	1162529,574	770765,08	195,673	BV
106	1162535,299	770771,335	195,732	BV
107	1162539,891	770775,484	195,484	CERCA
108	1162535,704	770770,518	195,772	BV
109	1162528,876	770764,945	195,643	BV
110	1162523,938	770759,821	195,063	CERCA
111	1162511,024	770783,236	195,374	BV
112	1162516,175	770788,238	195,552	BV
113	1162521,172	770792,86	195,558	CERCA
114	1162500,922	770811,147	195,273	CERCA
115	1162497,025	770807,007	195,367	BV
116	1162491,779	770801,966	195,324	BV
D5	1162414,44	770845,751	195,687	DELTA
117	1162501,111	770790,493	194,906	BOX
118	1162502,111	770789,561	194,903	BOX
119	1162508,897	770797,076	195,395	BOX
120	1162507,75	770798,062	195,368	BOX
121	1162503,674	770779,237	194,555	CERCA
122	1162493,683	770788,666	194,195	CERCA
123	1162490,835	770785,204	193,95	CERCA
124	1162485,691	770779,018	193,569	CERCA
125	1162483,486	770788,605	195,737	CASETA

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126	1162480,259	770792,137	195,724	CASETA
127	1162489,968	770800,149	195,49	CASETA
128	1162493,018	770796,316	195,36	CASETA
129	1162475,709	770817,492	195,242	BV
130	1162482,003	770823,282	195,275	BV
131	1162484,112	770827,179	195,379	MALLA
132	1162473,2	770837,34	195,345	MALLA
133	1162466,012	770844,11	195,141	PARAM
134	1162462,442	770839,541	195,147	BV
135	1162458,011	770834,452	194,987	BV
136	1162455,308	770853,759	194,877	PARAM
137	1162450,183	770852,444	194,735	BV
138	1162444,111	770846,761	194,725	BV
139	1162440,697	770849,315	194,784	PLACA
140	1162455,568	770835,215	195,005	PLACA
141	1162450,668	770834,357	195,795	CUADRO
142	1162446,641	770829,925	195,847	CUADRO
143	1162455,65	770821,862	195,851	CUADRO
144	1162459,645	770826,33	195,789	CUADRO
145	1162473,103	770818,539	195,205	PLACA
146	1162452,316	770795,997	195,333	PLACA
147	1162446,181	770789,986	195,39	PLACA
148	1162441,892	770793,753	195,378	PLACA
149	1162432,496	770783,967	195,162	PLACA
150	1162428,754	770787,603	195,292	PARAM
151	1162422,074	770780,673	194,713	PARAM
152	1162430,427	770781,198	194,692	POSTE ELE
153	1162405,308	770816,531	195,192	PARAM
154	1162400,917	770820,704	195,083	PLACA
155	1162400,909	770820,729	195,185	SARDINEL
156	1162416,966	770829,97	195,605	SARDINEL
157	1162437,515	770841,554	195,408	SARDINEL
158	1162440,307	770846,9	195,143	SARDINEL
159	1162435,399	770856,614	194,632	BV
160	1162402,137	770886,756	193,456	BV
161	1162409,209	770893,496	193,273	BV
162	1162395,304	770883,118	194,286	CERCA
163	1162383,683	770876,775	194,335	CERCA
D6	1162328,13	770799,752	192,687	DELTA
D7	1162313,319	770788,241	191,488	DELTA
164	1162315,759	770777,966	191,333	CERCA

## INFORME TOPOGRÁFICO

165	1162342,519	770792,11	193,01	CERCA
166	1162351,798	770804,124	193,589	NPH-R
167	1162370,279	770811,517	194,413	CONTAINER
168	1162378,28	770816,03	194,559	CONTAINER
169	1162379,793	770813,416	194,499	CONTAINER
170	1162399,555	770810,764	194,781	PARAM
171	1162383,275	770789,149	193,593	PARAM
172	1162431,9	770841,33	195,747	CERCA
173	1162450,733	770857,141	194,644	BV
174	1162462,052	770871,265	194,268	BV
175	1162456,991	770875,762	194,059	BV
176	1162446,028	770868,446	194,312	BV
D3	1162303,768	770777,801	186,511	ESPEJO
D4	1162300,315	770777,461	185,282	ESPEJO
S001	1162295,397	770776,912	185,1	FONDO
S002	1162289,116	770775,809	184,607	FONDO
S003	1162329,145	770781,615	192,368	TERRENO
S004	1162321,871	770782,158	192,059	TERRENO
S005	1162315,508	770782,063	191,464	TERRENO
S006	1162311,488	770779,717	190,607	TERRENO
S007	1162307,896	770779,245	188,675	TERRENO
S008	1162305,55	770778,055	186,894	TERRENO
S009	1162314,956	770799,221	191,716	TERRENO
S010	1162308,284	770797,705	190,988	TERRENO
S011	1162304,48	770796,254	189,843	TERRENO
S012	1162302,079	770795,681	188,668	TERRENO
D10	1162304,63	770804,622	190,352	DELTA
S013	1162286,606	770774,738	185,123	FONDO
S014	1162281,199	770773,386	186,466	FONDO
S015	1162278,707	770772,315	186,901	TERRENO
D11	1162304,367	770777,077	186,732	DELTA
S016	1162293,645	770766,158	185,261	FONDO
S017	1162295,51	770765,171	186,458	LAMINA
S018	1162290,685	770767,54	184,957	LAMINA
S019	1162287,623	770769,026	185,256	FONDO
S020	1162297,759	770761,749	186,865	TERRENO
S021	1162302,278	770760,911	187,01	TERRENO
S022	1162306,923	770760,592	188,252	TERRENO
S023	1162312,544	770762,322	189,68	TERRENO
S024	1162308,155	770769,899	188,721	PARAMENTO
S025	1162309,115	770772,474	188,762	PARAMENTO

## INFORME TOPOGRÁFICO

S026	1162311,977	770771,452	188,975	PARAMENTO
S027	1162306,781	770770,292	188,703	PARAMENTO
S028	1162305,563	770769,633	188,718	PARAMENTO
S029	1162304,687	770770,85	188,689	PARAMENTO
S030	1162306,149	770771,586	188,706	PARAMENTO
S031	1162284,898	770769,75	186,02	FONDO
S032	1162281,703	770770,085	186,651	FONDO
S033	1162274,569	770772,241	187,011	FONDO
S034	1162271,393	770765,849	186,651	TERRENO
S035	1162276,402	770765,956	185,624	FONDO
S036	1162280,469	770762,406	185,097	FONDO
S037	1162282,623	770761,397	186,366	FONDO
S038	1162285,902	770757,874	186,595	TERRENO
S039	1162274,467	770782,39	186,75	TERRENO
S040	1162278,743	770783,87	186,65	TERRENO
S041	1162279,542	770785,017	186,127	TERRENO
S042	1162282,455	770789,559	185,321	TERRENO
S043	1162283,363	770791,665	185,482	TERRENO
S044	1162289,072	770793,81	184,929	TERRENO
S046	1162299,708	770796,362	186,724	TERRENO
S047	1162296,098	770794,138	183,169	FONDO
D12	1162303,313	770834,759	190,461	DELTA
S048	1162296,977	770803,766	186,852	LAMINA
S049	1162293,647	770802,676	183,938	LAMINA
S050	1162290,983	770801,975	184,597	FONDO
S051	1162287,964	770801,812	185,489	FONDO
S052	1162286,888	770802,26	186,661	TERRENO
S053	1162297,592	770803,645	187,629	TERRENO
S054	1162299,881	770804,085	188,887	TERRENO
S055	1162302,408	770804,592	189,779	TERRENO
S056	1162306,967	770804,82	190,503	TERRENO
S057	1162311,462	770806,071	191,114	TERRENO
S058	1162315,929	770807,371	191,624	TERRENO
S059	1162321,014	770808,735	192,119	TERRENO
S060	1162282,489	770802,474	187,117	TERRENO
S061	1162284,717	770802,668	187,128	TERRENO
S062	1162278,658	770801,944	187,491	TERRENO
S063	1162279,761	770813,706	187,075	TERRENO
S064	1162281,483	770814,202	186,781	TERRENO
S065	1162284,277	770814,651	186,704	TERRENO
S066	1162285,534	770814,207	185,032	FONDO

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S067	1162288,553	770815,381	184,567	FONDO
S068	1162293,723	770816,18	185,204	FONDO
S069	1162297,533	770816,512	185,375	FONDO
S070	1162298,109	770817,022	186,57	FONDO
S071	1162299,97	770817,28	187,221	TERRENO
S072	1162303,161	770816,682	188,381	TERRENO
S073	1162306,955	770816,745	189,551	TERRENO
S074	1162311,263	770815,966	190,387	TERRENO
S075	1162313,826	770816,385	190,863	TERRENO
S076	1162318,337	770815,13	191,76	TERRENO
S078	1162310,972	770832,03	191,201	CERCA
S079	1162309,118	770836,325	191,173	TERRENO
S080	1162305,557	770836,091	190,785	TERRENO
S081	1162300,539	770838,424	189,653	TERRENO
S082	1162298,205	770839,001	187,914	TERRENO
S083	1162295,183	770835,483	186,443	TERRENO
S084	1162295,131	770835,268	186,44	TERRENO
S085	1162292,218	770835,663	185,634	FONDO
S086	1162289,114	770835,693	184,76	FONDO
S087	1162283,584	770835,216	184,785	FONDO
S088	1162280,02	770834,795	186,435	FONDO
S089	1162277,999	770834,825	186,619	TERRENO
S090	1162275,115	770835,175	187,009	TERRENO
S091	1162271,972	770835,377	186,938	TERRENO
S092	1162274,471	770854,032	187,084	TERRENO
S093	1162276,352	770852,751	186,934	TERRENO
S094	1162276,941	770852,356	186,458	TERRENO
S095	1162278,536	770851,843	185,888	FONDO
S096	1162283,643	770850,709	184,651	FONDO
S097	1162285,569	770849,861	184,689	FONDO
S098	1162290,086	770847,278	184,949	FONDO
S099	1162294,123	770843,446	186,303	FONDO
S100	1162295,138	770843,023	186,933	FONDO
S101	1162295,17	770843,004	189,286	TERRENO
S102	1162295,176	770842,998	186,937	TERRENO
S103	1162297,203	770846,2	189,28	TERRENO
S104	1162299,793	770845,987	189,857	TERRENO
S105	1162302,841	770846,059	190,361	TERRENO
S106	1162306,357	770846,148	190,917	TERRENO

## INFORME TOPOGRÁFICO



## 9. CATERA COORDENADAS USUARIOS RESIDENTES DE LA VEREDA

N°	NOMBRE	APELLIDOS	CORDENADAS	
			NORTE	ESTE
1	Hector Fernando	zapata Arenas	768248,266	1167048,480
2	Joaquin Pablo	Herrera Melo	768942,428	1166828,271
3	Blanca Arabella	Poveda Cano	769274,098	1166676,465
4	Adán	Rojas Ávila	769175,470	1166410,810
5	Iván	Rojas Flores	769181,563	1166364,448
6	Darío Alfonso	Montoya Guerra	769147,757	1166358,306
7	María del Pilar	Guerra Cárdenas	769418,140	1166351,816
8	Reinel	Mesa Guerrero	769876,130	1166499,627
9	Laurencio	Gutiérrez Calderón	769820,762	1166447,155
10	Edgar	Bermúdez Piñeros	769710,155	1166453,463
11	Fernando	Hincapié Hernández	769568,808	1166447,444
13	Marco	Tulio Pinilla	769574,843	1166351,637
14	Eugenio	Gaitan Garcia	769399,552	1166218,954
15	Edilson Javier	Marín Castellano	769608,748	1166444,308
16	José Rubén	González	769510,283	1166320,808
17	María Ermina	Monsalve Rojas	769147,608	1166228,513
18	Jesús Rodolfo	Sierra López	769127,986	1167872,594
19	Carlos Elías	Restrepo Hurtado	769153,581	1166077,080
20	José Miguel	Peña Cortez	769082,812	1165990,632
21	José Armando	Millán Cortez	769168,683	1165848,379
22	Víctor Edgar	Lozada	769051,597	1165561,112
23	Mauricio	Ramírez Ardila	769136,478	1164544,304
24	José Domingo	Ramírez Cárdenas	769136,338	1164420,692
25	Zaida	Guedes Franco	769614,445	1166051,831
26	Edilberto	Morales Sánchez	769951,350	1165102,724
27	Wilinton	León romero	770142,038	1165266,293
28	Carolina	Cárdenas Garzón	769547,682	1164080,295
29	Ulpiano Arcila	Cáceres	769627,517	1164033,851
30	Cristian Camilo	Ortiz Rodríguez	769722,749	1164018,292
31	Jorge Enrique	Sambrano Salamanca	771065,264	1163834,448
32	Juan Carlos	Mayorquin Lozano	771099,045	1163818,958
33	Rosalía	Santamaria	769645,708	1163817,510
34	Jaime	Restrepo Lopez	770173,479	1163183,410
35	<b>Planta de transformación de productos no maderables de bosque</b>		770185,811	1163220,479

## INFORME TOPOGRÁFICO

36	<b>ASOPROLECHE</b>		770216,498	1163186,452
37	Pedro Julio	Latorre Sanabria	770136,566	1163146,368
38	Maria Amparo	Caro Hernandez	771280,639	1164093,785
39	Johnny Oswaldo	Peña Castrillón	771286,767	1164078,327
40	Rafico	Forero	771252,958	1164069,094
41	Jose Elifonso	Parra Cuesta	771215,985	1163979,519
42	Jhon Mauricio	Delgadillo	771259,026	1164001,102
43	Yenni Paola	Ovalle Toloza	771222,092	1163945,519
44	Sindy Paola	Tolosa	771209,787	1163933,172
45	Alejandro	Salvador Moreno	771194,442	1163948,641
46	Rosario	Ruiz de Godoy	771163,646	1163886,871
47	Luis Alberto	Paez Poveda	771123,590	1163788,028
48	Jorge Arbey	Godoy	771111,209	1163707,695
49	Maria Irene	Godoy Zapata	771065,096	1163686,116
50	William Pulido	Godoy	771052,767	1163652,137
51	Niyireth Karina	Viveros Godoy	771022,062	1163670,713
52	Yeferson	Viveros Godoy	770976,001	1163695,487
53	<b>obra en construccion</b>		771118,653	1167524,177
54	José Orlando	Galviz Sepúlveda	771055,759	1163581,058
55	José Albeiro	Blandón Montoya	771040,396	1163581,075
56	Jaime	Beltrán Molina	771043,511	1163618,155
57	Eloida	Sinisterra Valencia	771006,594	1163578,023
58	Didier	Meneses	770991,179	1163531,687
59	Blanca Yackeline	Salcedo Sanchez	770957,234	1163401,935
60	Leonel de Jesus	Gomez Jaramillo	770932,590	1163346,338
61	Blanca Luz	Sandoval Peña	770917,339	1163445,243
62	Olga	Rodríguez Peña	770892,825	1163503,986
63	Maria Olivia	Osorio	770874,389	1163504,007
64	Gerardo	Díaz Matews	770794,593	1163584,443
65	María Brígida	Vanegas	770834,617	1163655,474
66	Neila	Aguirre Peña	770834,641	1163677,106
67	Carmen Aleida	Bueno	770834,683	1163714,189
68	Derwin Jhon	Liz Urrego	770899,183	1163692,484
69	Dairon Leandro	Herrera Díaz	770899,256	1163757,379
70	Carlos Andres	Beltran Viveros	770899,288	1163785,192
71	HECTOR RAUL	ALDANA CASTAÑEDA	770919,000	1163888,000
72	ANA CECILIA	FANDIÑO LOPEZ	770994,538	1163785,084
73	ROMAURO	GARZON GAMEZ	771010,115	1163973,572
74	CARLOS JULIO	LOPEZ MONRROY	770997,789	1163942,683

## INFORME TOPOGRÁFICO

75	BLEIMER	LOPEZ COCA	771028,599	1164016,814
76	NANCY LULU	PLAZA RODRIGUEZ	771044,011	1164060,061
77	BELEN	PAIVA PEREZ	771099,462	1164186,698
78	MARIO	FRANCO LONDOÑO	771062,594	1164189,830
79	JUAN	MARTINEZ GONZALEZ	770920,975	1163942,770
80	BRANDON	AGUILAR POVEDA	771096,343	1164146,528
81	<b>casa desocupada</b>		771031,714	1164053,894
82	Wilder	Zea Castrillon	771105,190	1163818,951
83	Jorge Alejandro	Ruiz Mora	770981,926	1163500,795
84	Fanyany	Rivera Rodriguez	770920,450	1163479,233
85	Jairo Humberto	Poveda Camacho	770933,657	1164288,865
86	Nelson Arley	Rodayo Rivera	770887,537	1164261,105
87	<b>Casa abandonada</b>		1164261,105	1164193,126
88	<b>Casa abandonada</b>		770905,881	1164180,737
89	Carlos Alberto	Ortiz	770899,687	1164137,481
90	Alejandro	Higuera Silva	770825,857	1164060,308
91	Ligia	Aguilera Beltrán	770779,667	1163970,743
92	Amado de Jesus	Bonilla Quiseno	770764,241	1163915,135
93	ESPERANZA	SABOGAL	770659,780	1163921,434
94	<b>casa desocupada</b>		770588,705	1163563,044
95	AMADEO	MEDINA ESCOBAR	770721,092	1163797,754
96	Luis Geovanny	Lopez	770650,503	1163868,910
97	YURI YILEDI	MURCIA COCA	770539,576	1163590,912
98	MATIAS	CACERES SANDOVAL	770502,614	1163510,607
99	LUIS ENRIQUE	RODRIGUEZ	770413,506	1163507,617
100	JOSE PASION	FONSECA PINEDA	770459,434	1163365,413
101	<b>Casa Desocupada</b>		769593,184	1166268,178
102	LUZ MARINA	ARDILA PAVON	769205,428	1165737,086
103	<b>Casa Desocupada</b>		769085,790	1165907,189
104	JULIAN SAMUEL	GUZMAN AMAYA	768874,955	1164232,478
105	DIANYT YULIETH	HIDALGO ACOSTA	769880,610	1165040,999
106	MIGUEL	ANGEL MOSQUERA	769547,772	1164160,643
107	MARIA MILVIA	GALEANO ORTIZ	768439,022	1161816,355
108	ZACARIAS	GARCIA GARCIA	768023,666	1161310,007
109	Asenio	Amado Sendales	768544,031	1162304,503
110	<b>LOCAL COMERCIAL AGRO VIDA</b>		768620,539	1162029,383
111	Aurelio	Cruz Sichaca	768586,583	1161887,268
112	Fidel	Lesmes Tolosa	768869,376	1161992,023
113	Gonzalo	Torres Alferes	768166,790	1162919,892

## INFORME TOPOGRÁFICO

114	<b>Casa Desocupada</b>		768203,961	1163188,708
115	<b>Casa en construcción</b>		768931,236	1162359,698
116	James Sneider	Ramirez Carvajal	769091,017	1162365,700
117	Jose Vicente	Padilla	769241,545	1162340,810
118	Luis	Beltran Chitiva	769195,367	1162260,514
119	YIMER ALDAIR	GARCIA BOCANEGRA	769275,291	1162294,418
120	Ingrid	García Bonilla	769782,600	1162593,608
121	<b>Casa Desocupada</b>		769929,803	1162343,132
122	Elio Enrique	Camacho Cáceres	771192,292	1162041,965
123	Jose Pastor	Franco Cano	771409,600	1161287,707
124	Adelaida	Acosta Molina	770798,279	1161393,457
125	Geovanny	Rodríguez Acosta	770961,338	1161584,869
126	Jairo	Ospina Ruiz	770972,678	1160731,955
127	ELCY	GARCIA LOPEZ	770753,795	1160070,892
128	ENRIQUE	ROSALES CUERVO	770588,117	1160287,390
129	ALEXANDER	GARCIA RODRIGUEZ	769629,153	1159988,696
130	<b>Restaurante</b>		770006,783	1159722,521
131	MARIA RUBIELA	PEREZ DE BELTRAN	769887,000	1159641,000
132	HEILER	GUERRA HOLGUIN	769496,467	1159472,773
133	EVANGELINA	CORONA	769247,000	1159282,000
134	ANA DEL SOCORRO	DUQUE	767896,000	1159846,000
135	LUIS ALBERTO	DUQUE GALEANO	767192,000	1159078,000
136	JAIME	ALFONSO BERNAL	767099,000	1157605,000
137	CASA BLANCA (ABANDONADA)		766167,000	1155181,000
138	GLADYS	VELEZ VELEZ	771030,000	1162300,000
139	SANDRA MILENA	VARGAS SANCHEZ	770789,000	1162428,000
140	MARCO EMILIO	PEREZ LOPEZ	770737,000	1163905,000
141	CARLOS JULIO	FONTECHA	768941,000	1161580,000
142	WILSON	MIRANDA HERNANDEZ	770935,000	1163463,000
143	BODEGA (ABANDONADA)		770233,000	1163071,000
144	MARIA TATIANA	LOSADA CASTRO	770233,000	1163071,000
145	INSTITUCION EDUCATIVA AGUA BONITA		770441,000	1162894,000
146	ALFONSO	MONTENEGRO REYES	772001,000	1165787,000
147	VIVIENDA (ABANDONADA) – VÍA ALFONSO MONTENEGRO		771753,000	1165784,000
148	JAIRO ESNEIDER	LONDOÑO QUIZA	771490,000	1165620,000
149	DORIS	SAAVEDRA TRUJILLO	77177,000	1165433,000
150	BAUDILIO	HERNANDEZ	771899,000	1165325,000
151	VIVERO DE AGUA BONITA		771766,000	1165279,000
152	HERLANDY	PERDOMO VARGAS	771830,000	1165164,000

## INFORME TOPOGRÁFICO

153	RUBEN	PERILLA BONILLA	772011,000	1165148,000
154	JUAN ANDRES	HERNANDEZ	771914,000	1164429,000
155	DORIS	POVEDA HERNANDEZ	771927,000	1164199,000
156	JOSELIN	HERNANDEZ	771188,000	1163590,000
157	MEDARDO	MOSQUERA CUESTA	771807,000	1163627,000
158	VIVIENDA 02 (DESHABITADA)		771766,000	1165279,000
159	SAMUEL	POVEDA HERNANDEZ	772305,000	1163620,000
160	DOMINGO (DESHABITADA)		772355,000	1163784,000
161	HILDA CASTAÑEDA (DESHABITADA)		772426,000	1163774,000
162	MARTHA YANETH	ALFONSO	772477,000	1163814,000
163	TOBIAS	VILLAMIL	772900,000	1163658,000
164	VERÓNICA SUAREZ (CELADORA)		772607,000	1163900,000
165	MIGUEL ANGEL	HERNANDEZ	774187,000	1163561,000
166	LUZ MARINA	LONDOÑO	771622,000	1163021,000
167	PANADERIA		770902,000	1162475,950
168	JAIME ALBERTO	ZAPATA	770846,000	1162456,000
169	MARTHA ANDREA	FORERO AYA	770965,000	1162290,000
170	LUZ DARI	LONDOÑO	770606,000	1162749,000
171	CASETA COMUNAL VEREDA AGUABONITA		770493,000	1162863,000
172	YOLIMA	PIRATEQUE PEÑA (ESTADERO LA FORTUNA)	770365,000	1162912,000
173	ARNOLDO	LEON	770205,000	1162604,000
174	ABELARDO	TOLEDO MUR	770098,000	1162106,000
175	GUELMER A.	SANCHEZ OSPINA	770169,000	1161677,000
176	HERLEI	LEON	769608,000	1161872,000
177	ARNULFO	LEON ROMERO	769993,000	1161667,000
178	CARLOS ARLEY	CANO	769152,000	1161059,000
179	EDUARDO	AMAYA	769472,000	1161012,000
180	LUIS FRANCISCO	TELLEZ	768647,000	1160269,000
181	CARLOS GONZALO	BELTRAN	768808,000	1159787,000
182	KAREN ANDREA	LONDOÑO	769229,000	1158959,000
183	JAIRO	SEDANO SANTAMARIA	767238,000	1160039,000
184	JESUS	CUERO GONZALEZ	769658,000	1158732,000
185	JOSE	CEUDIEL AMAYA	769401,000	1158452,000
186	CASA DE AURELIO		767684,000	1157545,000
187	PAOLA ANDREA	JIMENEZ OTERO	770815,000	1164016,000
188	CLARA INÉS CLAVIJO GUARNIZO		770994,760	1163982,860
189	CARLOS ALBERTO OSPINA HUERTAS		770960,789	1163828,386

## INFORME TOPOGRÁFICO



## 10. CATERA COORDENADAS RED DE DISTRIBUCIÓN

PUNTO	ESTE (m)	NORTE (m)	COTA (m)	DESCRIPCIÓN
D1	1162918.913	770533.915	206.117	DELTA
RF1	1162960.331	770508.637	206.837	DELTA
P1	1162903.612	770521.465	205.728	TN
P2	1162879.633	770501.954	205.452	TN
P3	1162857.592	770484.021	204.913	TN
P4	1162843.694	770472.713	204.731	TN
D2	1162843.885	770472.9	204.697	DELTA
D3	1162765.455	770557.788	202.037	DELTA
P5	1162857.641	770564.018	203.008	TN
P6	1162855.662	770543.116	203.18	TN
P7	1162852.636	770520.417	203.436	TN
P8	1162850.138	770499.037	203.115	TN
P9	1162850.864	770471.507	204.965	TN
P10	1162847.825	770451.443	205.477	TN
P11	1162846.299	770432.969	205.885	TN
D4	1162877.604	770447.957	206.05	DELTA
P12	1162746.471	770575.516	201.773	TN
P13	1162727.958	770592.86	201.219	TN
P14	1162709.46	770610.611	200.774	TN
P15	1162690.753	770628.622	200.268	TN
P16	1162671.899	770646.259	199.62	TN
P17	1162654.329	770664.157	199.011	TN
P18	1162635.237	770681.915	198.596	TN
P19	1162616.19	770700.592	198.069	TN
P20	1162597.408	770718.979	197.394	TN
P21	1162578.303	770737.305	196.869	TN
P22	1162559.474	770755.523	196.239	TN
P23	1162541.085	770773.496	195.673	TN
P24	1162522.019	770791.493	195.337	TN
P25	1162522.014	770791.497	195.337	TN
P26	1162504.624	770808.924	194.979	TN
P27	1162486.25	770826.287	194.985	TN
P28	1162467.81	770844.32	194.675	TN
P29	1162448.699	770862.634	194.743	TN
P30	1162431.327	770879.762	193.824	TN
P31	1162412.815	770897.865	193.447	TN
P32	1162394.221	770917.677	192.321	TN
P33	1162375.457	770936.404	192.078	TN
P34	1162894.027	770427.502	207.235	TN

P35	1162910.492	770410.633	208.648	TN
P36	1162895.061	770403.729	208.188	TN
P37	1162874.206	770389.443	207.199	TN
P38	1162851.995	770374.832	206.477	TN
P39	1162831.307	770360.573	205.981	TN
P40	1162811.293	770347.569	205.506	TN
P41	1162798.775	770339.4	205.35	TN
P42	1162776.959	770326.46	204.976	TN
P43	1162755.038	770312.893	204.657	TN
P44	1162733.52	770300.135	204.614	TN
P45	1162709.203	770289.963	204.604	TN
P46	1162685.219	770281.681	204.931	TN
D5	1162685.213	770281.692	205.014	DELTA
P47	1162929.615	770394.947	209.546	TN
P48	1162947.856	770379.216	210.118	TN
D6	1162956.651	770370.469	210.823	DELTA
P49	1162976.883	770354.799	211.051	TN
P50	1163015.381	770321.616	212.298	TN
P51	1163035.144	770304.332	213.009	TN
P52	1163054.822	770287.529	213.645	TN
P53	1163074.359	770270.467	214.377	TN
P54	1163093.565	770253.541	214.725	TN
D7	1163115.667	770236.077	214.81	DELTA
P55	1163131.94	770258.021	213.287	TN
P56	1163150.279	770276.126	212.869	TN
P57	1163168.904	770294.037	212.464	TN
P58	1163188.056	770312.085	212.159	TN
P59	1163206.76	770330.605	210.934	TN
P60	1163224.931	770348.661	210.381	TN
P61	1163242.998	770365.836	209.449	TN
P62	1163261.954	770383.087	208.188	TN
P63	1163286.443	770406.087	206.81	TN
P64	1163304.138	770422.84	205.849	TN
P65	1163322.375	770439.381	204.662	TN
D8	1163314.646	770430.48	204.771	DELTA
P66	1163091.097	770228.818	214.937	TN
P67	1163069.702	770217.198	214.517	TN
P68	1163049.676	770206.586	214.295	TN
P69	1163029.983	770195.896	214.125	TN
P70	1163011.135	770186.854	213.81	TN
P71	1162993.498	770178.054	213.955	TN

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P72	1163495.17	769902.605	213.467	TN
P73	1163516.011	769884.702	213.221	TN
P74	1162937.515	770148.243	212.836	TN
P75	1162921.787	770136.631	212.493	TN
D9	1162921.886	770136.537	212.6	DELTA
D10	1163189.536	770154.891	215.343	DELTA
P76	1163135.778	770217.728	215.102	TN
P77	1163157.272	770198.746	215.242	TN
P78	1163179.061	770179.433	214.902	TN
P79	1163200.089	770160.735	215.114	TN
P80	1163220.414	770143.129	214.037	TN
P81	1163241.343	770124.654	213.132	TN
P82	1163263.26	770105.893	211.639	TN
P83	1163284.484	770086.496	210.05	TN
P84	1163306.107	770068.221	207.952	TN
P85	1163327.105	770049.709	206.743	TN
P86	1163348.337	770031.303	205.534	TN
P87	1163369.888	770012.788	204.483	TN
P88	1163390.702	769994.475	203.673	TN
P89	1163411.27	769976.168	203.477	TN
P90	1163433.832	769956.821	203.577	TN
P91	1163455.063	769938.766	203.622	TN
D11	1163473.63	769919.293	204.69	DELTA
P94	1163535.959	769867.174	207.132	TN
P95	1163556.104	769848.969	208.358	TN
P96	1163577.253	769831.06	208.904	TN
P97	1163597.202	769813.906	209.155	TN
D12	1163595.5	769812.169	209.963	DELTA
P98	1163617.648	769795.721	208.991	TN
P99	1163638.541	769777.799	208.281	TN
P100	1163658.637	769760.534	207.3	TN
P101	1163679.464	769742.4	206.455	TN
P102	1163700.528	769724.58	205.787	TN
P103	1163721.404	769707.414	205.361	TN
P104	1163744.276	769692.569	205.344	TN
D13	1163738.38	769684.548	206.033	DELTA
P105	1163768.288	769682.417	205.377	TN
P106	1163792.689	769674.798	205.218	TN
P107	1163817.989	769668.567	205.069	TN
P108	1163843.273	769662.29	205.643	TN
P109	1163868.786	769654.212	205.813	TN

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P110	1163893.251	769644.039	206.42	TN
P111	1163917.683	769633.624	206.89	TN
P112	1163941.446	769622.95	207.73	TN
P113	1163965.754	769612.524	208.64	TN
P114	1163990.365	769601.644	209.437	TN
D14	1163989.394	769599.994	210.099	DELTA
P115	1164016.013	769590.167	210.37	TN
P116	1164040.608	769579.223	211.404	TN
P117	1164065.117	769568.144	212.564	TN
P118	1164089.13	769556.172	213.274	TN
P119	1164112.521	769539.71	213.578	TN
P120	1164131.894	769521.188	214.09	TN
P121	1164149.107	769500.727	213.706	TN
D15	1164147.646	769498.761	213.985	DELTA
P122	1164164.111	769476.6	213.511	TN
P123	1164175.211	769451.19	213.323	TN
P124	1164182.958	769424.968	212.967	TN
P125	1164187.078	769396.244	213.077	TN
P126	1164190.995	769368.918	212.771	TN
P127	1164194.25	769342.303	212.581	TN
D16	1164192.179	769342.06	212.882	DELTA
P128	1164195.259	769416.393	212.366	TN
P129	1164217.644	769428.185	212.439	TN
P130	1164242.764	769440.632	212.825	TN
P131	1164267.562	769453.278	213.246	TN
P132	1164290.535	769464.34	213.684	TN
P133	1164313.507	769475.606	214.003	TN
D17	1164312.742	769474.958	214.105	DELTA
P134	1164197.561	769314.456	212.885	TN
P135	1164201.414	769287.088	212.749	TN
P136	1164204.499	769259.492	212.999	TN
P137	1164205.898	769231.009	213.348	TN
P138	1164205.998	769203.971	213.593	TN
P139	1164204.316	769175.831	213.865	TN
P140	1164201.602	769148.395	214.06	TN
P141	1164199.036	769121.306	214.169	TN
P142	1164196.917	769094.467	214.877	TN
D18	1164199.396	769088.551	214.897	DELTA
P143	1164194.306	769061.783	214.872	TN
P144	1164191.893	769035.295	215.613	TN
P145	1164189.8	769008.177	216.192	TN

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P146	1164187.914	768979.087	216.898	TN
P147	1164185.965	768951.296	217.66	TN
P148	1164184.166	768924.775	218.499	TN
P149	1164182.36	768894.281	219.423	TN
P150	1164226.111	769087.247	214.754	TN
P151	1164204.905	769094.123	214.613	TN
P152	1164231.959	769093.863	214.809	TN
P153	1164261.396	769091.785	215.646	TN
P154	1164289.502	769090.28	216.707	TN
P155	1164317.384	769089.245	218.081	TN
P156	1164343.651	769088.319	219.526	TN
D20	1164356.459	769082.997	220.237	DELTA
P157	1164383.974	769086.143	221.426	TN
P158	1164409.997	769087.707	222.173	TN
P159	1164435.992	769087.901	222.985	TN
P160	1164462.326	769089.044	223.501	TN
P161	1164487.587	769090.794	223.405	TN
D21	1164498.329	769085.55	222.978	DELTA
P162	1164525.271	769093.572	222.371	TN
P163	1164553.209	769096.409	221.369	TN
P164	1164580.463	769098.736	220.254	TN
P165	1164608.293	769098.877	219.073	TN
P166	1164635.551	769098.578	218.049	TN
P167	1164663.512	769099.011	217.714	TN
P168	1164691.796	769100.156	217.328	TN
D22	1164691.963	769099.64	217.619	DELTA
P169	1164721.167	769100.799	217.422	TN
P170	1164748.321	769101.876	217.388	TN
P171	1164776.97	769102.473	217.684	TN
P172	1164804.315	769103.8	218.686	TN
P173	1164831.807	769105.418	219.747	TN
P174	1164858.53	769107.076	220.867	TN
P175	1164885.938	769106.33	221.645	TN
P176	1164912.735	769104.48	222.402	TN
P177	1164932.289	769105.054	223.014	TN
P178	1164940.542	769106.012	223.087	TN
D23	1164940.375	769101.447	222.93	DELTA
P179	1164967.165	769108.539	222.967	TN
P180	1164993.786	769109.202	222.39	TN
P181	1165020.241	769109.24	221.771	TN
P182	1165046.311	769109.605	220.845	TN

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P183	1165072.902	769111.762	219.893	TN
P184	1165099.259	769113.974	219.341	TN
P185	1165127.008	769116.715	219.028	TN
P186	1165152.818	769118.886	219.448	TN
P187	1165181.723	769119.399	219.21	TN
P188	1165208.431	769120.551	219.527	TN
P189	1165234.954	769120.534	220.111	TN
P190	1165260.984	769122.545	220.341	TN
D24	1165259.656	769122.326	220.467	DELTA
P191	1165285.574	769124.336	220.377	TN
P192	1165311.421	769126.168	220.06	TN
P193	1165337.66	769127.775	219.749	TN
P194	1165362.114	769129.422	219.117	TN
D25	1165615.298	769148.741	217.241	DELTA
P195	1165357.322	769129.099	219.254	TN
P196	1165387.824	769132.802	217.809	TN
P197	1165417.249	769136.08	215.987	TN
P198	1165445.163	769138.043	214.711	TN
P199	1165473.258	769140.778	213.151	TN
P200	1165501.091	769143.014	212.418	TN
P201	1165529.248	769145.399	212.712	TN
P202	1165557.316	769147.964	213.889	TN
P203	1165584.054	769148.062	215.666	TN
P204	1165610.331	769148.863	216.918	TN
P205	1165637.553	769148.102	217.256	TN
P206	1165663.905	769147.682	217.516	TN
P207	1165689.739	769146.763	217.214	TN
P208	1165713.992	769146.831	216.629	TN
D26	1165714.002	769146.591	216.7	DELTA
P209	1165739.679	769147.61	215.666	TN
P210	1165766.202	769147.606	214.536	TN
P211	1165792.108	769148.343	213.721	TN
P212	1165817.233	769148.967	212.929	TN
P213	1165842.365	769149.955	211.829	TN
P214	1165868.052	769148.591	210.336	TN
P215	1165891.91	769146.93	208.471	TN
P216	1165916.952	769142.794	207.599	TN
P217	1165942.36	769140.445	207.126	TN
P218	1165967.553	769141.715	207.528	TN
D27	1165988.162	769143.784	208.348	DELTA
219	1166006.532	769146.158	209.034	TN

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220	1166030.633	769145.243	210.524	TN
221	1166054.355	769144.364	211.371	TN
222	1166075.115	769143.629	212.323	TN
223	1166096.58	769142.728	213.189	TN
224	1166116.652	769141.952	213.847	TN
225	1166136.526	769140.353	213.76	TN
D28	1166136.808	769139.933	213.916	DELTA
226	1166157.572	769140.862	213.115	TN
227	1166182.054	769138.531	211.609	TN
228	1166205.423	769135.358	210.958	TN
229	1166224.512	769131.293	211.101	TN
230	1166251.191	769128.444	211.139	TN
D29	1166260.067	769123.589	211.829	DELTA
D30	1166329.169	769132.567	218.119	DELTA
231	1166280.048	769327.024	211.962	TN
232	1166280.762	769324.636	214.036	TN
D31	1166276.435	769348.03	213.62	DELTA
233	1166280.762	769324.64	213.959	TN
234	1166284.511	769305.354	213.949	TN
235	1166288.974	769284.006	214.261	TN
236	1166293.71	769262.775	215.109	TN
237	1166297.518	769242.747	215.676	TN
238	1166301.841	769220.109	216.093	TN
239	1166356.704	769130.205	220.041	TN
240	1166307.251	769192.082	216.813	TN
241	1166311.661	769171.678	216.903	TN
242	1166386.49	769127.234	221.699	TN
243	1166315.881	769153.462	217.303	TN
244	1166413.8	769124.566	223.111	TN
245	1166318.171	769138.172	217.155	TN
246	1166441.356	769120.652	224.067	TN
D32	1166454.744	769117.966	224.37	DELTA
247	1166475.01	769116.051	224.449	TN
248	1166494.315	769112.735	224.124	TN
249	1166511.13	769109.436	223.92	TN
250	1166532.663	769105.958	223.439	TN
251	1166549.362	769101.509	223.08	TN
D33	1166542.839	769055.183	222.436	DELTA
252	1166538.55	769035.666	222.049	TN
253	1166534.025	769016.605	221.682	TN
254	1166527.488	768991.196	221.473	TN

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255	1166521.44	768966.084	221.43	TN
256	1166514.41	768940.35	221.759	TN
257	1166507.763	768915.992	221.924	TN
D34	1166484.516	768835.433	225.002	DELTA
258	1166501.449	768891.575	222.798	TN
259	1166480.941	768811.58	225.476	TN
260	1166476.397	768792.503	225.818	TN
261	1166470.94	768773.169	225.957	TN
262	1166466.197	768754.807	226.062	TN
263	1166461.48	768736.015	225.962	TN
264	1166455.97	768715.691	225.874	TN
265	1166450.573	768696.751	225.849	TN
266	1166445.458	768677.778	226.008	TN
267	1166439.401	768656.193	226.189	TN
D35	1166436.19	768647.318	226.118	DELTA
268	1166495.342	768864.744	223.953	TN
269	1166486.581	768832.463	224.996	TN
270	1166489.808	768842.441	224.89	TN
271	1166440.13	768650.072	226.137	TN
272	1166465.472	768644.63	224.92	TN
273	1166491.828	768639.857	223.372	TN
274	1166518.183	768634.279	221.326	TN
275	1166544.496	768628.812	219.223	TN
276	1166569.212	768623.38	217.792	TN
277	1166594.314	768617.604	216.411	TN
278	1166618.905	768611.614	215.239	TN
279	1166643.796	768605.887	214.504	TN
D36	1166657.704	768601.079	214.143	DELTA
280	1166675.163	768587.897	213.772	TN
281	1166688.638	768572.235	213.238	TN
282	1166701.961	768555.553	213.004	TN
283	1166714.664	768539.694	212.714	TN
284	1166727.786	768523.016	212.574	TN
285	1166740.366	768507.198	212.384	TN
D37	1166751.309	768489.736	211.953	DELTA
286	1166759.768	768487.294	211.751	TN
287	1166774.302	768470.661	211.482	TN
288	1166788.077	768454.009	211.43	TN
289	1166800.218	768439.324	211.297	TN
290	1166811.396	768424.827	211.311	TN
D38	1166825.993	768408.322	210.735	DELTA

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291	1166833.206	768410.46	210.574	TN
292	1166850.819	768397.121	209.972	TN
293	1166867.928	768384.021	209.584	TN
294	1166885.193	768367.768	209.173	TN
295	1166900.245	768356.083	208.697	TN
296	1166275.051	769367.784	213.165	TN
297	1166274.275	769386.951	212.832	TN
298	1166273.176	769410.574	212.374	TN
299	1166271.71	769432.419	212.055	TN
300	1166270.641	769455.507	211.452	TN
301	1166270.03	769477.948	210.746	TN
302	1166269.219	769501.878	209.83	TN
303	1166267.32	769526.379	209.176	TN
304	1166266.998	769547.709	207.867	TN
305	1166265.998	769563.673	207.473	TN
D39	1166266.201	769564.15	207.53	DELTA
306	1166284.286	769568.555	206.982	TN
307	1166304.314	769567.559	206.436	TN
308	1166326.126	769566.47	205.734	TN
309	1166349.7	769563.729	204.349	TN
310	1166371.94	769563.423	203.07	TN
311	1166393.591	769562.219	201.636	TN
312	1166413.766	769562.165	202.26	TN
313	1166437.635	769560.459	204.251	TN
314	1166459.324	769559.828	206.756	TN
D40	1166459.336	769559.345	206.744	DELTA
D41	1166466.942	769651.866	206.543	DELTA
315	1166468.135	769576.141	207.411	TN
316	1166479.81	769685.83	206.725	TN
317	1166471.875	769670.11	206.555	TN
318	1166473.35	769701.531	205.767	TN
319	1166466.799	769605.257	206.933	TN
320	1166465.463	769631.895	206.65	TN
321	1166464.811	769658.568	206.272	TN
322	1166473.75	769672.829	206.539	TN
D42	1166460.256	769697.595	205.628	DELTA
323	1166466.427	769713.114	205.029	TN
324	1166459.922	769728.592	204.107	TN
325	1166458.597	769754.498	203.052	TN
326	1166458.096	769776.268	202.16	TN
327	1166457.304	769800.48	200.988	TN

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328	1166456.762	769822.137	200.297	TN
329	1166456.523	769840.303	200.019	TN
330	1164332.844	769485.19	214.266	TN
331	1164353.441	769495.375	214.755	TN
332	1164372.919	769504.989	214.833	TN
333	1164396.201	769516.352	215.418	TN
334	1164420.341	769528.097	215.958	TN
335	1164442.176	769539.169	215.996	TN
336	1164464.163	769549.981	215.405	TN
D43	1164466.746	769550.414	215.479	DELTA
337	1164471.982	769553.578	215.08	TN
338	1164493.302	769563.967	214.107	TN
339	1164514.235	769573.844	213.363	TN
340	1164533.354	769582.86	212.915	TN
341	1164552.197	769590.867	212.555	TN
342	1164573.529	769601.513	212.575	TN
343	1164597.535	769612.805	212.841	TN
344	1164619.259	769624.081	213.178	TN
D44	1164649.263	769635.601	213.779	DELTA
345	1164612.689	769621.123	212.889	TN
346	1164635.348	769632.277	213.226	TN
347	1164657.316	769643.087	213.808	TN
348	1164678.528	769653.686	214.787	TN
349	1164700.994	769664.084	215.631	TN
350	1164722.329	769674.718	215.888	TN
351	1164743.407	769685.653	216.277	TN
352	1164764.448	769696.794	216.086	TN
D45	1164775.608	769698.756	216.131	DELTA
353	1164770.493	769700.065	215.997	TN
354	1164790.562	769711.141	215.883	TN
355	1164811.918	769722.202	215.716	TN
356	1164837.109	769734.766	215.096	TN
357	1164860.323	769747.585	214.435	TN
358	1164883.309	769760.289	214.27	TN
359	1164905.148	769771.487	214.082	TN
360	1164929.083	769784.734	214.362	TN
361	1164952.898	769796.566	214.21	TN
362	1164976.551	769808.005	213.682	TN
363	1164998.095	769819.002	213.596	TN
364	1165021.18	769830.238	212.798	TN
365	1165043.383	769842.609	212.034	TN

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366	1165067.678	769855.081	211.478	TN
367	1165092.31	769865.654	211.634	TN
D46	1165115.209	769875.979	213.19	DELTA
368	1165103.162	769871.876	212.438	TN
369	1165115.877	769894.449	213.632	TN
370	1165131.173	769920.753	214.73	TN
371	1165142.911	769940.967	215.261	TN
372	1165156.526	769966.313	215.999	TN
373	1165168.233	769990.298	216.487	TN
374	1165181.943	770018.73	217.149	TN
375	1165194.79	770037.037	217.211	TN
376	1165207.073	770056.85	217.535	TN
D47	1163351.527	770457.487	202.457	DELTA
377	1163349.993	770457.222	202.348	TN
378	1163330.371	770445.06	203.484	TN
D48	1163448.196	770476.05	199.573	DELTA
379	1163435.428	770477.694	199.881	TN
380	1163420.631	770475.725	200.019	TN
381	1163376.302	770466.868	201.233	TN
382	1163399.978	770471.969	200.685	TN
D49	1163490.983	770522.285	199.464	DELTA
383	1163484.66	770526.578	199.6	TN
384	1163469.644	770508.609	199.797	TN
385	1163450.049	770484.057	199.591	TN
386	1163462.033	770496.997	199.511	TN
387	1163508.645	770539.044	199.641	TN
388	1163525.845	770547.387	199.557	TN
389	1163549.409	770558.308	199.677	TN
390	1163570.467	770568.43	199.93	TN
391	1163592.77	770579.058	200.078	TN
392	1163613.313	770588.994	199.931	TN
393	1163633.997	770599.738	199.903	TN
D50	1163646.316	770598.343	200.157	DELTA
D52	1163460.68	770961.25	201.641	DELTA
394	1163646.362	770604.767	199.883	TN
395	1163471.3	770938.898	201.361	TN
396	1163663.748	770612.813	200.066	TN
397	1163482.872	770916.457	200.789	TN
398	1163492.883	770893.217	200.713	TN
399	1163683.392	770621.698	200.38	TN
400	1163504.739	770869.378	200.175	TN

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401	1163707.463	770633.344	200.611	TN
402	1163515.962	770846.946	199.894	TN
403	1163729.037	770644.131	200.768	TN
404	1163526.716	770823.953	199.751	TN
405	1163748.998	770654.642	201.019	TN
406	1163538.741	770798.472	200	TN
407	1163769.89	770665.109	201.409	TN
408	1163548.061	770779.886	199.736	TN
409	1163789.963	770674.994	201.904	TN
410	1163810.924	770685.744	202.157	TN
D51	1163550.087	770778.597	199.405	DELTA
411	1163831.169	770695.549	202.302	TN
412	1163561.065	770754.489	198.87	TN
413	1163854.072	770707.089	202.552	TN
414	1163570.206	770734.908	198.802	TN
415	1163874.153	770716.043	202.743	TN
416	1163581.713	770712.936	198.824	TN
417	1163897.501	770727.561	203.086	TN
418	1163594.383	770687.54	198.862	TN
419	1163915.959	770736.477	203.341	TN
420	1163607.975	770658.886	198.837	TN
421	1163936.71	770747.037	203.508	TN
422	1163620.635	770634.874	199.046	TN
423	1163957.084	770756.416	203.755	TN
424	1163629.674	770616.623	199.194	TN
425	1163978.409	770767.525	204.133	TN
426	1164001.895	770778.721	204.591	TN
427	1164021.638	770788.311	204.865	TN
428	1164042.484	770798.535	205.148	TN
429	1164085.485	770818.884	204.474	TN
430	1164066.172	770810.034	205.032	TN
D53	1164086.477	770819.037	204.48	DELTA
431	1164108.703	770830.411	203.487	TN
432	1164129.957	770841.118	202.075	TN
433	1164149.843	770851.434	200.801	TN
434	1164171.531	770862.425	199.547	TN
435	1164194.115	770873.351	198.444	TN
436	1164217.235	770884.039	198.072	TN
437	1164240.714	770893.047	197.171	TN
438	1164263.852	770903.548	197.023	TN
439	1164290.051	770915.835	196.47	TN

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440	1164299.77	770920.206	196.387	TN
441	1163554.527	770785.597	200.112	TN
442	1163576.632	770796.58	200.566	TN
443	1163598.394	770806.92	201.147	TN
444	1163621.236	770818.954	201.521	TN
445	1163640.548	770829.118	201.761	TN
446	1163665.513	770839.773	201.761	TN
447	1163686.917	770851.386	201.962	TN
448	1163707.51	770861.814	202.233	TN
449	1163728.227	770871.259	202.43	TN
450	1163750.416	770881.857	202.582	TN
451	1163770.297	770891.246	202.924	TN
452	1163794.417	770903.278	203.343	TN
453	1163822.098	770917.678	203.83	TN
454	1163843.416	770927.094	203.575	TN
455	1163862.92	770936.469	203.904	TN
D54	1163863.023	770936.194	204.094	DELTA
456	1163883.29	770946.781	203.897	DELTA
457	1163905.579	770957.524	203.645	TN
458	1163935.289	770972.088	203.458	TN
459	1163966.848	770987.198	203.205	TN
460	1163987.942	770997.818	203.302	TN
461	1164007.927	771007.579	203.172	TN
462	1164032.93	771020.011	203.635	TN
463	1164053.882	771030.117	203.706	TN
464	1164073.944	771039.471	203.599	TN
465	1164093.558	771049.099	203.294	TN
466	1164113.569	771058.863	202.763	TN
467	1164136.333	771069.572	202.088	TN
D55	1164137.821	771066.515	201.974	DELTA
468	1164158.552	771082.16	201.227	TN
469	1164183.781	771094.061	200	TN
470	1164212.534	771108.261	198.89	TN
471	1164234.629	771118.317	197.546	TN
472	1163468.595	770971.532	201.8	TN
473	1163489.466	770981.084	201.565	TN
474	1163510.067	770991.752	201.711	TN
475	1163530.979	771002.422	201.721	TN
476	1163554.718	771014.933	201.805	TN
477	1163577.678	771026.675	201.649	TN
478	1163600.076	771037.435	201.46	TN

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479	1163627.213	771049.554	200.966	TN
480	1163649.538	771060.847	200.807	TN
481	1163674.352	771073.191	200.734	TN
482	1163698.476	771085.378	200.611	TN
483	1163453.261	770964.635	201.551	TN
484	1163740.921	771106.132	200.224	TN
485	1163433.534	770957.133	201.318	TN
486	1163723.515	771097.575	200.15	TN
487	1163407.982	770946.987	200.934	TN
488	1163756.504	771113.971	200.259	TN
489	1163383.058	770935.378	199.779	TN
490	1163780.496	771125.586	200.189	TN
491	1163361.667	770927.643	198.77	TN
492	1163803.081	771136.784	200.065	TN
493	1163361.697	770927.6	198.728	TN
494	1163827.376	771148.763	200.312	TN
495	1163847.187	771158.157	200.081	TN
496	1163847.172	771158.149	200.079	TN
D56	1163896.265	771180.954	198.837	DELTA
497	1163886.981	771177.6	199.235	TN
498	1163910.488	771189.586	198.577	TN
499	1163935.126	771202.204	198.18	TN
500	1163962.995	771215.219	198.697	TN
501	1163981.645	771224.051	199.615	TN
502	1164004.646	771235.291	200.568	TN
503	1164027.444	771246.207	201.289	TN
504	1164049.748	771257.044	201.678	TN
505	1164072.196	771267.971	201.701	TN
506	1164097.567	771279.876	201.443	TN
D57	1164101.446	771278.622	201.307	DELTA
507	1164123.871	771293.965	200.467	TN
508	1164146.552	771304.818	199.803	TN
509	1164169.269	771315.539	198.56	TN
510	1164182.798	771318.248	198.31	TN
D58	1164115.693	771870.668	193.472	DELTA
512	1164115.342	771856.072	193.662	TN
513	1164102.198	771309.893	200.809	TN
514	1164102.833	771336.266	200.006	TN
515	1164114.541	771822.905	194.06	TN
516	1164103.407	771360.153	199.009	TN
517	1164113.826	771793.206	194.107	TN

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518	1164103.997	771384.652	198.307	TN
519	1164113.118	771763.665	193.734	TN
520	1164104.583	771409.035	197.576	TN
521	1164112.427	771734.959	192.732	TN
522	1164105.162	771433.072	196.701	TN
523	1164111.714	771705.41	193.506	TN
524	1164105.747	771457.372	196.039	TN
525	1164110.987	771675.178	193.392	TN
526	1164110.285	771645.991	194.046	TN
527	1164106.316	771481.041	195.506	TN
528	1164109.64	771619.132	194.202	TN
529	1164106.9	771505.288	195.206	TN
530	1164108.969	771591.262	194.306	TN
531	1164108.315	771564.066	194.126	TN
532	1164107.46	771528.6	194.979	TN
533	1164107.806	771545.796	194.327	TN
534	1164096.455	771850.415	193.98	TN
535	1164076.158	771841.582	193.579	TN
536	1164053.628	771829.491	193.714	TN
537	1164033.03	771816.842	193.408	TN
D59	1164011.799	771806.457	192.172	DELTA
538	1164144.573	771864.299	194.256	TN
539	1164169.139	771868.197	194.229	TN
540	1164193.56	771869.463	194.167	TN
541	1164217.589	771868.464	193.797	TN
D60	1164256.69	771874.776	191.862	DELTA
D61	1164107.986	771892.618	192.323	DELTA
542	1164100.731	771913.279	191.84	TN
543	1164093.088	771935.044	191.366	TN
544	1164085.117	771957.641	190.883	TN
545	1164077.28	771978.527	190.331	TN
546	1164069.335	772001.962	189.718	TN
547	1164060.665	772025.428	189.235	TN
548	1164050.871	772054.411	188.434	TN
549	1164042.077	772077.709	187.937	TN
550	1164032.528	772105.655	187.367	TN
551	1164023.563	772130.886	186.331	TN
552	1164013.076	772161.281	185.306	TN
553	1164005.483	772183.124	185.093	TN
D62	1164005.509	772183.132	185.241	DELTA
554	1164281.044	771862.48	190.904	TN

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555	1164306.08	771859.867	189.259	TN
556	1164331.47	771857.544	187.787	TN
557	1164356.572	771856.288	186.922	TN
D63	1164379.855	771857.447	187.422	DELTA
558	1164401.052	771840.023	187.409	TN
559	1164425.126	771832.952	188.183	TN
560	1164450.01	771827.268	188.133	TN
561	1164475.749	771823.934	187.75	TN
562	1164500.487	771822.727	188.056	TN
563	1164524.225	771819.811	188.707	TN
D64	1164536.811	771822.616	188.712	DELTA
565	1164562.357	771817.93	189.021	TN
566	1164588.789	771815.658	190.156	TN
567	1164614.556	771815.122	189.896	TN
568	1164638.1	771813.817	190.181	TN
569	1164663.44	771811.869	190.624	TN
570	1164687.79	771809.49	191.399	TN
571	1164714.018	771808.123	192.167	TN
572	1164738.692	771806.54	193.614	TN
573	1164764.657	771806.076	195.148	TN
574	1164789.072	771804.977	196.978	TN
575	1164814.823	771803.721	198.757	TN
576	1164839.162	771803.14	200.333	TN
577	1164866.999	771802.011	201.575	TN
578	1164890.861	771800.329	202.372	TN
579	1164916.108	771799.412	202.742	TN
D65	1164916.436	771802.104	203.057	DELTA
580	1164941.502	771797.394	203.053	TN
581	1164966.045	771795.292	203.426	TN
582	1164990.351	771794.057	203.763	TN
583	1165014.595	771793.405	203.785	TN
584	1165039.573	771792.158	203.752	TN
585	1165063.42	771790.997	203.452	TN
586	1165086.856	771789.581	203.164	TN
587	1165111.305	771789.043	202.867	TN
588	1165137.614	771787.385	202.326	TN
589	1165137.626	771787.357	202.325	TN
590	1165174.404	771787.144	201.796	TN
591	1165198.14	771788.649	201.438	TN
592	1165198.032	771792.223	200.773	TN
D66	1165176.79	771797.365	200.861	DELTA

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593	1165242.216	771792.818	200.005	TN
594	1165266.69	771794.894	199.828	TN
595	1165290.059	771797.779	199.549	TN
596	1165313.914	771800.488	199.713	TN
597	1165339.376	771803.42	199.935	TN
598	1165365.077	771805.797	200.364	TN
599	1165390.07	771806.847	200.405	TN
600	1165414.966	771808.037	200.039	TN
601	1165439.989	771805.897	199.917	TN
D67	1165440.783	771818.255	199.35	DELTA
602	1165465.081	771803.134	198.818	TN
603	1165488.699	771796.855	197.693	TN
604	1165512.955	771789.625	196.806	TN
605	1165536.803	771780.464	195.899	TN
606	1165560.483	771771.899	194.448	TN
607	1165584.244	771762.727	193.648	TN
D68	1165612.725	771758.148	192.977	DELTA
608	1165642.858	771734.833	191.802	TN
609	1165666.02	771723.13	190.748	TN
610	1165687.524	771712.745	189.788	TN
611	1165709.75	771702.307	188.294	TN
612	1165731.384	771691.225	187.428	TN
613	1165753.398	771680.769	186.804	TN
614	1163996.956	772205.369	184.493	TN
615	1163988.363	772228.602	183.574	TN
616	1163979.584	772250.205	183.989	TN
617	1163973.994	772267.07	184.138	TN
618	1163965.063	772290.856	183.969	TN
619	1163957.54	772310.753	184.064	TN
620	1163954.188	772320.492	183.95	TN
621	1163942.798	772345.009	183.337	TN
D70	1163970.633	772298.525	184.015	DELTA
D71	1164016.676	772298.673	183.528	DELTA
622	1164015.649	772327.546	183.347	TN
623	1164013.795	772349.104	183.313	TN
624	1164013.151	772371.641	183.172	TN
625	1164011.778	772394.658	183.138	TN
626	1164011.157	772411.934	183.373	TN
627	1164011.321	772433.711	184.082	TN
628	1164010.662	772455.501	184.597	TN
629	1164009.673	772478.332	185.043	TN

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630	1164009.222	772500.001	185.144	TN
631	1164008.187	772523.016	185.013	TN
632	1164002.943	772545.916	184.487	TN
633	1164001.236	772556.895	184.339	TN
D72	1164002.449	772556.823	184.465	DELTA
634	1163947.061	772597.74	183.245	TN
635	1163928.764	772611.599	183.272	TN
636	1163912.7	772623.742	182.892	TN
637	1163896.027	772636.174	182.845	TN
638	1163873.512	772653.187	183.037	TN
639	1163860.765	772662.015	182.256	TN
D73	1163851.945	772668.591	183.045	DELTA
640	1163843.552	772688.19	183.605	TN
641	1163835.878	772709.32	183.872	TN
642	1163823.209	772727.539	184.266	TN
643	1163812.678	772746.783	184.492	TN
644	1163801.843	772766.261	184.624	TN
645	1163791.656	772785.255	184.945	TN
646	1163781.797	772804.334	185.459	TN
647	1163771.948	772824.582	186.008	TN
648	1163761.075	772843.311	186.485	TN
649	1163750.871	772862.932	186.909	TN
650	1163741.171	772881.294	187.44	TN
651	1164015.754	771800.3	192.543	TN
652	1163992.65	771780.65	191.284	TN
653	1163971.844	771762.658	189.987	TN
654	1163950.438	771744.612	188.625	TN
655	1163930.07	771727.341	187.845	TN
656	1163909.93	771709.928	187.281	TN
657	1163873.242	771678.422	187.069	TN
658	1163854.591	771662.851	187.694	TN
659	1163835.091	771646.316	188.722	TN
660	1163814.646	771629.204	189.406	TN
D80	1163727.464	771560.348	190.474	DELTA
662	1163794.569	771612.487	189.521	TN
663	1163774.805	771597.322	189.662	TN
664	1163756.753	771582.897	189.964	TN
665	1163734.746	771564.771	190.311	TN
666	1163715.028	771552.47	190.688	TN
667	1163688.626	771536.71	191.068	TN
668	1163596.417	771530.888	190.297	TN

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669	1163659.756	771531.287	190.952	TN
670	1163620.831	771530.051	190.674	TN
671	1163638.257	771530.371	190.752	TN
672	1162902.802	770118.81	211.902	TN
673	1162884.534	770099.692	211.532	TN
674	1162867.308	770082.297	211.119	TN
675	1162848.489	770063.594	210.861	TN
676	1162830.399	770045.615	210.511	TN
677	1162813.431	770028.666	210.354	TN
678	1162794.882	770010.781	210.359	TN
679	1162778.968	769995.842	210.088	TN
680	1162760.165	769976.196	210.346	TN
681	1162743.928	769958.694	210.258	TN
682	1162726.946	769938.696	210.764	TN
683	1162708.403	769913.763	210.716	TN
D82	1162706.409	769910.496	210.799	DELTA
685	1162692.19	769890.59	210.49	TN
686	1162677.446	769868.66	210.258	TN
687	1162665.572	769847.588	210.036	TN
688	1162654.607	769829.156	209.902	TN
689	1162644.579	769808.882	209.315	TN
690	1162633.523	769786.717	208.801	TN
691	1162621.234	769763.207	208.078	TN
692	1162609.193	769736.929	207.578	TN
693	1162600.24	769711.177	206.305	TN
694	1162589.134	769690.872	206.511	TN
D83	1162570.998	769658.372	207.481	DELTA
695	1162580.056	769676.834	206.772	TN
696	1162560.031	769661.512	207.165	TN
697	1162541.967	769645.533	207.971	TN
698	1162524.095	769627.877	208.044	TN
699	1162501.941	769608.447	207.587	TN
700	1162485.484	769591.714	207.678	TN
D84	1162470.496	769577.273	208.008	DELTA
D85	1162403.653	769479.499	207.041	DELTA
701	1162416.257	769500.543	206.544	TN
702	1162455.29	769562.965	206.618	TN
703	1162427.135	769518.697	206.52	TN
704	1162438.712	769538.011	206.439	TN
D86	1162331.824	769330.028	210.724	DELTA
706	1162389.741	769459.547	207.291	TN

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707	1162347.238	769365.588	210.478	TN
708	1162379.398	769435.134	208.488	TN
709	1162356.898	769384.001	209.749	TN
710	1162367.941	769407.026	209.188	TN
D87	1162286.509	769247.987	208.644	DELTA
711	1162285.164	769250.682	208.349	TN
712	1162293.045	769269.871	208.729	TN
713	1162301.096	769286.41	209.297	TN
714	1162310.416	769303.772	209.877	TN
715	1162347.806	769369.126	210.613	TN
716	1162335.348	769347.367	210.868	TN
717	1162326.93	769333.391	210.405	TN
718	1162318.399	769319.872	210.529	TN
D88	1162343.351	769000.465	210.014	DELTA
719	1162286.215	769230.285	208.272	TN
720	1162296.813	769204.165	208.555	TN
721	1162307.94	769179.204	208.638	TN
722	1162317.488	769155.985	208.966	TN
723	1162328.902	769128.071	208.893	TN
D89	1162122.185	768636.272	225.661	DELTA
725	1162332.758	769112.385	209.142	TN
726	1162337.583	769092.762	209.494	TN
727	1162339.693	769072.32	210.227	TN
728	1162339.084	769045.104	210.345	TN
729	1162184.088	768704.44	219.038	TN
730	1162337.951	769017.939	210.13	TN
731	1162184.098	768704.445	218.871	TN
732	1162335.965	768997.17	210.153	TN
733	1162329.198	768968.814	210.267	TN
734	1162217.836	768684.202	218.953	TN
735	1162319.968	768937.031	209.937	TN
736	1162238.574	768675.195	218.827	TN
737	1162312.038	768909.342	209.596	TN
738	1162257.79	768664.656	219.06	TN
739	1162302.996	768883.82	209.359	TN
740	1162264.272	768659.006	219.24	TN
741	1162293.202	768859.692	209.652	TN
742	1162279.046	768825.757	209.996	TN
743	1162260.993	768803.359	210.9	TN
744	1162238.506	768782.718	212.105	TN
745	1162221.837	768766.683	213.575	TN

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746	1161964.271	768278.665	226.179	TN
747	1161964.395	768308.583	226.59	TN
748	1161962.935	768338.256	226.497	TN
749	1161961.34	768369.051	226.471	TN
750	1161960.008	768391.979	226.2	TN
751	1161958.495	768418.451	226.005	TN
752	1161957.999	768449.492	225.59	TN
753	1161956.758	768471.374	225.566	TN
754	1161957.696	768494.305	225.306	TN
755	1161968.648	768511.821	224.287	TN
756	1161982.885	768528.533	224.228	TN
757	1162183.824	768730.357	217.152	TN
758	1161998.287	768545.042	224.068	TN
759	1162013.745	768562.257	224.017	TN
760	1162032.908	768581.935	224.083	TN
761	1162051.616	768602.143	224.996	TN
762	1162168.844	768716.041	218.719	TN
763	1162068.07	768619.662	225.794	TN
764	1162081.234	768633.775	226.081	TN
765	1162154.87	768702.531	220.41	TN
766	1162139.976	768689.518	222.091	TN
767	1162126.702	768677.938	223.555	TN
768	1162111.847	768665.355	224.783	TN
769	1162099.306	768654.276	225.538	TN
770	1162090.501	768644.684	225.546	TN
771	1162180.78	768712.759	218.66	TN
772	1162205.492	768698.322	218.577	TN
773	1162228.044	768685.098	218.66	TN
774	1162248.124	768672.177	218.645	TN
775	1162268.838	768657.897	219.19	TN
776	1162291.578	768645.147	219.367	TN
777	1162314.777	768632.282	219.597	TN
778	1162337.795	768617.246	220.032	TN
779	1162361.338	768603.574	220.544	TN
780	1162384.356	768590.14	221.522	TN
781	1162406.791	768574.716	222.122	TN
782	1162431.142	768567.453	221.846	TN
D90	1162424.542	768572.695	222.127	DELTA
783	1162606.739	768463.362	216.418	TN
784	1162584.643	768476.204	216.953	TN
785	1162563.279	768489.08	217.321	TN

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786	1162539.94	768502.596	217.933	TN
787	1162518.294	768516.253	218.594	TN
788	1162495.467	768529.996	219.364	TN
789	1162474.001	768542.367	220.101	TN
790	1162453.448	768555.143	221.193	TN
791	1162434.803	768567.728	221.735	TN
D6	1162685.612	770281.496	205.033	DELTA
1	1162696.504	770286.847	204.836	PT
2	1162669.027	770278.923	204.993	PT
3	1162640.835	770270.707	205.589	PT
4	1162613.847	770262.932	206.153	PT
5	1162587.505	770255.043	207.228	PT
6	1162561.359	770247.671	207.914	PT
7	1162534.01	770239.906	208.347	PT
8	1162507	770232.239	208.537	PT
9	1162481.074	770224.798	208.51	PT
D7	1162484.709	770218.723	208.683	DELTA
10	1162457.06	770217.592	208.377	PT
11	1162429.9	770209.555	207.694	PT
12	1162402.325	770201.708	206.259	PT
13	1162373.744	770193.737	204.316	PT
14	1162354.984	770188.675	202.805	PT
15	1162336.897	770184.358	203.075	PT
16	1162308.838	770177.797	203.631	PT
17	1162280.016	770169.858	203.958	PT
18	1162253.936	770161.048	204.077	PT
19	1162228.261	770152.084	204.751	PT
20	1162201.89	770141.95	205.791	PT
21	1162176.95	770131.768	206.676	PT
D8	1162107.955	770094.688	206.971	DELTA
22	1162152.51	770119.534	207.129	PT
23	1162129.075	770106.904	207.207	PT
24	1162103.457	770095.093	206.712	PT
25	1162080.354	770081.634	206.02	PT
26	1162055.828	770066.546	204.767	PT
27	1162031.47	770051.018	203.257	PT
28	1162007.709	770035.447	200.451	PT
D9	1162001.893	770024.618	199.654	DELTA
29	1161985.675	770021.584	198.751	PT
30	1161962.911	770007.414	197.424	PT
31	1161940.169	769993.847	196.279	PT

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32	1161915.656	769980.512	195.068	PT
33	1161889.647	769968.804	193.832	PT
34	1161865.737	769957.492	192.496	PT
35	1161842.319	769946.563	191.729	PT
36	1161816.524	769934.625	191.024	PT
D10	1161729.021	769936.676	190.818	DELTA
37	1161791.131	769923.025	191.117	PT
38	1161770.172	769914.393	190.726	PT
39	1161747.25	769930.879	190.877	PT
40	1161729.27	769932.33	190.577	PT
41	1161712.435	769910.294	190.36	PT
42	1161700.185	769891.785	190.217	PT
D11	1161671.804	769834.3	191.877	DELTA
43	1161694.318	769879.66	189.844	PT
44	1161676.838	769861.905	189.325	PT
45	1161665.809	769843.749	190.398	PT
46	1161645.745	769831.985	192.68	PT
47	1161625.654	769830.608	193.5	PT
48	1161599.434	769825.676	194.286	PT
49	1161575.944	769814.292	195.795	PT
D12	1161569.762	769808.202	196.539	DELTA
50	1161552.691	769801.487	196.221	PT
51	1161529.266	769789.021	195.249	PT
52	1161508.773	769777.278	193.193	PT
D13	1161507.933	769775.951	193.058	DELTA
53	1161490.739	769757.352	193.526	PT
54	1161471.055	769739.975	194.209	PT
55	1161450.763	769723.086	195.856	PT
56	1161431.238	769705.827	197.494	PT
57	1161410.741	769688.393	199.409	PT
58	1161389.951	769669.826	200.99	PT
59	1161371.082	769650.976	202.451	PT
60	1161355.64	769635.756	203.588	PT
D14	1161355.309	769635.064	203.824	DELTA
61	1161343.025	769619.08	204.406	PT
62	1161326.99	769597.102	205.173	PT
63	1161313.4	769575.999	205.249	PT
D15	1161305.427	769569.892	205.07	PT,DELTA
64	1161296.537	769548.314	204.563	DELTA
65	1161283.755	769525.267	204.084	DELTA
66	1161271.009	769502.376	203.28	DELTA

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67	1161257.641	769478.566	202.553	DELTA
68	1161244.73	769457.503	200.488	DELTA
69	1161229.301	769438.066	202.545	DELTA
70	1161218.921	769423.812	203.501	DELTA
71	1161199.826	769441.477	203.247	DELTA
72	1161179.73	769459.965	202.942	DELTA
73	1161160.947	769477.076	202.892	DELTA
74	1161141.995	769495.068	202.65	DELTA
75	1161122.265	769512.774	202.132	DELTA
76	1161100.438	769532.807	200.911	DELTA
77	1161100.411	769526.934	201.353	DELTA
78	1161084.488	769523.597	201.656	DELTA
79	1161058.301	769518.11	201.819	DELTA
80	1161032.146	769512.63	201.415	DELTA
81	1161012.072	769508.422	200.414	DELTA
82	1160999.706	769505.831	199.94	DELTA



## 11. CONCLUSIONES.

1. Se realizó el levantamiento, la batimetría y la localización de usuarios de la vereda agua bonita, zona rural del Municipio de San José del Guaviare.
2. Los trabajos de topografía se ejecutaron de acuerdo a lo planeado inicialmente con la ayuda del ingeniero a cargo, gracias a lo cual no se incidió en ningún contratiempo.
3. Se cumplió con el objetivo y alcance del trabajo inicialmente propuesto.

## 12. RECOMENDACIONES.

1. Cuidar los puntos de amarre (deltas) que se distribuyeron en el levantamiento por medio de una poligonal abierta, debidamente identificada y señalizada, (estacas).

JOSE FERNANDO CASTRO HERRERA  
TECNÓLOGO EN TOPOGRAFÍA  
L.P. 01-15591 CPNT  
C.C. 1.120.571.006 SAN JOSE DEL GUAVIARE.  
CEL. 3164637905

### 13.ANEXOS

1. Planos dwg.
2. Copia licencia profesional.
3. Certificado de vigencia licencia profesional
4. Informe georreferenciación placas IGAC.