

## Surveyor Team1

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**From:** Stephan Barott Land Surveying [sbarott@charter.net]  
**Sent:** Wednesday, March 16, 2011 10:05 AM  
**To:** Surveyor Team1  
**Cc:** sbarott@charter.net  
**Subject:** Formosa Mine Control Survey (superfund site)  
**Importance:** High

Randy,

I completed a control survey (mainly GPS) for a private firm who is involved in the cleanup and monitoring of Formosa Mine Superfund Site near Silver Butte, SW of Riddle. Location is in Sections 23-26-27, T.31 S., R.6 W., W.M.

This was funded by private funds to me, but may be linked to Federal \$ overall...I'm really not sure.

Anyway, I didn't plan to file a plat but at the very least I can provide the information for your opinion. I did set monuments on private land but did not located any property boundaries, other than tie to ¼ S22-S23 and BLM projected control. The purpose of the survey was to provide locations for twelve monitoring wells, and provide control for future monitoring.

I am asking you to review and give me some advice on recording, etc.

Thanks,

Pat Barott

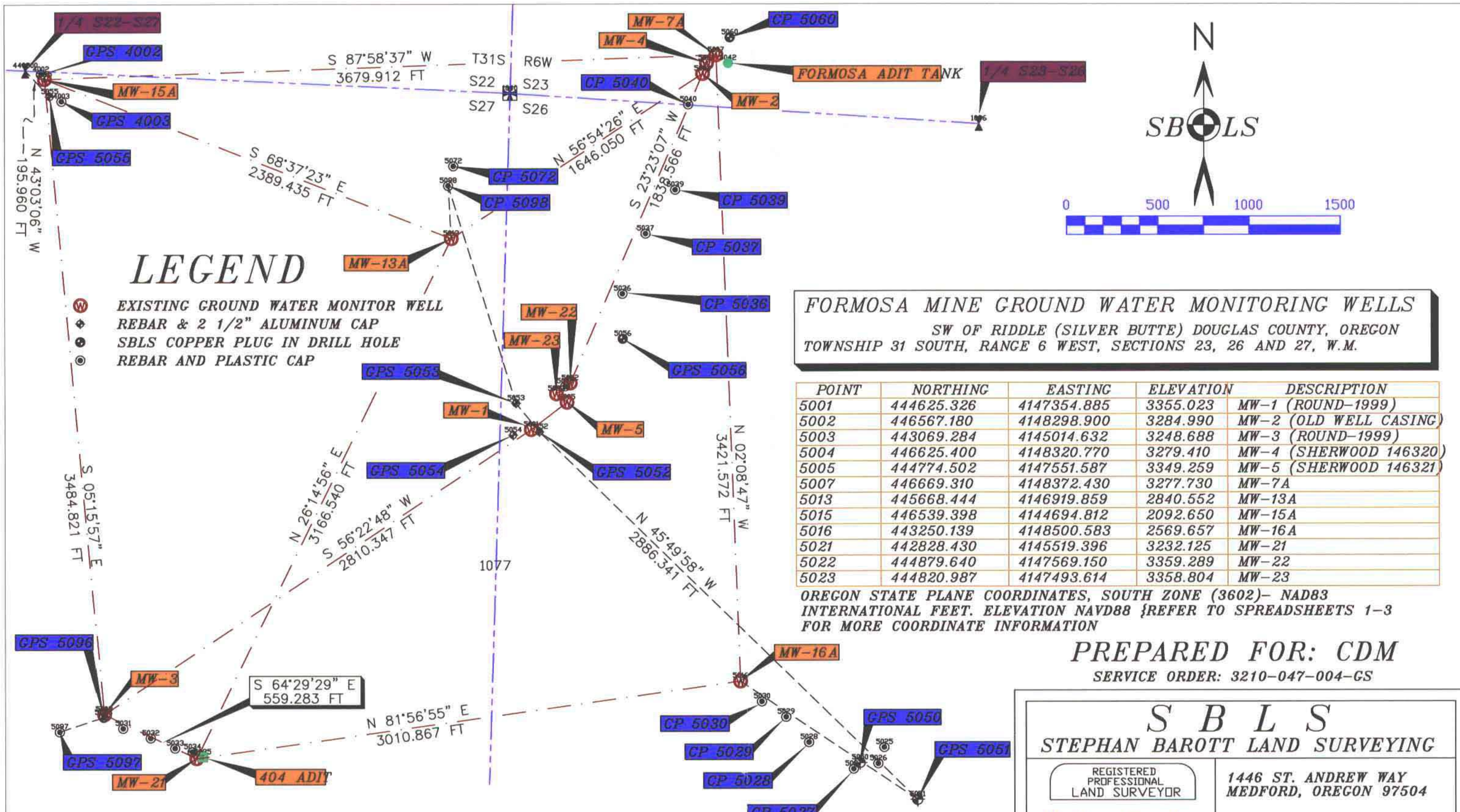
**President-2011**  
**Professional Land Surveyor's of Oregon**  
**Rogue River Chapter**

**SBLS**  
**Stephan Barott Land Surveying**  
**1446 St Andrew Way**  
**Medford, OR 97504**  
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**C.S. File No** 65/74-5A

3/16/2011

(DCSO DID NOT REVIEW FOR COMPLIANCE. INFORMATIONAL ONLY)



# LEGEND

- EXISTING GROUND WATER MONITOR WELL
- REBAR & 2 1/2" ALUMINUM CAP
- SBLS COPPER PLUG IN DRILL HOLE
- REBAR AND PLASTIC CAP

**FORMOSA MINE GROUND WATER MONITORING WELLS**  
 SW OF RIDDLE (SILVER BUTTE) DOUGLAS COUNTY, OREGON  
 TOWNSHIP 31 SOUTH, RANGE 6 WEST, SECTIONS 23, 26 AND 27, W.M.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
5001	444625.326	4147354.885	3355.023	MW-1 (ROUND-1999)
5002	446567.180	4148298.900	3284.990	MW-2 (OLD WELL CASING)
5003	443069.284	4145014.632	3248.688	MW-3 (ROUND-1999)
5004	446625.400	4148320.770	3279.410	MW-4 (SHERWOOD 146320)
5005	444774.502	4147551.587	3349.259	MW-5 (SHERWOOD 146321)
5007	446669.310	4148372.430	3277.730	MW-7A
5013	445668.444	4146919.859	2840.552	MW-13A
5015	446539.398	4144694.812	2092.650	MW-15A
5016	443250.139	4148500.583	2569.657	MW-16A
5021	442828.430	4145519.396	3232.125	MW-21
5022	444879.640	4147569.150	3359.289	MW-22
5023	444820.987	4147493.614	3358.804	MW-23

OREGON STATE PLANE COORDINATES, SOUTH ZONE (3602)- NAD83  
 INTERNATIONAL FEET. ELEVATION NAVD88 {REFER TO SPREADSHEETS 1-3  
 FOR MORE COORDINATE INFORMATION

**PREPARED FOR: CDM**  
 SERVICE ORDER: 3210-047-004-GS

**S B L S**  
 STEPHAN BAROTT LAND SURVEYING

REGISTERED PROFESSIONAL LAND SURVEYOR

1446 ST. ANDREW WAY  
 MEDFORD, OREGON 97504

*Stephan Barott*

OREGON  
 JULY 26, 1988  
 STEPHAN L. BAROTT  
 2332  
 MY CERTIFICATE EXPIRES  
 DECEMBER 31, 2011

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 cell 541-510-8278  
 fax 541-776-2956  
 sbarott@charter.net

EQUIPMENT USED: LEICA TCRP 1203 ELECTRONIC TOTAL STATION, LEICA SMARTSTATION DUEL FREQUENCY GPS, TRIMBLE DINI22 DIGITAL LEVEL. GPS SOLUTIONS ADJUSTED UTILIZING OREGON DEPARTMENT OF TRANSPORTATION'S ORGN GPS NETWORK-NAD83 (CORS96-EPOCH 2002 AND GEOID 2003), OR NGS OPUS-RS ADJUSTED SOLUTIONS WHERE NOTED. DATE OF FIELD SURVEY: JANUARY 13-31, 2011

**FORMOSA MINE- GROUND WATER MONITORING WELLS (DOUGLAS COUNTY, OREGON--NEAR RIDDLE)**

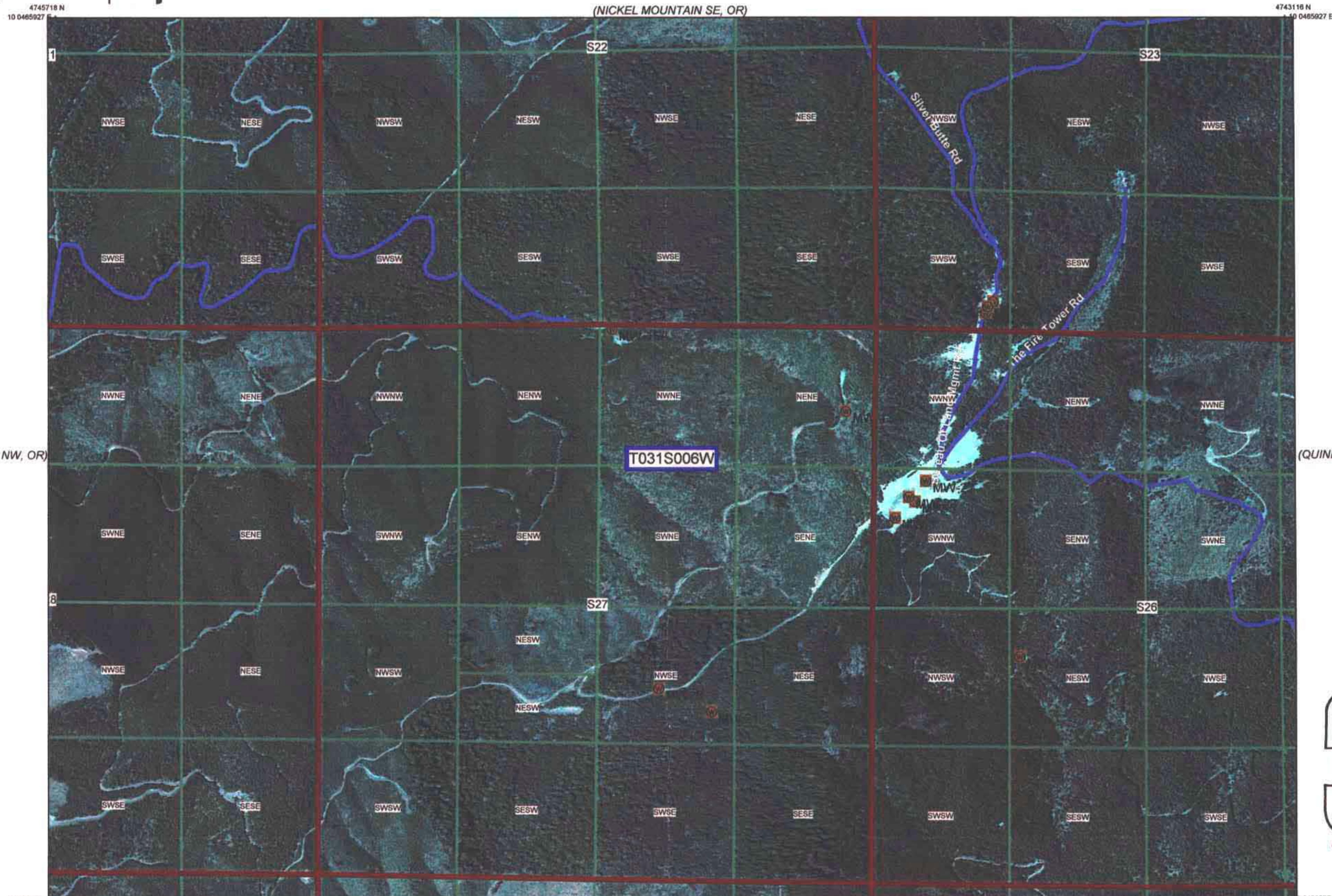
STATION	ELEVATION NAVD88 (FEET)	ELEVATION NGVD29 (FEET)	NORTHING (OCRS CANYONVILLE- GRANTS PASS) INTERNATIONAL FEET	EASTING (OCRS CANYONVILLE- GRANTS PASS) INTERNATIONAL FEET	LATITUDE (NORTH) NAD 83 CORS 96 (EPOCH 2002)	LONGITUDE (WEST) NAD 83 CORS 96 (EPOCH 2002)	NORTHING (NAD 83-OREGON SOUTH ZONE) INTERNATIONAL FEET	EASTING (NAD 83-OREGON SOUTH ZONE) INTERNATIONAL FEET	DIRECT GPS TIE	DESCRIPTOR
GPS FM 5050	2615.341	2611.811	125841.144	118786.444	42°50'42.90275"N	123°22'47.06837"W	442803.665	4149154.044	ORGN NETWORK	SBLS 2 1/2" DIAM. AL CAP- GEODETIC CONTROL
GPS FM 5051	2653.597	2650.067	125650.036	119109.800	42°50'41.01697"N	123°22'42.72685"W	442601.760	4149470.699	ORGN NETWORK	SBLS 2 1/2" DIAM. AL CAP- GEODETIC CONTROL
GPS FM 5052	3350.566	3347.026	127590.296	116972.251	42°51'00.16805"N	123°23'11.43368"W	444612.899	4147400.342	ORGN NETWORK	SBLS 2 1/2" DIAM. AL CAP- GEODETIC CONTROL
GPS FM 5053	3352.559	3349.015	127742.309	116838.642	42°51'01.66860"N	123°23'13.22845"W	444769.319	4147271.972	ORGN NETWORK	SBLS 2 1/2" DIAM. AL CAP- GEODETIC CONTROL
GPS FM 5054	3395.120	3391.580	127567.276	116829.028	42°50'59.93980"N	123°23'13.35599"W	444594.740	4147256.445	ORGN NETWORK	SBLS 2 1/2" DIAM. AL CAP- GEODETIC CONTROL
GPS FM 5055	2100.692	2097.159	129330.405	114235.729	42°51'17.33591"N	123°23'48.18427"W	446444.292	4144724.683	OPUS-RS	SBLS 2 1/2" DIAM. AL CAP- GEODETIC CONTROL
GPS 5056	3429.285	3425.752	128114.167	117413.078	42°51'05.34489"N	123°23'05.52065"W	445121.475	4147858.565	ORGN NETWORK	SBLS LS2332 1" DIAM COPPER PLUG
GPS 5096	3246.007	3242.470	125949.140	114637.436	42°50'43.94307"N	123°23'42.75830"W	443051.918	4145011.726	ORGN NETWORK	SBLS CONTROL 5/8"X20" REBAR & PLASTIC CAP
GPS 5097	3216.880	3213.343	125862.617	114401.999	42°50'43.08678"N	123°23'45.91754"W	442973.421	4144773.535	ORGN NETWORK	SBLS CONTROL 5/8"X20" REBAR & PLASTIC CAP
GPS 4002	2087.052	2083.512	129451.044	114183.990	42°51'11.85270"N	123°23'48.88005"W	446566.593	4144677.062	OPUS-RS	SBLS CONTROL 1/2"X15" REBAR & PLASTIC CAP
GPS 4003	2113.991	2110.451	129307.170	114300.881	42°51'17.10691"N	123°23'47.30941"W	446418.871	4144789.002	OPUS-RS	SBLS CONTROL 1/2"X15" REBAR & PLASTIC CAP
GPS 5099	3357.123	3353.586	127843.959	117105.478	42°51'02.67423"N	123°23'09.64746"W	444861.869	4147542.051	ORGN NETWORK	FOUND ORANGE PLASTIC CAP MKD "WS"

(NICKEL MOUNTAIN SW, OR)



MCCULLOUGH CREEK NE, OR QUADRANGLE  
SISKIYOU NAT'L FOREST/CRATER LAKE/MEDFORD (OR)  
AERIAL PHOTO SERIES

(CANYONVILLE SW, OR)



(MCCULLOUGH CREEK NW, OR)

(QUINES CREEK NW, OR)

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

*Stephan Barott*

OREGON  
JULY 24, 1988  
STEPHAN L. BAROTT  
2332

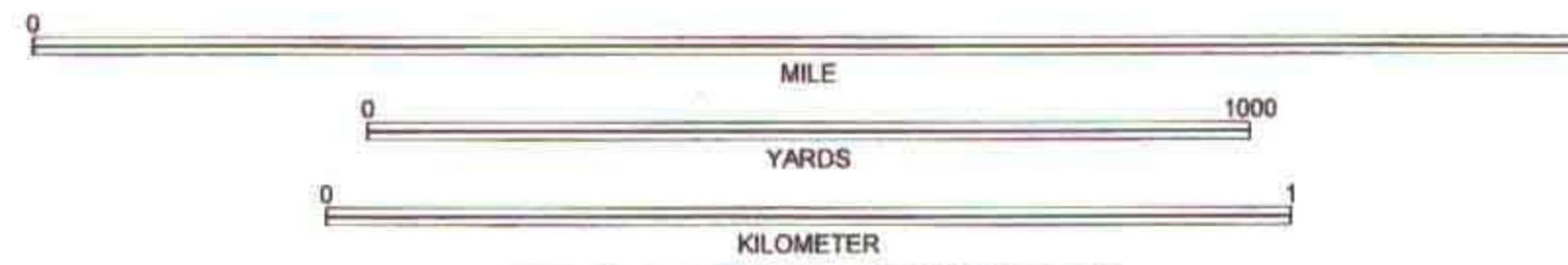
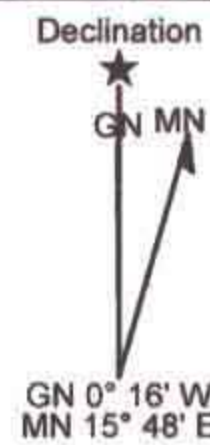
Expires: 12-31-2011

(MCCULLOUGH CREEK SW, OR)

(QUINES CREEK SW, OR)

Produced by MyTopo Terrain Navigator  
Topography based on USGS 1:12,000 Maps  
North American 1983 Datum (NAD83)  
Universal Transverse Mercator Projection

To place on the predicted North American 1927 move the projection lines 18M S and 96M W



CONTOUR INTERVAL UNKNOWN NONE  
NATIONAL GEODETIC VERTICAL DATUM 1929

MCCULLOUGH CREEK NE, OR, OR  
JUN 22, 2009

C.S. File No 65/74-5d

**FORMOSA MINE- GROUND WATER MONITORING WELLS (DOUGLAS COUNTY, OREGON--NEAR RIDDLE)**

STATION	ELEVATION NAVD88 (FEET)	ELEVATION NGVD29 (FEET)	NORTHING (OCRS CANYONVILLE- GRANTS PASS) INTERNATIONAL FEET	EASTING (OCRS CANYONVILLE- GRANTS PASS) INTERNATIONAL FEET	LATITUDE (NORTH) NAD 83 CORS 96 (EPOCH 2002)	LONGITUDE (WEST) NAD 83 CORS 96 (EPOCH 2002)	NORTHING (NAD 83-OREGON SOUTH ZONE) INTERNATIONAL FEET	EASTING (NAD 83-OREGON SOUTH ZONE) INTERNATIONAL FEET	DIRECT GPS TIE	COMMENTS
<b>MW-1</b>		-3.540	127601.180	116926.392	42°51'00.27526"N	123°23'12.04935"W	444625.330	4147354.890	ORGN NETWORK	1999 WELL- (NOT MONITORED)
WELL CASING TOP	3355.560	3352.020								ROUND CASING WITHOUT CAP
PVC TOP	3355.020	3351.480								POINT #5001 MEASURED TO TOP OF PVC CAP
CONCRETE BASE	3352.630	3349.090								TRIANGLE SHAPED BASE
COPPER PLUG	3352.630	3349.090	127601.674	116925.269	42°51'00.28013"N	123°23'12.06442"W	444625.860	4147353.780	NO-TRAVERSE	POINT #6001
<b>MW-2</b>		-3.520	129574.171	117804.317	42°51'19.76726"N	123°23'00.28048"W	446567.180	4148298.900	NO-TRAVERSE	OLD WELL CASING-GROUND LEVEL (NO MARKS)
WELL CASING TOP	3285.060	3281.540								
PVC TOP	3284.730	3281.210								TRAVERSE 6022--->5004
CONCRETE BASE	N/A									
<b>MW-3</b>		-3.540	125966.595	114639.752	42°50'44.11551"N	123°23'42.72738"W	443069.284	4145014.632	ORGN NETWORK	1999 WELL- (NOT MONITORED)
WELL CASING TOP	3249.190	3245.650								ROUND- WITH CAP
PVC TOP	3248.690	3245.150								
CONCRETE BASE	3246.200	3242.660								TRIANGLE SHAPED BASE
COPPER PLUG	3246.200	3242.660	125966.628	114640.733	42°50'44.11123"N	123°23'42.71399"W	443068.817	4145015.613	ORGN NETWORK	POINT #6003
<b>MW-4</b>		-3.520	129633.107	117824.208	42°51'20.34923"N	123°23'00.01406"W	446625.400	4148320.770	OPUS-RS	0.9' SHERWOOD MONITOR WELL #146320
WELL CASING TOP	3279.480	3275.960								STAMPED MW 4 ON EDGE OF CASING
PVC TOP	3279.080	3275.560								TRAVERSE 6022--->5004
CONCRETE BASE	N/A									
<b>MW-5</b>		-3.540	127756.945	117117.969	42°51'01.81495"N	123°23'09.47911"W	444774.500	4147551.590	ORGN NETWORK	
WELL CASING TOP	3349.260	3345.720								0.9' SHERWOOD MONITOR WELL #146321
PVC TOP	3348.840	3345.300								STAMPED MW 5 ON EDGE OF CASING
CONCRETE BASE	N/A									
<b>MW-7A</b>		-3.520	129678.647	117874.364	42°51'20.80053"N	123°22'59.34101"W	446669.310	4148372.430	NO-TRAVERSE	
WELL CASING TOP	3277.730	3274.210								
PVC TOP	3276.790	3273.270								
CONCRETE BASE	3274.180	3270.660								TRAVERSE 6022--->5004
COPPER PLUG	3274.200	3270.680	129678.618	117873.785	42°51'20.79945"N	123°22'59.34875"W	446669.220	4148371.850	NO-TRAVERSE	POINT #6007
<b>MW-13A</b>		-3.530	128629.143	116456.253	42°51'10.42518"N	123°23'18.36877"W			NO-TRAVERSE	OVER MIDDLE CREEK
WELL CASING TOP	2840.550	2837.020								
PVC TOP	2839.800	2836.270								
CONCRETE BASE	2836.960	2833.430								TRAVERSE 5053---->5098
COPPER PLUG	2836.940	2833.410			42°51'10.42404"N	123°23'18.35528"W	445668.290	4146920.890	NO-TRAVERSE	POINT #6013 (POINT #5098 & 5072 VISIBLE)
<b>MW-15A</b>		-3.530	129424.459	114202.651	42°51'18.26461"N	123°23'48.62927"W	446539.400	4144694.810	NO-TRAVERSE	OPUS-RS FROM 5055, 4002, AND 4003
WELL CASING TOP	2092.721	2089.190								
PVC TOP	2091.987	2088.460								
CONCRETE BASE	2088.548	2085.020								
COPPER PLUG	2088.548	2085.020	129425.048	114203.171	42°51'18.27043"N	123°23'48.62229"W	446539.970	4144695.350	NO-TRAVERSE	POINT #6015 (GPS 5055, 4002 & 4003 VISIBLE)
<b>MW-16A</b>		-3.530	126265.322	118118.143	42°50'47.08851"N	123°22'56.04176"W	443250.140	4148500.580	NO-TRAVERSE	
WELL CASING TOP	2569.660	2566.130								
PVC TOP	2568.960	2565.430								
CONCRETE BASE	2565.870	2562.340								TRAVERSE 5052-5051-5050
COPPER PLUG	2565.870	2562.340	126265.025	118118.834	42°50'47.08558"N	123°22'56.03249"W	443249.820	4148501.260	NO-TRAVERSE	POINT #6016

FORMOSA MINE- GROUND WATER MONITORING WELLS (DOUGLAS COUNTY, OREGON--NEAR RIDDLE)										
STATION	ELEVATION NAVD88 (FEET)	ELEVATION NGVD29 (FEET)	NORTHING (OCRS CANYONVILLE- GRANTS PASS) INTERNATIONAL FEET	EASTING (OCRS CANYONVILLE- GRANTS PASS) INTERNATIONAL FEET	LATITUDE (NORTH) NAD 83 CORS 96 (EPOCH 2002)	LONGITUDE (WEST) NAD 83 CORS 96 (EPOCH 2002)	NORTHING (NAD 83-OREGON SOUTH ZONE) INTERNATIONAL FEET	EASTING (NAD 83-OREGON SOUTH ZONE) INTERNATIONAL FEET	DIRECT GPS TIE	COMMENTS
<b>MW-21</b>		-3.530	125742.919	115152.462	42°50'41.90996"N	123°23'35.84352"W	442828.430	4145519.400	NO-TRAVERSE	
WELL CASING TOP	3232.120	3228.590								
PVC TOP	3231.300	3227.770								
CONCRETE BASE	3229.100	3225.570								
COPPER PLUG	3229.080	3225.550	125743.360	115151.886	42°50'41.91431"N	123°23'35.85124"W	442828.890	4145518.840	NO-TRAVERSE	POINT #6021
<b>MW-22</b>		-3.540	127862.636	117131.964	42°51'02.85889"N	123°23'09.29208"W	444879.640	4147569.150	ORGN NETWORK	
WELL CASING TOP	3359.280	3355.740								
PVC TOP	3358.710	3355.170								
CONCRETE BASE	3357.190	3353.650							ORGN NETWORK	
COPPER PLUG	3357.180	3353.640			42°51'02.85106"N	123°23'09.29013"W	444878.840	4147569.270		POINT #6022 (ELEVATION CONTROL)
<b>MW-23</b>		-3.540	127801.454	117058.440	42°51'02.25414"N	123°23'10.27846"W	444820.990	4147493.610	ORGN NETWORK	
WELL CASING TOP	3358.800	3355.260								
PVC TOP	3357.910	3354.370								
CONCRETE BASE	3356.450	3352.870								
COPPER PLUG	3356.390	3352.850	127800.780	117058.042	42°51'02.24747"N	123°23'10.28391"W	444820.330	4147493.190	ORGN NETWORK	POINT #6023

# Interactive Conversion Report

Blue Marble Desktop 2.2.0

T31SR6W 1/4 S22-27

Datasource: C:\Documents and Settings\All Users\WINDOWS\Application Data\blue marble geographics\blue marble desktop\datasource\geodata.xml

	440300 T31SR6W	440300 T31SR6W
Geodetic latitude:	42.511870406N	
Geodetic longitude:	123.235004633W	
Height:	2105.910	
Northing:		446587.5064
Easting:		4144590.8700
Height:		2105.927
Base latitude:	42.855195572222229	42.8551955633229
Base longitude:	-123.39723509166667	-123.39723509194647
Convergence:	00.000000	-01.585569
Scale Factor:	00.000000000000000	00.999909486058838
Orthometric Height Scale:	00.999899164441959	00.999899163636422
Coordinate System:	NAD83(NSRS2007)	NAD83(NSRS2007) / Oregon South (ft)
Datum:	NAD83 (National Spatial Reference System 2007)	NAD83 (National Spatial Reference System 2007)
Datum Transformation:		
Units:	Degree	International Foot
Format:	DD.MMSS	X.
Vertical Reference:	NAVD88 via Geoid03	NAVD88 via Geoid09
Vertical Datum:	North American Vertical Datum of 1988	North American Vertical Datum of 1988
Height Model:	US Geoid Model of 2003	US Geoid Model of 2009
Vertical Units:	International Foot	International Foot

Blue Marble Geographics  
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REGISTERED  
 PROFESSIONAL  
 LAND SURVEYOR

*Stephan Barott*

OREGON  
 JULY 26, 1998  
 STEPHAN L. BAROTT  
 2332

EXPIRES: 12-31-2011

T31SR6W S22-27

Datasource: C:\Documents and Settings\All Users\WINDOWS\Application Data\blue marble geographics\blue marble desktop\datasource\geodata.xml

	440300 T31SR6W	440300 T31SR6W
Geodetic latitude	42.511870406N	
Geodetic longitude	123.235004633W	
Height	2105.910	
Northing		446587.5064
Easting		4144590.8700
Height		2102.377
Base latitude	42.855195572222229	42.8551955633229
Base longitude	-123.39723509166667	-123.39723509184647
Convergence	00.000000	-01.585569
Scale Factor	00.000000000000000	00.999909486058838
Orthometric Height Scale	00.999899164441959	00.999899333614908
Coordinate System	NAD83(NSRS2007)	NAD83(NSRS2007) / Oregon South (ft)
Datum	NAD83 (National Spatial Reference System 2007)	NAD83 (National Spatial Reference System 2007)
Datum Transformation		
Units	Degree	International Foot
Format	DD.MMSS	X.
Vertical Reference	NAVD88 via Geoid03	NGVD29 via Geoid03
Vertical Datum	North American Vertical Datum of 1988	National Geodetic Vertical Datum of 1929
Height Model	US Geoid Model of 2003	US Geoid Model of 2003
Vertical Units	International Foot	International Foot

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 Website: www.bluemarblegeo.com Sales: geoinfo@blumarblegeo.com Support: geohelp@blumarblegeo.com

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 PROFESSIONAL  
 LAND SURVEYOR

*Stephan Barott*

OREGON  
 JULY 26, 1988  
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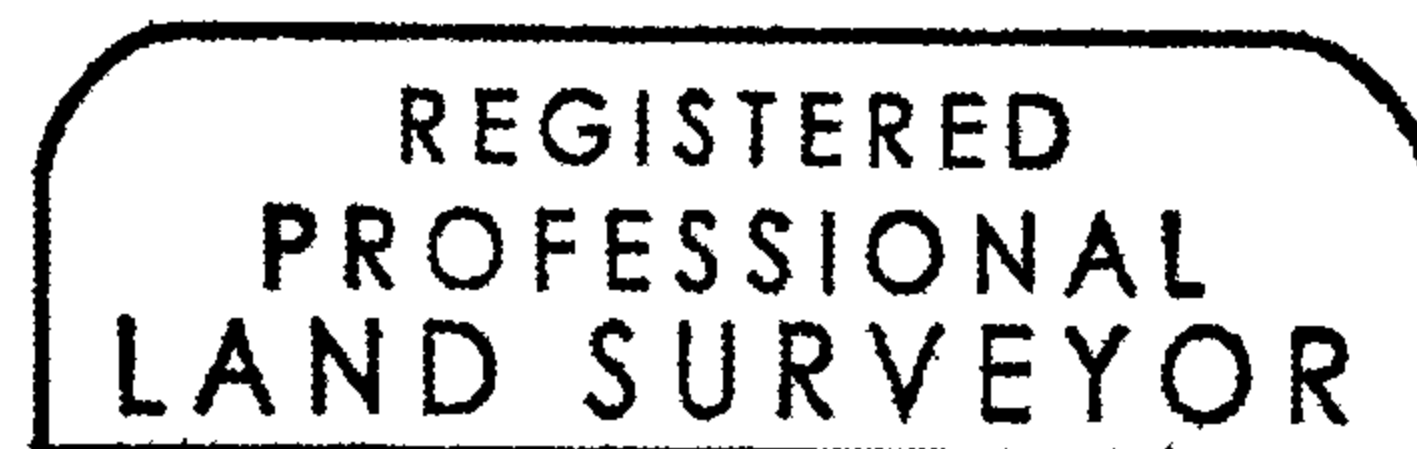
EXPIRES: 12-31-2011

T31SR6W S22-27

Datasource: C:\Documents and Settings\All Users\WINDOWS\Application Data\blue marble geographics\blue marble desktop\datasource\geodata.xml

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Geodetic latitude	42.511870406N	
Geodetic longitude	123.235004633W	
Height	2105.910	
Northing		129469.0325
Easting		114097.1254
Height		2105.910
Base latitude	42.855195572222229	42.85519557224152
Base longitude	-123.39723509166667	-123.39723509150019
Convergence	00.000000	-00.023647
Scale Factor	00.000000000000000	01.000070335477285
Orthometric Height Scale	00.999899164441959	00.999899164441959
Coordinate System	NAD83(NSRS2007)	OCRS Canyonville-Grants Pass
Datum	NAD83 (National Spatial Reference System 2007)	NAD83 (National Spatial Reference System 2007)
Datum Transformation		
Units	Degree	International Foot
Format	DD.MMSS	X.
Vertical Reference	NAVD88 via Geoid03	NAVD88 via Geoid03
Vertical Datum	North American Vertical Datum of 1988	North American Vertical Datum of 1988
Height Model	US Geoid Model of 2003	US Geoid Model of 2003
Vertical Units	International Foot	International Foot

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 Website: www.blumarblegeo.com Sales: geoinfo@blumarblegeo.com Support: geohelp@blumarblegeo.com



*Stephan Barott*



Expires: 12-31-2011