

PUNTOS GPS (SISTEMA DE POSICIONAMIENTO GLOBAL)
ITRF 94 - EPOCA 1995-4
UTM - WGS 84

PUNTOS PRINCIPALES GNSS

| PUNTO | COORDENADAS UTM | | COTA NIVELACION |
|-----------------|-----------------|-------------|-----------------|
| | ESTE | NORTE | |
| GPS_PB-01 | 813737.339 | 9187871.412 | 2318.484 |
| GPS_PB-02 | 816808.344 | 9185472.235 | 2589.979 |
| GPS_PB-03/BM-18 | 817531.054 | 9182317.837 | 2873.705 |
| GPS_PB-04 | 818063.841 | 9178193.017 | 2413.772 |
| GPS_PB-05/BM-39 | 818306.974 | 9178298.734 | 2123.208 |
| GPS_PB-06/BM-49 | 817887.896 | 9172463.078 | 2620.963 |
| GPS_PB-07/BM-58 | 815293.004 | 9168766.641 | 2049.017 |
| GPS_PB-08/BM-69 | 815142.382 | 9163935.790 | 2081.090 |
| GPS_PB-09/BM-78 | 816609.940 | 9168802.322 | 2100.588 |
| GPS_PB-10 | 819002.492 | 9168738.128 | 2283.820 |
| GPS_PB-11 | 821770.329 | 9157646.617 | 2547.975 |
| GPS_PB-12 | 825028.279 | 9157410.798 | 2644.195 |
| GPS_PB-13 | 825732.392 | 9158026.259 | 2615.171 |

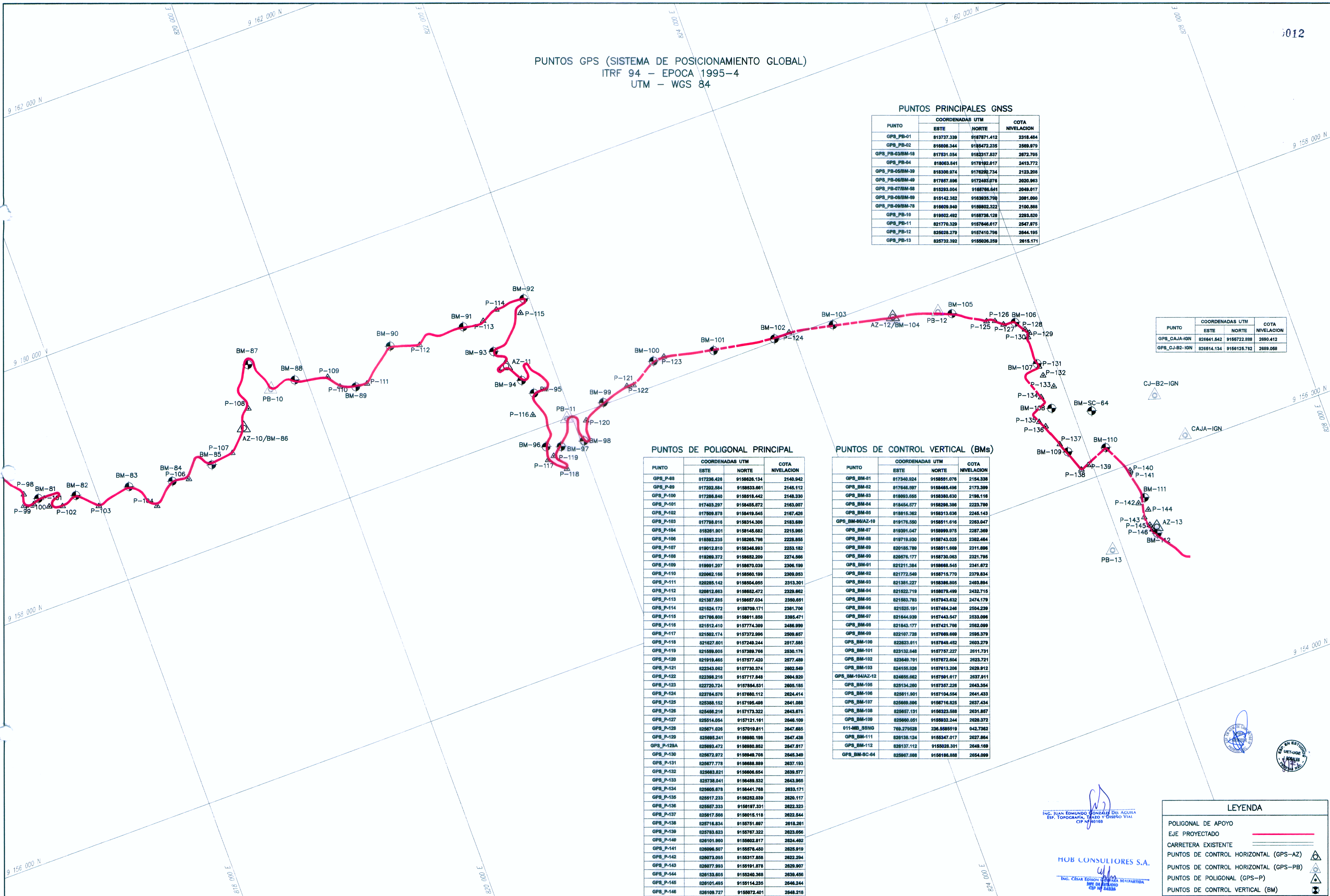
| PUNTO | COORDENADAS UTM | | COTA NIVELACION |
|---------------|-----------------|-------------|-----------------|
| | ESTE | NORTE | |
| GPS_CAJA-IGN | 826641.642 | 9156722.898 | 2680.412 |
| GPS_CJ-B2-IGN | 826614.134 | 9156125.782 | 2889.058 |

PUNTOS DE POLIGONAL PRINCIPAL

| PUNTO | COORDENADAS UTM | | COTA NIVELACION |
|-----------|-----------------|-------------|-----------------|
| | ESTE | NORTE | |
| GPS_P-98 | 817236.428 | 9158826.134 | 2140.942 |
| GPS_P-99 | 817202.584 | 9158533.661 | 2148.112 |
| GPS_P-100 | 817288.840 | 9158518.442 | 2148.330 |
| GPS_P-101 | 817403.297 | 9158455.872 | 2163.007 |
| GPS_P-102 | 817909.878 | 9158419.545 | 2167.426 |
| GPS_P-103 | 817798.018 | 9158314.306 | 2163.689 |
| GPS_P-104 | 818261.901 | 9158145.682 | 2215.985 |
| GPS_P-105 | 818892.235 | 9158265.798 | 2228.855 |
| GPS_P-106 | 819012.810 | 9158346.993 | 2253.182 |
| GPS_P-107 | 819289.372 | 9158852.209 | 2274.586 |
| GPS_P-108 | 819891.207 | 9158670.039 | 2306.109 |
| GPS_P-109 | 820062.186 | 9158560.199 | 2309.053 |
| GPS_P-110 | 820285.142 | 9158504.055 | 2313.301 |
| GPS_P-111 | 820812.663 | 9158552.472 | 2329.862 |
| GPS_P-112 | 821387.585 | 9158557.034 | 2330.681 |
| GPS_P-113 | 821624.172 | 9158709.171 | 2361.706 |
| GPS_P-114 | 821708.808 | 9158611.858 | 2385.471 |
| GPS_P-115 | 821812.410 | 9157774.389 | 2486.999 |
| GPS_P-116 | 821902.174 | 9157372.996 | 2509.657 |
| GPS_P-117 | 821827.801 | 9157249.244 | 2517.585 |
| GPS_P-118 | 821589.005 | 9157389.766 | 2530.176 |
| GPS_P-119 | 821918.465 | 9157577.420 | 2577.489 |
| GPS_P-120 | 822343.062 | 9157330.374 | 2602.549 |
| GPS_P-121 | 822398.216 | 9157717.848 | 2604.920 |
| GPS_P-122 | 822720.734 | 9157854.631 | 2605.185 |
| GPS_P-123 | 823784.579 | 9157660.112 | 2624.414 |
| GPS_P-124 | 825388.152 | 9157195.408 | 2641.088 |
| GPS_P-125 | 825466.216 | 9157173.322 | 2643.675 |
| GPS_P-126 | 825814.054 | 9157121.161 | 2646.109 |
| GPS_P-127 | 825871.028 | 9157019.811 | 2647.685 |
| GPS_P-128 | 825885.241 | 9156980.198 | 2647.438 |
| GPS_P-129 | 825893.472 | 9156980.852 | 2647.817 |
| GPS_P-130 | 825872.972 | 9156948.708 | 2645.349 |
| GPS_P-131 | 825877.778 | 9156888.889 | 2637.193 |
| GPS_P-132 | 825863.821 | 9156806.654 | 2639.877 |
| GPS_P-133 | 825738.041 | 9156489.532 | 2643.985 |
| GPS_P-134 | 825605.679 | 9156441.768 | 2635.171 |
| GPS_P-135 | 825617.233 | 9156282.039 | 2620.117 |
| GPS_P-136 | 825557.333 | 9156197.331 | 2622.323 |
| GPS_P-137 | 825617.568 | 9156015.118 | 2622.544 |
| GPS_P-138 | 825716.834 | 9155751.897 | 2618.281 |
| GPS_P-139 | 825783.823 | 9155767.322 | 2623.056 |
| GPS_P-140 | 826101.980 | 9155662.917 | 2624.402 |
| GPS_P-141 | 826096.507 | 9155578.450 | 2625.919 |
| GPS_P-142 | 826073.095 | 9155317.858 | 2622.294 |
| GPS_P-143 | 826077.993 | 9155191.878 | 2629.907 |
| GPS_P-144 | 826133.605 | 9155240.388 | 2639.455 |
| GPS_P-145 | 826101.485 | 9155114.235 | 2646.244 |
| GPS_P-146 | 826109.727 | 9155072.401 | 2648.218 |

PUNTOS DE CONTROL VERTICAL (BMs)

| PUNTO | COORDENADAS UTM | | COTA NIVELACION |
|------------------|-----------------|-------------|-----------------|
| | ESTE | NORTE | |
| GPS_BM-81 | 817340.924 | 9158851.076 | 2154.338 |
| GPS_BM-82 | 817646.097 | 9158465.498 | 2173.399 |
| GPS_BM-83 | 818093.655 | 9158380.630 | 2198.116 |
| GPS_BM-84 | 818454.577 | 9158298.386 | 2223.780 |
| GPS_BM-85 | 818815.382 | 9158313.636 | 2245.143 |
| GPS_BM-86/AZ-10 | 819176.950 | 9158511.616 | 2263.047 |
| GPS_BM-87 | 819391.047 | 9158999.975 | 2287.369 |
| GPS_BM-88 | 819719.930 | 9158743.025 | 2302.464 |
| GPS_BM-89 | 820185.788 | 9158511.669 | 2311.896 |
| GPS_BM-90 | 820678.177 | 9158730.063 | 2321.795 |
| GPS_BM-91 | 821211.384 | 9158668.545 | 2341.672 |
| GPS_BM-92 | 821772.548 | 9158715.770 | 2379.834 |
| GPS_BM-93 | 821381.227 | 9158386.805 | 2403.894 |
| GPS_BM-94 | 821622.719 | 9158078.499 | 2432.715 |
| GPS_BM-95 | 821883.793 | 9157843.632 | 2474.179 |
| GPS_BM-96 | 821525.191 | 9157494.246 | 2504.239 |
| GPS_BM-97 | 821644.939 | 9157443.547 | 2533.096 |
| GPS_BM-98 | 821843.177 | 9157421.706 | 2562.099 |
| GPS_BM-99 | 822107.728 | 9157669.669 | 2595.379 |
| GPS_BM-100 | 822823.811 | 9157849.432 | 2603.379 |
| GPS_BM-101 | 823132.848 | 9157757.227 | 2611.731 |
| GPS_BM-102 | 823648.701 | 9157672.804 | 2623.721 |
| GPS_BM-103 | 824155.028 | 9157613.206 | 2628.912 |
| GPS_BM-104/AZ-12 | 824655.662 | 9157501.617 | 2637.911 |
| GPS_BM-105 | 825134.280 | 9157357.228 | 2643.354 |
| GPS_BM-106 | 825811.901 | 9157104.554 | 2641.433 |
| GPS_BM-107 | 826899.806 | 9156716.825 | 2637.434 |
| GPS_BM-108 | 828667.131 | 9156323.588 | 2631.857 |
| GPS_BM-109 | 829660.051 | 9155932.344 | 2620.372 |
| 011-MB_SBNIG | 789.279328 | 236.5885919 | 042.7362 |
| GPS_BM-110 | 828138.124 | 9155347.017 | 2627.864 |
| GPS_BM-111 | 828137.112 | 9155028.301 | 2648.169 |
| GPS_BM-112 | 828097.808 | 9156198.888 | 2654.099 |



LEYENDA

- POLIGONAL DE APOYO
- EJE PROYECTADO
- CARRETERA EXISTENTE
- PUNTOS DE CONTROL HORIZONTAL (GPS-AZ)
- PUNTOS DE CONTROL HORIZONTAL (GPS-PB)
- PUNTOS DE POLIGONAL (GPS-P)
- PUNTOS DE CONTROL VERTICAL (BM)

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Revisión

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REVISIONES

| N° | FECHA | DESCRIPCION |
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ESTUDIO DEFINITIVO PARA EL MEJORAMIENTO DE LA CARRETERA: SAN MARCOS-CAJABAMBA-SAUSACOCHA TRAMO: SAN MARCOS-CAJABAMBA CONTRATO N° 008-2011-MTC/20

PLANO DE GEOREFERENCIACION COORDENADAS UTM

FECHA: MAYO 2012
ESCALA FORMATO A1: 1/15 000
ESCALA FORMATO A3: 1/30 000
008-11-PCUTM-04