CITY OF WOODLAND GEODETIC CONTROL SURVEY

HORIZONTAL DATUM: NAD83(1999.51)
VERTICAL DATUM: NAVD88 BASED ON YOLO COUNTY GPS SUBSIDENCE SURVEY
CALIFORNIA STATE PLANE COORDINATES, ZONE 2, U.S. SURVEY FEET

STATION	LATITUDE(φ)	1.96σ φσ (ft)	LONGITUDE (λ)	1.96σ λσ (ft)	ELLIPSOID HEIGHT (m)	NORTHING (ft)	EASTING (ft)	NORTHING (m)	EASTING (m)	ELEVATION ORTHO HEIGHT (ft)	ELEVATION ORTHO HEIGHT (m)	1.96σ Hs (ft)	COMB. FACTOR	CONVERGENCE
D-12	38°41'56.706264"N	0.013	121°48'08.966513"W	0.010	-8.0909	2016475.240	6618033.554	614622.882	2017180.662	73.977*	22.548*	---------	0.99993846	0°07'28.284"
D-14	38°41'31.804189"N	0.014	121°48'08.898068"W	0.012	-7.3043	2013956.125	6618044.455	613855.055	2017183.984	76.663*	23.367*	---------	0.99993915	0°07'28.327"
D-16(GY-9)	38°41'05.707035"N	0.027	121°48'09.305352"W	0.020	-7.9321	2011316.034	6618017.900	613050.353	2017175.890	74.705*	22.770*	---------	0.99993984	0°07'28.070"
D-18	38°40'40.216628"N	0.015	121°48'08.335772"W	0.011	-8.0007	2008737.561	6618100.387	612264.433	2017201.032	74.563*	22.727*	---------	0.99994053	0°07'28.682"
D-20	38°40'13.536665"N	0.012	121°48'09.480793"W	0.009	-7.2726	2006038.386	6618015.451	611441.723	2017175.144	77.019*	23.475*	---------	0.99994122	0°07'27.960"
F-14	38°41'31.542194"N	0.009	121°47'35.217128"W	0.008	-10.5334	2013935.563	6620714.813	613848.787	2017997.911	66.098*	20.147*	---------	0.99994191	0°07'49.562"
F-16	38°41'05.482636"N	0.011	121°47'35.458142"W	0.009	-10.2445	2011299.302	6620701.704	613045.253	2017993.915	67.088	20.448	0.048	0.99994260	0°07'49.410"
3 F-18	38°40'39.382980"N	0.009	121°47'35.802384"W	0.007	-8.8966	2008658.968	6620680.415	612240.478	2017987.426	71.585*	21.819*	---------	0.99994329	0°07'49.193"
F-20	38°40'12.670494"N	0.008	121°47'36.451668"W	0.006	-7.1290	2005956.585	6620635.069	611416.790	2017973.605	77.468	23.612	0.045	0.99994398	0°07'48.784"
F-22	38°39'47.161500"N	0.011	121°47'36.274490"W	0.008	-7.1788	2003376.098	6620654.987	610630.256	2017979.676	77.395*	23.590*	---------	0.99994467	0°07'48.895"
H-12	38°42'01.228551"N	0.009	121°47'02.045708"W	0.007	-12.0609	2016944.792	6623337.576	614766.002	2018797.331	60.901	18.563	0.045	0.99994536	0°08'10.476"
H-14	38°41'31.283037"N	0.010	121°47'01.849466"W	0.007	-11.0134	2013915.504	6623360.337	613842.673	2018804.268	64.426*	19.637*	---------	0.99994605	0°08'10.599"
H-16	38°41'05.819662"N	0.008	121°47'02.472819"W	0.006	-11.8069	2011339.480	6623317.038	613057.500	2018791.071	61.902*	18.868*	---------	0.99994674	0°08'10.206"
H-18	38°40'39.079814"N	0.008	121°47'02.465962"W	0.006	-10.0330	2008634.447	6623324.011	612233.004	2018793.196	67.821*	20.672*	---------	0.99994743	0°08'10.211"
H-20	38°40'07.780003"N	0.012	121°47'02.753875"W	0.010	-8.4606	2005468.068	6623308.702	611267.890	2018788.530	73.075*	22.273*	---------	0.99994812	0°08'10.029"
H-22	38°39'46.837143"N	0.018	121°47'02.945891"W	0.015	-8.4336	2003349.430	6623298.506	610622.127	2018785.422	73.295*	22.340*	---------	0.99994881	0°08'09.908"
J-14	38°41'30.946173"N	0.009	121°46'28.313977"W	0.007	-13.0862	2013887.886	6626019.192	613834.255	2019614.689	57.604*	17.558*	---------	0.99994950	0°08'31.742"
J-16	38°41'05.256948"N	0.011	121°46'28.630392"W	0.009	-12.8152	2011289.072	6626000.551	613042.135	2019609.007	58.570	17.852	0.048	0.99995019	0°08'31.543"
J-18	38°40'38.873306"N	0.010	121°46'28.952933"W	0.009	-10.1750	2008620.009	6625981.593	612228.603	2019603.229	67.321*	20.520*	---------	0.99995088	0°08'31.339"
J-20	38°40'12.737262"N	0.016	121°46'29.652021"W	0.013	-11.5704	2005975.920	6625932.705	611422.683	2019588.328	62.824	19.149	0.054	0.99995157	0°08'30.899"
J-22	38°39'46.627041"N	0.018	121°46'29.597770"W	0.015	-10.1671	2003334.592	6625943.550	610617.605	2019591.633	67.494*	20.572*	---------	0.99995226	0°08'30.933"
3 L-10	38°42'22.336454"N	0.025	121°45'54.820112"W	0.020	-15.0855	2019093.314	6628661.234	615420.873	2020419.985	50.825*	15.492*	---------	0.99995295	0°08'52.859"
L-12	38°41'55.771565"N	0.009	121°45'55.231872"W	0.007	-14.8614	2016405.892	6628635.535	614601.745	2020412.152	51.650*	15.743*	---------	0.99995364	0°08'52.600"
L-14	38°41'30.875566"N	0.009	121°45'54.959309"W	0.007	-14.5480	2013887.439	6628663.647	613834.119	2020420.721	52.793*	16.091*	---------	0.99995433	0°08'52.771"
L-16	38°41'04.426393"N	0.008	121°45'55.582636"W	0.006	-13.4945	2011211.683	6628621.134	613018.547	2020407.763	56.297*	17.159*	---------	0.99995502	0°08'52.378"
L-18	38°40'37.821678"N	0.008	121°45'55.894616"W	0.006	-12.0917	2008520.256	6628603.341	612198.198	2020402.339	61.002*	18.593*	---------	0.99995571	0°08'52.182"
L-20	38°40'12.546381"N	0.012	121°45'55.853067"W	0.010	-13.0144	2005963.388	6628613.233	611418.863	2020405.354	58.063*	17.698*	---------	0.99995640	0°08'52.208"
L-22	38°39'46.413891"N	0.012	121°45'56.280817"W	0.010	-12.3963	2003319.710	6628586.128	610613.069	2020397.092	60.182*	18.344*	---------	0.99995709	0°08'51.938"
L-24(A1046)	38°39'20.373870"N	0.013	121°45'57.271304"W	0.010	-9.6727	2000685.273	6628514.353	609810.091	2020375.216	69.205*	21.094*	---------	0.99995778	0°08'51.314"
L-28	38°38'27.963480"N	0.009	121°45'57.709100"W	0.007	-12.8078	1995383.297	6628493.276	608194.045	2020368.791	59.076*	18.007*	---------	0.99995847	0°08'51.038"
N-14	38°41'30.431726"N	0.009	121°45'25.486216"W	0.007	-7.6002	2013848.681	6631000.464	613822.306	2021132.984	75.547*	23.027*	---------	0.99995916	0°09'11.353"
N-16	38°41'04.521031"N	0.010	121°45'21.871766"W	0.008	-15.0957	2011228.293	6631294.062	613023.610	2021222.472	51.033	15.555	0.045	0.99995985	0°09'13.632"
N-18	38°40'38.422362"N	0.011	121°45'22.213782"W	0.008	-13.8975	2008588.050	6631274.027	612218.862	2021216.366	55.061*	16.783*	---------	0.99996054	0°09'13.416"
N-20	38°40'13.316641"N	0.010	121°45'22.550892"W	0.009	-14.2532	2006048.257	6631254.106	611444.732	2021210.294	53.962	16.448	0.046	0.99996123	0°09'13.204"
N-22	38°39'46.182870"N	0.011	121°45'23.293194"W	0.009	-13.5083	2003303.219	6631202.592	610608.042	2021194.593	56.487*	17.217*	---------	0.99996192	0°09'12.736"
P-10	38°42'21.552798"N	0.014	121°44'47.842290"W	0.011	-17.0987	2019028.297	6633970.549	615401.056	2022038.267	44.154*	13.458*	---------	0.99996261	0°09'35.087"
P-12	38°41'54.983334"N	0.008	121°44'47.963770"W	0.006	-17.3702	2016340.472	6633968.413	614581.805	2022037.616	43.353*	13.214*	---------	0.99996330	0°09'35.010"
P-14	38°41'30.372173"N	0.008	121°44'48.321495"W	0.007	-17.1374	2013850.700	6633946.992	613822.921	2022031.087	44.197*	13.471*	---------	0.99996399	0°09'34.784"
P-16	38°41'04.265494"N	0.009	121°44'48.654703"W	0.007	-17.2256	2011209.646	6633927.931	613017.926	2022025.277	44.011*	13.415*	---------	0.99996468	0°09'34.574"
P-18	38°40'37.358122"N	0.010	121°44'48.977859"W	0.008	-15.7864	2008487.596	6633909.887	612188.244	2022019.778	48.831*	14.884*	---------	0.99996537	0°09'34.371"
P-20	38°40'12.044475"N	0.011	121°44'49.250485"W	0.010	-15.1528	2005926.781	6633895.397	611407.706	2022015.361	50.968*	15.535*	---------	0.99996606	0°09'34.199"
P-22	38°39'46.006690"N	0.010	121°44'49.593355"W	0.009	-15.8733	2003292.697	6633875.535	610604.835	2022009.307	48.715*	14.848*	---------	0.99996675	0°09'33.983"
P-24	38°39'19.766949"N	0.013	121°44'49.894392"W	0.011	-15.8075	2000638.193	6633859.043	609795.741	2022004.280	48.985*	14.931*	---------	0.99996744	0°09'33.793"
P-26	38°38'53.654385"N	0.012	121°44'50.432710"W	0.011	-15.9690	1997996.503	6633823.686	608990.552	2021993.503	48.533*	14.793*	---------	0.99996813	0°09'33.453"
P-28	38°38'27.478743"N	0.009	121°44'51.595598"W	0.007	-15.9012	1995348.295	6633738.785	608183.377	2021967.626	48.888*	14.901*	---------	0.99996882	0°09'32.720"
R-14	38°41'30.418361"N	0.007	121°44'16.965250"W	0.006	-18.0718	2013862.419	6636432.979	613826.493	2022788.818	41.090*	12.524*	---------	0.99996951	0°09'54.554"
R-16	38°41'04.444078"N	0.007	121°44'15.904982"W	0.006	-17.9590	2011235.075	6636524.622	613025.677	2022816.750	41.563	12.668	0.044	0.99997020	0°09'55.222"
R-18	38°40'38.006147"N	0.008	121°44'15.618214"W	0.007	-17.3463	2008560.652	6636555.080	612210.511	2022826.034	43.658*	13.307*	---------	0.99997089	0°09'55.403"
R-20	38°40'15.071671"N	0.008	121°44'17.638849"W	0.007	-17.6564	2006240.115	6636401.529	611503.210	2022779.232	42.728	13.024	0.044	0.99997158	0°09'54.129"
R-22	38°39'45.817603"N	0.008	121°44'16.281530"W	0.007	-17.3711	2003281.056	6636517.709	610601.287	2022814.643	45.015*	13.721*	---------	0.99997227	0°09'54.985"
T-12	38°41'54.247984"N	0.007	121°43'40.829451"W	0.006	-19.8595	2016281.466	6639290.698	614563.820	2023659.852	35.116*	10.703*	---------	0.99997296	0°10'17.336"
T-14	38°41'30.117308"N	0.007	121°43'41.504597"W	0.006	-19.5722	2013840.220	6639244.477	613819.727	2023645.764	36.158*	11.021*	---------	0.99997365	0°10'16.910"
T-16	38°41'03.971859"N	0.006	121°43'41.940177"W	0.005	-18.6454	2011195.216	6639217.850	613013.528	2023637.648	39.287*	11.975*	---------	0.99997434	0°10'16.636"
T-18	38°40'37.857683"N	0.007	121°43'42.372515"W	0.006	-18.6600	2008553.377	6639191.464	612208.294	2023629.605	39.324*	11.986*	---------	0.99997503	0°10'16.363"
4 T-20	38°40'12.239182"N	0.007	121°43'42.985661"W	0.006	-18.5719	2005961.640	6639150.582	611418.331	2023617.145	39.705*	12.102*	---------	0.99997572	0°10'15.977"
T-22	38°39'46.786567"N	0.007	121°43'43.103230"W	0.007	-18.7080	2003386.801	6639148.946	610633.518	2023616.646	39.345*	11.992*	---------	0.99997641	0°10'15.902"
3 T-24	38°39'18.608235"N	0.010	121°43'43.997061"W	0.008	-19.4273	2000536.044	6639086.556	609764.606	2023597.630	37.082*	11.303*	---------	0.99997710	0°10'15.339"
3 T-26	38°38'52.451557"N	0.009	121°43'44.557151"W	0.008	-19.4283	1997889.879	6639050.017	608958.053	2023586.492	37.168*	11.329*	---------	0.99997779	0°10'14.986"
1 T-28	38°38'26.773479"N	0.011	121°43'44.478120"W	0.009	-18.9084	1995292.282	6639064.033	608166.304	2023590.764	38.978*	11.881*	---------	0.99997848	0°10'15.036"
V-16	38°41'03.156864"N	0.006	121°43'07.247302"W	0.006	-19.5058	2011121.140	6641968.924	612990.949	2024476.177	36.426	11.103	0.044	0.99997917	0°10'38.509"
V-18	38°40'37.504631"N	0.005	121°43'09.064791"W	0.005	-20.1145	2008525.689	6641832.832	612199.855	2024434.696	34.515*	10.520*	---------	0.99997986	0°10'37.363"
2 V-20	38°40'10.776654"N	0.006	121°43'08.248166"W	0.006	-19.9314	2005822.062	6641905.951	611375.787	2024456.983	35.210	10.732	0.044	0.99998055	0°10'37.877"
2 V-22	38°39'45.402000"N	0.008	121°43'09.724783"W	0.006	-20.6972	2003254.777	6641796.772	610593.277	2024423.705	32.785*	9.993*	---------	0.99998124	0°10'36.947"
V-24	38°39'23.330777"N	0.009	121°43'08.721150"W	0.007	-18.1150	2001022.279	6641883.277	609912.810	2024450.072	41.335	12.599	0.045	0.99998193	0°10'37.579"
V-26	38°38'52.249198"N	0.009	121°43'11.021292"W	0.008	-20.3735	1997877.477	6641710.522	608954.273	2024397.416	34.025*	10.371*	---------	0.99998262	0°10'36.129"
X-20	38°40'12.514886"N	0.007	121°42'37.668832"W	0.006	-20.7458	2006005.517	6644330.547	611431.704	2025196.001	32.498*	9.905*	---------	0.99998331	0°10'57.157"
X-22	38°39'43.414535"N	0.008	121°42'36.068371"W	0.007	-20.6236	2003062.104	6644466.867	610534.550	2025237.552	33.030*	10.068*	---------	0.99998400	0°10'58.166"
X-24	38°39'25.098408"N	0.008	121°42'38.865146"W	0.007	-19.2541	2001208.523	6644250.936	609969.578	2025171.736	37.569*	11.451*	---------	0.99998469	0°10'56.403"
X-26	38°38'52.063293"N	0.009	121°42'37.790012"W	0.008	-20.9037	1997866.935	6644346.863	608951.060	2025200.974	32.253*	9.831*	---------	0.99998538	0°10'57.080"
CHURCH	38°39'48.004250"N	---------	121°48'09.056930"W	---------	-6.6564	2003455.571	6618054.679	610654.479	2017187.100	79.167*	24.130*	---------	0.99998607	0°07'28.227"
EX 1	38°38'46.407900"N	---------	121°40'03.024520"W	---------	-22.8134	1997336.848	6656626.700	608789.489	2028943.876	25.859*	7.882*	---------	0.99998676	0°12'34.655"
FERRY	38°40'32.005920"N	---------	121°37'49.179060"W	---------	-18.4683	2008060.221	6667201.595	612057.980	2032167.111	39.764*	12.120*	---------	0.99998745	0°13'59.040"
FORD RM2	38°43'33.234260"N	---------	121°43'47.390710"W	---------	-12.9162	2026293.483	6638740.785	617615.489	2023492.238	57.579*	17.550*	---------	0.99998814	0°10'13.199"
HPGN0308	38°43'01.996540"N	---------	121°48'07.539960"W	---------	-6.8064	2023080.339	6618132.259	616636.121	2017210.747	78.018*	23.780*	---------	0.99998883	0°07'29.183"
HPGN03DG	38°38'27.436000"N	---------	121°45'39.594630"W	---------	-6.6940	1995333.676	6629930.599	608178.921	2020806.888	79.167*	24.130*	---------	0.99998952	0°09'02.458"
LIBRARY	38°40'44.183360"N	---------	121°46'28.099400"W	---------	-10.7595	2009157.348	6626047.944	612392.384	2019623.453	65.387*	19.930*	---------	0.99999021	0°08'31.878"
P1031	38°40'38.143620"N	---------	121°42'34.076130"W	---------	-20.3625	2008599.052	6644607.183	612222.215	2025280.320	33.661*	10.260*	---------	0.99999090	0°10'59.422"

NOTES:

1) THE COORDINATES SHOWN ON THIS MAP ARE BASED ON THE 1999 YOLO COUNTY GPS SUBSIDENCE SURVEY, A PART OF THE CALIFORNIA HIGH PRECISION GEODETIC NETWORK(HPGN)(EPOCH 1999.51) ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1983(NAD83). DISTANCES SHOWN ON THIS MAP, OR COMPUTED FROM THE COORDINATES SHOWN HEREON ARE "GRID DISTANCES", AND SHOULD BE CONVERTED TO "GROUND" DISTANCES IN ORDER TO BE COMPATIBLE WITH MEASUREMENTS MADE ON THE GROUND USING CONVENTIONAL SURVEYING TECHNIQUES. TO OBTAIN "GROUND" DISTANCES, DIVIDE THE "GRID" DISTANCE BY THE "COMBINATION FACTOR". TO OBTAIN "GRID" DISTANCES, MULTIPLY THE "GROUND" DISTANCE BY THE "COMBINATION FACTOR". COMBINATION FACTORS FOR EACH POINT ARE INCLUDED IN THE COORDINATE LISTINGS.

2) THIS MAP IS INTENDED TO BE A MONUMENTATION MAP ONLY. IT DOES NOT DEFINE PROPERTY BOUNDARY LOCATIONS. THE SOLE PURPOSE IS TO ESTABLISH A HORIZONTAL AND VERTICAL CONTROL NETWORK FOR THE CITY OF WOODLAND PUBLIC WORKS DEPARTMENT, CONSTRAINED TO THE CALIFORNIA HIGH PRECISION GEODETIC NETWORK, USING GLOBAL POSITIONING SURVEY TECHNIQUES, AND CONSTRAINED TO NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD88), AND SHOW THE LOCATION AND DESCRIPTION OF MONUMENTS FOUND OR SET, ALONG WITH THE NAD83–1999 STATE PLANE COORDINATES DETERMINED FOR THE MONUMENTS.

3) 1.96σ = STANDARD ERROR DETERMINED AT 95% CONFIDENCE LEVEL(FGCS SPECIFICATION)

4) COMBINED FACTORS SHOWN WERE DETERMINED AS PER CALIFORNIA DEPARTMENT OF TRANSPORTATION AND NGS SPECIFICATIONS.

i.e. CF=SF*(R/R+N+H)
WHERE CF = COMBINED FACTOR
SF = GRID SCALE FACTOR
R = RADIUS OF EARTH(6372292 m)
N = GEOID HEIGHT(GEOID–ELLIPSOID SEPARATION)
H = ORTHOMETRIC HEIGHT(i.e. NAVD88 ELEVATION)

5) ORTHOMETRIC HEIGHTS(NAVD88 ELEVATIONS) DESIGNATED BY "*" HAVE BEEN DETERMINED BY SPIRIT LEVELING USING A WILD NA2002 DIGITAL LEVEL WITH SECOND ORDER CLASS II OR BETTER PROCEDURES. ALL OTHER HEIGHTS WERE DETERMINED BY ADJUSTED G.P.S. AND GEOID 99 MODEL OBSERVATIONS.

6) THE MEAN COMBINATION FACTOR OF THE 77 STATIONS USED = 0.9999424 AND MEAN MAPPING ANGLE(γ) = 00°09'20.6"

7) A COMPLETE REPORT OF THE G.P.S. SURVEY IS AVAILABLE FOR REVIEW AT THE CITY OF WOODLAND PUBLIC WORKS ENGINEERING DEPARTMENT.

1 8) CONTROL NETWORK MONUMENTS T24, T26 & T28 REPLACED. SEE YOLO COUNTY BOOK OF MAPS 2007 PAGE 175 & 176.

2 9) CONTROL NETWORK MONUMENTS V20 & V22 DISTURBED BY CONSTRUCTION. NEW POSITIONAL VALUES ESTABLISHED. SEE YOLO COUNTY BOOK OF MAPS 2007 PAGE 175 & 176.

3 10) CONTROL NETWORK MONUMENTS F18 & L10 REPLACED. NO DATA AVAILABLE.

4 11) CONTROL NETWORK MONUMENT T20 REPLACED. SEE YOLO COUNTY BOOK OF MAPS 2013 PAGE 58.

5 12) CONTROL NETWORK MONUMENT N24 SET. SEE YOLO COUNTY BOOK OF MAPS 2012 PAGE 60.

CITY OF WOODLAND GEODETIC CONTROL NETWORK INCLUDING SECTIONS IN PORTIONS OF RANCHO RIO JESUS MARIA; T.10 N., R.02 E.; T.09 N., R.02 E.; M.D.M. CITY OF WOODLAND YOLO COUNTY, CALIFORNIA SEPTEMBER 5, 2002

SHEET 6 OF 7

DATE OF GROUND SURVEYS:
JANUARY–MAY, 2002

HORIZONTAL DATUM:
NAD83(1999.51)
CALIFORNIA STATE PLANE COORDINATES ZONE 2

VERTICAL DATUM:
NAVD88 BASED ON YOLO COUNTY GPS SUBSIDENCE SURVEY

DRAWING UPDATED: JANUARY, 2015 SHEET 6